



DEPARTMENT OF AGRICULTURE & FARMERS WELFARE
MINISTRY OF AGRICULTURE & FARMERS WELFARE

ANNUAL REPORT- 2021-22



GOVERNMENT OF INDIA



सत्यमेव जयते

ANNUAL REPORT

2021-22

Department of Agriculture & Farmers Welfare
Ministry of Agriculture & Farmers Welfare
Government of India
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www.agricoop.nic.in

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1.1 Agriculture plays a vital role in India's economy. 54.6 of the total workforce is engaged in agriculture and allied sector activities (Census 2011) and accounts for 18.8% (First Advance Estimates) of country's Gross Value Added (GVA) for the year 2021-22 (at current prices). Given the importance of the agriculture sector, Government of India has taken several steps for its development in a sustainable manner. Steps have been taken to improve the income of farmers.

1.2 Land Use Statistics

As per the Land Use Statistics 2018-19, the total geographical area of the country is 328.7 million hectares, of which 139.3 million hectares is the reported net sown area and 197.3 million hectares is the gross cropped area with a cropping intensity of 141.6%. The net area sown works out to be 42.4% of the total geographical area. The net irrigated area is 71.6 million hectares. The details of important parameters of Land Use Statistics for the year 2018-19 are given in the table below.

Details of important parameters of Land Use Statistics for the year 2018-19		
		(thousand hectares)
A) Classification of land		
	Reporting area for land utilisation statistics (1 to 9)	307787
1	Forests	72011
2	Area put to non-agricultural uses	27344
3	Barren & unculturable land	17168
4	Permanent pastures & other grazing lands	10376
5	Culturable Wasteland	12219
6	Land under Misc. tree Crops	3154
7	Fallow Land Other than Current Fallows	11633
8	Current Fallow	14531
9	Net Area Sown	139351
	Agricultural Land (5+6+7+8+9)	180888
	Cultivated Land (8+9)	153882
	Cropping Intensity (% of Total cropped Area over Net Area Sown)	141.6
B) Irrigated Area		
1	Government Canals	16264
2	Private Canals	165
3	Total Canals (1+2)	16429

4	Tanks	1668
5	Tubewells	34708
6	Other wells	11042
7	Other Sources	7707
	Net Irrigated Area (3+4+5+6+7)	71554
	Gross Irrigated Area	102667
	% of Gross Irrigated Area over Gross Cropped Area	52.03
	% of Net Irrigated Area over Net Area Sown	51.35
C) Area under crops		
	Total Foodgrains	126952
	Total Cereals & Millets	99323
	Rice	45416
	Wheat	31588
	Total Pulses	27629
	Total Condiments and Spices	3973
	Total Fruits & Vegetables	11303
	Total Food Crops	148078
	Total Oilseeds	27453
	Sugarcane	5540
	Cotton	9287
	Total non food crops	49242
	Total Cropped Area	197320

Soure: Directorate of Economics & Statistics, DA&FW

Table-1 Gross Value Added (GVA) of Agriculture & Allied Sector

As per the First Advance Estimates of National Income, 2021-22 released by National Statistical Office (NSO), Ministry of Statistics & Programme

Implementation, the agriculture and allied sectors contributed approximately 18.8 % of India's GVA at current prices during 2021-22. GVA of agriculture and allied sectors and its share in total GVA of the country at current prices during the last 6 years is as follows:

(Rs. In Crore)

Items	Years					2021-22**
	2016-17	2017-18\$	2018-19#	2019-20@	2020-21*	
GVA of Agriculture and Allied Sectors	2518662	2829826	3016277	3394033	3616523	3945411

Per cent to total GVA	18.0	18.3	17.6	18.4	20.2	18.8
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Source: National Statistical Office, MoSPI

Note: \$ Third Revised Estimates, # Second Revised Estimate, @ First Revised Estimates,

* As per Provisional Estimates of 2021

**As per First Advance Estimates of National Income, 2021-22 released on 7th, Jan 2022

Table-2 GROWTH IN GVA OF AGRICULTURE AND ALLIED SECTORS of the Economy and that in the GVA of agriculture and allied sectors at 2011-12 basic prices is given below:

Growth (over the previous year) in the total GVA

(in percent)

Year	Total Economy	Agriculture & Allied Sector	Crops	Livestock	Forestry & Logging	Fishing
2016-17	8.0	6.8	5.3	10.0	5.5	10.4
2017-18\$	6.2	6.6	5.4	7.9	5.4	15.2
2018-19 #	5.9	2.6	-1.6	8.5	7.9	9.0
2019-20@	4.1	4.3	4.0	7.0	0.3	1.0
2020-21*	-6.2	3.6	Will be released on 31st January, 2022			
2021-22**	8.6	3.9	Will be released in January, 2023			

Source: National Statistical Office, MoSPI

Note: \$ Third Revised Estimates, # Second Revised Estimate, @ First Revised Estimates,

* As per Provisional Estimates of 2021

**As per First Advance Estimates of National Income, 2021-22 released on 7th, Jan 2022

1.3 Capital Formation in Agriculture and Allied Sectors

Gross Capital Formation (GCF) in agriculture and allied sectors relative to GVA in this sector has been showing a fluctuating trend from 14.7

per cent in 2015-16 to 15.9 per cent in 2019-20. The percentage share of GCF of agriculture & allied sector to GVA of Agriculture & Allied Sector from 2015-16 to 2019-20 at 2011-12 basic prices is given in table below:

Table 3: Gross Capital Formation (GCF) in Agriculture and Allied Sectors relative to Gross Value Added (GVA) at 2011-12 basic prices

Year	GCF of Agriculture & Allied Sector (Rs. In Crore)	GVA of Agriculture & Allied Sector (Rs. In Crore)	GCF of Agriculture & Allied Sector as percentage of GVA of Agriculture & Allied Sector (in %)
2015-16	237648	1616146	14.7
2016-17	267153	1726004	15.5
2017-18	272321	1840023	14.8
2018-19	294095	1887145	15.6
2019-20	312518	1968571	15.9

Source: National Statistical Office, Ministry of Statistics and Programme Implementation, released on 29th January, 2021

*: Third Revised Estimates; #: Second Revised Estimates; @: First Revised Estimates

New Initiative

Development of Real Time Crop forecasting (RTCF) system has been initiated. Under the project, an integrated portal is proposed to be developed by integrating the diversity of data sets and methodologies or harmonizing various divisions/ organizations with the use of advance digital technology. Monthly Crop Forecasts are proposed to be released from the data collected through the portal. A Task Force has been constituted under the Co-chairmanship of ADG (Statistics), DA&FW & Sr.ESA, DES for development of the system in a time-bound manner.

1.4 Rainfall 2021-22

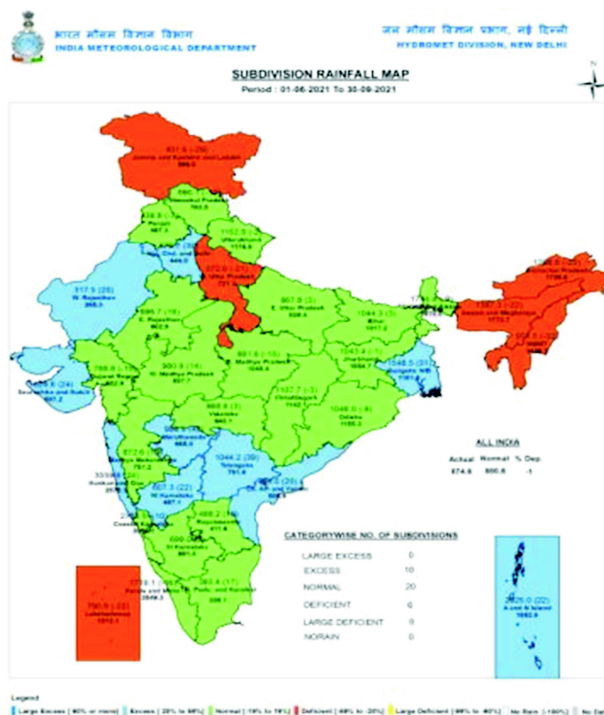
Monsoon Rainfall (June – September)

The **cumulative rainfall** in the country during the monsoon season i.e. 01st June to 30th September, 2021 has been **lower by 1%** than the Long Period Average (LPA). Rainfall in the four broad geographical divisions of the country during the above period has been higher than LPA by 11% in South Peninsula, by 4% in Central India but lower than LPA by 12% in East & North East India and by 4% in North-West India. Out of 36 meteorological sub-divisions, 10 met subdivisions in the country had received large excess/excess rainfall, 20 met subdivisions received normal rainfall and 6 met subdivisions received deficient rainfall. Out of 694 districts for which rainfall data available, 37(5%) districts received large excess rainfall, 139(20%) districts received excess rainfall, 357(52%) districts received normal rainfall, 153(22%) districts received deficient rainfall and 8(1%) districts received large deficient rainfall.

Post-Monsoon (October - December)

During the post-monsoon season (1st October to 10th November, 2021) country received rainfall which was **29% higher** than the LPA. Out of 36 meteorological subdivisions, 22 received large

excess/excess rainfall, 7 received normal rainfall and 7 met subdivisions received deficient/large deficient rainfall.



1.5 Production Scenario 2020-21

As per Fourth Advance Estimates for 2020-21, total Foodgrain production in the country is estimated at record 308.65 million tonnes which is higher by 11.14 million tonnes than the production of foodgrain during 2019-20. Further, the production during 2020-21 is higher by 29.77 million tonnes than the previous five years' (2015-16 to 2019-20) average production of foodgrain. Total production of Rice during 2020-21 is estimated at record 122.27 million tonnes. It is higher by 9.83 million tonnes than the last five years' average production of 112.44 million tonnes. Production of Wheat during 2020-21 is estimated at record 109.52 million tonnes. It is higher by 9.10 million tonnes than the average wheat production of 100.42 million tonnes.

Total Pulses production during 2020-21 is estimated at 25.72 million tonnes which is

higher by 3.73 million tonnes than the last five years' average production of 21.99 million tonnes. Total Oilseeds production in the country during 2020-21 is estimated at record 36.10 million tonnes which is higher by 2.88 million tonnes than the production during 2019-20. Further, the production of oilseeds during 2020-21 is higher by 5.56 million tonnes than the average oilseeds production of 30.55 million tonnes.

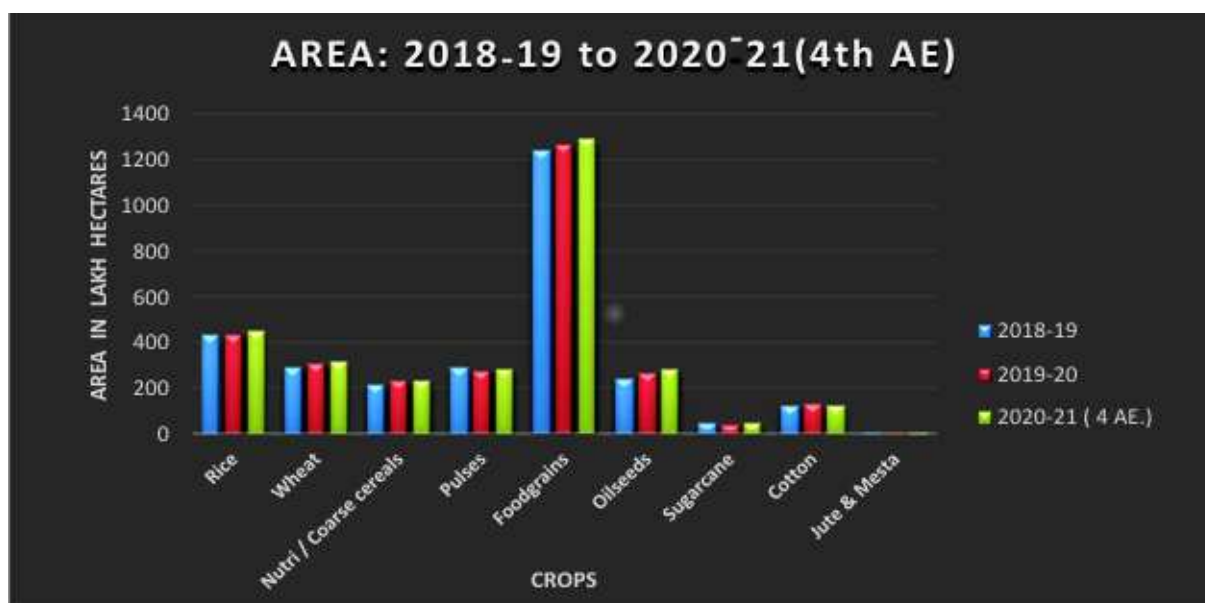
Total production of Sugarcane in the country during 2020-21 is estimated at 399.25 million tonnes. The production of sugarcane during 2020-21 is higher by 37.18 million tonnes than the average sugarcane production of 362.07 million tonnes. Production of Cotton is estimated at 35.38 million bales (of 170 kg each) is higher by 3.49 million bales than the average cotton production. Production of Jute & Mesta is estimated at 9.56 million bales (of 180 kg each).

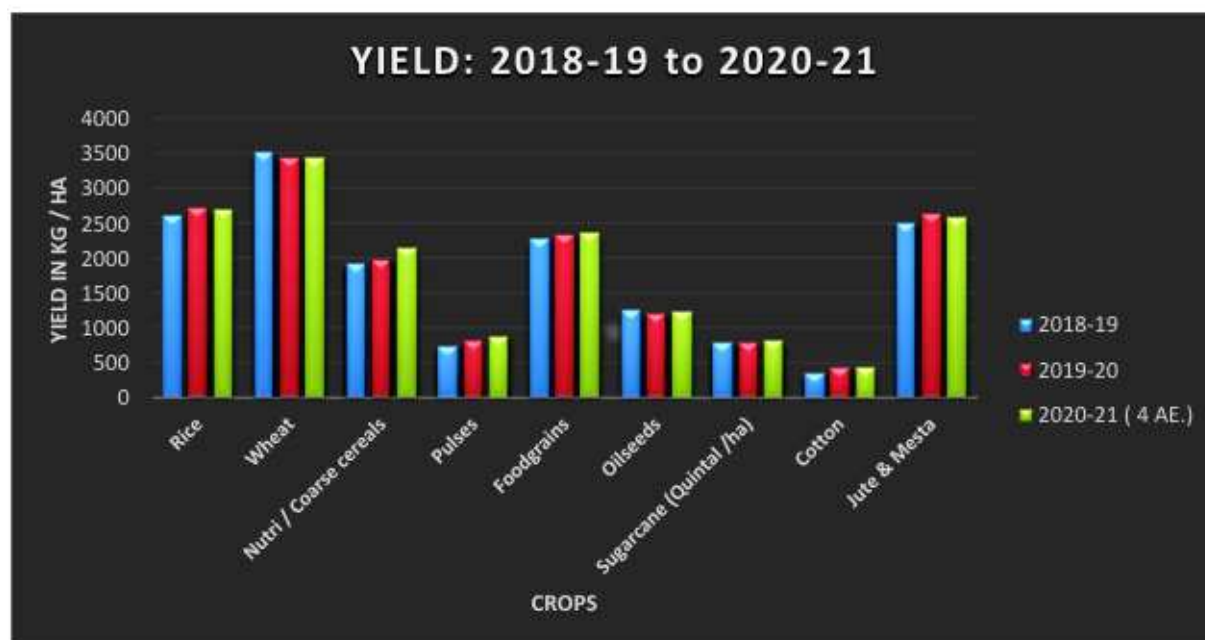
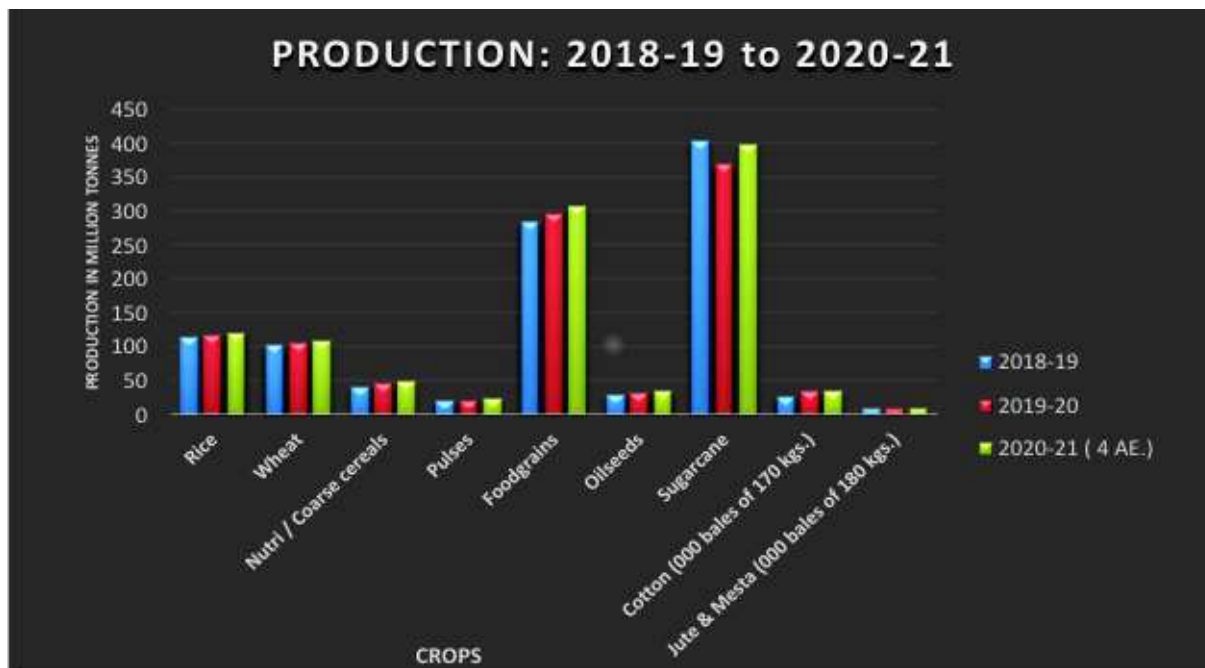
Table 4: Area, production and yield of major Crops

Crops	Area (Lakh hectare)			Production (Million Tonnes)			Yield (kg/hectare)		
	2018-19	2019-20	2020-21*	2018-19	2019-20	2020-21*	2018-19	2019-20	2020-21*
Rice	441.56	436.62	450.67	116.48	118.87	122.27	2638	2722	2713
Wheat	293.19	313.57	316.15	103.60	107.86	109.52	3533	3440	3464
Nutri / Coarse cereals	221.46	239.88	238.28	43.06	47.75	51.15	1944	1991	2146
Pulses	291.56	279.87	288.33	22.08	23.03	25.72	757	823	892
Foodgrains	1247.77	1269.95	1293.43	285.21	297.50	308.65	2286	2343	2386
Oilseeds	247.94	271.39	287.88	31.52	33.22	36.10	1271	1224	1254
Sugarcane	50.61	46.03	48.57	405.42	370.50	399.25	80105	80497	82205
Cotton@	126.14	134.77	130.07	28.04	36.07	35.38	378	455	462
Jute & Mesta#	7.05	6.73	6.63	9.82	9.88	9.56	2508	2641	2595

* 4th advance estimates @ Production in million bales of 170 kg each

Production in million bales 180 Kg. each.





1.6 Production Scenario during Kharif 2021-22 (as per First Advance Estimates)

The cumulative rainfall during this year's southwest monsoon season upto 15th September, 2021 has been 4% lower than Long Period Average (LPA). The production of most of the crops for the agricultural year 2021-22 has been estimated higher or closer to their normal production.

The total area coverage under kharif foodgrains during 2021-22 is estimated at 714.41 lakh hectares (as per 1st Advance Estimates). The area coverage under nutri / coarse cereals is estimated at 167.76 lakh hectares and under pulses it is estimated at 135.19 lakh hectares. The area under kharif oilseeds during 2021-22 (as per 1st Advance Estimates) is estimated at 194.19 lakh hectares.

A comparative position of production of food grains, oilseeds, sugarcane and cotton during 2021-22 vis-à-vis Normal Average (2015-16 to 2019-20) is given below:

Table 5: Production in Kharif 2020-21 and Average (2015-16 to 2019-20)

(Million Tonnes)

Crop	2021-22 (1 st Advance Estimates)	Average (2015- 16 to 2019-20)	Absolute Difference (2021-22 over average)	Percentage Increase/decrease (+)/(-) in 2021 over average
Foodgrains	150.50	137.79	12.71	9.22
Oilseeds	23.39	20.42	2.96	14.50
Sugarcane	419.25	362.07	57.18	15.79
Cotton@	36.22	31.90	4.32	13.54
Jute & Mesta*	9.61	10.24	-0.63	-6.15

@ Production in million bales of 170 kg each. * Production in million bales of 180 kg each

As per First Advance Estimates for 2021-22 (Kharif Only), total foodgrain production in the country is estimated at record 150.50 million tonnes which is higher by 12.71 million tonnes than the average foodgrain production of previous five years' (2015-16 to 2019-20).

Total production of kharif rice during 2021-22 is estimated at 107.04 million tonnes. It is higher by 9.21 million tonnes than the previous five years' (2015-16 to 2019-20) average Kharif rice production of 97.83 million tonnes. Production of Kharif nutri /coarse cereals is estimated at 34.00 million tonnes which is higher by 2.11 million tonnes than the average production of 31.89 million tonnes. Total kharif pulses production during 2021-22 is estimated at 9.45 million tonnes. It is higher by 1.39 million tonnes than average pulses production of 8.06 million tonnes.

Total kharif oilseeds production in the country during 2021-22 is estimated at 23.39 million tonnes which is higher by 2.96 million tonnes than the average oilseeds production of 20.42 million tonnes. Total production of sugarcane in the country during 2021-22 is estimated at 419.25 million tonnes. The production of sugarcane during 2021-22 is higher by 57.18

million tonnes than the average sugarcane production of 362.07 million tonnes. Production of cotton estimated at 36.22 million bales (of 170 kg each) and production of Jute & Mesta estimated at 9.61 million bales (of 180 kg each).

1.7 Minimum Support Price

The Government's price policy for major agricultural commodities seeks to ensure remunerative prices to the growers for their produce with a view to encouraging higher investment and production and to safeguard the interest of consumers by making available supplies at reasonable prices. Towards this end, Government announces Minimum Support Prices (MSPs) for twenty two (22) mandated crops and Fair and Remunerative Prices (FRP) for sugarcane at all India level **based on the** recommendations of the Commission for Agricultural Costs & Prices (CACP) after considering the views of concerned State Governments and Central Ministries/ Departments. The 22 mandated crops include 14 Kharif crops viz. paddy, jowar, bajra, maize, ragi, tur (arhar), moong, urad, groundnut, soybean (yellow), sunflower seed, sesamum, nigerseed, cotton and 6 Rabi crops viz. wheat, barley, gram, masur (lentil), rapeseed & mustard,

safflower and two commercial crops viz. jute and copra. In addition to that, MSP for toria and de-husked coconut are also fixed on the basis of MSPs of rapeseed & mustard and copra respectively.

While recommending MSPs, CACP considers important factors like cost of production, overall demand-supply situation of various crops in domestic and world markets, domestic and international prices, inter-crop price parity, terms of trade between agricultural and non-agricultural sector, likely effect of price policy on rest of the economy and a minimum of 50 percent as the margin over cost of production.

The Union Budget for 2018-19 had announced the pre-determined principle to keep MSPs at levels of one and half times of the cost of production. Accordingly, Government had increased MSPs for all mandated Kharif, Rabi and other Commercial crops with a return of 1.5 times over all India weighted average cost of production from year 2018-19 onwards.

On the basis of above mentioned principle, Government had increased the MSPs for all mandated Kharif and Rabi crops for 2021-22 crop season on **9th June, 2021 and 8th September, 2021**. The highest absolute increase in MSP of Kharif crops over the previous year has

been recommended for sesamum (Rs. 452 per quintal) followed by tur and urad (Rs. 300 per quintal each). In case of groundnut and nigerseed, there has been an increase of Rs 275 per quintal and Rs 235 per quintal respectively in comparison to last year. The expected returns to farmers over their cost of production are estimated to be highest in case of bajra (85%) followed by urad (65%) and tur (62%). For rest of the crops, return to farmers over their cost of production is estimated to be at least 50%.

The highest absolute increase in MSP of Rabi crops has been announced for lentil and rapeseed/mustard (Rs. 400 per quintal each) followed by gram (Rs. 130 per quintal) and safflower (Rs. 114 per quintal). For barley and wheat, an increase of Rs. 35 per quintal and Rs 40 per quintal respectively has been announced. The expected return to farmers over their cost of production is estimated to be highest in case of Wheat (100%) and rapeseed/mustard (100%), followed by lentil (79%) and gram (74%), barley (60%) and safflower (50%).

Table showing Costs, MSPs and percent return over cost for the year 2020-21 and 2021-22 is given as below:

Cost, *MSP and percentage return over cost
(Rs. Per Quintal)

Sl. No.	Commodity	2020-21			2021-22		
	KHARIF CROPS	Cost*	MSP	% Return over Cost	Cost*	MSP	% Return over Cost
1	PADDY(Common)	1245	1868	50	1293	1940	50
	(Grade A) ^		1888			1960	
2	JOWAR (Hybrid)	1746	2620	50	1825	2738	50
	(Maldandi) ^		2640			2758	
3	BAJRA	1175	2150	83	1213	2250	85
4	RAGI	2194	3295	50	2251	3377	50
5	MAIZE	1213	1850	53	1246	1870	50

6	ARHAR(Tur)	3796	6000	58	3886	6300	62
7	MOONG	4797	7196	50	4850	7275	50
8	URAD	3660	6000	64	3816	6300	65
9	COTTON (Medium Staple)	3676	5515	50	3817	5726	50
	(Long Staple) ^		5825			6025	
10	GROUNDNUT IN SHELL	3515	5275	50	3699	5550	50
11	SUNFLOWER SEED	3921	5885	50	4010	6015	50
12	SOYABEAN (yellow)	2587	3880	50	2633	3950	50
13	SESAMUM	4570	6855	50	4871	7307	50
14	NIGERSEED	4462	6695	50	4620	6930	50
	<u>RABI CROPS</u>						
1	WHEAT	960	1975	106	1008	2015	100
2	BARLEY	971	1600	65	1019	1635	60
3	GRAM	2866	5100	78	3004	5230	74
4	MASUR (LENTIL)	2864	5100	78	3079	5500	79
5	RAPESEED/MUSTARD	2415	4650	93	2523	5050	100
6	SAFFLOWER	3551	5327	50	3627	5441	50

* Refers to cost of Production A2+FL which includes all paid out costs such as those incurred on account of hired human labour, bullock labour/machine labour, rent paid for leased in land, expenses incurred on use of material inputs like seeds, fertilizers, manures, irrigation charges, depreciation on implements and farm buildings, interest on working capital, diesel/electricity for operation of pump sets etc., miscellaneous expenses and imputed value of family labour.

^ Cost data are not available for Paddy (Grade A), Jowar (Maldandi) and Cotton (Long staple).

1.8 Doubling of Farmers' Income (DFI): Government constituted an Inter-ministerial Committee in April, 2016 to examine issues relating to "Doubling of Farmers Income" and recommend strategies to achieve the same. The Committee submitted its Report to the

Government in September, 2018 and thereafter, an Empowered Body was set up on 23.01.2019 to monitor and review the progress as per these recommendations. To achieve this, the Committee has identified seven sources of income growth viz., improvement in crop productivity; improvement in livestock productivity; resource use efficiency or savings in the cost of production; increase in the cropping intensity; diversification towards high value crops; improvement in real prices received by farmers; and shift from farm to non-farm occupations.

The efforts of the Government of India are to supplement the efforts of the State Governments through various schemes/ programmes and initiatives. These schemes/ programmes of the Government of India are meant for the welfare of farmers by increasing production, remunerative

returns and augmentation of farmers' income. The Government has adopted several developmental programmes, schemes, reforms and policies that focus on higher incomes for farmers. All these policies & programmes are being supported by higher budgetary allocations (from Rs. 21,933.50 crore during BE 2013-14 to Rs. 1,23,017.57 crore during BE 2021-22), non-budgetary financial resources by way of creating Corpus Funds and supplementary income transfers under PM-KISAN. MSP is being fixed at a predetermined principle to keep it at the level of one and half times of the cost of production. Government has increased MSPs for all mandated Kharif, Rabi and other Commercial crops with a return of atleast 50% over all India weighted average cost of production.

Besides, the latest major interventions include the 'AtmaNirbhar Bharat – Agriculture' which includes creation of 'Agricultural Infrastructure Fund (AIF)' worth Rs. 1 lakh crores including Rs 500 crores for the Bee-Keeping initiative. In addition to this several market reforms have been rolled out. These include:

- a. Model APLMC (Promotion & Facilitation) Act, 2017
- b. Establishment of 22,000 number of Gramin Agriculture Markets (GrAMs) as aggregation platforms
- c. Agri-Export Policy, that targets to double agri-exports by 2022
- d. Promotion of 10,000 FPOs by 2024

The Government also created Corpus Funds for the benefit of farmers such as:

- a. Micro Irrigation Fund – Rs. 5,000 crores
- b. Agri-Marketing Fund to strengthen eNAM and GrAMs – Rs. 2,000 crores

1.9 Atmanirbhar Bharat Abhiyaan (ABA) is the vision of new India announced by the Hon'ble Prime Minister Shri Narendra Modi on

May 12, 2020. In agriculture, ABA aims to strengthen Infrastructure, Logistics, Capacity Building etc. The components of the ABA for DA&FW are as follows –

1.9.1. Agriculture Infrastructure Fund (AIF)

- Central Sector Scheme of financing facility under Agri Infrastructure Fund is operational from the year 2020--21 to 2032-33. The aim is creation of infrastructure at the farm gate. The scheme shall provide a medium - long term debt financing facility for investment in viable projects for post-harvest management Infrastructure and community farming assets through interest subvention and financial support. Under the scheme, Rs. 1 Lakh Crore will be provided by banks and financial institutions as loans to Primary Agricultural Credit Societies (PACS), Marketing Cooperative Societies, Farmer Producers Organizations (FPOs), Self Help Group (SHG), Farmers, Joint Liability Groups (JLG), Multipurpose Cooperative Societies, Agri-entrepreneurs, Startups and Central/State agency or Local Body sponsored Public Private Partnership Project, Agriculture Produce Market Committees (APMCs) (APMCs operated regulated markets for agri allied sector produce including fisheries), State Agencies, National and State level Federations of Cooperatives, Federations of FPOs and Federations of Self Help Groups (SHGs), etc.

All loans under this financing facility will have interest subvention of 3% per annum up to a limit of Rs. 2 crore. This subvention will be available for a maximum period of 7 years. Further, credit guarantee coverage will be available for eligible borrowers from this financing facility under Credit Guarantee Fund Trust for Micro and Small Enterprises (CGTMSE) scheme for a loan up to Rs. 2 crore. The fee for this coverage will be paid by Government.

The cap on lending rate of participation lending entities will be 06 monthly MCLR plus 100 Basis Point (floating) subject to maximum 9.00

percent (Nine Percent per annum) for funding under this scheme. This cap will be applicable on the amount of loan covered under interest subvention component.

1.9.2 The National Beekeeping and Honey Mission (NBHM) - Govt. of India has approved a Central Sector this Scheme with total budget outlay of Rs. 500.00 crores for 3 years(2020-21 to 2022-23) under Aatma Nirbhar Bharat Announcement for overall promotion and development of scientific beekeeping and to achieve the goal of “**Sweet Revolution**” in the country by implementing 3 Mini Missions (MMs)-MM-I, MM-II & MM-III under which thrust will be given on awareness, capacity building/ trainings, focus on women empowerment through beekeeping, setting up of requisite infrastructural facilities, viz.; Integrated Beekeeping Development Centres (IBDCs), Honeybees Disease Diagnostic Labs, Setting/ upgradation of Honey Testing labs, Beekeeping Equipment Manufacturing Units, Custom Hiring Centres, Api therapy Centres, Development of Quality Nucleus Stock Centres & Bee Breeders, etc., Digitization/online registration, etc. under MM-I, processing, value addition, market support, etc. under MM-II and R&D under MM-III. An amount of Rs. 145.00 crores has been allotted under NBHM, for the year 2021-22.

1.10 Agriculture Credit

Government announces annual target for

agriculture credit in the budget every year. Agricultural credit flow has shown consistent progress every year. The agriculture credit flow target for the year 2020-21 was fixed at Rs. 15,00,000 crore and against this target the achievement was Rs.15,75,398 crore. The agriculture credit flow target for 2021-22 has been fixed at Rs.16,50,000 crore and till 30th September, 2021 against this target a sum of Rs.7,36,589.05 crore has been disbursed.

1.11 Interest Subvention Scheme (ISS)

The Department implements the Interest Subvention Scheme with a view to provide short term Agril-loans to the farmer at concessional rate of interest. Under the scheme, short term crop loans upto Rs.3.00 lakh is available to farmer engaged in Agriculture and other allied activities at benchmark rate. Additional 3% subvention is also given to the farmers for prompt and timely repayment of loans; thus the effective rate of interest comes down to 4% per annum.

1.12 Kisan Credit Card (KCC)

The Kisan Credit Card (KCC) Scheme was introduced for issue of Kisan Credit Cards to farmers on the basis of their holdings for uniform adoption by the banks so that farmers may use them to readily purchase agriculture inputs such as seeds, fertilizers, pesticides etc. and draw cash for their production needs.

2.1 Structure: The Department of Agriculture & Farmers Welfare (DA&FW) is one of the two constituent Departments of the Ministry of Agriculture & Farmers Welfare, and Department of Agricultural Research and Education (DARE). A separate Ministry namely, Ministry of Cooperation, has been created from erstwhile Department of Agriculture, Cooperation & Farmers Welfare vide Cabinet Secretariat's notification no. 2516 dated 06.07.2021 for development of Multi-state Cooperatives and providing them adequate support. Department of Agriculture & Farmers Welfare is headed by Agriculture & Farmers Welfare Minister and is assisted by two Ministers of State. The Secretary (A&FW) is the administrative head of the Department. The Secretary is assisted by two Additional Secretaries including one Financial Adviser, 12 Joint Secretaries including Mission Director (Mission on Integrated Development of Horticulture) & Mission Director (National Mission on Sustainable Agriculture), Horticulture Commissioner, Trade Advisor, Horticulture Statistics Advisor, Addl. Deputy Director General and Deputy Director General. In addition, Chairman of Commission for Agriculture Costs and Prices (CACP) advises Department on pricing policies for selected agricultural crops.

2.2 The DA&FW is organized into 28 divisions (**Annexure-2.1**) and has five attached offices and twenty-one subordinate offices (**Annexure-2.2**) which are spread across the country for coordination with state level agencies and implementation of Central Sector Schemes in their respective fields. Further, one Public Sector Undertaking, seven autonomous bodies, and two authorities (**Annexure-2.3**) are functioning under the administrative control of Department

2.3 Administrative Vigilance Unit (AVU) functions in the Department under a Joint Secretary, designated as Chief Vigilance Officer, to ensure a transparent clean and corruption free work environment through surveillance, preventive and punitive measures.

2.4 Administrative Vigilance Unit under the leadership of JS&CVO, is regularly monitoring all the pending complaints/ Regular Disciplinary Action cases in this Department and in attached, subordinate and autonomous organizations by way of regular review meetings and monthly reports. 52 new cases were received during the year. 42 cases were finalized during 2021. Further, 12 public grievance cases have been addressed/ finalized. 14 RTI cases were processed within the prescribed time limit. 03 part time Vigilance Officers were appointed during the year.

2.5 Identification of sensitive posts in the DA&FW has also been undertaken to enable periodical rotation of staff posted in sensitive posts. A List of Officers of Doubtful Integrity and the Agreed List in consultation with CBI was also finalized.

2.6 As per direction of CVC, Vigilance Awareness Week, 2021 was observed from 26th October to 1st November, 2021 in the Department. The theme of the week was "**Independent India @75: Self Reliance with Integrity**".

2.7 A Public Grievance Cell has been set up and is fully functional in the Department of Agriculture & Farmers Welfare under the Joint Secretary (O&M/PG) who acts as Nodal Appellate Authority of the Department and Deputy Secretary has been nominated as nodal officer for monitoring redressal of public

grievances received in the Department at Headquarters. One Deputy Secretary has been nominated as Staff Grievance Officer to deal with grievances of the employees working in the Department of Agriculture & Farmers Welfare for this purpose. Similar arrangements have been made at the level of all Attached and Subordinate Offices and all organizations under the administrative control of this Department in order to ensure expeditious redressal of grievances. During the year 2021-22 (from 01.04.2021 to 31.12.2021) 17345 public grievance petitions/suggestions have been received through CPGRAMS portal and 8346 cases were carried forward from previous year, out of 25691 total cases, 25326 cases have been disposed of and 365 cases were pending in this Department as on 31st December, 2021.

2.8 Citizens'/Clients' Charter of this Department has been prepared as per the instructions/guidelines of Cabinet Secretariat and Department of Administrative Reforms and Public Grievances. The Citizens'/Clients' Charter is available on the website of the Department (www.agricoop.nic.in).

2.9 Implementation of the Right to Information Act, 2005: During year 2021-22 (as on 31.12.2021). 4912 physical & online RTI applications and 326 appeals seeking information under the Right to Information Act, 2005 were received in RTI Cell and replies were sent to the applicants in time.

2.10 Information and Facilitation Counter: This counter provides information in respect of Department of Agriculture and Farmers Welfare. During year 2021-22, various visitors from NGOs as well as general public visited the counter to obtain information. Numerous telephonic calls were also received in RTI Cell from general public to obtain information pertaining to DA&FW, Ministry of Agriculture and Farmers Welfare.

2.11 Progressive Use of Hindi: The Department has an Official Language

Implementation Committee (OLIC), chaired by the Joint Secretary (Administration), to monitor the implementation of the Official Language Policy of the Union and progressive use of Hindi in the official work of the Department. During the year under report, quarterly meetings of the Official Language Implementation Committee were held regularly.

2.12 The Hindi Division continued to review the position of the progressive use of Hindi in the Department and subordinate offices regularly, through quarterly progress reports and inspections. Besides, officers of the Hindi Division also participated in the meetings of the Official Language Implementation Committees of the Attached and Subordinate offices, etc., and extended necessary guidance to them in the implementation of Official Language Act and Rules. In addition to this, 18 offices under the control of this Department, wherein 80 per cent of the officers and employees have acquired working knowledge of Hindi, were notified in the Gazette of India under Rule 10 (4) of the Official Language Rules, 1976.

2.13 Every year, the Department nominates clerks and stenographers for training in Hindi shorthand and typing, under the Hindi teaching Scheme of the Department of Official Language. Five entries have been received under the incentive scheme for noting/ drafting done originally in Hindi.

2.14 With a view to create awareness regarding the progressive use of Hindi in the official work of the Department, a Hindi Fortnight was held from the 14th-28th September, 2021. On this occasion, the Hon'ble Agriculture and Farmers Welfare Minister issued an appeal to all officers and staff of the Department of Agriculture and Farmers' Welfare to carry out more official work in Hindi. During the Hindi Fortnight, various Hindi Competitions such as essay writing, noting and drafting Hindi spelling and grammar Knowledge, Hindi dictation for MTS, and official

language and General Knowledge were organized and interested officers and employees participated in these competitions. Cash awards and certificates of appreciation were given to the winners of these competitions.

2.15 The Second Sub-Committee of the Committee of Parliament on Official Language conducted inspection of 01 office under the control of the Department of Agriculture and Farmers Welfare to review the position regarding the progressive use of Hindi in official work during the year. The officers of this Department were also present in these inspection meetings. In addition to this, 18 subordinate/attached offices have been inspected by the officers of the Hindi Division of the Department of Agriculture and Farmers Welfare. Besides, Hindi Advisory Committee of Department of Agriculture & Farmers Welfare

has been reconstituted on 07.10.2020 and after that a meeting has been organized on 05.01.2021 under the Chairmanship of Hon'ble Agriculture Minister.

2.16 Reservation for Scheduled Castes/ Scheduled Tribes /Other Backward Castes: Department of Agriculture & Farmers Welfare continued its endeavour for strict implementation of the orders issued by the Government of India from time to time, regarding reservation in services for SCs, STs, OBCs, minorities, ex-servicemen and physically disabled persons.

2.17 Prevention of Harassment of Women Employees: An Internal Complaints Committee regarding prevention of sexual harassment of women at their work place has been constituted by the Department. This Committee is chaired by a senior lady officer of the Department.

Overview

3.1 Directorate of Economics & Statistics (DES), an attached office of DA&FW, is mandated to support work of the Ministry of Agriculture & Farmers Welfare through quality data and analysis towards appropriate policy formulation and execution of schemes in the interest of farmers and consumers. The Directorate is mandated to build and maintain a strong data base in partnership with the States on area, production, yield of principal crops and cote of production of mandated crops to arrive at Minimum Support Price. DES collects price data through its regional offices and regularly analyses the same to identify trigger points for policy intervention towards stable food prices. DES is the knowledge bank of the Ministry that places a large volume of data and information in the public domain for multiple stakeholders and carries out agro-economic research / studies in the field of agriculture. In addition, the Directorate coordinates with international bodies such as the Food and Agriculture Organization (FAO) on global effort to improve agricultural statistics. It is responsible for providing necessary data of the National Statistical Office (NSO) for GDP compilation and also meets international obligation related to standards of data dissemination.

3.2 Major Programmes/Activities

3.2.1 Agricultural Statistics Division

The Directorate of Economics & Statistics (DES), under Department of Agriculture and Farmers' Welfare, releases four Advance Estimates (AEs) followed by Final Estimates of production of major agricultural crops of the country. Each of

these five estimates is available state-wise and at the national level for 28 major agricultural crops including rice, wheat, coarse cereals, pulses, oilseeds, sugarcane and Jute & Mesta. The First Advance Estimates covering only kharif crops are released in September, when kharif sowing is generally over. The Second Advance Estimates are normally released in February, the following year when rabi sowing is also over. The Second Advance Estimates cover kharif as well as rabi crops. The Third Advance Estimates incorporate revised data on area coverage for rabi crops and better yield estimates of kharif crops. These are released in April-May. The Fourth Advance Estimates are released in July-August. By this time fully firmed up data on area as well as yield of kharif crops and rabi crops are expected to be available with the states. Final Estimates are released after about seven months of the release of Fourth Advance Estimates i.e. in February of the following year. This allows sufficient time to State Governments to take into account even delayed information while finalizing area and yield estimates of various crops. While finalizing all-India level estimates, the crop-wise data on area, production and yield received from State Governments are thoroughly scrutinized and validated on the basis of information from alternative sources such as remote sensing technology based forecast from the Mahalanobis National Crop Forecast Centre (MNCFC), econometric modeling based crop forecast provided by the Institute of Economic Growth (IEG), inputs received from the weekly Crop Weather Watch Group (CWWG) meetings, trends in area, production and yield of crops during the last 5 years, rainfall conditions and trends in procurement and prices of respective commodities.

3.2.2 Cost Study Division:

The Cost Study Division is mainly responsible for implementation and monitoring of Comprehensive Scheme for Studying the Cost of Cultivation of Principal Crops in India and other issues relating to this scheme including answering parliament questions, generating cost of cultivation and production estimates and providing to CACP for the purpose of arriving at the recommendations of the Minimum Support Prices (MSP) etc. Cost of cultivation surveys are an important data source for decision making on sectors of national importance. There are very intensive surveys wherein data are collected on the various inputs which are used for the cultivation of crop.

3.2.3 Commercial Crops Division

Commercial Crops Division examines the Price Policy for Raw Jute and Copra. The division also fixes the MSP of Toria by taking the average of price differentials between Rapeseed/ Mustard and Toria/Lahi Black in important markets for the previous five years.

- For 2022 season the MSP has been fixed at Rs.10590/- per quintal for Milling Copra and Rs. 11000/- per quintal for Ball Copra marking an increase of 2.8 percent over the last year's MSP for Milling Copra and an increase of 3.8 percent over the last year's MSP for Ball Copra. The MSP would yield returns of 51.85 percent for Milling Copra and 57.73 percent for Ball Copra over the weighted average A2+ FL cost estimated at Rs. 6974 per quintal for 2022 season. The MSP of de-husked Coconut is fixed by Horticulture Division, DA&FW based on the MSP of FAO Variety of milling Copra. The MSP of de-husked Coconut for 2021 season has been fixed at Rs.2,800/- per quintal. The MSP of de-husked Coconut for 2022 season yet to be fixed by Horticulture Division, DA&FW. MSP announced by the Government and relative returns for milling copra, ball copra and Jute are given below in Table 7,8 and Table 9 respectively:

Table 7: MSP announced by the Government and relative Returns for Milling copra

Year	MSP Announced by the Government (Rs. per quintal)	Increase over the previous year		A2+ FL	MSP margins over A2+FL Cost %
		Absolute	%age		
2018	7511	1011	15.6	5007	50
2019	9521	2010	26.8	6347	50
2020	9960	439	4.6	6639	50
2021	10335	375	3.8	6805	51.9
2022	10590	255	2.8	6974	51.85

Table 8: MSP announced by the Government and relative Returns for Ball copra

Year	MSP Announced by the Government (Rs. per quintal)	Increase over the previous year		A2+ FL	MSP margins over A2+FL Cost %
		Absolute	%age		
2018	7750	965	14.2	5007	54.8

2019	9920	2170	28.0	6347	56.3
2020	10300	380	3.8	6639	55.1
2021	10600	300	2.9	6805	55.8
2022	11000	400	3.8	6974	57.73

For 2021-22 season the MSP for Raw Jute (TDN₃ equivalent to TD₅ of old grade) has been fixed at Rs. 4500/- per quintal marking an increase of 6.5 percent over the last year's MSP. The MSP would

yield returns of 58.9 percent over the weighted average A2+ FL cost of production which is estimated at Rs. 2832 per quintal for 2021-22 season.

Table 9: MSP announced by the Government and relative Returns for Jute

Year	MSP Announced by the Government (Rs. per quintal)	Increase over the previous year		A2+ FL	MSP margins over A2+FL Cost %
		Absolute	%age		
2018-19	3700	200	5.7	2267	63.21
2019-20	3950	250	6.8	2535	55.8
2020-21	4225	275	7.0	2709	56
2021-22	4500	275	6.5	2832	58.9

- The MSP of Toria of Fair Average quality (FAQ) for 2021-22 season has been fixed at Rs 5050/-per quintal.

3.2.4 Special Data Dissemination Standards (SDDS) Division

The Division is involved in collection and compilation of data relating to nine-fold classification of land, irrigated area (source-wise and crop-wise) and total area under crops for States and UTs. The compiled data is brought out in the Directorate's publications 'Land Use Statistics' and 'Agricultural Statistics at a Glance'. The compiled data on Land Use Statistics (District wise and State-wise) from 1998-99 onwards are available on the website. The URL of the website is http://aps.dac.gov.in/_/LUS. Similarly, the district wise compiled data on Area, Production and Yield (APY) from 1998-99 onwards are also available on the website. The URL of the website is <http://aps.dac.gov.in/APY>. The Division also generates quarterly estimates

of agricultural production for use in the compilation of quarterly National Accounts by the National Statistical Office. This activity was undertaken in order to meet the obligations concerning supply of data to the International Monetary Fund. In the absence of direct data, quarterly production is estimated by using the estimates of Kharif and Rabi seasons in conjunction with the crop calendar.

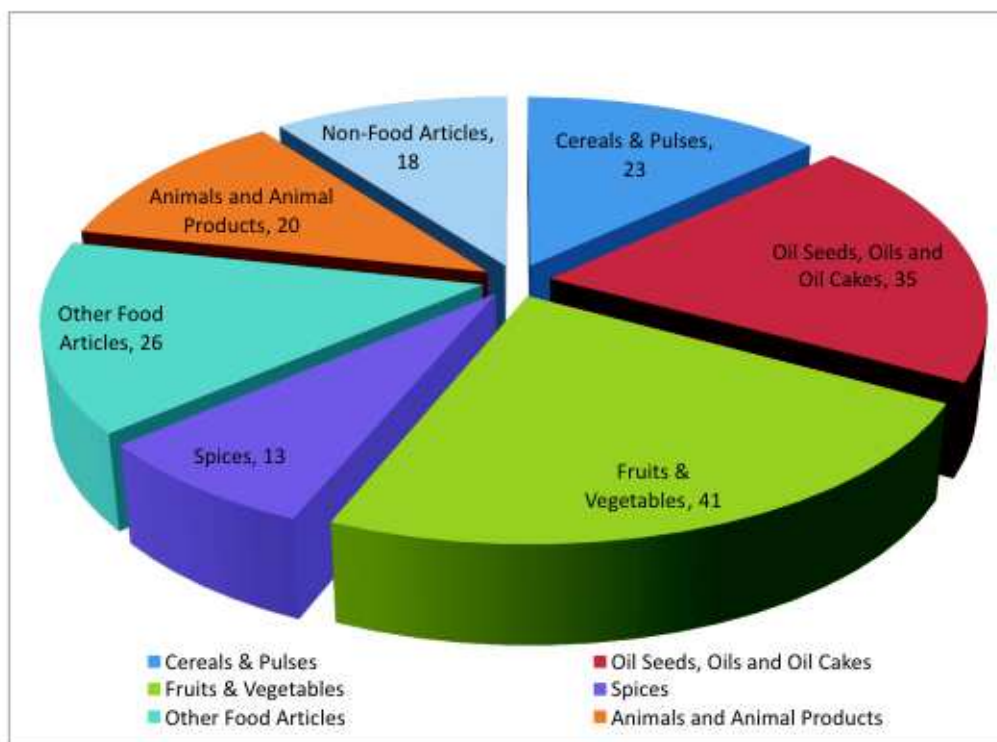
3.2.5 Price & Market Division

Prices & Market Division provides market intelligence to the Government and is involved in collection, compilation and dissemination of data/ information on prices - wholesale, retail, farm harvest and international prices of important agricultural commodities. Wholesale prices of 176 selected agricultural commodities from 719 market centers spread across the country and retail prices of 46 food items from 87 market centers are collected and compiled on weekly basis. Weekly wholesale prices (905

price quotations) of 109 agricultural commodities from 237 markets centers spread across the country are provided by this division

to the Department for the Promotion of Industry and Internal Trade (DPIIT), Ministry of Commerce & Industry for the computation of monthly Wholesale Prices Index (WPI).

Details of Prices of Agricultural Commodities on Number of Items maintained by the Directorate of Economics & Statistics



There are thirteen (13) field level Market Intelligence Units (MIUs) located across India reporting to this division which play major role in data collection. A Working Group was constituted for the revision of Base Year of WPI series (base 2011-12) under the chairmanship of Shri. Ramesh Chand (Member, NITI Aayog). Based on the recommendation of Working group for the revision of Base Year of WPI series (base 2011-12), 8 new commodities namely Isabgol, Aloe vera, Menthol, fennel seed, Methi seed, Moth(pulses), Mushroom and watermelon have been added - which would take the total number of commodities to 117, as against 109 under existing series with base 2011-12. Accordingly the numbers of quotations have also increased from 905 to 1289.

prices of 35 principal crops from 30 States / Union Territories. Two annual publications “Agricultural Prices in India” and “Farm Harvest Prices of Principal Crops in India” are brought out by this division every year. Index of Terms of Trade (TOT) between Agriculture and Non-agricultural Sectors is also prepared on annual basis as per the methodology recommended by the Working Group headed by Prof. S. Mahendra Dev, Director, Indira Gandhi Institute of Development Research (IGIDR), Mumbai. This Index is to be used as an input for price policy formulation of agricultural crops by Commission for Agricultural Costs and Prices (CACP).

This Division also compiles data on farm harvest

The Agricultural Market Information System (AMIS), hosted by Food & Agriculture Organisation of United Nations, is an inter-

agency platform launched in 2011 by the G20 Ministers of Agriculture, to enhance food market transparency and policy response for food security. AMIS-FAO prepares Food Balance Sheet, where data on inputs of production, food, feed; seed use and trade of 4 agricultural commodities, i.e. wheat, rice, maize and soyabean are maintained globally. As per government directive, Prices & Market Division provides the required data to AMIS-FAO at regular intervals.

3.2.6 International Agriculture & Compilation Division

International Agriculture Compilation (IAC) Division is the nodal Division in DES for providing inputs/comments on international issues relating to agriculture economics and statistics. The Division also brings out the flagship publication of the Department, viz. Agriculture Statistics at a Glance and Pocket Book of Agriculture Statistics.

During 2021, IAC Division provided inputs and comments on international issues relating to food security & nutrition dealt by BRICS, G-20, World Food Programme(WFP), Global Hunger Index(GHI) etc. The Division also keeps track of monthly Agriculture Trade data, EXIM policy and FDI as well as recent developments (PTAs), Free Trade Agreement (FTAs), GST in agriculture commodities etc. In addition, the Division published the latest 2020 issue of Agriculture Statistics at a Glance and Pocket Book of Agriculture Statistics. These publication are available on the website <http://eands.dacnet.nic.in>

3.2.7 Crop Forecasting Coordination Centre

- CFCC division is coordinating the implementation of “Forecasting Agricultural Output using Space, Agro-Meteorology and Land Based Observations (FASAL)” scheme through partner organizations i.e. MNCFC, IEG & IMD. Under the FASAL scheme, Multiple-

in-season crop forecast is provided based on Econometric models (13 crops) and Remote Sensing models (8 crops).

- Besides, the division is also involved in organization of weekly Crop Weather Watch Group (CWWG) meeting every Friday. Crop Weather Watch Group (CWWG) in the Directorate of Economics & Statistics is an inter-departmental forum that undertakes weekly review of progress of crop sowing, weather conditions, reservoir levels, level of pest and disease, seeds and fertilizer availability, horticulture arrivals and prices. The purpose is to facilitate timely policy intervention and operational support by the concerned subject matter Divisions of the DAC&FW. IMD, CWC, Crops, Fertilizer, Prices, Plant Protection, Horticulture, Seeds etc. Departments/ Divisions give their inputs and participate for the meeting. The CWWG meeting is chaired by Principal Adviser, DA&FW. The Key Points emerged from the CWWG meeting submitted to the Secretary on the same day. The CWWG data and Minutes of CWWG meeting are uploaded on the Directorate's website every week. Crop Statement is also prepared from the CWWG data and the same is forwarded to different Ministries/ Departments.

3.2.8 Coordination Division

The Coordination Division's main work is to coordinate work between Department of Agriculture & Farmers Welfare (DA&FW) and the Divisions of DES on all concerned subject matters. Its main activities includes preparing material for the Economic Survey i.e. Chapter “Agriculture & Food Management” on behalf of DA&FW, and routine matters wherein several Divisions of DES and those of DA&FW are involved, preparation of material for annual report, providing information on budget related

matter under the scheme namely 'Integrated Scheme of Agriculture Census, Economics and Statistics', providing input on the Parliament Questions assigned to various Divisions of DA&FW, working as Public Grievance Cell and as RTI Cell for the Directorate of Economics and Statistics.

3.3 Scheme Implemented by the Directorate of Economics and Statistics

(i) Comprehensive Scheme for studying Cost of Cultivation of Principal Crops in India:

1. The Cost of Cultivation of principal crops in India is being implemented in India since 1970-71 as a Central Sector Plan Scheme. The main objectives of the Scheme are to collect and compile data on cost of cultivation and production in respect of principal crops and to generate crop-wise and State-wise cost of cultivation and production estimates of mandated crops.

2. Comprehensive cost statistics are collected through 16 Agricultural/Central Universities/Colleges in respect of Principal crops centers located in different States; cost of cultivation data is transmitted to the CACP so as to enable them to recommend the MSPs of the crops under both Kharif and Rabi Seasons.

3. The cost estimates generated under the Schemes are also used for research purpose and policy formulations by the Central Ministries and State Governments, Agricultural/General Universities, Government/Non-government Research Organizations, Individual researchers (both at domestic and international levels) etc.

4. The Scheme is implemented in 19 states namely Andhra Pradesh, Assam, Bihar, Chhattisgarh, Gujarat, Haryana, Himachal Pradesh, Jharkhand, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Odisha, Punjab, Rajasthan, Tamil Nadu, Telangana, Uttarpradesh and West Bengal. The studies in the states except the newly created States of Chhattisgarh,

Jharkhand and Telangana are being undertaken by the parent State's Agriculture Universities/Colleges.

5. During the block period 2020-21 to 2022-23, the scheme covers 25 principal crops, i.e., paddy, wheat, jowar, bajra, maize, ragi, barley, moong, urad, arhar, gram, lentil, groundnut, rapeseed and mustard, nigerseed, safflower, soybean, sunflower, sesamum, cotton, jute, sugarcane, onion, potato, and coconut. The combination of crops covered in each state (also known as crop complex) varies from state to state depending upon their importance in terms of its relative contribution in the production of the relevant crop at all-India level.

6. The field data are collected on the basis of Cost Accounting Method by the 16 State Implementing Agencies. Under the Scheme, daily entries of debit/credit for expenditure/ income are made in order to assess the total cost/benefit incurred/accrued to each farmer. The field data is collected through a detailed questionnaire administered by Fieldsmen through direct interaction with the sample farmers of 10 selected farm holdings as per the sampling design. These consist of 2 each from 5 different size classes, viz., up to 1 hectare, 1-2 hectare, 2-4 hectare, 4-6 hectare and above 6 hectare allotted to each fieldman.

7. In the year 2020-21 (April-March), 221 cost estimates were generated and provided to CACP. Out of these estimates, 52 for Rabi, 137 for Kharif, 10 for Sugarcane and 22 for others were generated in respect of 25 mandated crops.

New Initiative: Separate implementing Agencies have been set up for the state of A.P. Chhattisgarh and Jharkhand for carrying out the work of Cost of Cultivation Schemes from F.Y. 2022-23.

(ii) Agro- Economic Research (AER) Scheme

Background of the scheme

Agro-Economic Research (AER) Scheme, a

component of Central Sector Scheme “Integrated Scheme on Agriculture Census, Economics and Statistics” under the purview of Umbrella Scheme “Krishonnati Yojana-Green Revolution”.

The objectives of the AER scheme under “Integrated Scheme on Agriculture Census, Economics and Statistics” are:

- (i) To study specified agro-economic issues at the macro and micro levels;
- (ii) To conduct continuous studies on changes in the rural economy through periodic surveys of selected villages;
- iii) To conduct research on structural changes and fundamental problems of agricultural and rural economy; and
- (iv) To give technical advice to the Union and State Governments on issues that may be referred to them.

The Agro-Economic Research (AER) Scheme was initiated in 1954-55 through a network of 15 AER Centres/Units. 12 Agro-Economic Research Centres (AERCs) are located at Allahabad, Bhagalpur, Chennai, Delhi, Jabalpur, Jorhat, Ludhiana, Pune, Shimla, Vallabh-Vidyanagar, Visva-Bharati and Waltair and 3 Agro-Economic Research Units are located at IEG-Delhi, ISEC-Bangalore and IIM-Ahmedabad. The scheme is staff oriented and 100% funded through Grants-in-Aid by Government of India, Ministry of Agriculture & Farmers Welfare. These AER Centres/Units are functioning under the administrative control of their respective University/Institute that conducts research and evaluation studies yearly basis as per need of the Government of India on Agricultural Economy and Rural Development for meeting the needs of the Department of Agriculture & Farmers Welfare, other Ministries/Departments which have a bearing on the performance of the Agriculture Sector for policy formulation and provide a feed back for implementation of the various schemes. The Centres also cater to studies and economic

analysis needed to the State Governments on agriculture sector and rural development.

Agro-Economic Research Centre, Jorhat was set up in 1960 and is functioning under the administrative control of Assam Agricultural University, Jorhat for conducting studies on various agricultural issues and problems of the North-Eastern States. The scheme is staff oriented and 100% funded through grants-in-aid by Government of India, Ministry of Agriculture & Farmers Welfare.

On an average, annually 30 research studies are conducted by these Units/Centres, which relates to various economic problems in agriculture, animal husbandry, water management, fisheries & horticulture, food processing, rural development, non-farm sector employment, etc. During last five years (2016-17 to 2020-21) 150 studies have been completed on the following important topics:

- Farmers Suicides
- Farmers Producers Organisation (FPOs)
- Sugarcane Transportation Cost and Harvesting Cost
- Neem Coated Urea
- Soil Health Card
- Kisan Call Centre
- Pradhan Mantri Fasal Bima Yojana (PMFBY)
- National Food Security Mission (NFSM)
- National Horticulture Mission (NHM)
- Livestock Feed and Fodder
- Jhumming Cultivation
- Electronic- National Agricultural market (e-NAM)
- Price support and trade in Pulses and Oilseeds.

In the current financial year 2021-2022 till

December 2021, 21 studies have been completed by the AER Centres/Units.

For the Current Financial Year 2021-2022 an amount of Rs 3650.00 lakhs is allocated as Budget Estimate (BE) (including Rs.350.00 lakhs

for Northeast regions); out of which Rs.1580.00 lakhs has been released (including Rs.100.00 lakhs for Northeast regions) till date. Detail of programs for North-East region is given in the table given below:

Table 10: PROGRAMMES OF NORTH-EASTERN STATES IN RESPECT OF AGRO - ECONOMIC RESEARCH CENTRE - JORHAT

(Rs. in lakhs)

Name of Division: Agro-Economic Research Division					
Schemes/ Program Activities Approved	Details of Schemes/ Programs/ Activities taken up	Targets	Achievements	Funds Released	Utilization
1	2	3	4	5	6
“Agro - Economic Research (AER) Scheme” an independent component of “Integrated Scheme on Agriculture Census, Economics and Statistics” of Central Sector Plan Scheme	AER Centre, Jorhat undertakes research studies on Agro-Economic Problems of North Eastern States	There is no fixed target.	Study completed by AER Centre, Jorhat during the Financial Year 2015-16, 2016-17, 2017-18, 2018-19, 2019-2020, 2020-21 and 2021-2022 are given below: <u>Year</u> <u>Studies Completed</u> 2015-16 = 2 2016-17 = 2 2017-18 = 3 2018-19 = 0 2019-20 = 2 2020-21 = 1 2021-22 = 1	2015-16 = 104.00 2016-17 = 122.61 2017-18 = 90.00 2018-19 = 138.00 2019-20 = 275.00 2020-21 = 151.00 2021-22 = 100.00*	117.52 118.10 119.66 142.88 214.28 161.54 79.06*

Note: (*) Fund released, expenditure and studies completed till 21st Oct., 2021

(iii) Planning, Management and Policy Formulation

In order to assess the impact of changes on the farm economy with focus on the state of Indian farmers, Planning, Management and Policy Formulation, a Central Sector Scheme, was formulated during 1998-99. This was designed with a view to organizing conferences and seminars involving eminent economists, agricultural scientists,

experts, etc. to conduct short term studies, engage consultancy services for preparation of a new decentralized strategy for development of crops, animals, diary, poultry, irrigation, soil and water conservation, etc. and to bring out papers/ reports based on the recommendation received at these workshops, seminars, conferences etc. For the year 2021-22, the Budget Estimate under the scheme is Rs. 26 lakh and 1.37 lakh has been released up to 8.12.2021.

(iv) Improvement of Agricultural Statistics

Improvement of Agricultural Statistics The basic objective of the Central Sector Scheme, Improvement of Agricultural Statistics, is to collect and improve agricultural statistics of principal agricultural crops. The Scheme has three components; (i) Timely Reporting Scheme (TRS), (ii) Improvement of Crop Statistics (ICS) and (iii) Establishment of an Agency for Reporting of Agricultural Statistics (EARAS). Since 2007-08, the scheme has been converted to Central Sector Scheme from Centrally Sponsored Scheme with 100 percent funding by the Central Government. The Component-wise details of the scheme are as under:-

1. Timely Reporting Scheme (TRS): The objective of this component is to obtain estimates of area under principal crops in each season, with the breakup of area under irrigated/unirrigated and traditional/high yielding varieties of crops on the basis of random sample of 20% of villages by a specific date. These estimates are used for generating advance estimates of production of principal crops. This component is being implemented in 16 land record States and Union Territories of Delhi, Jammu & Kashmir and Puducherry.

2. Improvement of Crop Statistics (ICS): The objective of this component is to improve the quality of statistics on area and production of crops through supervision and monitoring. Under this component, a sample check of area enumeration of 10,000 villages and approximately 30,000 crop cutting experiments at harvest stage are undertaken. These sample checks are equally shared by the Central Agency i.e. National Sample Survey Office; and the State Agricultural Authorities. These checks specifically relate to (a) Enumeration of crop-wise area covered in the selected villages as recorded by the Patwari; (b) Total Area under each crop recorded in Khasra Register of villages; and (c) Supervision of Crop Cutting Experiments

at the harvest stage. The IAS scheme is being implemented in 25 TRS/EARAS states and the Union Territory of Delhi, Jammu & Kashmir and Puducherry. The performance of the implementation of this component is also being closely monitored through Quarterly and Seasonal progress Reports.

3. Establishment of an Agency for Reporting of Agricultural Statistics (EARAS):

This Component is being implemented in the permanently settled States of Kerala, Orissa and West Bengal and North Eastern States of Nagaland, Sikkim, Arunachal Pradesh and Tripura. Under the component, an agency has been established in these states for generating estimates of area and production of principal crops and land use statistics, on the basis of complete enumeration of 20% villages in each year. The performance of the implementation of the component is being closely monitored through Quarterly and Seasonal progress Reports.

For the financial year 2021-22 under Improvement of Agricultural Statistics Scheme against total allocation of Rs. 151.33 Crores (BE), Rs. 95.09 Crore have been released till 31st December, 2021.

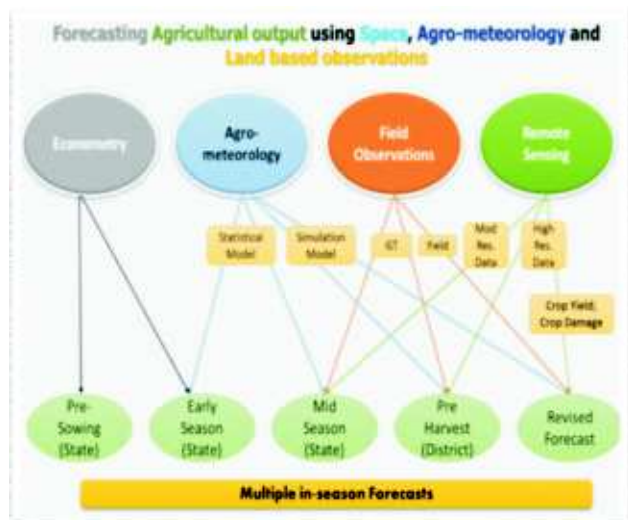
Activities Undertaken for Welfare of Women and North- Eastern States :

As the main objective of the scheme is to collect and compile agricultural statistics and it is not a welfare oriented scheme, no specific activity either for women or for the North-eastern States are undertaken under the scheme. However, in North Eastern States (NES), the scheme is in operation in Arunachal Pradesh, Assam, Nagaland, Sikkim & Tripura. For the financial year 2021-22, Rs. 5.60 Crore have been released to NES under the Scheme (31st December, 2021)

(v) Forecasting Agricultural Output using Space, Agro-Meteorology and Land Based Observations (FASAL)

The FASAL scheme was approved as a Central

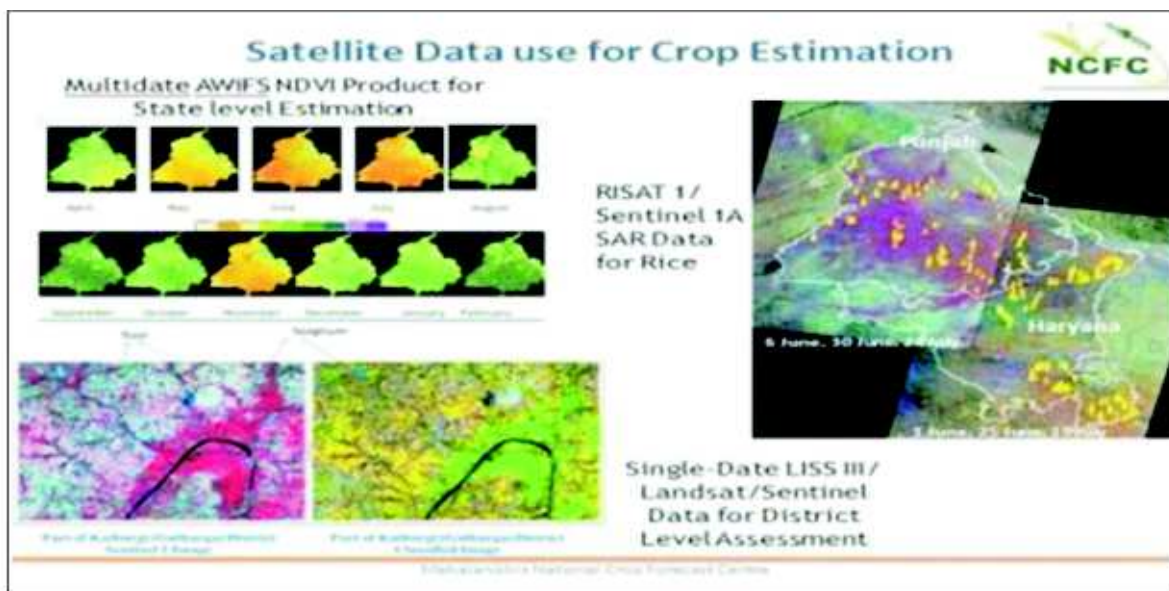
Sector Plan Scheme of the Directorate of Economics & Statistics, DAC&FW and is in operation since August 2006. Partner Organizations of the FASAL Scheme are India Meteorological Department (IMD), New Delhi, Institute of Economic Growth (IEG), New Delhi and Space Application Centre (SAC),



Ahmedabad. Objective of the Scheme is to provide multiple-in-season forecast based on Agromet, Econometric and Remote Sensing based methodology. Multiple forecast of 11

major crops are envisaged at National/ State/District level depending on status of technology available. MNCFC has been providing Remote Sensing based forecasts in respect of 8 crops namely rice (Kharif & Rabi), rabi jowar, jute, cotton, sugarcane, rapeseed, mustard and wheat. Forecast of pulses (combined) is also provided.

Role of India Meteorological Department (IMD) has been limited to developing crop yield forecasting models based on multiple correlation and regression techniques in collaboration with Agromet Field Units (AMFUs) using both Statistical and Crop Growth Simulation Models. Crop yield forecast of major crops is issued at mid-season and pre-harvest stage using agromet models during Kharif as well as Rabi season for crops. Presently, IMD has been providing crop yield forecast in respect of rice, jute, cotton and sugarcane during Kharif season and wheat, potato, mustard and sorghum during Rabi season to MNCFC for the preparation of forecasts based on Remote Sensing. IMD is working on simulation modeling of soybean, tur, chickpea and sorghum.



IEG is providing Econometric model based State level / National level forecast of Area, Yield and

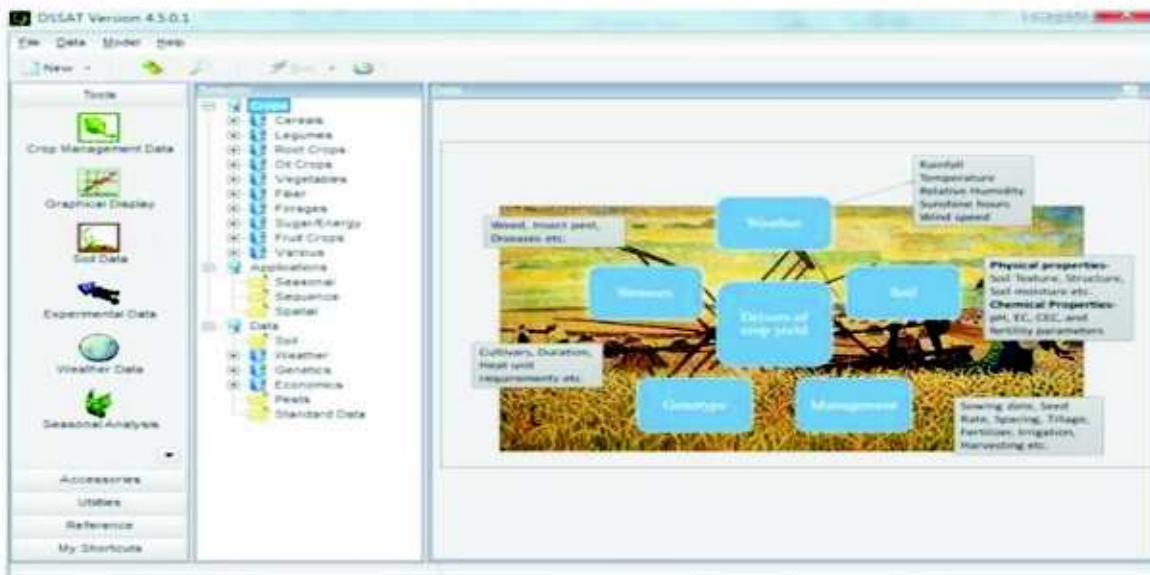
Production forecasts in respect of 13 crops on monthly basis The Crops are:

Rice (Kharif & Rabi)		Wheat
Maize	Bajra	Rabi Jowar
Jute	Moong	Gram
Rapeseed	Mustard	Urad
Groundnut	Soyabean	

The Model used for forecasting takes into account crop price (expected), substitute crop price (expected), irrigation, lagged area, pre-season rainfall, rainfall in sowing season at the

meteorological sub-divisions, temperature and fertilizer price. The model is proposed to be refined by incorporating additional parameters such as data on reservoirs, soil moisture

Crop Simulation Model



The objective is to validate the data on production, yield and area obtained from the

States, so that forecast can be generated for use in formulating policy interventions, if need be.

Chapter-4

NATIONAL E-GOVERNANCE PLAN IN AGRICULTURE (NEGP-A)

4.1 Overview

Ministry of Agriculture & Farmers' Welfare aims to improve awareness, knowledge and efficiency of farmers. A comprehensive ICT strategy has, therefore, been developed not only to reach out to farmers in an easy and better way to improve efficiency but also for planning and monitoring of schemes so that policy decisions can be taken at a faster pace and farmers can be benefited quickly. To empower different sections of rural society, ICT strategies have been devised.

4.2 National e-Governance Plan – Agriculture

Ministry of Agriculture & Farmers' Welfare is implementing National e-Governance Plan – Agriculture (NeGP-A). Its aim is to achieve rapid development in India through use of Information & Communication Technology (ICT) for timely access to agriculture related information for the farmers. In agriculture, availability of real time information at the right time is a continuous challenge. Lack of information at the proper time causes loss to farmers. NeGP-A aims to bridge this gap in communication by using technology.

National e-Governance Plan in Agriculture (NeGPA) was initially launched in seven selected States namely, Assam, Himachal Pradesh, Jharkhand, Karnataka, Kerala, Madhya Pradesh and Maharashtra, in the last quarter of 2010-11. This Scheme has subsequently been extended in the 2nd Phase to cover all the States and 7 UTs from 2014-15. NeGP-A aims to achieve rapid

development in India through use the of Information & Communication Technology (ICT) for timely access to agriculture related information for the farmers. Support was rendered for buying hardware, software and deployment of manpower for handling them under the scheme.

However, realizing the significance of new digital & emerging technologies, the Committee on Doubling Farmers' Income (DFI) has recommended further expanding and augmenting of the digital agriculture initiatives of Government of India. The report focused on modern management of agriculture viz. Remote Sensing; Geographical Information System; Data Analytics and Cloud Computing; Artificial Intelligence & Machine Learning; Internet of Things; Robotics, Drones & Sensors and Block-Chain.

In order to infuse modern information technologies in the farm sector as recommended by the DFI Committee, the NeGPA guidelines were amended in 2020-21 and funds were released for sanctioning projects for customization/shifting of web & mobile applications already developed by the States to the platform to be developed using digital /emerging technologies and involving use of modern Information Technologies such as Artificial Intelligence & Machine Learning, Block Chain Technology, Internet of Things, Robotics etc. Accordingly, pilots were sanctioned for 10 states as below:-

S.No.	State/UT	Technology	Funds released Rs. in Lakh during 2020-21
(i)	Arunachal Pradesh	Resilient Supply Chain for identified Agricultural Crops Leveraging Digitization	Rs. 81.00

(ii)	Bihar	Digital Package of Practices for Major Crops and Automation Technique in Irrigation in State Seed Multiplication Farms	Rs. 353.56
(iii)	Meghalaya	Development of web and mobile based "Crop Pest Surveillance and Advisory Project	Rs. 62.883
(iv)	Uttar Pradesh	(i) Unmanned Aerial Vehicle for Agriculture Applications, (ii) Hand Held Tool based Soil Health Monitoring Integrated system and (iii) Automated Fire Alert System for Crop Residue Burning in U.P.	Rs. 120.80
(v)	Telangana	(i) Crop Monitoring (ii) Automated irrigation Systems (iii) Fertilizer Calculation (iv) Automated Farm Operation (v) Traceability from seeds to produce and (vi) Produce Grading and Quality Assaying	Rs. 186.00
(vi)	Odisha	Creation of Farmer Database	Rs. 178.398
(vii)	Punjab	(i) Development of Crop and Soil Digital Algorithms for Crop Growth Monitoring, Crop Yield and Soil Quality at Farm Level using Remote Sensing, GIS and Machine Learning Techniques and (ii) Precision irrigation in major cropping systems of Punjab using artificial intelligence and sub-surface drip system	Rs. 52.434
(viii)	Assam	e-project on ML based Crop Health Checkup for paddy crops.	Rs.134.415
(ix)	Andhra Pradesh	Gap Analysis & proposed solution to overcome the gaps in existing system in terms of integration digital transformation & seamless process flow	Rs. 425.70
(x)	Madhya Pradesh	(i) Precision Farming and (ii) Ground water Availability	Rs. 161.106

4.3 MKisan-Use of basic mobile telephony:

Since the penetration of *smart phones with internet* in rural areas is around 18% only, mobile telephony is considered to be the alternate and the best option to deliver services to the farmers. Mobile telephony has transformed the tenor of our lives. The Department has developed a portal- [mkisan\(mkisan.gov.in\)](http://mkisan.gov.in), where around **5.2 crore** farmers are registered and experts/scientists of different departments like IMD, ICAR, State Government, State Agriculture Universities send information to farmers in 12 local languages on a regular basis.

Information related to the weather such as likelihood of rainfall, temperature, etc. enables farmers to make informed decision in choice of seed varieties and decide on timing of sowing and harvesting. With market information, farmers are better informed to sell produce, prevailing market prices and quantity demanded in the market. Thus, they can make informed decisions to sell produce at the right price and at the right time. This helps in reducing distress sales by farmers due to market supply fluctuations. **More than 2462 crore** SMSs have been sent through mKisan since its inception in 2013.



4.4 Farmers' portal (www.farmer.gov.in):

Farmers' Portal is a one stop shop for farmers where a farmer can get relevant information on a range of topics including seeds, fertilizer, pesticides, credit, good practices, dealer network, availability of inputs, agromet advisory etc. This information can be drilled down through the pictorial view of the Map of India placed on the Home page as well.

This centralized repository is the back bone of all mobile apps and SMS advisories. This portal provides information across all stages of crop management right from sowing of seeds till post harvesting. An important feature of this web based portal is that one can drill down to the block level and get information of the particular block.



4.5 Development of Mobile Apps:

Spreading agriculture related information to farmers in the poorest communities has been made easier by proliferation of mobile phones. Today, mobile apps and services are being designed and released in different parts of the world. Mobile apps help to fulfil the larger objective of farmers' empowerment and facilitates in dissemination of extension services to address food security issues. Various mobile apps have been developed for farmers. Details are as listed below:

Kisan Suvidha: It is an omnibus mobile app to help farmers by providing relevant information to them quickly. It has a simple interface and provides information on critical parameters— weather, input dealers, market price, plant protection, expert advisories, Soil Health Card, cold Stores & godowns, crop insurance. An additional tab directly connects the farmer with the Kisan Call Centre where agriculture experts



answer their queries. Unique features like extreme weather alerts and market prices of commodities in the nearest area and the maximum price in the State as well as in India have been added to empower farmers in the best possible manner. With the click of a button, farmers can obtain all this information in hand provided they have a smart phone and decent internet connectivity. Total downloads:13,55,484 upto November 2020.

4.6 New application development in 2021-22 by Digital Agriculture Division:

- Development of Website and Applications of the newly created Ministry of Cooperation.
- Development of Production and Yield Estimation Application for DES Division.
- Architecture and management of development of ASRB Recruitment System.
- Managing development and maintenance of 4 IT Applications of Plant Protection Division.
- Managing development of 4 IT Applications of Farm Mechanization Division.

4.7 DBT implementation in schemes of the Department

- 15 schemes of the Department have been identified for DBT implementation
- 14 schemes are already on-boarded (linked with Centralised DBT portal of DBT Bharat Mission).
- Management Information System of these schemes is linked with the Central Agriculture portal (dbtdacfw.gov.in).

Schemes on boarded on DBT

1	Agri Clinics and Agri Business Centres (ACABC) Scheme
2	Sub Mission on the Agriculture Mechanization (Two compon ent – One Central Sector and other Centrally Sponsored)
3	PradhanMantriKrishiSinchaiYojana
4	Mission for Integrated Development of Horticulture
5	Support to States for Extension Reforms ATMA Scheme (two components – one for Farmers and other for Functbnaries)
6	Sub-Mission on Seeds and Planting Material
7	Crop Insurance Scheme
8	National Mission on Oilseeds & Oil Palm (NMOOP)
9	Integrated Scheme on Agriculture Cooperation
10	National Food Security Mission (NFSM)
11	KrishiUnnatiYojana (KUY)-MOVCDNER
12	NMSA-Rainfed Area Development
13	Interest Subsidy for Short term Credit to farmers
14	PM-KISAN

4.8 India Digital Ecosystem on Agriculture (IDEA) under sub-theme India Ecosystem Architecture 2.0

IDEA has been envisaged with a Vision to build a National Digital Agriculture Ecosystem, to elevate Indian Agriculture Sector to higher levels of efficiency and productivity, and to improve the welfare and income of farmers.

The objectives of National Digital Agriculture Ecosystem are as follows:

- To enable the farmer to realize higher income and better profitability through access to right information at the right time, and from innovative solutions.
- To enable better planning and execution of policies, programs, and schemes of the Central and State governments, and, also of the private sector and Farmers

Producer Organizations (FPOs)

- To enhance efficiencies in the usage of resources including land, water, seeds, fertilizers, pesticides, and farm machines by providing easier access to information and optimization solutions.
- To provide location-specific and personalized extension services across agriculture lifecycle, with simultaneous protection of privacy of personal data.
- To build capacities across the gamut of digital agriculture and precision agriculture.
- To promote adoption of standards for interoperability and seamless exchange of information across ecosystem, while ensuring that the digital rights are properly managed.

- To give a fillip to R&D and Innovations in agriculture through access to high-quality data.
- To adopt the best principles of cooperative federalism while working with the states and union territories for the realization of the vision of IDEA.
- To formulate and leverage PPP frameworks for realizing the 'power of the digital'.

Any large and complex system can only evolve around a set of commonly agreed principles. Multiple systems in the ecosystem can be designed or redesigned to align with the common principles to ensure interoperability-by-design and conformance-by-design. The Ministry of Electronics and IT, GoI in its ongoing initiative on InDEA 2.0 has formulated a comprehensive set of principles for guiding the design of digital ecosystems. It addresses the requirements of the Ministries, States and Departments embarking on a holistic digital initiative. The set of InDEA 2.0 principles is proposed to be leveraged for designing the IDEA Architecture. These principles are to be considered for adoption by the Central and State Governments as also all the private entities of the agriculture ecosystem.

Designing the architecture for an ecosystem is a new concept. While Enterprise Architecture has been well established globally, it is not so with Ecosystem Architecture. The concepts like National Public Digital Platform, National Open Digital Ecosystem are emerging in India. A few attempts are in the offing in this area – National Digital Health Blueprint (NDHB)[6] and National Digital Education Architecture (NDEAR) are examples in point. InDEA is an ongoing effort of the Ministry of Electronics and IT, GoI to create a set of reference architecture patterns for

designing ecosystem architectures by various Ministries and States.

InDEA 2.0 has proposed a set of Architectural Patterns meant to be adopted by the Ministries of GoI, State Governments or small departments to design their own ecosystem architectures. The IDEA Framework adopts the Domain Architecture Pattern proposed by InDEA 2.0 and customizes it to suit the needs of the agriculture domain (ecosystem). InDEA framework, Building Blocks are categorized into three -depending on the degree to which they are decentralized. These are defined below:

- Core Building Blocks:** A core building block acts as the single-source-of-truth at the national level or provides a centralized functionality required for interoperability. By virtue of their critical and central nature, the core building blocks are designed, developed, and maintained by the government.
- Common Building Blocks:** A common building block is a reusable functionality or application with the key objective of ensuring uniformity and / or to prevent duplicative development work. Common Building Blocks are developed and hosted by the Ministry on a multi-tenant framework and can be shared by the States and other ecosystem entities optionally.
- Reference Building Blocks:** A reference building block has a generic functionality which can be customized as needed. It is developed by the Ministry and the code is published as open source for download by the States or private sector organizations.



4.9 Federated Farmers Database — Another New Initiative

Another new initiative which has been undertaken during the Covid-19 pandemic is building of the first ever federated farmers database at the national level. The data pertaining to farmers, farm lands and related areas were in different silos in the Government of India. These were publicly available but were not coherent or usable.

Taking the PM-KISAN scheme (through which government grants direct payments to farmers) as a base, a database is built on Land records data, integrating data from other schemes like PMFBY (crop insurance scheme), Soil Health Cards, farm machinery data and Kisan Credit Card data. These were verified with the land record database, another publicly available database. Thus, a database with around 55 million farmers' data has been built so far and the work is ongoing, despite the pandemic induced disruptions in the process. By this year end, it is hoped that a database of around 100-120 million farmers would be ready. Data which is available in other data silos of the government are also slowly being integrated with this.

Once complete, this would be the biggest and most diverse database of farmers anywhere in the world. Though in the current phase only farmers who legally own the land as per the State's land

records are included, it is expected that the database would cover other farmers as well may be included those who are involved in allied activities like animal husbandry, dairying, inland fisheries etc.

4.10 Development of PoCs On Services And Solutions To The Farmers Based On Data

Another major initiative which has been recently started is the engagement of leading Agritech, Agriculture and Startup companies in India for building PoCs (proof of concepts). In this connection, GoI has entered into a partnership with five companies: Microsoft, Amazon Web Services, Agribazaar, Patanjali Organic Research Institute, ESRI India, ITC, JIO, Ninjacart, NeML and CISCO. These partnerships are through a Memorandum of Understanding (MoU) which will go on for a year and on a pro-bono basis.

At the end of the MoU period, GoI would evaluate the services and solutions developed by the partners using the data and if these services/solutions are found to be beneficial to the farmers, it would take up the best services and scale them up at the national level. Some of the partners have also proposed linking up the various startups that are nurtured by these partners in the Agritech domain. Thus, this enables the government to tap into the enormous talent that is available with Indian startups and

use their talents for benefiting our farmers. This also envisages to improve the farms, in case these services are successful and would give a fillip to sustainable farm practices across the country.

The Use cases will use algorithms that analyze the past profile of the farmers with his track record of crop insurance, procurement of

his/her crops by the government, remote sensing data pertaining to the current crop, their health and the expected harvest, and land ownership details. This would cut down enormous paper work and also reduces the cost and time for the farmers as well as the banks or other financial institutions.

MOUs in Various States

S No	Name of the Partner	Focus Area	State / District
1	Microsoft India Pvt. Ltd	for consolidating agri ecosystem across the value chain (farm to fork) to empower the farmer using Data Analytics in 100 villages.	10 districts - (100 villages in Annexure) Guntur (Andhra Pradesh) West Godavari (Andhra Pradesh) Mahesana (Gujarat) Banas Kantha (Gujarat) Amreli (Gujarat) Kaithal (Haryana) Chhindwara (Madhya Pradesh) Morena (Madhya Pradesh) Hathras (Uttar Pradesh) Mainpuri (Uttar Pradesh)
2	ESRI India Technologies Limited	for Establishment & Launch of "Nation Agriculture Geo Hub" and for using their 'ArcGIS' platform enabling a GIS layer over Farmers' Database.	02 Districts - Chandauli (Uttar Pradesh) Fatehpur (Uttar Pradesh)
3	Amazon Web Services India	for digital services across the agri value chain and creating an innovation ecosystem around digital agriculture	
4	Star Agribazaar Technology Private limited	for collaborating with Department of Agriculture for a pilot project to promote digital agriculture	03 districts - Kota (Rajasthan) Mathura (Uttar Pradesh) Guna (Madhya Pradesh)
5	Patanjali Organic Research Institute Private Limited	for farm management and farmers service	03 districts - Haridwar (Uttarakhand) Hamirpur (Uttar Pradesh) Morena (Madhya Pradesh)
6	JIO Platforms Ltd	for taking up primary intervention module, i.e., advisory (basic as well as advanced) service in first phase	02 districts - Nashik (Maharashtra) Jalna (Maharashtra)
7	ITC Limited	for building a Customized 'Site Specific Crop Advisory' service and Digitization of Dairy Value Chain and support Wheat crop operations	02 districts - Sehore (Madhya Pradesh) Vidisha (Madhya Pradesh)
8	Cisco Commerce India Pvt Ltd	for conceptualizing a Proof of Concept in effective knowledge sharing between farmers, administration, academia and industry	02 districts - Kaithal (Haryana) Morena (Madhya Pradesh)
9	NCDEX e -Markets Ltd (NeML)	for a digital marketplace to contribute effectively towards increasing the income of farmers and improve farm efficiency/efficiency of the Agriculture sector	03 districts - Nasik (Maharashtra) Devangere (Karnataka) Guntur (Andhra Pradesh)
10	Ninjacart - 63Ideas Infolabs Pvt Ltd	for developing and hosting the Agri Marketplace Platform	03 districts - Indore (Madhya Pradesh) Chhindwara (Madhya Pradesh) Anand (Gujarat)

Chapter-5

MISSION FOR INTEGRATED DEVELOPMENT OF HORTICULTURE (MIDH)

Overview

5.1 Mission for Integrated Development of Horticulture (MIDH) is a Centrally Sponsored Scheme for the holistic growth of the horticulture sector covering fruits, vegetables, root & tuber crops, mushrooms, spices, flowers, aromatic plants, coconut, cashew and cocoa.

5.2 Major Schemes – Objectives

MIDH consists of 5 schemes on Horticulture viz. (i) National Horticulture Mission (NHM), (ii) Horticulture Mission for North East and Himalayan States (HMNEH), (iii) National Horticulture Board (NHB), (iv) Coconut Development Board (CDB), (v) Central Institute of Horticulture (CIH), Nagaland.

Under MIDH, Government of India (GOI) contributes 60%, of total outlay for developmental programmes in all the States except States in North East and Himalayas, 40% share is contributed by State Governments. In the case of North Eastern and Himalayan States, GOI contributes 90%. In case of National Horticulture Board (NHB), Coconut Development Board (CDB), Central Institute for Horticulture (CIH), Nagaland and the National Level Agencies (NLA), GOI contributes 100%.

The budget allocation of Rs. 2249.72 crore has been earmarked for MIDH during 2021-22. As on 31st December, 2021, funds to the tune of Rs. 525.59 crores have been released for implementation of activities of MIDH i.e. Rs. 207.63 crore under NHM, Rs. 144.84 crore under HMNEH, Rs. 80.14 crore under CDB, 83.66 crore to NHB and Rs. 9.32 crore to CIH, DCCD & DASD.

5.3 Brief of schemes under MIDH is as follows:

5.3.1 National Horticulture Mission (NHM):

This Centrally Sponsored Scheme was launched in the year 2005-06 and aims at the holistic development of the horticulture sector by ensuring forward and backward linkage through a cluster approach with the active participation of all stakeholders. A total of 384 districts in 18 States and 6 Union Territories were covered under NHM. Sixteen (16) National Level Agencies (NLAs) have also been included for providing support for developmental efforts which require inputs at the national level.

Supply of quality planting material through establishment of nurseries and tissue culture units, production and productivity improvement programmes through area expansion and rejuvenation, technology promotion, technology dissemination, human resource development, creation of infrastructure for post harvest management and marketing in consonance with the comparative advantages of each State/region and their diverse agro-climatic conditions are major interventions under NHM.

5.3.2 Horticulture Mission for North East and Himalayan States (HMNEH)

The Department is implementing a Centrally Sponsored Scheme - Horticulture Mission for North East and Himalayan States (HMNEH) earlier known as Technology Mission for Integrated Development of Horticulture in North Eastern States since 2001-02. During the X Plan (2003-04), the scheme was further extended to three Himalayan States namely: Himachal Pradesh, Jammu and Kashmir and Uttarakhand. The Mission covers the entire spectrum of horticulture, right from planting to consumption with backward and forward linkages. With effect from 2014-15, HMNEH scheme has been

subsumed under MIDH.

5.3.3 National Horticulture Board

The National Horticulture Board (NHB) was set up by the Government of India in 1984 as an Autonomous organization under the administrative control of Ministry of Agriculture and Farmers Welfare and registered as a society under Societies Registration Act with its headquarters at Gurugram. Presently, NHB has 29 field offices located all over the country. The broad aims and objectives of the Board are to develop production clusters/hubs for integrated Hi-tech commercial horticulture, development of Post-harvest and cold chain infrastructure, ensuring availability of quality planting material and to promote adoption of new technologies/tools/techniques for Hi-tech commercial horticulture etc.

The Board is implementing following schemes:

1. Development of Commercial Horticulture through Production and Post Harvest Management of Horticulture Crops.
2. Capital Investment Subsidy for Construction/ Expansion/ Modernization of Cold Storages and Storages for Horticulture Products.
3. Technology Development and Transfer for Promotion of Horticulture.
4. Market Information Service for Horticulture Crops.
5. Horticulture Promotion Services/ Expert Services and Strengthening Capability of NHB.

5.3.4 Coconut Development Board

Coconut Development Board (CDB) is a statutory body established by Govt. of India by an Act of Parliament (Coconut Development Board Act 1979) and came into existence in January 1981. The thrust areas of the Coconut Development Board programmes under MIDH are production

and distribution of quality planting material, expansion of area under coconut cultivation especially in potential and non-traditional areas, improving the productivity of coconut in major coconut producing States, developing technology in post-harvest processing and marketing activities, product diversification and by-product utilization of coconut for value addition, dissemination of information and capacity building in the coconut sector.

The major programmes that are being implemented by the Board are;

- A.1. Production and Distribution of Quality Planting Materials
 - (a) Demonstration cum-Seed Production (DSP) Farm\
 - (b) Establishment of Regional Coconut Nurseries
 - (c) Establishment of Nucleus Coconut Seed Garden
 - (d) Establishment of Small Coconut Nursery
- A.2. Expansion of Area under Coconut
- A.3. Integrated Farming for Productivity Improvement
 - (a) Laying out of Demonstration Plots
 - (b) Aid to Organic Manure Units
- A.4. Technology Demonstration/Quality Testing Lab
- A.5. Marketing, Market Intelligence Services, Statistics and Strengthening of Export Promotion Council (EPC)
- A.6. Information & Information Technology
- A.7. Technical Service & Project Management
- B: Technology Mission on Coconut

- C. Replanting & Rejuvenation of Old Coconut Gardens
- D. Coconut Palm Insurance Scheme
- E. Kera Suraksha Insurance Scheme

5.4 Physical and Financial Progress

5.4.1 National Horticulture Mission (NHM):

A. Physical Progress: The summary details of progress achieved during 2021-22 are given at Table 1 below:

Table 1: Progress under NHM

S. No.	Components	Unit	Progress during 2021 -22 (as on 31 st December, 2021)
1	Area Expansion	Ha.	59761
2	Rejuvenation	Ha.	5973
3	Protected Cultivation	Ha.	3434
4	Integrated Pest/ Nutrient Management	Ha.	10476
5	Nurseries	No.	5
6	Water Resources	No.	591
7	Beekeeping	No.	49163
8	Horticulture Mechanization	No.	3883
9	Post Harvest Management		
	(i) Pack House	No.	537
	(ii) Cold Storage	No.	18
	(iii) Primary/mobile processing units	No.	121
10	Rural Market	No.	-

Source: as per the data uploaded by the State Govt. on MIDH web portal

B. Financial Progress: During 2020-21, as on 31st March, 2021, funds to the tune of Rs. 831.32 crore have been released to States/UTs/NLAs for implementing NHM scheme against BE of Rs. 1363.62 crore and RE of Rs 821.04 crore. During 2021-22, an amount of Rs. 1335.50 crore has been allocated for NHM, against which an amount of Rs. 207.63 crore has been released as on 31st December, 2021.

5.4.2 Area, Production & Productivity of Horticulture Crops

The comparative details of area, production and productivity of various horticulture crops during 2020-21(3rd Adv. Est) with reference to 2004-05, viz. pre and post scenario are given in the following Table 2.

Table 2: Pre and Post NHM Scenario: Area, Production & Productivity

(Area: '000 Ha, Production: '000 MT, Productivity: MT/Ha)

Crop	Area			Production			Productivity		
	2004-05	2019-20	2020-21*	2004-05	2019-20	2020-21*	2004-05	2019-20	2020-21*
Fruits	5049	6774	6914	50867	102080	103027	10.07	15.07	14.90
Vegetables	6744	10310	10966	101246	188284	197230	15.01	18.26	17.99

Flowers	118	323	329	659	3000	2605	5.58	9.29	7.92
Aromatic & Medicinal crops	131	641	659	159	734	779	1.21	1.15	1.18
Plantation crops	3147	4143	4190	9835	16116	16602	3.13	3.89	3.96
Spices	3150	4291	4528	4001	10137	10679	1.27	2.36	2.36
Others	106			172	120	125			
Total	18445	26482	27586	166939	320471	331048	9.05	12.10	12.00

***3rd Advance Estimates of Horticulture Crops 2020-21-DA&FW**

The wide and varied nature of the horticulture sector covering fruits, vegetables, root and tuber crops, flowers, aromatics and medicinal crops, spices and plantation crops facilitates better returns per unit of area, besides opportunities for diversification in agriculture.

Horticulture crops cover an area of 27.59 Million Hectare at present; it has registered an increase of 32.17% as compared to 20.88 Million Hectare in 2009-10. However, with a production of about

331.05 Million Tonnes, horticulture production has witnessed an increase of about 48.39% during the period 2009-10 to 2020-21 (3rd Advance Estimates). The significant feature is that there has been improvement of productivity of horticulture crops which increased by about 12.25% during this period.

Area, Production & Productivity of Horticulture crops during the past 11 years are given in Table 3.

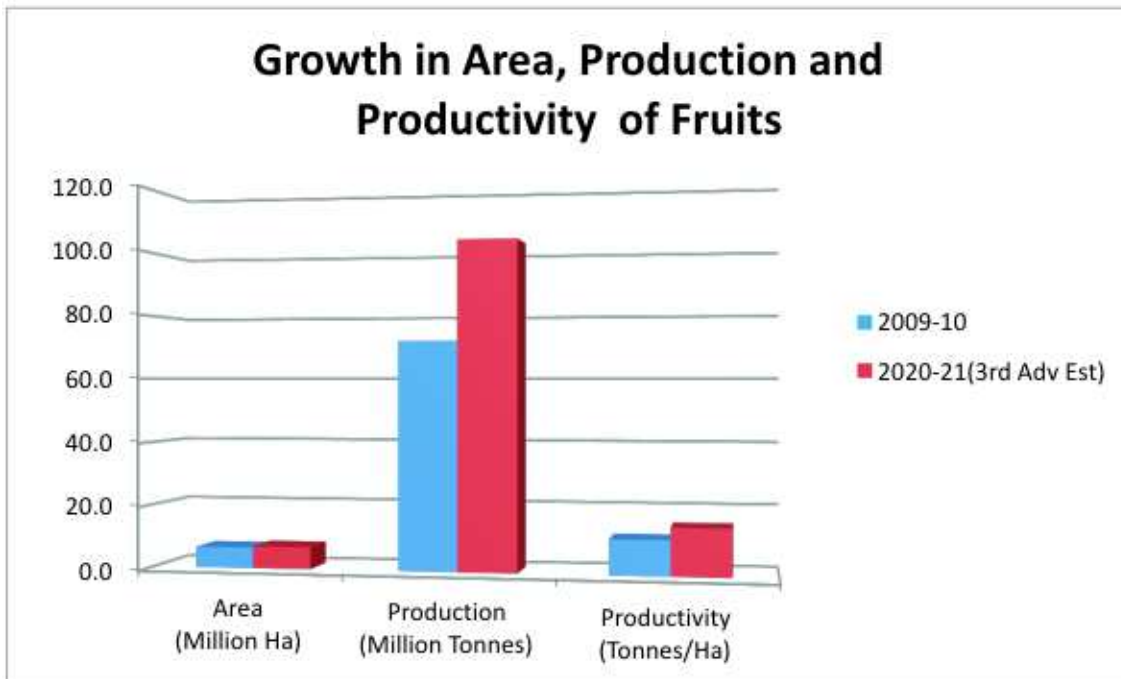
Table 3: Area, Production & Productivity of Horticulture crops
Area: Million Hectare, Production: Million Tonnes, Productivity: Tonnes/Hectare

Year	Area	Production	Productivity
2009-10	20.88	223.09	10.69
2010-11	21.83	240.53	11.02
2011-12	23.24	257.28	11.07
2012-13	23.69	268.85	11.35
2013-14	24.20	277.35	11.46
2014-15	23.41	280.99	12.00
2015-16	24.47	286.19	11.69
2016-17	24.85	300.64	12.10
2017-18	25.24	310.67	12.31
2018-19	25.74	311.05	12.09
2019-20	26.48	320.47	12.10
2020-21(3rd Advance Estimates)	27.59	331.05	12.00

The area under fruit crops during 2020-21(3rd Advance Estimate) is 6.91 Million Hectare, with a total production of 103.03 Million Tonne. During the Period 2009-10 to 2020-21(3rd Adv. Est.),

production of fruits increased by about 43.68%, while the area increased by about 6.85%. Comparative details of area, production and productivity of fruit crops are given in **figure 1**.

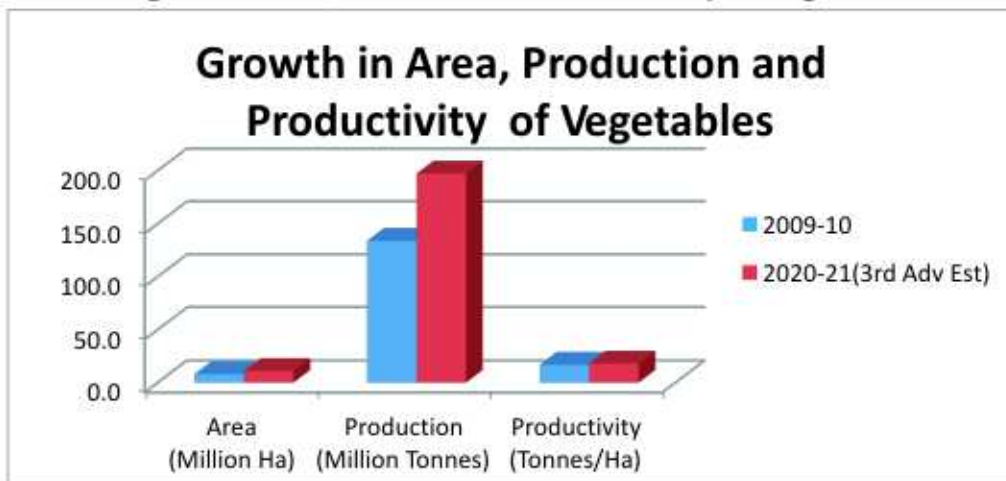
Figure 1: Area, Production & Productivity of Fruits



Vegetables are an important crop in the horticulture sector, occupying an area of 10.97 Million Hectare as per 2020-21 (3rd Advance Estimates) with a total production of 197.23 Million Tonne with average productivity of 17.99 Tonnes/Hectare. In fact, vegetables constitute

about 59.58% of horticulture production. During the period 2009-10 to 2019-20 (3rd Advance Estimates), area and production of vegetables increased by 37.33% and 47.47% respectively. The comparative details are depicted in the Figure 2.

Figure 2: Area, Production & Productivity of Vegetables



India has also made remarkable advancements in production of flowers, particularly cut flowers, which have a high potential for exports. Floriculture during 2020-21(3rd Advance

Estimates) covered an area of 0.33 Million Hectare with a production of 2.61 Million Tonne of flowers.

India is the largest producer, consumer and exporter of spices and spice products. The total production of spices during 2020-21 (3rd Advance Estimates) was 10.68 Million Tonne from an area of 4.53 Million Hectare.

5.4.3 Horticulture Mission for North East and Himalayan States (HMNEH)

A. Physical Progress

The summary details of progress achieved so far under HMNEH during 2021-22 are given at **Table 4** below:

Table 4: Progress under HMNEH

S. No.	Components	Unit	Progress during 2020-21 (as on 31 st December, 2020)
1	Area Expansion	Ha.	5654
2	Rejuvenation	Ha.	-
3	Protected Cultivation	Ha.	18
4	Integrated Pest/Nutrient Management	Ha.	10430
5	Nurseries	No.	-
6	Water Resources	No.	18
7	Beekeeping	No.	-
8	Horticulture Mechanization	No.	56
9	Post Harvest Management		
	(i) Pack House	No.	210
	(ii) Cold Storage	No.	-
	(iii) Primary/Mobile Processing Units	No.	-
10	Rural Market	No.	-

Source: as per the data uploaded by State Govt. on MIDH web portal

B. Financial Progress

During 2020-21, as on 31st March, 2020, funds to the tune of Rs. 333.58 crore have been released to States implementing HMNEH scheme against BE of Rs.470.00 crore. During 2021-22, an amount of Rs. 600.00 crore has been allocated for North Eastern States and Himalayan States (including PMDP), against which an amount of Rs. 144.84 crore has been released as on 31st December, 2021.

5.4.4 National Horticulture Board (NHB)

A. Physical Progress:

1. “Development of Commercial Horticulture through Production and Post Harvest Management of Horticulture Crops” for a better alternative to increase

the income of farmers in which the financial support in the form of back-ended subsidy is provided for setting up units relating to horticulture sector such as production related projects, PHM viz. Pack House, Ripening Chamber, Refer Van, Retail Outlets, Pre-cooling units, Primary processing etc. The brief of the scheme is as under:-

1.1 Open Filed Cultivation- Credit linked back-ended subsidy @ 40% of the total project cost limited to Rs 30.00 lakh per project in general area and @ 50% of project cost limited to Rs. 37.50 lakh in NE Region and Hilly States and Scheduled areas for horticulture projects in open field condition on project mode including component viz,

planting material, plantation, irrigation, fertigation, mechanization, GAP etc. for projects covering area over 2.00 ha (5 Acres). In case of NE Region, projects having area over 1 Acre are eligible.

1.2 Protected Cover/ Cultivation - Credit linked back-ended subsidy @ 50% of project cost limited to Rs 56.00 lakh per project for horticulture project in protected condition on project mode including components viz Green House, Shade net house, plastic tunnels, planting material, plantation, irrigation, fertigation, mechanization, etc for project having area over 2500 sq meter. In case of NE Region, projects having area over 1000 sq meter are eligible.

1.3 Post Harvest Management- Integrated PHM Projects relating to Pack House, Ripening Chamber, Refer Van, Retail Outlets, Pre-cooling units, Primary processing etc. Credit linked back-ended@35% of the project cost limited to Rs. 50.75 lakh per project in general area and 50% of project cost limited to Rs. 72.50 lakh per project in NE Region, Hilly States and Scheduled areas for post-harvest management projects/components.

Achievements

Under the scheme, the Board sanctioned **65 projects** during the current financial year **(as on 31.12.2021)** involving subsidy of **Rs. 1415.68 lakh**. The projects include Hi-Tech cultivation of perennial fruit crops in open field, vegetables & flowers in protected cultivation, tissue culture units, mushroom cultivation, establishment of pack house and grading centers, ripening chambers, refer van, retail outlets, pre-cooling units, primary processing units etc.

2. "Capital Investment Subsidy for Construction/Expansion/Modernization of Cold Storages and Storages for Horticulture Products", under this scheme,

credit linked back-ended subsidy @35% of the capital cost of the project in general areas and 50% in case of North East, Hilly States & Scheduled areas for Cold storage capacity above 5000 MT and up to 10000 MT is sanctioned for construction/ expansion/modernization of cold storage and CA store. In case of NE Region, the capacity above 1000 MT are also eligible. Only those projects are considered which are set up in conformity of technical standards for energy efficiency and environmental safety energy and multi chambers.

Achievements

Under the scheme, the Board sanctioned **09 projects** of Cold Storages/CA Storages involving subsidy of **Rs. 1954.91 lakh** for creation of capacity of **68678.68 MT** during the current financial year **(as on 31.12.2021)**.

3. Technology Development and Transfer for Promotion of Horticulture

Under this scheme, the Board is also providing grant-in-aid for popularization of identified new technologies/tools/ techniques for commercialization and adoption through following programmes:

- (I) Setting up of block / mother plant and root stock nursery (Area above 4 ha).
- (ii) Acquisition of technologies including import of planting material.
- (iii) Import of new machines and Tools for horticulture.
- (iv) Development & Transfer of Technology.
- (v) Long Distance Transport Solution.
- (vi) Product Promotion and Market Development Services- Horti-fairs.
- (vii) Exposure visit of farmers (Outside State).

- (viii) Visit Abroad for Government Officers.
- (ix) Organization/ Participation in Seminar/symposia/workshop for development of horticulture.
- (x) Accreditation and Rating of Fruit Plant Nurseries

Achievements

Under this scheme, NHB has assisted **09 projects** for Introduction of New Technology, Visit of Progressive Farmers, Horti. Sangam, Organization/Participation in Seminars/ Symposia/ Exhibitions, Technology Awareness, Mother Plant Nurseries, etc. and released financial assistance amounting to **Rs. 2.89 lakh** during the current financial year in **(as on 31.12.2021)**

Financial Progress

During 2021-22, an amount of Rs. 83.66 crore has been released (as on 31.12.2021) to NHB against a BE of Rs. 190.00 crore.

4. Market Information Service for Horticulture Crops

This scheme deals with work of computerization, development of technology package, data feeding, information dissemination through publicity, printed literature local advertisements etc scheme provides for engagement of outsourced staff such as Senior Programmer, Programmer, Data Entry Operators and horticulture assistant as per need at approved rates under TSG component of MIDH.

5. Horticulture Promotion Services/ Expert Services and Strengthening Capability of NHB

Under this component, specialized studies and surveys shall be carried and study/ survey reports shall be brought out for use by targeted beneficiaries. In addition, technical

laboratories shall be set up or cause to be set up and also provide technical services including advisory and consultancy services.

New Initiatives

Following new initiatives were taken by the National Horticulture Board during the year under report:-

i) Horticulture Cluster Development Programme

To address the challenges and enhance the global competitiveness of the Indian horticulture sector, the Ministry of Agriculture and Farmers' Welfare, Government of India, launched the Central Sector Programme namely, Cluster Development Programme (CDP) on 31st May 2021 to be implemented by the National Horticulture Board (NHB).

CDP aims to enable holistic growth and development of identified horticulture clusters to make them globally competitive and entrench them into national and global value chains.

This programme is designed to leverage the geographical specialization of horticulture clusters and promote integrated and market-led development of pre-production, production, post-harvest, logistics, branding and marketing activities. Ministry of Agriculture and Farmers' Welfare identified fifty-five (55) horticulture clusters and assumed that after successful implementation of the programme in all the clusters, the overall impact is envisaged to benefit



around 1 million farmers leveraging a total estimated investment of INR 10000 Cr and an increase in exports of the targeted crops by 20%.

Based on field visits and extensive feedback received from various stakeholders of the value chain, Operational Guideline for Horticulture Cluster Development Programme has been prepared and finalized. Further, it has been decided to implement the Pilot Phase of programme initially with shortlisted 12 clusters and the programme will be scaled up to cover all the 55 clusters based on the learning from the pilot phase.

Union Minister of Agriculture and Farmers' Welfare Shri Narendra Singh Tomar launched the Operational Guideline for Horticulture Cluster Development Programme virtually on 29th October, 2021.

As per the implementation framework stipulated in guideline, Cluster Development Agency (CDA) has been appointed for each identified cluster for undertaking the detailed analysis on gaps and determining the scope for innovative interventions in the clusters. Based on the Cluster Gap Assessment Reports (CGARs) submitted by CDAs of seven (07) clusters, Request for Proposals (RFPs) for selection of Implementing Agencies for Implementation of Different Verticals under CDP for Mango crop in two (2) clusters i.e., Kutch (Gujarat) and Mahabubnagar (Telangana) have already been published. RFPs from remaining clusters are expected to be published shortly.

ii) National Nursery Portal

Inadequate availability of quality planting material is one of the primary reason for low productivity of various horticultural crops in India. The Government of India is providing financial assistance through its various schemes for establishment of nurseries, their accreditation and rating with an aim to establish a network of quality nurseries across the country

for the purpose of propagation, multiplication and distribution of quality planting material of horticulture crops in India.

A large number of nurseries for horticultural crops have been established both in public and private sector and several of them have been accredited by various agencies, however, information related to the location of nurseries, their rating and availability of planting material with them during any given period for various crops and their varieties, is scattered and not



“Ensuring Availability of Quality Planting Material ”

available at one place. As a result, there is little access of information for farmers/growers and other stake holders in this field.

In order to overcome the above problem, the Ministry of Agriculture and Farmers Welfare through National Horticulture Board decided to setup an '**Online Digital Platform**' for Nurseries in India, enabling easy access to information on availability of quality planting material in the nearby localities for farmers/growers and other stake holders.

Through this portal, the nursery owners will able to showcase their profiles and post sell offers and buyers of planting material can post enquiries and view matching sell offers with feature of virtual aggregation. The National Nursery Portal has also been developed in important regional languages, apart from English and Hindi versions for wider coverage of the farming community. Apart from this, Mobile Apps of National Nursery Portal for Registered Buyers and Nurseries both

in “Android” and “IoS” platforms has also been launched.

The National Nursery Portal was launched by the Hon'ble Union Agriculture and Farmers Welfare Minister on 13.4.2021. The newly developed NHB's National Nursery Portal platform will greatly help buyers to easily access Nurseries as well as be aware of the availability, price expectation, etc., of the quality planting material. Similarly Nurseries will also getting exposed to the market demands.



B. Financial Progress: During the current financial year, funds to the tune of Rs. 27.50 crore has been released (as on 31.10.2021) to CDB against a BE of Rs. 110.00 crore.

5.4.5 Coconut Development Board (CDB)

A. Physical Progress: India being the largest coconut producing country in the world comprises 31.45% of global production. The coconut palm provides food security and livelihood opportunities to more than 12 million people in India. It is also a fiber-yielding crop for more than 15,000 coir-based industries which provides employment to nearly 6 lakh people.

The crop contributes around Rs. 307,498 million to the country's GDP and earns export revenue of around Rs. 60,738 million. There are 5 million coconut holdings in the country and the average size of these holdings is less than one hectare. As per the

all India second advance estimate for the year 2020-21, the area and production of coconut in the country is 2.17 million hectares and 21,206.74 million nuts, respectively. The four southern States of Kerala, Tamil Nadu, Karnataka and Andhra Pradesh accounted for 89.13% of the coconut area and 90.04% of the coconut production in the country. The annual productivity of coconut at national level for 2020-21 is 9,687 nuts per hectare.

During the year 2021-22 (upto 31.12.2021), financial assistance for covering a fresh area of 4078 ha under the 'Expansion of area under coconut' and 91 ha demonstration plots for productivity improvement. Financial assistance also extended for establishment of 6 new coconut nurseries and a coconut nucleus seed garden. Under the Technology Mission on Coconut, financial assistance for establishment of 6 new coconut processing units for value added products like Virgin Coconut Oil, Activated Carbon and Ball Copra, spray dried coconut milk powder and an integrated unit for desiccated coconut powder and VCO.

B. Financial Progress: During the current financial year, funds to the tune of Rs. 80.14 crore has been released (as on 31.12.2021) to CDB against a BE of Rs. 110.00 crore.

5.4.6 Central Institute of Horticulture (CIH), Nagaland

Central Institute of Horticulture, Medziphema, Nagaland has been engaged in the task of planning, coordinating, supervising and monitoring horticulture development activities. The programmes are executed through capacity building by training of trainers and farmers/beneficiaries; on & off farm demonstration of improved production technologies; production and supply of quality planting material; accreditation and certification of nurseries in NE region; promotion of organic cultivation of

horticultural crops; agri-business promotion through exhibitions, seminars, workshops, exposure trips, buyers & sellers meet; post harvest management and value addition of horticultural crops; skill development & certificate courses in horticulture; transfer of technology through method & result demonstration, publication of folders, manuals, leaflets and coordination with state horticulture departments of NER and other National organizations, NGOs, farmers' group and self-help groups. The salient achievements are summarized below:

- I. Capacity building and training programmes:** A total of more than 1239 farmers and officials have been provided training through online mode on various aspects of horticulture by the Institute such as Cultivation of exotic vegetables, Production technology of various horticulture crops, post harvest management & value addition and nursery management & accreditation.
- II. Production of quality planting material:** A total of 54905 nos. of rootstocks of Citrus, mango, Cashew nut and guava have been raised and 37450 Quality Planting materials have been propagated & produced for Citrus, Dragonfruit, Avocado, litchi, Cashewnut, Mango and Guava.

III. Demonstration of improved production technologies (on & off farm): The Institute has established demonstration plots of fruit crops (Khasi Mandarin, Acid Lime, Pear, Plum, Jamun, Guava, Avocado, Kiwi & Dragon fruit), vegetables (Okra, French Bean, Chilli, Indian bean, Cowpea, Bottlegourd, Cabbage, Broccoli, Cauliflower, Pak choi, Knoll Khol, Onion), seasonal flowers, Cultivation of Capsicum, Tomato and Cucumber under protected structures, oyster mushroom production.

- iv. Post harvest management:** Under post harvest management, the Institute has prepared oil less pickle, ginger candy, strawberry jam, Peach RTS, raw mango chutney, mango squash, pineapple squashes, Carambola candy etc.
- V Marketing and agri-business promotion:** Under Agri business promotion, the Institute has organized Training on Basics of DPR preparation and Entrepreneurship Development for Ex-trainees and FPC members; Market promotion programme for organic pineapples from Nagaland with Molsang FPC at Bungsang village, Dimapur, Nagaland and Coordinated Market linkage of organic pineapples of Nagaland to New Delhi.

GLIMPSES OF ACTIVITIES CARRIED OUT IN CIH, NAGALAND

A. Demonstration activities



Assessment of Cowpea var. Kashi Kanchan



Assessment of different cultivars of Gerbera

B. Quality planting material production



Dragon fruit cuttings



Acid lime seedlings

C. Post harvest management & value addition



Preparation of mango chunda, litchi squash, mango squash & ginger candy

5.5 Directorate of Arecanut and Spices Development, Calicut

The Directorate of Arecanut and Spices Development (DASD) is a subordinate office under Ministry of Agriculture & Farmers Welfare, Government of India, entrusted with the responsibility of development of Spices, Arecanut, Betel vine and Aromatic plants at National level. The Directorate monitors the development programmes implemented by the

states in spices under MIDH.

5.5.1 The mandate of the Directorate is as follows:

- I. Assessment of the developmental needs of spices, Arecanut, aromatic plants, betel vine etc.
- ii. Monitoring of the schemes and Coordinating State Departments, Research Institutes, State Agri. Universities, traders,

exporters and other stakeholders to address major issues confronting mandate crops.

- iii. Rendering technical assistance to State Governments and other agencies on commodity development programmes.
- iv. Collection and compilation of all the statistics related to the mandate crops and dissemination of the same to various agencies.
- v. Keeping liaison with the research institutes and extension agencies and acting as a two-way channel in the transfer of technology.
- vi. Undertaking the publicity and promotion works relating to the commodities.
- vii. Conduct Skill development training programmes in agriculture sector to enable youth for self-employment, leading to increase earnings and/or improved working conditions.

5.5.2 Programmes implemented by the Directorate

- i. Planting material Production programme.
- ii. Accreditation of Spice nurseries.
- iii. Establishment of Frontline demonstrations
- iv. Innovative Programmes
- v. Skill development training
- vi. Transfer of Technology programmes
- vii. Collection and Compilation of data related to mandate crops.
- viii. Promotion and Publicity.

5.5.3 Major Achievements of DASD during 2021-22

During the year 2021-22, the Directorate had an outlay of Rs. 12 crores for development and promotion of spices, arecanut, aromatic crops

and betelvine under MIDH.

Following are the major achievements of the Directorate in 2021-22:-

- **Planting material production Programme**

The Directorate is directly involved in the production and distribution of quality planting material of high yielding varieties of spices and technology transfer programmes in association with State agricultural Universities and Central Institutes across the country. Planting material production programmes worth Rs.7.38 crores was implemented during the year. More than 1016 tonnes of seeds/rhizomes and 42 Lakhs of seedlings of various spices were produced and distributed under this programme. Under this component, an exclusive programme for production of nucleus planting material of Betelvine in Bundelkhand region of Uttar Pradesh was also implemented during the year.

- **Accreditation of Spice nurseries**

DASD is engaged in accreditation of nurseries to improve the quality of planting material disbursed through various nurseries across the nation. About 50 nurseries are recognised under DASD accreditation programme till date.

- **Upgradation of spice nurseries**

Under the programme 'Upgradation of spice nurseries', financial assistance was given for improving the infrastructure facilities of five spices nurseries established at different State Agri Universities to meet accreditation norms.

- **Establishment of nursery infrastructure, storage infrastructure facilities**

Nursery infrastructure facilities for spices

are established at 2 different SAUs under this programme, during 2021-22. Five seed processing and storage infrastructure facilities for spice crops were also established in selected centres.

- **Skill development trainings**

Skill based certificate trainings on selected agri-based job roles are being provided to unemployed rural youth. About 75 youth were trained and certified under this programme during the year.

- **Innovative programmes**

Innovative technologies such as single bud planting and protray method of nursery rising in ginger and turmeric had been promoted by the directorate. Special programme on micro-rhizome derived ginger seed production through tissue culture technique has been undertaken in association with SAUs to promote disease free seed material in these crops. The Scaling up programme for microrhizome production in ginger was implemented successfully through ten different implementing centres of Kerala Agricultural University during 2020-21 & 2021-22.

Established two distillation units for extraction of aromatic plants /spices at different centres to encourage small and marginal farmers for extraction of essential oil, processing and marketing.

- **Webinar/ Seminars/ farmers training programmes**

Around 5,000 farmers were given training on different aspects of cultivation, management, post harvest management and processing of spice crops.

- **Frontline demonstrations established by DASD in 2021-22.**

- o Cluster based demonstration on

pesticide free cumin production through popularization of Good Agricultural Practices (bio-agents and botanicals for plant health management) in association with SDAU Jagudan at Undai (Bhabhar), Varasada (Deodar) and Kolava (Vav) clusters of Banaskantha district.

- o Demonstration on export oriented organic turmeric production (high curcumin varieties) and value addition in a selected cluster of 25 ha area to improve the rural livelihood.
- o Demonstration on optimum and efficient drip irrigation technique in spices to improve productivity and quality in selected SAUs and farmers fields.
- o Demonstrations on cultivation of aromatic plants were established in 25 ha area of Chhattisgarh state, aiming at the livelihood security of the tribal population.
- o Demonstrations on 'Intensive cultivation of cinnamon as intercrop in coconut gardens', 'EPN technology for management of white grub in arecanut' and 'Cultivation of Arecanut dwarf hybrids', 'Arecanut fruit rot disease management using Mandipropamid fungicide', 'Integrated Management of Inflorescence dieback in Arecanut are also being established in different locations through farmer participatory approach.
- o Demonstration of disease-free ginger seed production using microrhizomes and IDM are being established at multiple locations in association with Kerala Agricultural University.
- o 25 acre of farmer participatory demonstration plots on intensive

Cinnamon intercropping in coconut gardens are established in association with selected State Agricultural Universities in Karnataka, Andhra Pradesh, Maharashtra and Andamans.

- **Monitoring of MIDH Scheme progress through review meeting**

- o Conducted fourteenth Annual Review meeting of the MIDH programmes implemented through the Directorate of Arecanut and Spices Development in 2020-21, by using virtual platform during June 2021. Dr. Suresh umar alhotra, Agri & Horti Commissioner, Govt of India, inaugurated the programme and Principal investigators of the scheme representing 48 State Agri Universities/ ICAR institutes participated in the meeting.

- **Collection and compilation of data related to spices**

- o The All-India estimates (2020-21 Estimate) arrived for 22 spices and arecanut were submitted to the Horticulture Statistics Division of DA&FW for all India release along with the estimates of other horticulture crops. The same has been disseminated to different National/State level agencies engaged in research and planning.
- o Published Spices Statistics at a Glance 2021 a compendium of various statistics on area, production, productivity, export, import, prices and value of output of various spices produced in the country.

- o Conducted quick Pepper survey to find out the likely production of pepper in 2021-22 before the commencement of the harvesting season in the major pepper growing centres in the States of Karnataka Kerala and Tamilnadu.

Publicity activities

- a. Directorate published a quarterly journal 'Indian Journal of Arecanut Spices and Medicinal Plants' for the dissemination of information on various technologies related with Arecanut, Spices and medicinal plants.
- b. Publications in English/Hindi and vernacular languages have been released for the development of spices.
- c. Participated in National/State level exhibitions/programmes in connection with development of spices across the country.

Promotion of Hindi Language

- a. To create awareness regarding the use of Hindi in official work, a Hindi Pakhwada was organised in September 2021. During the event, various Hindi competitions such as noting and drafting, typing, technical terminologies, essay writing and quiz were organized and all the officers and employees participated in these competitions. Cash prizes were given to the winners of these competitions.
- b. An online workshop on Official Language policy of GOI was conducted as a part of Hindi Pakhwada Samaroh 2021-22.

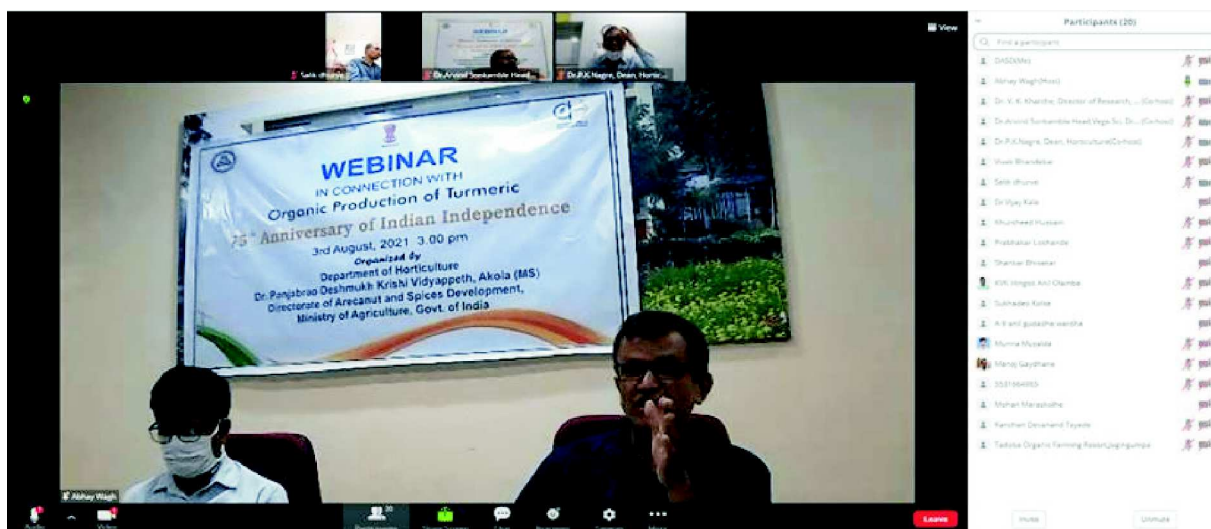
Photographs of DASD activities held in 2021 -22



DASD accreditation team visiting spice nurseries at Karnataka for evaluation



Input distribution in connection with FLD on organic pepper established at Assam



Webinar on organic turmeric production held at Dr. PDKV Akola



Dr. S. K. Malhotra, Agriculture commissioner addressing the delegates at DASD -MIDH Annual Review Meeting



Union Minister of State for Agriculture and Farmers Welfare, Ms. Shoba Karandlaje visiting the Directorate of Arecanut and Spices Development stall at India International Trade Fair 2021, Pragati Maidan, New Delhi

5.6 Directorate of Cashewnut and Cocoa Development, Kochi

The Directorate of Cashewnut and Cocoa Development (DCCD) functioning at Cochin is the subordinate office of the Department of Agriculture & Farmers Welfare of the Union Ministry of Agriculture & Farmers Welfare. This

was established in the year 1966 for the promotion of cashew cultivation in the country, bifurcating the erstwhile Indian Central Spices and Cashewnut Committee. The promotion of Cocoa also was entrusted to this Directorate in the year 1997. The Directorate formulate and execute the development programmes of cashew and cocoa in the country and monitor the

implementation of development programmes formulated and executed by the State Governments under Mission for Integrated Development of Horticulture. The DCCD also acts as a nodal agency for accreditation of existing cashew/cocoa nurseries and issue recognition.

5.6.1 Brief about the scheme with objectives

- **New plantation developmnt**

An area of 800 ha of cashew fresh planting programme and 898 ha of second year maintenance were achieved in the states of Andhra Pradesh, Karnataka and Kerala during the current financial year. Besides, an area of 150 ha of cocoa fresh planting rogramme and 150 ha of second year maintenance were established exclusively for tribal farmers. 1,60,000 Nos. cashew grafts and 75000 cocoa hybrid seedlings distributed to small and marginal farmers. More than 3750 small and marginal farmers were benefitd under the scheme, of which more than 800 farmers were tribal farmers.

- **Replanting of senile cashew plantations**

An area of 1180 ha for fresh replanting and an area of 1200 ha for second and third year maintenance undertaken during the current financial ear.

- **Accreditation of cashew / cocoa nurseries**

The DCCD acts as a nodal agency for accreditation of existing cashew/cocoa nurseries based on the guidelines prepared by the DCCD and issue certificate of accreditation. Forty cashew/cocoa nurseries were ccredited for production and distribution of good quality planting materials.

- **Nursery programmes**

The maximum financial assistance shall be limited to Rs.20.00 lakhs @ 40% of the total

project cost for small Model nursery and Rs.7.50 lakhs @ 50% of the otal project cost for small nursery. For upgradation of nurseries, 50% of cost to private sector subject to a maximum of Rs.5.00 lakh/nursery.he establishment/ modernization of five cashew nurseries is in progress.

- **Publicity for crop promotion:**

This programme is intended to take up intensive publicity measures for promotion of cashew and Cocoa by dissemination of latest productive technologies to the farming community and other target groups coming under the fold of cultivation, processing, marking and export by organizing District level seminar, fairs on cashew and cocoa in various states.

- **HRD programme**

The objective of the programme is to provide an appropriate training to the farmers in various aspects of cashew and cocoa farming consisting of nursery management, management of diseases, canopy management, improved production technologies, post-harvest nagement and processing, drying and storage, preparation of primary and value added products.

5.6.2 Salient achievements- 2021-22:

- New plantation of cashew in an area of 800 ha. is completed in the states of Andhra Pradesh, Karnataka and Kerala.
- An area of 150 ha. of cocoa was brought under a new planting programme exclusively for tribal farmers.\
- 1.60 lakh good quality cashew grafts were distributed to farmers from DCCD accredited nurseries.
- 75000 cocoa hybrid seedlings were distributed to tribal farers as part of new planting programme.

- Under replanting programme, fresh planting has been done after removing senile plantations with high yielding varieties in an area of 1180 ha in the states of Odisha, Tamil Nadu, Karnataka and Goa.
- Three online training programme on Organic Production of Cashew, Organic Production of Cocoa and Processing and Value addition in Cocoa conducted online in association with KAU and 272 farmers attended the training.
- National Steering Committee Meeting on Cashew has been held on **8th October 2021** under the Chairmanship of Shri. Sanjay Agarwal (IAS, Secretary of the Department of Agriculture and Farmers Welfare, Ministry of Agriculture and Farmers Welfare, Government of India).
- 14th National Steering Committee on Cocoa and Consultative Meet on Cocoa were organized at Goa under the chairmanship of Dr. S. K. Malhotra, Agriculture & Horticulture Commissioner.
- Under intensive transfer of technology programmes, 30 district level seminars, 20 cashew apple utilization trainings and 10 cashew field days will be organized.
- National level training programme on cashew was conducted to the field level implementing officials of various development departments wherein 78 field level officials have been attended including North Eastern states
- A stakeholders meeting on cashew was organized under the chairmanship of Dr. S.K Malhotra, Agriculture & Horticulture Commissioner to develop a strategy in the form of an actionable plan for next five years.

Chapter-6

NATIONAL BEEKEEPING AND HONEY MISSION (NBHM) /NATIONAL BEE BOARD (NBB)

6.1 Beekeeping:

Beekeeping is an agro-based activity which is being undertaken by farmers/ landless labourers in rural area as a part of Integrated Farming System (IFS). Beekeeping has been useful in pollination of crops, thereby, increasing income of the farmers/beekeepers by way of increasing crop yield and providing honey and other high value beehive products, viz.; bees wax, bee pollen, propolis royal jelly, bee venom, etc., that serves as a source of livelihood for rural poor. Diversified agro climatic conditions of India provide great potential and opportunities for beekeeping/ honey production and export of Honey.

6.2 Schemes of DA&FW for promotion of Beekeeping:

A. National Beekeeping & Honey Mission (NBHM):

Govt. of India has approved a Central Sector Scheme entitled “**National Beekeeping & Honey Mission (NBHM)**” with total budget outlay of Rs. 500.00 crores for 3 years(2020-21 to 2022-23) under Aatma Nirbhar Bharat Announcement for overall promotion and development of scientific beekeeping and to achieve the goal of “**Sweet Revolution**” in the country by implementing 3 Mini Missions (MMs)-MM-I, MM-II & MM-III under which thrust will be given on awareness, capacity building / trainings, focus on women empowerment through beekeeping, setting up of requisite infrastructural facilities, viz.; Integrated Beekeeping Development Centres (IBDCs), Honeybees Disease Diagnostic Labs, Setting/ upgradation of Honey Testing labs, Beekeeping Equipment Manufacturing Units, Custom Hiring Centres, Api therapy Centres,

Development of Quality Nucleus Stock Centres & Bee Breeders, etc., Digitization/online registration, etc. under MM-I, processing, value addition, market support, etc. under MM-II and R&D under MM-III. An amount of Rs. 145.00 crores has been allotted under NBHM, for the year 2021-22.

National Bee Board(NBB):

National Bee Board (NBB), a registered society under Societies Registration Act XXI of 1860 (19th July, 2000), was reconstituted under the Chairmanship of Secretary (A&C) in June, 2006. The main objective of NBB is overall development & promotion of Scientific Beekeeping in the country to increase the productivity of crops through pollination and increase the Honey production for increasing the income of the Beekeepers/ Farmers. NBB has been designated/recognised as Nodal Agency for overall development/promotion of scientific beekeeping in the country. The scheme NBHM is being implemented by NBB.

6.3 Main activities implemented by NBB under NBHM during 2021-22:

Details of main activities implemented during the year 2021-22 under NBHM, as on date, are given as under:

- 12 project proposals of the State Govts./ Agencies/ Organizations/ Deptts./ ICAR/ CAUs/ SAUs, etc. for total assistance of **Rs. 1444.45** lakhs was approved by PAC under NBHM by NBB.
- Madhukranti portal for online registration/ traceability system for source of Honey & other beehive products have been launched by Hon'ble Union Minister of Agriculture & Farmers Welfare, GoI on 07.04.2021.

- More than 11,000 Beekeepers/ Beekeeping & Honey Societies/ Firms/ Companies with 17.00 lakhs honeybee colonies registered with NBB and uploaded on “मधुक्रान्तिपोर्टल” upto November, 2021.
- NBB in coordination with all the concerned Ministries/ Deptts./ Organizations/ State Govts./ Universities/ ICAR Institute/ KVKs, KVIC, NAFED, NABARD, etc. has celebrated “**World Bee Day (WBD)**” by organizing 2 days National/ State Level Seminars/ Workshops for creating awareness about importance of bees/ honeybees in Agri/ Horti./ Human life, etc., on 20th & 21st May, 2021 in which, among others, beekeepers, processors, exporters, traders, etc. participated.
- 16 Mini Honey Testing Labs have been sanctioned under National Beekeeping & Honey Mission (NBHM) in the states of Bihar (1), Karnataka (3), Madhya Pradesh (1), Maharashtra (1), Rajasthan (1), Jammu & Kashmir (4), Uttar Pradesh (2) West Bengal (2) and Himachal Pradesh (1).
- 3 Regional/ Big Honey Testing Labs have been sanctioned in Delhi, Gujarat and Karnataka States under NBHM.
- To boost the agricultural production through pollination enhancement in crops in sustainable manner in the country, Department of Agriculture & Farmers Welfare, GOI has decided to treat **Beekeeping / Honeybees as an Input in Agriculture**.
- The Regional Honey Testing lab at IARI, Pusa, New Delhi has been launched by Hon'ble Union Minister of Agri. & Farmers Affairs on 20.05.2021.
- Orientation Workshops/ Video Conferences for States/ UTs and other Stakeholders for 4 Regions (East, West, NE & West Regions) for effective implementation of “Madhukranti” Portal for Developing Block Chain/ Traceability System for Source of Honey & other Beehive Products have been organized time to time.
- Meeting/ VC organised under Chairmanship of Additional Secretary, DA&FW for formation of 100 Honey Clusters and beekeeping training in 60 State Agricultural Universities (SAUs) on 18.06.2021
- 13 Meetings with the States of Assam, Meghalaya, Sikkim, Arunachal Pradesh, Nagaland, Tripura, Manipur, Mizoram, Kerala, Lakshadweep, Telangana, Karnataka, Puducherry, Maharashtra, Andhra Pradesh, Andaman & Nicobar and Gujarat - Dadra Nagar Haveli, Daman Diu & Goa regarding Madhukranti, Honey clusters under NBHM, FPOs, etc. were organized under Chairmanship of Addl. Secy. (AL), DA&FW during 2021-22.
- Bhoomi Pujan/ launching of Honey Processing Plant & other infrastructural facilities at Morena, MP done by Hon'ble Union Minister of Agriculture & Farmers Welfare on 01.07.2021.
- 100 FPOs of Beekeepers/Honey Producers have been allotted to TRIFED (14 nos.), NAFED (60 nos.) and NDDDB (26 nos.) in the identified areas/ Districts/Clusters selected by the National Bee Board (NBB) for implementation of activities under NBHM.
- An Online Workshop on "Promotion of Beekeeping Sector in Southern Region" was organized in collaboration with MANAGE under the chairmanship of Addl. Secretary (AL), DA&FW on 03.09.2021.
- A virtual workshop on “Promotion of Beekeeping in North-East & Himalayan Region” was organized by National Bee Board (NBB) in collaboration with Central

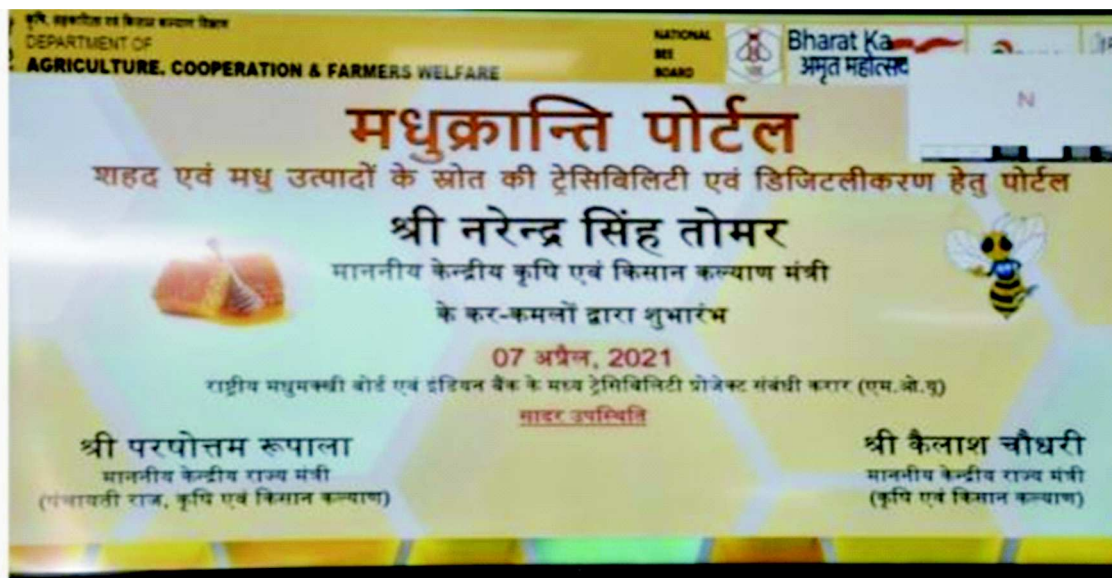
Institute of Horticulture (CIH), Nagaland 14.09.2021 under the Chairmanship of Addl. Secretary (AL), DA&FW, M/o Agri. & Farmers Welfare, GoI.

- AMUL honey has been launched by Hon'ble Minister of Agriculture & Farmers Welfare and Hon'ble Minister of Fisheries, Animal Husbandry and Dairying in the presence of MoSs (Agriculture) on 28.09.2021 in collaboration with Gujarat Cooperative Milk Marketing Federation Ltd. (GCMMF) and Banaskantha District Cooperative Milk Federation, Gujarat.
- Honey & other beehive product Processing Lab sanctioned under NBHM at Kamrup, Assam was inaugurated by Hon'ble Minister of Agriculture & Farmers Welfare, GoI on 04.10.2021.
- Beekeepers Summit has been organized on 11.11.2021 by Hon'ble Union Minister of Agriculture & Farmers Welfare, Govt. of India at IARI, Pusa, New Delhi. On this occasion, Farmers' Hostel at CIH was also launched by Hon'ble Minister through virtual mode.
- Training Programme on pilot initiative for Honey Cluster for beekeepers of Namsai District of Arunachal Pradesh was organized on 26.11.2021 through virtual mode.
- 7 Days within State Training on Scientific beekeeping was organized by Tamil Nadu Agricultural University (TNAU) from 16.12.2021 to 22.12.2021 at TNAU, Coimbatore, Tamil Nadu sanctioned under NBHM.
- Honey production has increased from 80,530 Metric Tonnes (MTs) in 2014-15 to 1,25,000 Metric Tonnes in 2020-21 (**55.22% increase**).
- Export of honey has increased by **102.85%**, i.e. from 29,578MTs in 2014-15 to 59,999 MTs in 2020-21.
- Four training modules, viz.; (i) basic training on beekeeping (ii) training on scientific beekeeping (iii) training on post-harvest management, processing, etc. & (iv) training on production of high value beehive products viz.; royal jelly, pollen, propolis, bee venom, bees wax, bee bread, etc. prepared & circulated to all the stakeholders including ICAR, SAUs, State Govts., KVIC, etc. for trainings in beekeeping.
- **>30,000 farmers/beekeepers** have been trained in scientific beekeeping including production of high value beehive products, viz.; Bee Pollen, Propolis, Royal Jelly & Bee Venom, etc.
- **>30 Bee Breeders** have been developed for multiplication/ production of **quality honeybee colonies** along with queens for providing to the trained farmers/ beekeepers. Each Bee Breeder produces at least 2000 bee colonies every year.
- **11,000** Beekeepers/Beekeeping & Honey Societies/Firms/Companies with **17.00 lakhs honeybee colonies** have been registered with NBB.
- **16 Integrated Beekeeping Development Centres (IBDCs)** as role model of beekeeping have been commissioned, one each in the States of Haryana, Delhi, Bihar, Punjab, Madhya Pradesh, Uttar Pradesh, Manipur, Uttarakhand, Jammu & Kashmir, Tamil Nadu, Karnataka, Himachal Pradesh, West Bengal, Tripura, Andhra Pradesh and Arunachal Pradesh.

6.4 Main achievements of NBB in beekeeping/ honey production, since its inception in DA&FW/ during the last 7 years (2014-15 to 2021-22)

The main achievements of NBB in beekeeping/ honey production during the last 7 years (2014-15 to 2021-22) are summarized as under:-

- 35 **Issues** of Quarterly Magazine “**Bee World**” containing information on scientific beekeeping and other related issues published.
- **Advisories on Good Beekeeping Practices (GBPs)** published & circulated to all State Govts. & concerned Agencies/ Stakeholders.
- Projects for **Integrated Development of Scientific Beekeeping (IDSB)** on Cluster/ Area/ District development approach for enhancing the crop productivity & income of farmers/ beekeepers and generating employment in rural areas formulated/ implemented.
- Designed technical standards for food grade plastic containers for storing honey, which helped in minimizing the problem of presence of lead in honey.
- **Standards of Honey, Bees Wax & Royal Jelly notified by FSSAI.**
- Prepared 5 years Vision Document for overall development of beekeeping.
- Requested Ministry of Finance and NABARD for instructing the financial institutions for financing beekeeping activities by providing credit limits /Kisan Credit Cards etc. In pursuance to this NABARD has already directed all commercial banks to finance beekeeping on priority basis.
- Awareness created about role of honeybees/ beekeeping in pollination support of various crops.
- Beekeeping/honeybee has been recognized/ incorporated as an input in Agriculture under various schemes of this Department (RKVY, NFSM, MIDH, etc.).
- National Bee Board is also promoting beekeeping and marketing of honey to explore the possibilities for utilizing milk routes/ NDDDB's infrastructure/ cooperative network in the field.
- **Safal Brand of honey** launched by Mother Dairy under technical guidance/ advice & support of NBB and honey is being sold at Safal Outlets in NCR.
- **150** officials/representatives/members/ farmers of Banas Dairy Union and Kolhapur Dairy Cooperative trained in beekeeping by NBB. Trained farmers/beekeepers started beekeeping.
- **Banas Brand of Honey** launched by Hon'ble Minister on 10th December, 2016 at Palanpur, Gujarat.
- Participated in various Horti/Agro Expos and disseminated information on scientific beekeeping. Last years, NBB participated in **Krishi Unnati Mela, 2016 & 2018** and demonstrated world class State of the Art technologies on scientific beekeeping for which **NBB was awarded (First Award- in 2016) & appreciated by Hon'ble PM in 2018.**
- Formulated National Beekeeping & Honey Mission (NBHM)- a new central sector scheme.
- In pursuance to NBB, **Beekeeping Development Committee (BDC)** under the Chairmanship of Dr. Bibek Debroy, Chairman EAC to PM, was constituted with seven members, including ED, NBB to take lead in promoting & coordinating activities involved in Beekeeping Industry so that “**Sweet /Golden Revolution**” in the Country may be achieved.



Madhukranti portal for online registration/ traceability system for source of Honey & other beehive products have been launched by Hon'ble Union Minister of Agriculture & Farmers Welfare, GoI on 07.04.2021



Launching of 'Amul Honey' by Shri Narendra Singh Tomar Ji, Hon'ble Union Minister of Agriculture & Farmers Welfare in the presence of Shri Parshottam Rupala, Hon'ble Union Minister for Animal Husbandry, Fisheries and Dairying on 28.09.2021 under National Beekeeping and Honey Mission (NBHM).



Inauguration of Honey & other beehive product Processing Lab by Hon'ble Minister of Agriculture & Farmers Welfare, GoI at Kamrup, Assam on 04.10.2021 sanctioned under National Beekeeping and Honey Mission (NBHM).



Inauguration of Beekeepers Summit and Farmers' Hostel at Central Institute of Horticulture (CIH), Nagaland by Hon'ble Union Minister of Agriculture & Farmers Welfare, Govt. of India on 11.11.2021 at IARI, Pusa, New Delhi through virtual mode.

Overview

7.1 National Food Security Mission was launched in 2007-08 to increase the production of rice, wheat and pulses by 10,8 and 2 million tonnes respectively by the end of the 11th Plan through area expansion and productivity enhancement; restoring soil fertility and productivity; creating employment opportunities and enhancing the farm level economy. The Mission was continued during the 12th Plan with new targets of additional production of 25 million tonnes of foodgrains comprising of 10 million tonnes of rice, 8 million tonnes of wheat, 4 million tonnes of pulses and 3 million tonnes of coarse cereals by the end of the 12th Plan. Beyond the 12th Plan (2017-18 to 2019-20), it was decided to continue the programme with new targets to achieve 13 million tonnes of additional foodgrains production comprising of rice-5 million tonnes, wheat-3 million tonnes, pulses-3 million tonnes and nutri-cum-coarsecereals-2 million tonnes by 2019-20 with an additional objective to enhance post-harvest value addition at farm gate for better price realization to farmers through efficient market linkages. The target during 2021-22 is for additional 1.7 million tonne of rice, 1 million tonne wheat, 1 million tonne pulses and 0.7million tonne nutri-cum-coarse cereals production.

7.2 The strategy of the Mission is to promote and extend improved technologies of package of practices of crops through various types of demonstrations (FLDs/Cluster FLDs), distribution of HYVs/ Hybrid seeds, production of seeds, distribution of micro-nutrients/soil ameliorants/ bio-fertilizers, plant protection chemicals/bio-pesticides, improved resource management tools/machineries/implements, efficient water application devices, capacity building of farmers and local initiatives; award

for best performing states etc. From the year 2020-21, primary processing units/small storage bins/flexibility interventions has been added as per local requirement.

7.3 Currently, NFSM is being implemented in identified districts of 28 states & 2 Union Territories (UTs) viz. Jammu & Kashmir and Ladakh in the country. NFSM-Rice in 193 districts of 24 states & UT of Jammu & Kashmir, NFSM-Wheat in 124 districts of 10 states & 2 UTs viz. Jammu & Kashmir and Ladakh, NFSM-Pulses in 644 districts of 28 states & 2 UTs viz. Jammu & Kashmir and Ladakh and NFSM-Coarse Cereals in 269 districts of 26 states & 2 UTs viz. Jammu & Kashmir and Ladakh.

NFSM-Nutri-Cereals is being implemented in 212 districts of 14 states. The North Eastern States & Hilly States including UTs of Jammu & Kashmir and Ladakh have been given flexibility to implement the programme on nutri-cereals. The Government has approved Crop Development Programme on Cotton, Jute and Sugarcane for enhancing the production and productivity under National Food Security Mission- Commercial Crops (NFSM-CC) w.e.f. 2014-15. Under this Scheme thrust has been given on transfer of technology through frontline demonstrations and training in order to extend benefits to the farmers. NFSM-Commercial Crops, cotton is implemented in 15 states, Jute in 9 states and sugarcane in 13 states of the country.

7.4 Monitoring & Evaluation at National level: A three-tier monitoring mechanism exists in NFSM at National, State and District levels. At National level, NFSM-General Council (GC) under the chairmanship of the Union Minister of Agriculture and Farmers Welfare was constituted to oversee the implementation of

NFSM and take policy decisions for mid-term corrections. National Food Security Mission- Executive Committee (NFSMEC) under the chairmanship of Secretary (A&FW) periodically review State Action Plans and the progress of the programme of each state. National Level Monitoring Teams (NLMTs) constituted for monitoring of National Food Security Mission activities. Each team is comprised of experts in the field of rice, wheat, pulses, coarse cereals and nutri-cereals as per requirement and the respective Directors of the Crop Development Directorates of Ministry of Agriculture and Farmers Welfare as Coordinator. As such, there are eight (8) National Level Monitoring Teams (NLMTs).

7.5 At state level, the monitoring & review is undertaken by the State Food Security Mission- Executive Committee (SFSMEC) under the Chairmanship of Chief Secretary. At district level, the monitoring is undertaken by District Food Security Mission- Executive Committee (DFSMEC) under the chairmanship of District Collector.

7.6 The Mid-Term Evaluation and the Impact Evaluation study of NFSM for the 11th and 12th plans were conducted by independent agencies to assess the impact of the programme in increasing the production and productivity of foodgrain crops. NITI Aayog has conducted an evaluation study through Deloitte Touch Tohmatsu India LLP from 2017-18 to 2019-20.

- The evaluation report covered all the aspects of the NFSM scheme.
- The performance of NFSM during the above said period was satisfactory in most of the cases as per the report.
- The recommendations and way forward for NFSM is for greater focus on pulses, nutri-cereals and bio-fortified varieties which is already being done and promoted under NFSM.
- Suggestions from any institutions/states

responsible for increasing production and productivity of food grain crops help in refining NFSM.

7.7 Funding pattern: The programme is being implemented on 60:40 sharing basis between Government of India (GOI) and state government in general states and 90:10 sharing basis for North Eastern states, Hilly states, states and 100% for Union Territories. As per the operational guidelines of NFSM, at least 30% of allocation is made for women farmers, 33% allocation of the fund is made for small and marginal farmers. In accordance with the decision of the Government of India regarding implementation of Special Component Plan (SCP) for Scheduled Castes and Tribal Sub-Plan (TSP) for Scheduled Tribes, 16% of the total allocation for SCP and 8% for TSP is earmarked. However, States are allowed to make allocation to SC/ST farmers in proportionate to their population in the States/districts.

7.8 Achievement during 2020-21:

Recommended agronomic practices have been encouraged through various demonstrations of rice, wheat, pulses & nutri-cum-coarse cereals in 8.14 lakh ha area. Nearly, 7.28 lakh quintals of high yielding varieties/hybrids of rice, wheat, pulses and nutri-cum-coarse Cereals have been distributed, 4.30 lakh quintals of seeds of pulses & nutri cereals has been produced, 9.63 lakh ha area has been treated with micronutrients, bio-fertilizers, soil ameliorants/ (gypsum/lime/ others) and 11.47 lakh ha area has been covered under Integrated Pest Management (IPM). Nearly 1.30 lakh numbers of improved farm machineries including pumpset & mobile rain gun have been distributed. 0.79 lakh ha area has been covered under sprinkler system, 63.26 lakh meters water carrying pipes have been distributed. About 9884 cropping system based trainings were conducted for capacity building of farmers.

7.9 New initiatives taken for increasing production and productivity of **pulses:-**

- Breeder seed production of pulses was introduced under NFSM - Pulses programme.
- 150 Seed Hubs were created to produce quality seeds of pulses to farmers across the country through the ICAR-Indian Institute of Pulses Research (IIPR), Kanpur and their centres.
- Supplying of Seed Mini kits of pulses not older than 10 years free of the cost (100% share) to the farmers.
- In addition to State Governments, the ICAR/KVKs/SAUs are also involved in conducting demonstrations on improved latest package of practices of pulses. During 2021-22, a total of 50,000 numbers (one ha. each) of cluster frontline demonstrations have been sanctioned to 583 Krishi Vigyan Kendras coming under 11 ATARIs of ICAR in the country for demonstrating latest technologies of pulses at farmers field. The 3350 numbers of (one ha. each) FLDs have been sanctioned to different ICAR Institutes on barley, pulses, maize, small millets, pearl millet and sorghum crops during 2021-22 for demonstrating latest technologies at farmers field.
- During 2021-22, around 25.00 lakh numbers of seed mini kits of pulses have been allocated to different states for Kharif, Rabi & Summer seasons which is 427% higher allocation over preceding year.
- 15% allocation is earmarked under NFSM-Pulses for production of quality seeds of pulses through State Governments.
- The government created a buffer stock of pulses to control fluctuation of prices of pulses.

New initiatives taken for increasing production and productivity of **Nutri-Cereals:**

- Breeder seed production of nutri-cereals.

- Creation of seed hubs.
- Certified seed production.
- Seed minikits allocation.
- Establishment of Centers of Excellence.
- Publicity of nutri-cereals.

7.10 International Year of Millets - 2023:

Realizing the health benefits of millets viz gluten free, low fat and low carbohydrates, the efforts have been made to increase production, productivity and income of millet growers under various schemes of the Central and State Governments. In order to encourage production and consumption of millets, Government of India notified millets as Nutri-Cereals in April, 2018 which includes Sorghum (Jowar), Pearl Millet (Bajra), Finger Millet (Ragi/Mandua), Minor Millets i.e., Foxtail Millet (Kangani/Kakun), Proso Millet (Cheena), Kodo Millet (Kodo), Barnyard Millet (Sawa/Sanwa/ Jhangora), Little Millet (Kutki) and two Pseudo Millets Buckwheat (Kuttu) and Amaranthus (Chaulai).

To create domestic and global demand and to provide nutritional food to the people, Government of India had proposed to United Nations for declaring 2023 as International Year of Millets (IYoM-2023). The proposal of India was supported by 72 countries and United Nation's General Assembly (UNGA) declared 2023 as International Year of Millets on 5th March, 2021.

7.11 Targeting Rice Fallow Areas (TRFA): The TRFA is a sub-scheme of the National Food Security Mission (NFSM) programme which gives emphasis on land that remains under utilized after harvesting of Kharif paddy crops. The aim is to bring a change in the cropping pattern during the Rabi season by introducing appropriate varieties of pulses that can be cultivated by using available moisture. It is being implemented through a combination of innovative technological interventions and provision of essential agri-inputs including

extension services in 11 TRFA implementing States of the country. Targeting Rice Fallow Area Programme was implemented as a sub scheme of NFSM from 2017-18 in 6 states namely, Assam, Bihar, Chhattisgarh, Jharkhand, Odisha and West Bengal. However, this was extended to 5 new states namely, Gujarat, Maharashtra, Madhya Pradesh, Karnataka and Tamil Nadu during 2019-20. From 2017-18 to 2020-21, an area of 32.26 lakh ha was covered under rice fallow for

cultivation of pulses. During 2020-21, the TRFA was implemented in 13680 villages of 102 districts in 11 states. The allocation of TRFA during 2021-22 is Rs. 200.00 crore (central share) for 11 states.

7.12 Production of foodgrain: The production of food grain has increased substantially during the XI Plan and XII Plan. The production during 2019-20 to Kharif 2021-22 is as under:

(in Million tonnes)

Crops	Rabi/Kharif	2019-20	2020-21(4 th Advance Estimates)	2021-22(1 st Advance Estimates)
Rice	Kharif	102.28	104.41	107.04
	Rabi	16.59	17.86	-
	Total	118.87	122.27	107.04
Wheat	Rabi	107.86	109.52	-
Pulses	Kharif	7.92	8.69	9.45
	Rabi	15.10	17.02	-
	Total	23.03	25.72	9.45
Nutri/Coarse Cereals	Kharif	33.61	36.46	34.00
	Rabi	14.13	14.68	-
	Total	47.75	51.15	34.00
Total Foodgrains	Kharif	143.81	149.56	150.50
	Rabi	153.69	159.08	-
	Total	297.50	308.65	150.50

The paddy crop demonstrations fields at RSK, Hattikuni, Yadgiri District of Karnataka under NFSM scheme during 2021-22 is as under;





Beneficiary farmers of Paddy Demonstrations under NFSM-Rice at RSK, Hattikuni, Yadgir District of Karnataka during 2021-22;



Beneficiary farmers of farm implements distributed under NFSM during 2021-22 at Basavan Bagewadi Block of Vijayapura District, Karnataka;



IPM inputs distributed to beneficiary farmers of Redgram/Arhar demonstration plot at Kodekal Hobali, Shorapur Blcok, Yadgir District, Karnataka under NFSM during 2021-22;



INM inputs distributed to beneficiary farmers of Cotton demonstration plot at Shorapur Block, Yadgir District, Karnataka under NFSM during 2021-22;



Redgram/Arhar demonstration plot at Muddebihal Block, Vijayapura District, Karnataka under NFSM during 2021-22;



Visit of Hon'ble MoS (Agri& FW) Sushri Shobha Karandlaje to the Stall at India International Trade Fair (IITF-2021) from 14th -27th November, 2021 at Pragati Maidan, New Delhi showcasing efforts of DA&FW



The officials of Crops Division of DA&FW at the Millet Stall during India International Trade Fair (IITF-2021) at Pragati Maidan, New Delhi.



Showcasing various types of millets and their importance by officials of Crops Division of DA&FW at the Millet Stall during India International Trade Fair (IITF-2021) at Pragati Maidan, New Delhi.

Chapter-8

NATIONAL FOOD SECURITY MISSION (OILSEEDS & OILPALM) – NFSM (OS&OP) AND NATIONAL MISSION ON EDIBLE OILS-OIL PALM (NMEO-OP)

8.1 Overviews of Edible Oil Production:

India is heavily dependent on imports to meet its edible oil requirements and is the largest importer of vegetable oils in the world followed by China and USA. Of all the imported edible oils, share of palm oil is about 62% followed by soybean oil with a share of 22% and sunflower (15%). Import growth in respect of edible oils during the last decades is about 174%. The import figure of edible oils during 2020-21 reveals that India imported a total of 13.45 million tonnes of vegetable oils costing Rs. 81682 crore. The per capita consumption which was 15.80 kg per person per annum in 2012-13

increased to 19.70 kg per person per annum in at present. The consumption is around 19kg/year/person during last five years. The year wise domestic production and import of edible oils in the country is given in (Table -1).

Domestic edible oil production has not been able to keep pace with the growth in consumption. During 2020-21 domestic production of edible oils was 11.16 million tonnes from both primary (Oilseeds) and secondary sources (Coconut, Oil palm, Rice bran oil, Cotton seed oil and TBOs). The year wise demand and supply of edible oil during last five years in the country are given below.

Table-1 Demand and Supply of Vegetable Oils in India

Year	Total domestic demand	Domestic availability	Import	Import (%) of total domestic demand
2015-16	23.48	8.63	14.85	63.24
2016-17	25.42	10.10	15.32	60.35
2017-18	24.97	10.38	14.59	58.43
2018.19	25.92	10.35	15.57	60.06
2019-20	24.07	10.65	13.42	55.75
2020-21	24.61	11.16	13.45	54.65

*Directorate General of Commercial Intelligence & Statistics (Ministry of Commerce)

8.2 Overviews of Oilseeds Production:

Oilseeds cultivation is undertaken across the country in about 28.79 Million ha, largely under rainfed areas covering 72% and producing around 36.10 million tonnes of oilseeds. Nine oilseeds are the major source of vegetable oil in the country. Among nine major oilseeds Soybean (36%), Groundnut (28%) and Rapeseed & Mustard (28%), contributes to more than 90% of total oilseeds production in the country. However, in terms of vegetable oil production

Mustard, Groundnut, and Soybean contributes 28.57%, 20.75% and 18.50% respectively.

Rajasthan, Maharashtra, Madhya Pradesh, and Gujarat are the major oilseeds producing states contributing more than 76% of oilseeds production in the country. During 2020-21, Area, production and yield was 28.79 million ha, 36.10 million tonnes and 1254 kg/ha respectively. The highest ever production of oilseeds was achieved during 2020-21. (Table-2)

Table-2 Area Production and yield of oilseed crops in India

Year	Area (Million ha)	Production (Million tonnes)	Yield (Kg/ha)
2016-17	26.17	31.27	1194
2017-18	24.51	31.46	1284
2018-19	24.79	31.52	1271
2019-20	27.14	33.22	1224
2020-21*	28.79	36.10	1254

*4th advance estimate

In view of the aforesaid background, Oilseeds Division is mandated with the activities related to increasing production and productivity of oilseeds and area expansion under oil palm & TBOs for increasing domestic availability of edible oils.

8.3. On-going Scheme

8.3.1 National Food Security Mission (Oilseeds & Oil Palm) – NFSM (OS&OP)

With effect from 2018-19, the NMOOP scheme has been merged with National Food Security Mission (NFSM) and is being implemented as NFSM (OS&OP). This scheme comprises of three sub-missions namely, NFSM-Oilseeds, NFSM-Oil Palm and NFSM-TBOs. The scheme is being implemented through the State Department of Agriculture/ Horticulture in 27 States and 3 UTs. The assistance under the various interventions of the scheme is focusing to benefit the farmers and has direct impact on increasing the farmers income involved in oilseed and oil palm cultivation. Most of the components are in the ratio of 60:40 % (GoI: State) sharing laving for general states and 90:10 % for North East and hilly states. Few components are 100 % funded by GOI to Central agencies, ICAR, KVKs/SAUs.

8.3.2 Oilseeds Production Target 2021-22

i. To augment the availability of vegetable oils and to reduce the import of edible oils by increasing the production and productivity of oilseeds from an average production of

33.42 million tonnes and productivity of 1236 kg/ha during 12th plan period to 38.40 million tonnes and yield of 1309 kg/ha, by the end of 2021-22.

- ii. An area of 68.27 lakh ha-under Special Programme on Rapeseed and Mustard, during 2021-22.
- iii. An area of 31548 ha- under Oil Palm during 2021-22.
- iv. An area of 2607 ha - under TBOs namely Olive, Mahua, Kokum, Wild Apricot, Neem, Jojoba, Karanja, Simaroba and Tung during 2021-22.

8.4. Strategies of Oilseeds Production

The strategies for enhancing the productivity (and profitability) of oilseed based production systems are prepared for the annual oilseeds and for oil palm in the country. The interventions/ strategies proposed in oilseeds are time tested with scale neutrality that can be grounded for enhancing the productivity of the oilseed based production system with necessary institutional support/ handholding. The proposed strategies are categorized under three situations as follows:

1. Horizontal (area expansion) and vertical (productivity increase) expansion of oilseeds crop.
2. Increasing seed production and distribution of newly released varieties.

3. Low cost technologies with high impact on productivity resulting in higher income.
4. Technologies with high impact that involve reasonable investment with high return on investment (ROI), with emphasis on eco-friendliness, high input use efficiency, and
5. Strategies with emphasis on quality improvement and value addition leveraging technologies with a bearing on the employment through skill/entrepreneurship development.
6. Strategies to increase additional area and production of oilseeds through rice fallow, intercropping and crop diversification.

The newer opportunities to explore non-traditional seasons and regions for crops are also projected that have proven success for area expansion and integration into major cropping systems.

8.5. Annual Action Plan of NFSM (OS) during 2021-22:

NFSM (OS) programme is being implemented in 27 states and 3 UTs comprising of 7 (seven) Central seed producing agencies with Budgetary Estimate (BE) of Rs.536 crore.

The salient features of NFSM (OS) are given below:

8.5.1 NFSM-Oilseeds:

Under this Mission, financial assistance is being provided for Seed Components (production & distribution of certified seeds, seed hubs and minikits,); Inputs (Plant Protection Equipments, Bio-pesticides, Distribution of Micro-nutrients, bio-fertilizers, improved farm implements, pipes, sprinklers, seed storage bins, seed treatment drums) and Transfer of Technology through Block demonstrations, Frontline Demonstrations (FLDs), Cluster Frontline Demonstrations (CFLDs), farmers and extension workers training etc. The scheme is being

implemented through State Department of Agriculture. NFSM-Oilseeds is also supporting ICAR institutes for undertaking FLDs on oilseeds crops and ICAR-KVKs for organizing cluster demonstration on oilseeds.

The major interventions targeted under oilseeds programme during the year 2021-22 are as follows:

- A total of 2.06 lakh qtls of seed production of oilseed crops.
- More than 1.66 lakh qtls of certified seed distribution.
- 2.17 lakh ha block demonstrations.
- 0.032 lakh ha Front Line Demonstration (FLD) & Cluster FLDs through ICAR and KVKs.
- 2595 farmers & officers training
- Supply of soil ameliorants over an area of 4.64 lakh ha.
- Supply of PP chemicals/ Bio-pesticides/ weedicides/ micronutrient over an area of 1.93 lakh ha.
- Distribution of 0.51 lakh farm implements and PP equipments.
- Distribution of 4769 sprinklers and 45.63 lakh mt water carrying pipes
- 35 oilseeds hubs have been establishment with a target of producing 60825 qtls of certified seeds through ICAR, SAUs and KVKs
- Oilseeds production of 36.10 million tonnes has been achieved during 2020-21 which is the highest during past four years of implementation of the programme.
- The yield of 1254 kg/ha of oilseeds has been achieved during 2020-21.

Year and Season wise oilseeds production target and achievement during 2014-15 to 2020-21						
Year	Target			Achievement		
	Kharif	Rabi	Total	Kharif	Rabi	Total
2016-17	23.50	11.50	35.00	21.53	9.75	31.28
2017-18	25.40	10.10	35.50	21.01	10.45	31.46
2018-19	25.50	10.50	36.00	20.67	10.84	31.52
2019-20	25.84	10.26	36.10	22.25	10.97	33.22
2020-21*	26.06	10.42	36.48	24.03	12.07	36.10

* 4th Advance estimate, DES

8.5.2 Seed production, Minikits and FLDs during 2021-22:

In order to encourage the adoption of newly released varieties and improved agro-techniques in oilseed crops support is provided under NFSM-Oilseeds to Central Agencies viz. NSC, KRIBHCO, HIL (include NFL), NAFED, NCCF, IFFDC & KVSSL for procurement of breeder seed (B/S), production of foundation seed (F/S) and production certified seed (C/S), and supply of seed minikits (Kharif/Rabi/Summer) during 2020-21. In addition, support is also provided for conduct of Front Line Demonstrations (FLDs) through ICAR/SAUs network. During Kharif-2021 and Rabi 2021-22; A total of 2,64,904.95 qtls (breeder seed) of various categories of seeds (B/S,F/S,C/S) have been approved for production. Seed minikits of oilseeds crops totalling 17,93,036 nos. Kharif/Rabi during-2021-22 and 8,33,201 were supplied during Kharif-2021 Rabi 2021-22, through Central Seed Producing Agencies.

A total of 8017 FLDs on improved varieties and agro-techniques of nine oilseeds crop (Groundnut, Soybean, Castor, Niger, Sesame, Rapeseed-Mustard, Linseed, Safflower, and Sunflower) during Kharif-2021 and Rabi 2021-22 respectively, were conducted through ICAR-AICRP network. During Kharif/ Rabi/ Summer 2021-22 a total of 19632 cluster FLDs have been planned through 613 KVKs of ICAR in different states covering (Groundnut, Soybean, Rapeseed-

Mustard, Sunflower, Safflower, Linseed, Sesame, Niger and Castor) Kharif / Rabi / Summer 2021-22 Oilseeds. 35 Oilseed Hubs have establishment with a target of producing 60825 qtls. of certified seeds through ICAR, SAUs and KVKs.

8.5.3 Targeting Rice Fallow Areas (TRFA) in six Eastern states and four other state:

A new scheme namely TRFA was launched in 6 Eastern states viz., Assam, Bihar, Chhattisgarh, Jharkhand, Odisha and West Bengal in 2016-17 for utilization of rice fallows for cultivation of pulses and oilseeds. During 2019-20, 4 new states namely Andhra Pradesh, Maharashtra, Karnataka & Tamil Nadu have also been included.

8.5.4 NFSM-(Oil Palm)

- National Food Security Mission–Oil Palm (NFSM-OP) is dedicated to oil palm area expansion and productivity enhancement. During 2020-21, NFSM-OP is being implemented in 12 states. Andhra Pradesh, Chhattisgarh, Gujarat, Karnataka, Odisha, Tamil Nadu, Telangana, Arunachal Pradesh, Assam, Mizoram, Manipur & Nagaland are major oil palm growing states.

- Under NFSM-Oilpalm, financial assistance are being provided to the farmers @ 85% cost of the planting material and @ 50% cost of the other components like maintenance cost of new plantations for four years, installation of drip-irrigation systems, diesel/electric pump-sets,

bore-well/water harvesting structures/ponds, inputs for inter-cropping in oil palm (during gestation period), construction of vermi-compost units and purchasing of machinery & tools etc.

• R&D: 100% support is being provided to Indian Institute of Oil Palm Research (IIOPR), Pedavegi, Andhra Pradesh for Research & Development on oil palm for following projects:

- Capacity building programs to extension officials and farmers for oil palm production technology (Old)
- Dissemination of oil palm production technology in vernacular languages through digital video films (Old)
- Design & development of oil palm crop doctor in vernacular language for dissemination of technology (Old)
- Optimization of procedure for sprout production and seed storage in oil palm for indigenous seed gardens
- Development of planting materials for high oil yield by utilizing Elite Dura Mother Palms in Thodupuzha.
- Enhancing profitability of oil palm farmers through diagnostic advisory in Nutrient Management

Major interventions of NFSM-Oil palm during 2020-21 are as follows:

- Additional area coverage of oil palm plantation of 22115 ha.
- About 98814 ha area under maintenance and intercropping.
- Coverage of 3350 ha under drip irrigation
- Distribution of 786 pump sets & 419 bore wells.
- Farmers and Officers Training to 598 nos.

All these developmental efforts have resulted in area expansion under oil palm from 8585 ha in

1991-92 to 3.70 lakh ha by the end of March 2021. Similarly, the Fresh Fruit Bunches (FFBs) production and Crude Palm Oil (CPO) have increased from 21,233 MT and 1,134 MT respectively (1992-93) to 16.89 lakh MT and 2.72 lakh MT respectively during the year 2020-21. At present, Andhra Pradesh, Telangana, Karnataka, Tamil Nadu, Mizoram and Odisha are major oil palm growing states.

8.5.5 NFSM-Tree Borne Oilseeds (TBOs)

- i. Assistance under NFSM-TBOs is provided to promote various TBOs namely Simarouba, Neem, Jojoba, Karanja, Mahua, Wild apricot, Cheura, Kokum, Tung and Olive having capability to grow and establish in varied agro-climatic conditions as well in the waste land of the country.
- ii. The interventions under NFSM-TBOs are integrated development of nurseries & plantation on the wasteland, maintenance of TBOs plantation, incentives for undertaking intercropping with TBOs, Research and Development, distribution of pre-processing, processing and oil extraction equipment, training of farmers, training of extension workers and local initiatives/contingency.
- iii. During 2021-22 NFSM-TBOs programme is being implemented in 8 states i.e. Chhattisgarh, Jammu & Kashmir, Maharashtra, Mizoram, Rajasthan, Tamil Nadu, Tripura and Uttar Pradesh with 2607 ha target to cover plantation area of TBOs.

8.5.6 National Mission on Edible Oils-Oil Palm (NMEO-OP):

Recently, a new Centrally Sponsored Scheme namely, National Mission on Edible Oil (NMEO)-Oil Palm (NMEO-OP) has been launched by Government to promote oil palm cultivation for making the country Aatmanirbhar in edible oils with special focus on North-Eastern States and A&N Islands. The Mission will bring additional area of 6.5 lakh ha under Oil Palm plantation with

3.28 lakh ha in north-eastern states and 3.22 in Rest of India in next 5 years from 2021-22 to 2025-26. Under NMEO-OP the cost will be shared as 60:40 between the Central and the State Government for General states and 90:10 for NE states and 100% for UTs and Central Agencies.

The major focus of the Mission is to provide Viability price of FFBs to the farmers linked with assured procurement by the industry with simple price fixing formula. Central government will compensate farmers through viability gap payment, if price paid by industry is below viability price.

The Government has assessed that a total area of around 28 lakh hectares in the country and around 9.62 lakh hectares for the North East alone fit for oil palm cultivation. Out of the total assessed area, only 3.69 lakh hectares is under oil palm cultivation including NE states at

present only of which 1.8 lakh ha is fruiting area. Hence there is a lot of potential for the growth of oil palm in the country.

The Mission will result in increase the area of oil palm by 6.5 lakh hectares by 2025-26 and 16.71 lakh ha by 2029-30. The current fruiting which is 1.89 lakh hectares will be increased to 2.80 lakh hectares by 2025-26 and above 8.50 lakh hectares by 2029-30. The expected FFBs production will be 75.19 lakh tonnes by 2025-26 and 170.00 lakh tonnes by 2029-30. The CPO production is expected to increase upto 28.11 lakh tonnes by 2029-30.

The total estimated cost of the NMEO (Oil Palm) is ₹8844 crore GOI share ₹ 2196 crore state share, and total of ₹ 11,040 crore including Viability Gap funding with a cost of ₹1163 crore. (Rest of India- ₹1144 crore and ₹19.00 crore for NE states and Andaman & Nicobar Islands till 2025-26.

NFSM-Oil Palm



The Business Summit of the National Mission on Edible Oils-Oil Palm (NMEO-OP) for North-Eastern States was held at Guwahati on 5th October 2021 to finalize action plan for Oil Palm cultivation in North-Eastern States under the Chairmanship of Shri. Narendra Singh Tomar, Hon'ble Union Minister of Agriculture and Farmers' Welfare. All the stake holders namely Central and State Government, Industry representative, R&D Institutions, Progressive farmers and bankers participated in the Summit. The glimpse of the Summit is as under:



Another Business Summit was held on 28th December 2021 at Hyderabad under the Chairmanship of Hon'ble Agriculture Minister. The glimpses are under:



8.6. Budgetary Estimate (BE) and release:

During 2021-22, against the Budgetary Allocation of Rs.536.00 crore an amount of Rs. 121.31 crore has been released to the

programme implementing states, Central agencies as on 08.12.2021. The programme-wise allocation and release is given below:

(Rs. in crore)

S.No.	NFSM (OS&OP)	Allocation (2021-22)	Release of fund
	A. States	536.00	
1.	i. NFSM-Oilseeds		62.42
	ii. NFSM-TRFA		0.00
	iii. NFSM- Special Programme R&M		0.00
	Total		
2	NFSM-Oil Palm		29.77
3	NFSM-TBOs		1.87
	B. Central agencies/ R&D institutions		27.25

8.7. Implementation of Direct Benefit Transfer (DBT) - an initiative under NMOOP:

Notifications for implementation of Direct Benefit Transfer (DBT) for NMOOP has been published vide SO 1343(E) dated 24th April, 2017. NMOOP-DBT portal has been created to facilitate the NMOOP implementing states for updating the beneficiary details. The DBT-NMOOP portal is used by the NMOOP implementing states for uploading of the DBT linked beneficiary details in the main NFSM DBT Portal. As on 02.12.2020, 289442 no. of benefices are enrolled in DBT Portal.

8.8. Fund flow (%) under SCSP and TSP:

The release of fund under NFSM (OS&OP) programme is made to the states with category wise break-up for SC/ST and also there is a special mention in the release letter that the funds earmarked for SC/ST category cannot be diverted

for General category. Even while conveying the re-validation of previous year unspent balance of fund to the states it has the specific mention of category-wise (SC/ST) break-up of amount that is to be utilized by the state.

8.9 Women beneficiaries:

While conveying the Budgetary allocation for Annual Action Plan to the States, 30% of allocation has been earmarked for women beneficiaries/farmers at the level of state Government implementing the NFSM (OS&OP) programme.

8.10. Extension activities

The department is also organizing Kisan Mela, seminar, workshop, Brain storming session, exhibition for mass awareness of NFSM (OS&OP) programme and activities among the stakeholders including farmers. The details of Major Events Agriculture Fairs (Kisan mela) during 2018-19 & 2019-20 are as follow:

S. No.	Event	States	Fund Released
2018-19			
1	National Seminar, On Road Map of vegetable oil production by 2022" by ICAR IIOR during 28-29 April, 2018	AP	18.00
2	Soya Kisan Meala at KVK, Betual, MP by JNKVV, Jabalpur on 20.09.2018	MP	4.00
3	Farmers Fair -cum Exhibition on Groundnut at ICAR-DGR, Junagadh at 1st October, 2018	Gujarat	4.00
4	Mustard kisan mela ICAR-DRMR, Bharatpur, Rajasthan 02.02.2019	Rajasthan	4.00
2019-20			
1	Farmers Fair-cum Exhibition on Groundnut 10.10.2019	Gujarat	4.50
2	Kisan mela by NSC 29.02.2020	Bihar	4.00

Chapter-9

NATIONAL MISSION FOR SUSTAINABLE AGRICULTURE (NMSA) & PRADHAN MANTRI KRISHI SINCHAYEE YOJANA (PMKSY)

9.1 Overview

National Mission for Sustainable Agriculture (NMSA) is one of the eight Missions outlined under the National Action Plan on Climate Change (NAPCC) and aims at promoting sustainable agriculture by devising appropriate adaptation strategies/dimensions. During the 12th Five Year Plan, these strategies / dimensions were embedded and mainstreamed into Missions/ Programmes /Schemes of the Department of Agriculture and Farmers Welfare (DA&FW) through a process of restructuring and convergence. NMSA as a programmatic intervention made operational from the year 2014-15 aims at making agriculture more productive, sustainable, remunerative and climate resilient by promoting location specific integrated / composite farming systems; soil and moisture conservation measures; comprehensive soil health management; efficient water management practices and main streaming rainfed technologies.

NMSA aims at promoting Sustainable Agriculture through climate change adaptation measures. The major thrust is enhancing agriculture productivity especially in rainfed areas focusing on integrated farming, soil health management and synergizing resource conservation. From the year 2018-19, NMSA is being implemented as a sub-mission/sub-umbrella scheme under the Umbrella Scheme of 'Green Revolution-Krishonnati Yojana'. The Centrally Sponsored and Central Sector Schemes of NMSA are as under:

A) Centrally Sponsored Schemes:

- Rainfed Area Development (RAD)
- Sub Mission on Agro Forestry (SMAF)
- National Bamboo Mission (NBM)

- Soil Health Management (SHM)
- Paramparagat Krishi Vikas Yojana (PKVY)

B) Central Sector Schemes:

- Soil and Land Use Survey of India (SLUSI)
- National Rainfed Area Authority (NRAA)
- Mission Organic Value Chain Development in North Eastern Region (MOVCDNER)
- National Centre of Organic Farming (NCOF)
- Central Fertilizer Quality Control and Training Institute (CFQC&TI)

9.2 Rainfed Farming Systems

Food grain production in the country accrues from approximately 139.18 million hectare of net area sown. Of this, 69.48million hectares is net irrigated and the remaining area of about 69.70 million hectares is under rainfed conditions (as per Land Use Statistics at a Glance 2017-18). Rainfed agriculture is complex, diverse and risk prone characterized by low levels of productivity and low input usage. Rainfed areas if managed properly have the potential to contribute a larger share in the overall production of food grains in the country. In view of this, the Government of India has accorded very high priority to the holistic and sustainable development of rainfed areas through efficient use of water management at farm level and appropriate farming systems etc. In this context, the RFS division is implementing the Per Drop More Crop Component of the Pradhan Mantri Krishi Sinchayee Yojana (PMKSY-PDMC) and Rainfed Area Development (RAD) component of the National Mission for Sustainable Agriculture (NMSA). Besides, a dedicated Micro Irrigation Fund (MIF) has been instituted with NABARD with a corpus of Rs. 5000

crores for expanding coverage of Micro Irrigation which has been doubled to 10000 crores.

9.2.1 Per Drop More Crop Component of Pradhan Mantri Krishi Sinchayee Yojana (PMKSY-PDMC) Department of Agriculture & Farmers' Welfare is implementing the Per Drop More Crop component of the Pradhan Mantri Krishi Sinchayee Yojana (PMKSY-PDMC), which is operational from 2015-16 in the country. The PMKSY- PDMC focuses on enhancing water use efficiency at farm level through Micro Irrigation viz Drip and Sprinkler Irrigation Systems. Besides promoting Micro Irrigation, this component also supports micro level water storage or water conservation/management activities as Other Interventions to supplement Micro Irrigation. From 2015-16 to 2020-21, Central Assistance of Rs. 14548 crore has been released to States for implementation of PMKSY- PDMC. Further, Rs. 749.18 crore has been released during 2021-22 up to 12.11.2021. During 2015 to 2021, an area of 57.31 lakh ha has been covered in the country under Micro Irrigation under PMKSY- PDMC and an area of 2.07 lakh ha has been covered during 2021-22 till December 2021.

Major activities during 2021-22:

- **Revision of Cost Norms revision:** Indicative costs are provided in the

guidelines on the basis of which subsidy is calculated under PMKSY-PDMC. During 2021-22, indicative costs under PMKSY-PDMC were revised by taking into account the Wholesale Price Index (WPI) to offset escalating cost thereby enabling farmers to avail benefits from the Scheme.

- **Extension/outreach activity:** 750 nos. of extension activities and one webinar for propagating the information on MI systems and their various aspects were conducted under PMKSY-PDMC during Amrut Mahotsav in the current year in various places in all states. Further, MI technology demonstrations conducted on Farmers' fields and various training programmes/workshops/ exhibitions were organized for Stakeholders/ Farmers/ Government Officials etc.
- Besides, a one month (200 hours) Agriculture Skill Council of India (ASCI) training programme supported under PMKSY-PDMC on "Micro-Irrigation Technicians" was organized by Precision Farming Development Centre, Samastipur, Bihar during August-September, 2021 benefitting 30 nos. of youths.



**Farmer Name: M.Venkata Rao &
M. Rambabu**
Village : Kotapadu
Mandal : Rangampeta
District : East Godavari
State : Andhra Pradesh



9.2.2 Micro Irrigation Fund (MIF): Union Finance Minister in the Union Budget 2017-18 announced setting up of a dedicated Micro Irrigation Fund (MIF) to be instituted with NABARD with an initial corpus of Rs. 5000 crore. The objective of the fund is to facilitate the States in mobilizing resources for expanding coverage of Micro Irrigation by taking up special and innovative projects and also for incentivising micro irrigation beyond the provisions available under PMKSY-PDMC to encourage farmers to install micro irrigation systems. The Steering Committee of MIF & NABARD has approved Grant of Loan of Rs 3970.17 crore to the Governments of Andhra Pradesh, Tamil Nadu, Haryana, Gujarat, West Bengal, Punjab and Uttarakhand during 2020-21. NABARD has released an amount of Rs. 2039.23crores to the States of Tamil Nadu, Andhra Pradesh, Haryana, Gujarat and Punjab. Interest Subvention by Government of India under MIF of Rs. 43.87 crore has been released to NABARD till quarter ending December, 2021. MIF has been augmented by additional amount of Rs. 5000 cr.

9.2.3 Rainfed Area Development (RAD): RAD is being implemented as a component of the

National Mission for Sustainable Agriculture (NMSA) from the year 2014-15. RAD adopts an area based approach for development and conservation of natural resources through promoting Integrated Farming Systems (IFS). IFS focuses on multi cropping, rotational cropping, inter-cropping and mixed cropping practices with allied activities like horticulture, livestock, fishery, apiculture etc. to enable farmers not only in maximizing farm returns for sustaining livelihood, but also to mitigate the impact of drought, flood or other extreme weather events. The benefits of IFS are as under: (a) Increasing agricultural productivity of rainfed areas in a sustainable manner by adopting an appropriate farming system based approach (b) To minimize the adverse impact of possible crop failure due to drought, flood or un-even rainfall distribution through diversified and composite farming systems (c) Enhancement of farmer's income and livelihood support for reduction of poverty in rainfed areas. The total area covered under NMSA-RAD since inception upto 31st March, 2021 is 6.26 lakh ha. During 2021-22, an amount of Rs.37.91 crore has been released upto 31st December, 2021 to the States for implementation of the programme.

Since inception and upto 31st December, 2021, an amount of Rs. 1472.64 crore has been released to States under RAD.

9.3 National Rainfed Area Authority (NRAA):

The 'National Rainfed Area Authority' (NRAA) was setup by Govt. of India as an expert body to provide knowledge inputs regarding systematic up-gradation and management of country's dry land and rainfed agriculture. In the present challenges of adverse impact of climate change, growing intensities of extreme climatic events, water scarcity, productivity decline of land etc., NRAA has a bigger role to play towards institutional and knowledge support in the field of overall natural resource governance issues of the country particularly in the rainfed ecosystem. Accordingly, the Group of Secretaries (GoS) constituted in 2015-16 to derive strategies and innovative ideas for sustainable growth in agricultural sector in one of its suggestion, recommended strengthening of National Rainfed Area Authority (NRAA) as a repository of knowledge for dryland agriculture and to focus on 150 most vulnerable rainfed districts across the country. In this context, NRAA has brought out a report on prioritization of districts for development planning in India based on Composite Index Approach and identified 168 districts as high priorities considering various parameters on natural resources and livelihood indices. NRAA was allocated Rs. 3.48 crores during 2020-21.

NRAA is engaged in developing a National Rainfed Agriculture Policy. Some of the major activities undertaken during the year 2020-21 by NRAA are:

- NRAA prepared drought proofing action plans for 24 most critical drought prone districts as identified by the Drought Management Division of DA&FW in consultation with the State Governments of Rajasthan, Karnataka and Andhra

Pradesh. Piloting of drought proofing action plans have been taken up in 11 clusters of Andhra Pradesh, Karnataka and Rajasthan with funding from RKVY-RAFTAR under supervision of NRAA. As recommended by GoS, draft development plans for 16 districts from the high priority ones have been prepared and shared with states for their inputs.

- FAO has approved a Technical Cooperation Project "Efficient weather forecasting and agro-advisory models for seasonal and contingent planning of agriculture operations to minimize risks associated in agriculture, more particularly for rainfed areas" for implementation under supervision of NRAA.
- Department of Land Resources (DoLR) has identified NRAA as the knowledge partner for the World Bank assisted REWARD project, as the guidelines for next generation watershed programmes have been formulated by the authority. This project envisages distilling lessons from the state interventions and synthesizing those to develop nationally scalable technical standards on scientific watershed development. NRAA will also supervise the National Level Technical Committee to provide technical support to DoLR till the technical standards are finalized.
- The Commonwealth Scientific and Industrial Research Organizations (CSIRO), Australia in collaboration with NRAA, WASSAN and RRA network is implementing a project in the form of series of workshops as a learning course on "learning water resources management in rainfed areas" over a period of 3 years for Government or non-government organizations involved in

large outreach programmes in the state of Andhra Pradesh, Odisha and Karnataka.

- NRAA is engaged with ICAR institutes, state agricultural universities and other national institutes to drive the research agenda for rainfed agriculture and capacity buildings of stake holders. NRAA is also undertaking a study to suggest vulnerability ranking of districts across the country from the perspective of risk coverage; identifying compatible and non-compatible crops based on agro ecology; and examining complications witnessed in implementation of agriculture insurance with suggestions for reforms.

9.4 Central Sector Scheme of Soil Conservation Training Centre Damodar Valley Corporation (DVC), Hazaribag (Non Plan):

This Central Sector Scheme was created under Non-Plan for conducting training and capacity building including short orientation courses for soil & water conservation, land degradation, crop management, livelihood support through off farm activities, agro forestry, Integrated Farming System, Soil Health Management and Climate Change Adaptation and Mitigation in agriculture and allied sectors which are essential for strengthening capabilities of field functionaries. During the year 2019-20, thirteen training courses in the aforementioned areas have been conducted and 405 participants have been trained. Participants for the above training courses include officials of various State/UT governments, Central Government Organisations, NGOs, leading farmers, students & volunteers. During 2020-21, thirteen training programmes were planned with an outlay of Rs 60.00 lakh. However, no training programme could be conducted due to the prevailing COVID19 pandemic and training centre were asked to organize virtual training process.

Natural Resource Management

9.5 National Bamboo Mission (NBM)

The restructured National Bamboo Mission (NBM) was launched during 2018-19.

9.5.1 Objectives:

- To increase the area under bamboo plantation in non-forest Government and private lands to supplement farm income as well as fulfill quality raw material requirement of industry.
- To improve post-harvest management through establishment of innovative primary processing units near the source of production, primary treatment and seasoning plants, preservation of technologies and market infrastructure
- To promote product development in the bamboo sector through entrepreneurship & business models at micro, small and medium levels
- To rejuvenate the ailing bamboo industry as a global force to reckon with
- To promote skill development, capacity building, awareness generation for development of the bamboo sector
- To realign efforts to reduce dependency on import of bamboo and bamboo products by way of improved productivity and suitability of domestic raw material for industry so as to enhance the income of primary producers.

NBM focuses on development of the complete value chain of the bamboo sector to link growers with consumers starting from planting material, plantation, creation of facilities for collection, aggregation, processing marketing, micro, small & medium enterprises, skill development and brand building in a cluster approach mode. 10 major commercially important bamboo species

namely *Bambusa tulda*, *B. bambos*, *B. balcooa*, *B. cacharensis*, *B. polymorpha*, *B. nutans*, *Dendrocalamus asper*, *D. hamiltonii*, *Thyrostachys oliveri*, *Melocanna baccifera* etc have been identified so as to have market ready plantations.

The scheme is being implemented in non-forest Government land or lands of private farmers in the States where it has social, commercial and economic advantage. The NBM implementing States are Assam, Arunachal Pradesh, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim, Tripura, Madhya Pradesh, Maharashtra, Chhattisgarh, Odisha, Karnataka, Uttarakhand, Bihar, Jharkhand, Andhra Pradesh, Telangana, Gujarat, Tamil Nadu, Kerala, Uttar Pradesh and Himachal Pradesh. The Union Territory of Jammu & Kashmir has also been included under NBM in the year 2020-21.

9.5.2 Technical Support Groups under NBM

National Level Agencies called Bamboo Technical Support Groups (BTSG) are there to provide necessary technical support to the Mission. The existing three BTSGs which are providing services to the Mission/ States are:

- Indian Council for Forestry Research & Education (ICFRE), Dehradun, Uttarakhand
- Kerala Forest Research Institute (KFRI), Peechi, Kerala
- North East Cane and Bamboo Development Council (NECBDC, erstwhile Cane and Bamboo Technology Centre) Guwahati, Assam

Financial Status (Rs. in Crores)

Year	RE	Release
2018-19	153.30	150.03
2019-20	87.00	84.51
2020-21	94.00	75.21

Physical Progress

During 2018-19 to 2021-22, an area of 23666 ha was covered under bamboo plantation along with creation of 72 bamboo treatment units, 372

product development / processing units and 96 infrastructure projects for promotion and development of bamboo markets.

Sr. No.	Components	Achievements				
		2018-19	2019-20	2020-21	2021-22	Total
1	Propagation and Nursery (in nos.)	275	63	29	-	367
	Plantation (in ha)	8069	10262	5335	-	23666
2	Promotion of bamboo treatment and preservation (in nos.)	51	16	5	-	72
3	Product Development and Processing (in nos.)	224	57	91	0	372
4	Promotion and Development of Infrastructure for Bamboo Market (in nos.)	56	31	9	-	96

5	Development of tools, equipment & machinery (in nos.)		18	510	1273	-	1801
6	Skill Development and awareness campaign	Capacity Building Training (in no. of persons)	6115	3652	2191	-	11958
		Workshop/ seminar/ trade fairs/ exhibition (in nos.)	143	66	13	-	222
7	Research & Development (in nos.)		152	76	8	-	236

9.5.3 Salient Activities of NBM during the reporting period

- Participant States and BTSGs are actively being involved in the knowledge upgradation of farmers for bamboo cultivation. Details of bamboo plantation under the scheme should be publicly maintained for the ease of the procurement by industry. Therefore, an MIS module for the documentation of Bamboo Plantations has been launched in the nbm portal. Around 5000 ha of plantation from 10 States has already been recorded.
- To monitor the progress of establishment of agarbatti stick making units and make available this information in public domain, an MIS module for agarbatti sticks has also been created by the Mission in the nbm portal. As of now, details of 19 agarbatti stick making units from 5 States with an annual capacity of 2640 MT has been uploaded in the module.
- A two-day National Conference was conducted titled National Consultation on Opportunities and Challenges of Bamboo in India on 25th & 26th February, 2021 with the cooperation of NITI Aayog & Invest India. Eminent experts in various

fields attended the conference and gave valuable suggestions. Knowledge sharing and discussions were held on various topic viz., Bamboo for AatmaNirbhar Bharat, Promoting Exports and Global Branding, Management of Nurseries and Plantations, Innovations, Research & Development, Skill Development, Access to Institutional Credit, International Cooperation etc.

- An MoU was signed between the National Bamboo Mission (NBM) and the Handicrafts and Carpet Sector Skill Council (HCSSC) on 26th February, 2021 with the objective of working in collaboration on structural skill development for the bamboo sector. The aim is to devise a skill up gradation program for youth and artisans in tune with the guidelines of the Ministry of Skill Development and Entrepreneurship (SDE) and National Skill Development Agency (NSDA) which would impact employability and entrepreneurship skills with respect to the industry requirement of quality and customer satisfaction.
- NBM with GeM launched a “**Green Gold Collection**”- a dedicated bamboo window on the Government e-

Marketplace Portal on 3rd June, 2021. This will facilitate a specialized marketing model for bamboo products for purchase by the government as well as private consumers. As of now GeM has created 79 bamboo product articles under 10 major categories.

- DA&FW approved the formation of 40 FPOs in the Bamboo sector under the Central Sector Scheme 'Formation & Promotion of 10,000 FPOs'. The

Implementing Agencies (IAs) for the purpose are (1) National Bank for Agriculture and Rural Development (NABARD), (2) National Agricultural Cooperative Marketing Federation of India (NAFED) and (3) North Eastern Regional Agricultural Marketing Corporation Limited (NERAMAC). The details of the FPOs in the bamboo sector are provided in the table.

SL.NO		NAFED	NERAMAC	NABARD	TOTAL	FPO Sector
1.	ASSAM	13	5	-	18	Bamboo (40)
2.	MAHARASHTRA	7	-	6	13	
3.	ODISHA	3	-	-	3	
4.	MADHYA PRADESH	6	-	-	6	
	TOTAL	29	5	6	40	

9.5.4 Formation of clusters for bamboo sector development

In order to be aligned with the objective of a cluster based development approach, NBM has formed 23 clusters of farmers, artisans,

entrepreneurs etc in 9 States. The implementation of the NBM through clusters is leading to focused developmental activity to create a vibrant bamboo economy. The list of clusters formed during the year 2020 is as provided in the table.

S. No	Name of the State	No. of Clusters	Location of Clusters	Status
1	Nagaland	3	1. VIRAZOUMA CLUSTER, Dimapur Nagaland	Operational
			2. NBRC CLUSTER, Dimapur, Nagaland	
			3. TULI CLUSTER, Nagaland	
2	Gujarat	1	1. Visdalia Cluster, Surat	Operational
3	Uttarakhand	1	1. Doon Cluster	Operational
4	Maharashtra	6	1. Chandrapur	Operational
			2. Sindhudurg	
			3. Sakoli, Bhandara	
			4. Bhatgar-Sangavi, Bhor,Pune	
			5. Wadsa/Jimalgatta, Gadchiroli	
			6. Pauni, Nagpur	

5	Odisha	3	1. Mayurbhanj (Dist), Baripada	Handed over to the Directorate of Handicrafts and Cottage Industries of Odisha
			2. Koraput (Dist), Jeypore	
			3. Sambalpur (Dist), Sambalpur	
6	Karnataka	1	1. Livelihood Business Incubator for Medar	Operational
7	Assam	1	1. Ampri, Kamrup Metro	Operational
8	Tripura	5	1. Khash Chowmuhani, Nalchar Block, Sepahijala District	Operational
			2. Charilam (South), Karoimura, Charilam R.D. Block	Operational
			3. Jogendranagar (Dattapara), Agartala, West Tripura	Operational
			4. Bhagalpur, Narsingarh, Mohanpur R.D. Block, West Tripura	Operational
			5. Sarat Chowdhury Para, Simna, Brahmakunda	Operational
9	Madhya Pradesh	2	1. Bhopal Cluster, Madhya Pradesh	Operational
			2. Satna (Sanora) Cluster, Madhya Pradesh	Operational

9.5.5 Gender outlook

Women are equally encouraged to benefit from the implementation of all components of the National Bamboo Mission. States are advised to earmark 30% of the allocated budget for women beneficiaries / farmers under NBM. Most of the states have taken initiatives to encourage women in the Bamboo sector to improve their economic status through generating employment, establishment of primary processing units, bamboo agarbatti units, handicrafts etc. The Maharashtra Bamboo Development Board has set an example through the initiative of the **Gadchiroli Agarbatti Project (GAP)** to improving the per capita income of the people of the district; a majority are women, and shared their success story titled **Gadchiroli Agarbatti Project-“A Viable Women Based Rural Enterprise Model”**.

9.6 Sub-Mission on Agroforestry (SMAF)

The Sub-Mission on Agroforestry has been launched for the first time by the Government of India in 2016-17 to encourage tree plantation on farm land “Har Medh Par Ped”, along with crops/cropping system following the inception of the

National Agriforestry Policy 2014. The scheme is being implemented in the States which have liberalized transit regulations for selected tree species. At present, scheme is being implemented in 21 States namely *i.e.* Meghalaya, Mizoram, Nagaland, Manipur, Andhra Pradesh, Bihar, Chhattishgarh, Gujarat, Haryana, Himachal Pradesh, Jharkhand, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Odisha, Punjab, Rajasthan, Tamil Nadu, Telangana and Uttar Pradesh and UTs of Jammu & Kashmir and Ladakh. UT of Ladakh was associated with the scheme during last FY (2020-21) and the State of Manipur is implementing the scheme from current FY (2021-22).

Agroforestry helps in creating additional source of income to the farmers and help in carbon sequestration. Under the Mission, multipurpose tree species with short, medium and long term returns are encouraged, so that farmers may get additional income at regular intervals. These would include fruits, fodder, medicinal, timber species.

The Sub-mission has the following broad objectives:

- To encourage and expand tree plantation in farm land

- To ensure availability of quality planting material
- To popularise various Agroforestry practices/models
- To create database, information and knowledge support in the area of agroforestry.
- To provide extension and capacity building support to agroforestry sector.

The implementation of the Sub-mission resulted in the following benefits:

- Agroforestry provides additional income/savings opportunities for farmers and will also serve as a cushion to crop damage.
- Increase in tree cover through Agroforestry leads to higher carbon sequestration and compliment the National initiatives on climate change adaptation and mitigation efforts.
- Trees grown in farm land helps in enriching soil organic matter and enhancing nutrient uptake of the crops measurable under different time interval (mid & end of the programme). This can be periodically assessed from the soil health status depicted on the soil health card to be issued to the farmers from time to time.
- Contribute in availability of agroforestry produce to meet the increasing demand of raw materials for wood based industries which will result in saving of foreign exchange being used for import of wood and wood based products.
- Development of information system and database on agroforestry.
- Income & livelihood generation of the farmers.

9.6.1 Funding Pattern:

Scheme is being implemented with funding

pattern of 60:40 between Centre and State Govt. for all States excepting NE & Hilly states, where it would be 90:10 and 100% in case of UTs & National Level Agencies.

9.6.2 Financial Progress:

For implementation of the programmes a cumulative amount of **Rs.16533.46 lakh** has been released to the States / Agencies since the start of the programme from 2016-17 to 2021-22 (upto 31.12.2021)

9.6.3 Physical Progress:

Under this scheme, an area of 1,38,917 Ha has been brought under plantation, 808 nos. of nurseries have been established and about 562.20 lakh trees have been planted during last six year years (2016-17 to 2020-21) across 21 states and two UTs which are implementing SMAF scheme. Around 1,92,933 nos of farmers have been benefitted under the scheme. The major species being planted include Santalum album (Sandal wood/Chandan), Aegle marmelos (Bael), Azadirachta indica (Neem), Litsea glutinosa (Bollygum), Poplar, Eucalyptus, Dalbergia sissoo (Indian rosewood/ Shisham), Terminalia arjuna (Arjuna) etc.

9.6.4 Recent initiatives:

Recently on 7th March, 2021 an MoU has been signed between DA&FW, Ministry of Agriculture & Farmers Welfare and Central Silk Board (CSB), Ministry of Textiles. The signing of this MoU is aimed to incentivize the farmers to take up sericulture based Agroforestry models thereby contributing to Make in India and Make for the World vision of our Hon'ble Prime Minister. This linkage will add another dimension to agroforestry for faster returns to the growers as well as support the production of the range of silks that India is famous for. Central Silk Board (CSB), Ministry of Textiles, Govt. of India will act as catalyst to promote the Agroforestry in Silk Sector.

9.6.5 Climate Change

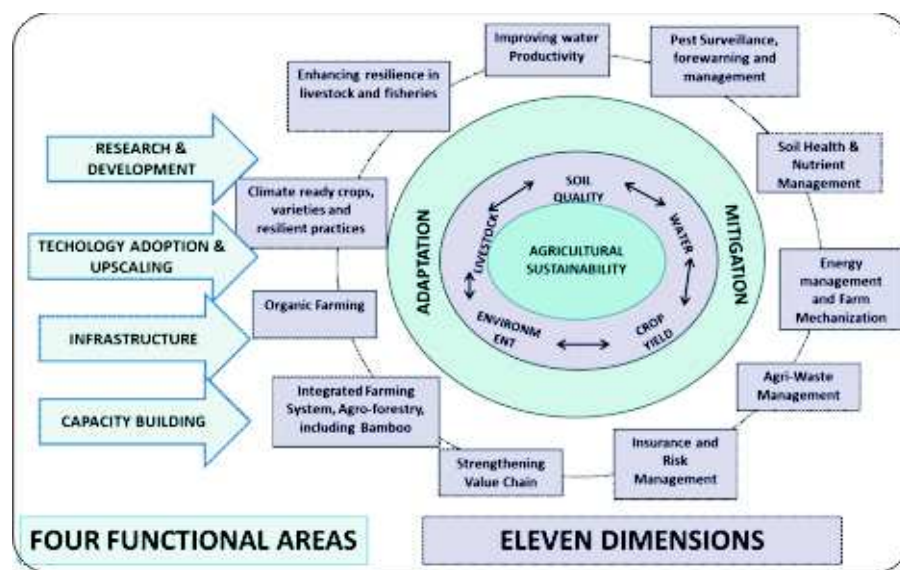
National Mission on Sustainable Agriculture

(NMSA) is one of the Missions launched under the National Action Plan on Climate Change (NAPCC) in 2008. The Mission aims to evolve and implement strategies to make Indian agriculture resilient to climate change. NMSA was approved for three major components i.e. Rainfed Area Development (RAD); On Farm Water Management (OFWM); and Soil Health Management (SHM). Subsequently, four new programmes were introduced under the ambit of NMSA namely Soil Health Card (SHC), Paramparagat Krishi Vikas Yojana (PKVY), Mission Organic Value Chain Development in North Eastern Region (MOVCDNER) and Sub Mission on Agroforestry (SMAF). During 2015-16, Pradhan Mantri Krishi Sinchayee Yojana (PMKSY) was operationalised wherein the OFWM component of NMSA was subsumed under the Per Drop More Crop (PDMC) component of PMKSY. In addition to the aforementioned programmes under NMSA, the Restructured National Bamboo Mission (NBM) was launched in April 2018. Details of these schemes are mentioned in the writeups of the respective Program Divisions.

Many national and international developments have taken place since the launch of NMSA. The understanding on the impact of climate change on Indian agriculture has improved and promising

adaptation and mitigation strategies have been identified, which can help farmers to cope with climate change. However, agriculture in India as elsewhere globally continues to face challenges posed by climate variability including aberrant monsoons, heat waves, extreme weather events and degradation of natural resources. Climate resilience is being promoted through research & technologies being developed by ICAR and disseminated by programmatic interventions of DA&FW and DAHD and DoF.

The NMSA Strategy document was revised for the period 2018 to 2030 and has adopted an integrated holistic approach focussing more on vulnerable regions, deploying the best bet technologies and practices for adaptation and mitigation and empowering farmers through capacity building and financial support. Implementation strategies are designed with a time frame up to 2030. Eleven key priority areas have been identified for programmatic interventions which can minimize the impact of climate change and reduce risk. Each of these priority areas has to be analysed in the context of four functional areas, viz., Research and Development, Technology Adoption, Infrastructure and Capacity Building for identifying adaptation and mitigation measures in a multi-dimensional and cross sectoral matrix



NMSA Strategy Document (2018-2030)

The programmatic interventions in these four functional areas covering eleven priority items will effectively address the adaptation and mitigation needs of the complete value chain from production to marketing in agriculture and allied sectors.

A Ministerial Dialogue of COP-26 for Sustainable Agriculture Campaign was held on 15-09-2021 on a virtual platform wherein, the dialogue was to Transform Agriculture & Food Systems to become more sustainable, resilient, nutritious and productive, in addition to a technical dialogue along with case studies on organic farming.

As far as international commitments in the field of climate change are concerned, the 3rd Biennial Update Report (BUR) was submitted during 2020-21 to the UNFCCC for the fulfillment of international commitments on Nationally Determined Contributions (NDCs) as per Paris agreement. Reductions in agricultural sector emissions have been achieved in 2017-18 and 2018-19 as a result of various initiatives such as expansion of area under horticulture, system of rice intensification, neem coated urea, direct seeded rice cultivation, solar pumps, micro-irrigation, balanced feedstock and bypass protein.

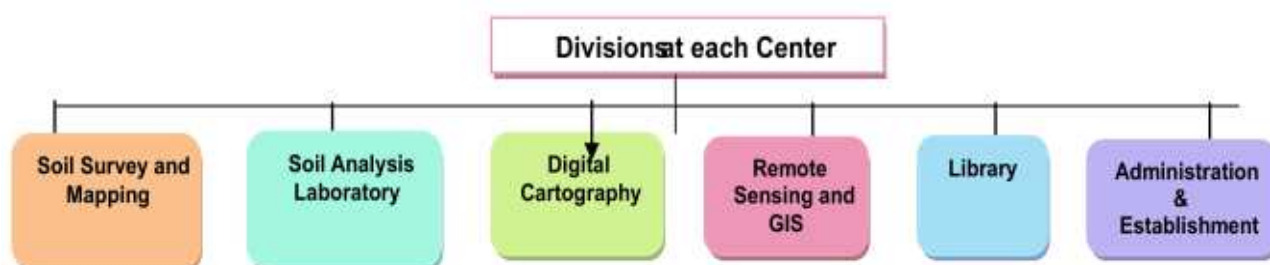
9.7 Soil and Land Use Survey of India (SLUSI)

Soil and Land Use Survey of India (SLUSI) established in 1958 is an apex organization in

the country, which deals with Soil Survey and Land Resource Mapping. It is a subordinate office under INM Division, Department of Agriculture and Farmers Welfare, Ministry of Agriculture and Farmers Welfare.

The organization is mandate to carry out soil survey of different intensities in order to provide scientific database for developmental programmes encompassing soil and water conservation planning, watershed development, scientific land use planning etc. The database generation of the organization commensurate with the requirement of soil and land use information of various land-based development programmes.

The organization is well-equipped with Remote Sensing & Geographic Information System (GIS) laboratories for Image Analysis/On-screen Image Interpretation along with modern facilities of soil analysis and cartography laboratories for acquisition of soil and land information for the development and management of digital spatial database. It operates soil survey activities from Headquarters at New Delhi through seven centres located at Ahmedabad, Bengaluru, Hyderabad, Kolkata, Nagpur, Noida and Ranchi. SLUSI has also established a Remote Sensing Cell (RSC) at Noida for leveraging applications of advanced technologies in soil survey programmes.



Status of Soil & Land Database:

SLUSI has generated database on soil & land characteristics for priority categorization in **261.150 million ha** in catchment areas of different river basin of the country. Similarly, the institute has also accomplished detailed soil survey database generation in **19.65 million ha** area in priority sub/micro watersheds, Rainfed/Aspirational districts of various states at 1:4,000 to 15,000 scale (Presently at 1:10,000 Scale) using cadastral maps/ Satellite Data / Aerial photographs. Similarly, SLUSI has also carried out Soil Resource Mapping (SRM) at 1:50,000 scale in area of **132 million ha** areas in 281 districts of the country.

SLUSI provides technical support for monitoring and evaluation of various national developmental programmes namely Model Village Program on **Soil Health Card Scheme and PMKSY (AIBP)**.

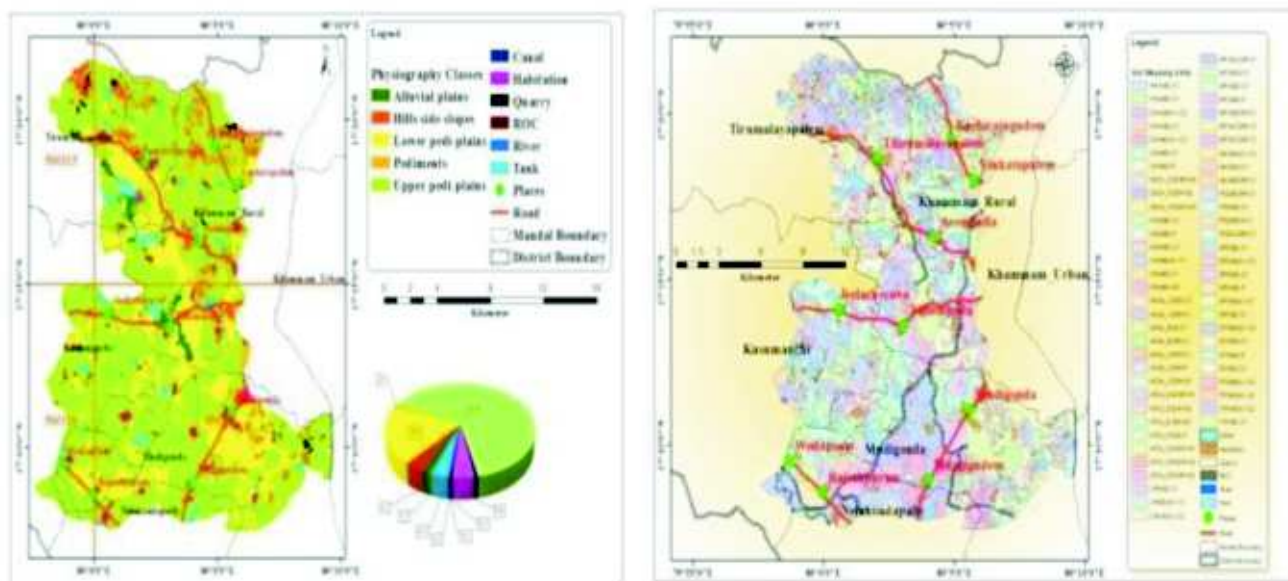
Major Activities during 2021-22 (as on 31st December, 2021)

- **Development of Detailed Soil Database in**

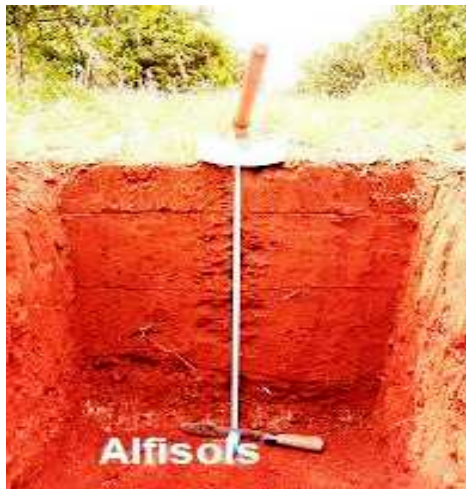
41 aspirational districts:

SLUSI is take up the task to carry out Detailed Soil Survey (DSS) to generate digital soil data base and integrating the basic soil properties of detailed soil data with Soil Fertility attributes to prepare integrated Map of Villages in aspirational districts. Till date, the institute has completed the field work in **11 districts** i.e. Narmada & Dahod (Gujarat), Washim (Maharashtra), Khamman & Jayashankar Bhupalpally (Telangana), Fatehpur (U.P), Virudhnagar & Ramanathpuram (Tamilnadu), Bolangir (Odisha), Dumka & Giridih (Jharkhand). While the field work of **9 districts** i.e. Barwani (MP), Sirohi (Rajasthan), Chatra (Jharkhand), Chandauli, Chitrakoot, Sonbhadra (UP), Dhenkanal, Kalahandi, Koraput (Odisha) has been carried out. The work will be completed during FY 2022-23. The work of DSS will provide complete diagonals of soils for evaluating the potential of soils and integrating it with soil health card fertility status map of villages to develop integrating soil maps for sustainable crop production.

The Physiography map and Soil map of Aspirational district Khammam, Telangana:



Photographs below are showing the field survey work, i.e. digging of soil profile and studying of soil profile

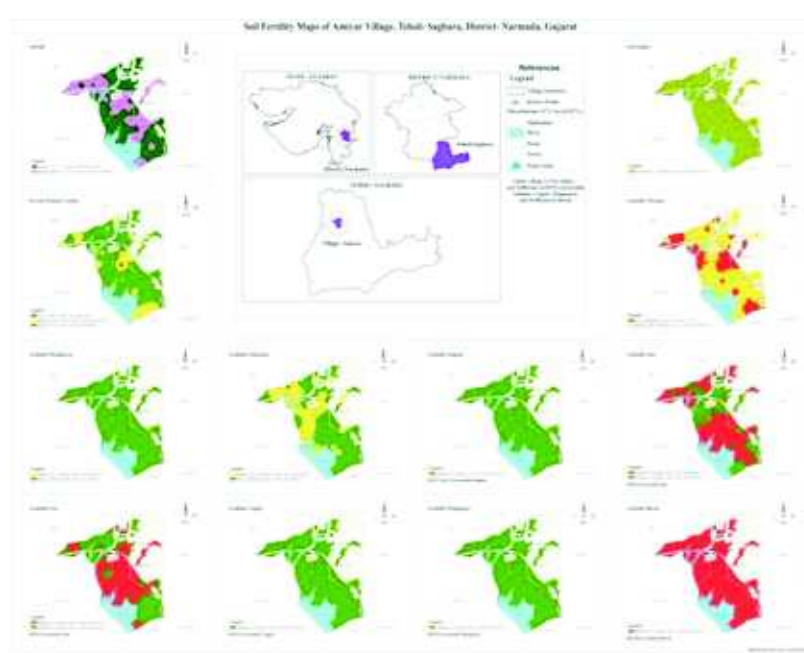


- **Generation of Soil Fertility Maps under Soil Health Card (SHC) Scheme:**

SLUSI is also associated with the work of preparation of Soil Fertility Maps from Soil Health Card data in identified 6954 model villages to provide spatial information to farmers about the status of nutrient availability. The institute is preparing maps on digital / khasra map of villages sourced from State Govt department or through in-house digitization of village map. The soil fertility maps developed

will be displayed in villages for spreading awareness about SHC and motivate farmers to use fertilizers judiciously. The work of preparation of soil fertility mapping is being accomplished in **725** villages and the work of remaining villages is under progress in collaboration with State Agriculture department and SHC data provided by NIC.

The village wise Soil Fertility Maps generated by SLUSI is as given below.

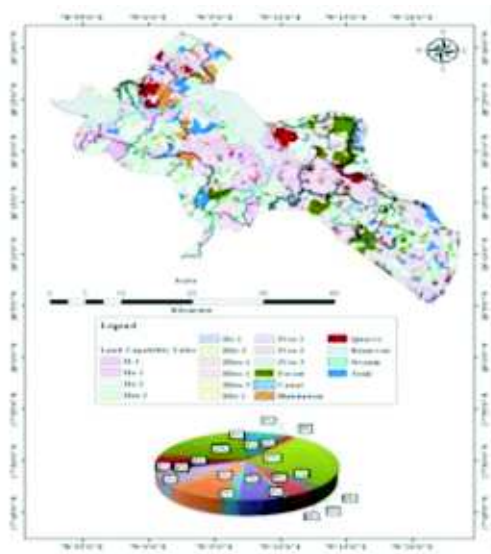
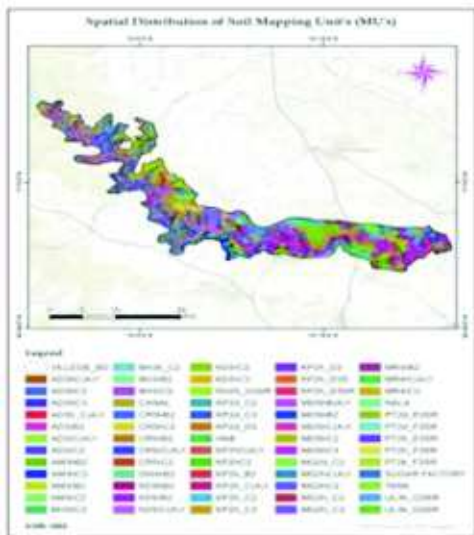


- **Pradhan Mantri Krishi Sinchai Yojana (PMKSY) Mission:**

SLUSI has been conducting the Detailed Soil Survey, monitoring & collating information on the preparation of crop plan for 99 irrigation projects under PMKSY mission. So far, SLUSI has completed the work of detailed soil data base generation for development of

crop plan in 46 irrigation projects. Out of these 46 projects, the report of **36 project** reports has been published.

The soil map of the Command Area of Indramma Flood Flow Canal Irrigation projects, Karimnagar district, Telangana generated under PMKSY is as given below:



- **Preliminary & Detailed Soil Survey in Project Area for Oil Seed Farm of National Seeds Corporation covered under Gadaura, Gorkha, Jakhauna, Piprahi, Rithora Khurd Villages of Tehsil & District- Morena, Madhya Pradesh State using RS-GIS & GPS Techniques:**

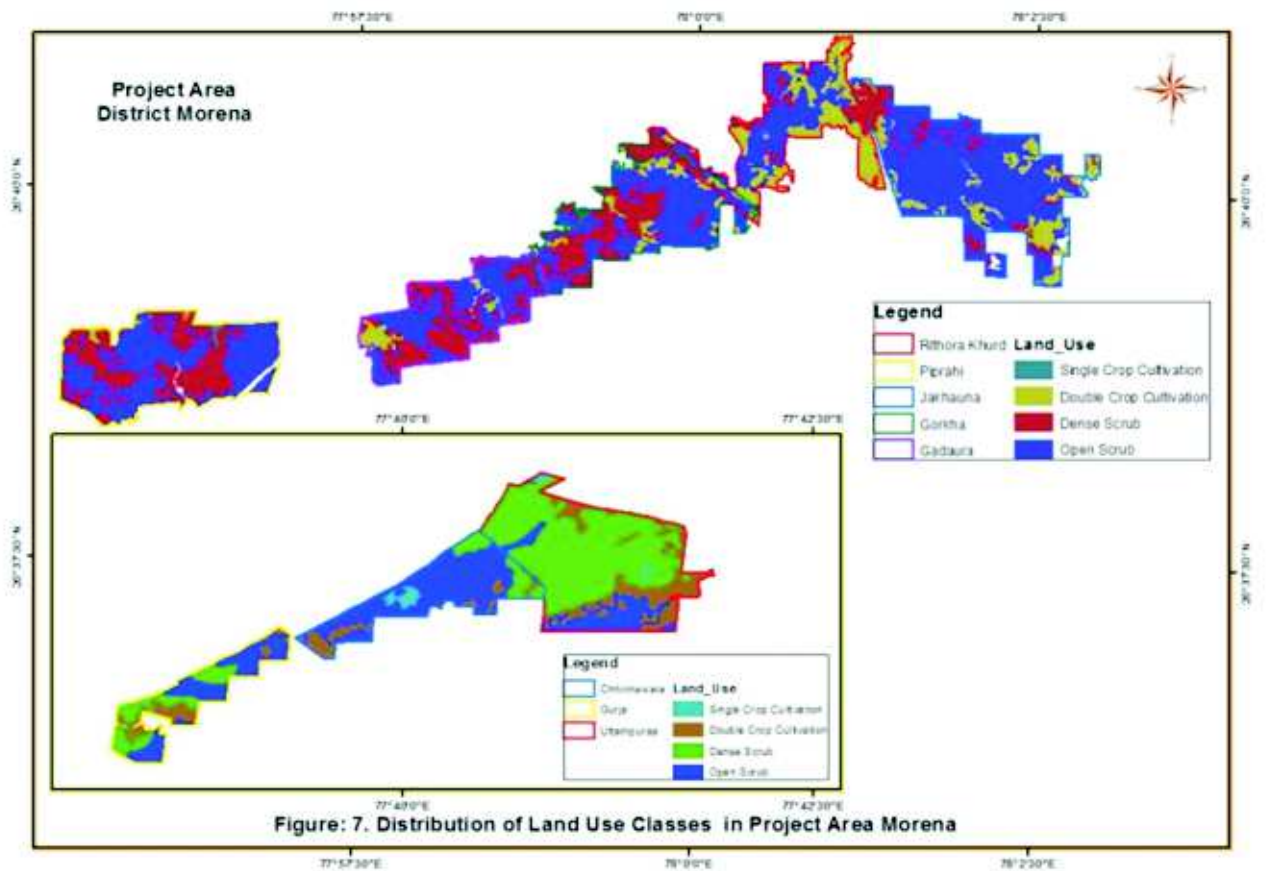
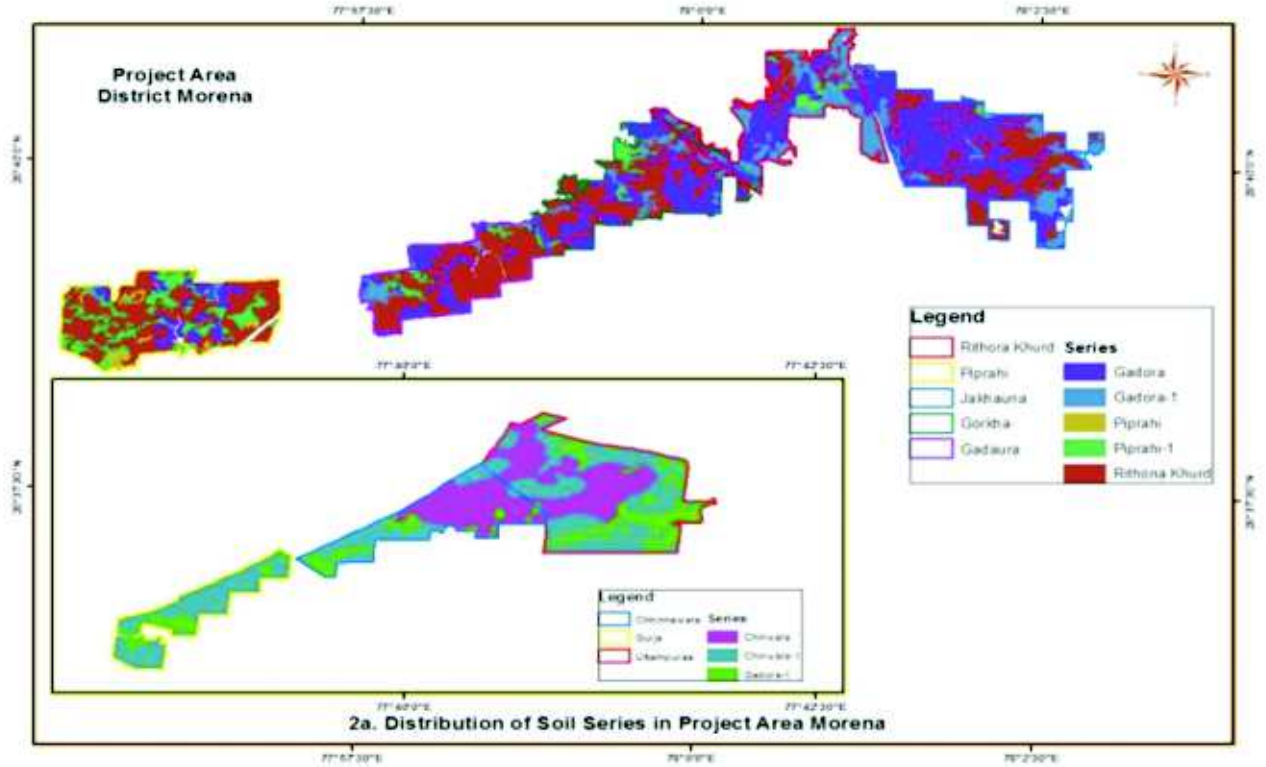
Soil and Land Use Survey of India (SLUSI), has given the task of providing scientific and actionable inputs, to streamline the work of preparation of Detailed Project Report for assessment of the status of soil, terrain and to asses of extent of area allotted under the project for taking up planned development using Geographical Information System Environment.

Accordingly, SLUSI with National Seeds Corporation (NSC), Seeds Division, MoA&FW carried out Detailed terrain and soil survey in

Morena district as part of a preliminary study. The report provides the details of survey-investigation and concept design following watershed-based planning and obtaining realistic estimate in reclamation of the area allotted for development.

The report comprises of detailed account of digital geospatial tools used in pre-field interpretation of satellite data for assessing terrain (topography), assessing extent of project area in GIS and on field ground survey. Similarly, the detail on soil type with full soil profiling data of soil series identified and mapped in project area has also been summarized. The report also proposes the model methodology and mini-microwatershed based site-specific development plan for brining gullied lands under culturable use following watershed-based development program. The report will help in meeting the long-felt needs of all the functionaries involved.

Soil Map & Land Use of Project Area Morena



Oil Physiography & Profile Study in Project Area Morena



- **Seamless Database Generation in Rapid Reconnaissance Survey (RRS) reports:**

In order to facilitate users on requirement of digital data on soils & land for characterizing the Micro Watersheds in the country, the seamless mosaicking of digital RRS database state wise has been taken by the centres. All centres are carrying out mosaicking of area under their survey jurisdiction. Out of total 370 nos. of reports (spatial & non-spatial), the database of **311** reports in respect of spatial data and **297** reports in respect of non-spatial data have been generated till now.

- **Collaborative Projects:**

Soil Resource Atlas of India: MoU between SLUSI & NRSC signed on 05th April, 2021 for preparation of Soil Resource Atlas of India on 1:50000 scale. The harmonization of soil information state wise completed by both SLUSI & NRSC is being taken up through five joint committees constituted region wise. Similarly, SLUSI is taking up the field ground truthing & mapping in 313 lakh ha area unsurveyed in 71

districts. The harmonization of SRM soil data with NRSC is under process.

Preparation of land resource inventory of Bundelkhand region: MoU between SLUSI & NBSS&LUP (ICAR) signed on 27th September, 2021 for examination of soil profile & collection of soil samples and laboratory analysis in GPS locations provided in seven districts of Bundelkhand region. As per MoU, ICAR-NBSS&LUP will undertake Chitrakoot, Jalaun, Banda, Lalitpur, Datia, Damoh & Sagar districts, while SLUSI (DA&FW) will undertake Jhansi, Tikamgarh, Mahoba, Hamirpur, Chhattarpur, Niwari and Panna districts of Bundelkhand. SLUSI has completed soil sampling in selected sites of allotted 7 districts and the field & lab data handover to NBSS&LUP. As part of project, SLUSI also shared the Microwatershed Layer of 14 districts and DSS data available to NBSS&LUP for preparation of land resource inventory of the region. The comprehensive land use plans of Bundelkhand shall be completed by 31st March, 2022.

- **Consultancy Project:**

Soil Resource Mapping on 1:50K for 7 districts of Manipur: The total cost of the project is Rs. 31,36,000/-. The project is funded by North Eastern Space Applications Centre (NESAC), Department of Space, Government of India. The analysis of soil samples and finalization of soil maps is under progress.

- **Physical Target for Soil Survey Work:**

Annual Target for field ground truthing & interpretation:

Type of Survey	Target (in lakh ha) (FY 2021-22)	Achievement (in lakh ha) upto 31.12.2021
Soil Resource Mapping (SRM) under Soil Resource Atlas of India Project	313	266
Detailed Soil Survey (DSS) in aspirational districts under Soil Health Card Scheme	23	8.57

- **Revenue Generation :**

Through Sale of Soil and Microwatershed data: **Rs. 6,50,664/-**

Through consultancy project: **Rs. 22,239/-**

- **Digitization:**

Under digital India initiative, SLUSI has completed the digitization of all its old reports & maps in GIS. The work of checking & geo-referencing of soil report data on cadastral scale is under progress.

Estimates of the Activities to be carried out from January, 2022 to March, 2022:

- **Physical Target for Soil Survey Work:**

The field ground truthing remaining area of **47 lakh ha** for Soil Resource Mapping under Soil Resource Atlas of India Project and **14.43 lakh ha** of Detailed Soil Survey in aspirational districts under Soil Health Card Scheme will be completed by March, 2022.

- **RRS Seamless Database Generation:**

The work for seamless mosaicking of digital

- **Publication :**

- I. Detailed Soil Survey: **44** reports
- II. Soil Resource Mapping: 01 Report
- III. Morena Project report
- IV. Rapid Reconnaissance Survey Seamless database of Tamilnadu State
- V. Compendium of Uttarakhand State

Rapid Reconnaissance Survey (RRS) database comprises of mosaicking, edge matching, correction of soil maps units of reports etc. is under progress. The work of digital RRS database generation for remaining **59** nos. of reports (spatial data) & **73** nos. of reports (non spatial data) is targeted to be completed by March, 2021.

- **Generation of Soil Fertility Maps under Soil Health Card (SHC) Scheme:**

The work of preparation of soil fertility mapping of remaining villages under model village programs are under progress with collaboration of State Agriculture department on SHC data provided by NIC.

- **Soil Resource Atlas of India:**

The harmonization of SRM soil data with NRSC is to be initiated.

9.8 INM & Organic Farming:

Ministry of Agriculture and Farmers Welfare, Department of Agriculture & Farmers Welfare are implementing INM & Organic Farming component under National Mission for

Sustainable Agriculture. The financial assistance on various components as below is provided under the said components:

- Setting up of mechanized Fruit/vegetable market waste/ Agro waste compost production units.
- Setting up of State of art liquid/ carrier.
- Setting up of bio-fertilizer and Organic fertilizer testing laboratory or strengthening of existing laboratory under FCO.
- Promotion of Organic inputs on farmer's field.
- Support to research for development of organic package of practices specific to State and cropping system.
- Setting up of separate Organic Agriculture Research and Teaching Institute (against specific proposal).

Being committed to promote Organic Farming with due emphasis on sustainable productivity, food security and enhancement of soil health, Government has launched two dedicated schemes i.e. Paramparagat Krishi Vikas Yojana (PKVY) and Mission Organic Value Chain Development for North Eastern Region (MOVCDNER) under the National Mission of Sustainable Agriculture for promotion of Organic farming in our country in 2015 to encourage the farmer for adopting organic farming on cluster mode.

9.8.1 Central Fertilizer Quality Control & Training Institute, Faridabad

The Central Fertilizer Quality Control & Training Institute (Earlier-Central Fertilizer Control Laboratory) was established during 4th Five Year Plan (1971-72) as a subordinate office of the Ministry of Agriculture & Farmers Welfare, Department of Agriculture & Farmers Welfare to undertake the Inspection and analysis of

indigenous and imported fertilizers, standardization of Methods of analysis and providing technical guidance to the State Govts. on Fertilizer Quality Control.

The activities of the laboratory were further strengthened during successive Plan periods. Further in view of the increasing importance of fertilizer quality control and thrust on training to State Enforcement Officers, the laboratory was upgraded as an Institute and was renamed as Central Fertilizer Quality Control & Training Institute in 1982-83. Based on the activities, the Institute was also recognized as a Scientific and Technological Institute by the Department of Science and Technology (DST) in 1982. During 7th Plan, 3 Regional Laboratories of the Institute were also set up at Mumbai, Kalyani and Chennai, which started functioning from 1988-89 and are called as Regional Fertilizer Control Laboratories (RFCLs). The Institute as well as Regional Laboratories have been notified as Recognized Laboratory under clause 29 of Fertiliser (Control) Order, 1985 for analysis of samples throughout the country. The Fertiliser Inspectors of Institute & R.F.C.Ls have been notified as authorized Fertiliser Inspector under clause 27 of FCO (1985) having jurisdiction throughout the Country.

Functional jurisdiction and role of CFQC&TI/RFCLs:-

CFQC&TI as a Head quarter of all three Regional Fertiliser Control Laboratories (RFCLs), it is responsible to decide jurisdiction of all 04 Centres in view of drawal of imported fertilisers & indigenous fertilisers and imparting the training programmes to all the Agricultural Enforcement Officers. Imparting trainings at CFQC&TI and its RFCLs are mandatory as per provisions of Fertiliser Control Order, 1985. The Ministry has also assigned other quality control work to check the quality of fertilizers, being manufactured/imported/sold in the country. Similarly, this year, the Ministry assigned the

special task to control the quality of SSP/DAP/NPK (Physical Mixture) fertilisers.

In view of training programmes and imported fertilisers, the work has also been assigned zonewise to RFCLs located at Chennai/Mumbai/Kalyani. The RFCL, Chennai, having its own land/building includes hostel facilities for the trainees, is responsible to impart training programme on Fertiliser Quality Control to the officers of Southern States as well as for drawal of samples from all the ports located at Southern States. The RFCL, Navi Mumbai, having its own land/building includes hostel facilities for the trainees, is responsible to impart training programme on Fertiliser Quality Control to the officers of Western States as well as for drawal of samples from all the ports located at Western States.

The RFCL, Kalyani (Kolkata) was established in view of NE States, having its own land/building includes hostel facilities for the trainees, is also responsible to impart training programme on Fertiliser Quality Control to the officers of Eastern & North Eastern States as well as for drawal of samples from all the ports located at Eastern States.

Further, the training programmes for all the State Fertiliser Analysts, Foreign Participants are being organized at CFQC&TI, Faridabad. The Institute is also organized training programme for Agricultural Officers of the Northern States. The Institute have 18 rooms with modern facilities includes an Auditorium having capacity of more than 100 persons.

Objectives:-

The main objectives of the Institute are as follows:-

- (i) Drawal, inspection and analysis of both indigenous and imported fertilizers.
- (ii) Imparting training on Fertiliser Quality Control to State Fertilizer Inspectors and

Fertilizer Analysts.

- (iii) Imparting training on Fertiliser Quality Control to Foreign participants.
- (iv) Organization of training programme on Fertiliser Quality Control to Fertiliser Dealers working in the States.
- (v) Standardization / Development of methods of analysis of fertilizers.
- (vi) Acting as a Referee Laboratory and advisory body on matters related to Fertilizer (Control) Order, 1985 and other technical matters.
- (vii) Preparation of technical literature in the field of Fertilizer Quality Control.
- (viii) Carrying out studies in various fields of Fertilizer Quality Control.

Main Activities & Achievements:-

1. Effective implementation of the FCO is the main responsibility of the State Government, who has been given adequate powers for its implementation including drawal of samples from manufacturing units and retail outlets and its analysis in the State Laboratories. However, the Central Government also supplements their activities through random inspection and sampling by the Central Teams of the Institute and Regional Laboratories from manufacturing units and their retail points. The Central Teams are randomly sent to manufacturing units and their dealer in different States for inspection and drawal of samples. The samples are analyzed at Institute/ RFCLs and report sent to respective State for taking further follow up action.

I. Quality Control of Fertilizers

- a. Analysis of fertilizer samples (both of imported and indigenous fertilizers).
- b. Inspection of imported fertilizers at ports.

- c. Inspection of Manufacturing units, wholesale and retail dealers of the country through Central Teams.
- d. Analysis of Referee fertilizer samples.

II. Training

- a. Organization of training programmes for State Enforcement Officers (i.e. for Fertilizer Inspectors, Registering Authorities, Analysts & Laboratory Incharges.
- b. Organization of Orientation Training Courses (OTC) for Enforcement officers at District level.
- c. Organization of training Courses for Fertilizer Dealers (DTC) at State Level.
- d. Organization of training programmes for Foreign participants at Institute under

ITEC/SCAAP/ARDO/COLOMBOPLAN ETC.

III. Development of Methods of Analysis

The Institute developed new methods of analysis of different new fertilizers for inclusion in the Fertilizer Control Order, 1985.

VI. Advisory Activities

The Institute as a Member of Central Fertilizer Committee and Central Bio-stimulants Committee advice the Central Government on technical aspects of Fertilizer Control Order and also State Governments on Fertilizer Quality Control.

VII. Compilation of Half Yearly/Annual Progress Reports of State Govts. on Fertilizer Quality Control:-

The Institute compiles half yearly/annual progress report on Fertilizer Quality Control at national level.

3. Strength of CFQC&TI and its RFCLs as on 01.11.2021 :-

S.No.	Group	Sanctioned Strength	Existing Strength
1.	Group 'A'	15	10
2.	Group 'B'	11	05
3.	Group 'C'	47	29
	Total	73	44*

* Actions are being taken to fill up the vacant posts.

4. Target & Achievements during 2021-22 (As on 01.11.2021)

During 2021-22, the Institute has achieved 100% of targets in respect of all consignment discharged

at various sea ports/terminals in the country for inspection and analysis of fertilizer samples and also achieved the assigned targets of various training courses. The details are as under:-

S. No.	Name of the item	Target	Achievement
1.	No. of ships/containers covered and sample analyzed	2500	3698* (666 Non-Std.)
2.	Refresher Training Courses for Fertiliser Analysts & Fertiliser Inspectors	15**	08 (through VC)
3.	Orientation Training Courses in States	10**	0
4.	Dealers Training Programme in States	15**	0

5.	Training Programme for Foreign Participants	1**	0
6.	Financial (Rs. in thousand)	BE 108000.00	36950.00

Note: *The Institute analyzed additional 1359 samples of SSP/DAP/NPK (PM) as per special task assigned by the Ministry.

** In-house training programme could not conducted due to COVID-19. However, 08 training programmes for Fertiliser Inspectors/Fertiliser Analysts have been conducted through VC.

9.8.2 National Centre of Organic Farming

a. Launched updated PGS web portal

b. New certification categories:

- Individual farmers
- Large area certification /Traditional (Default areas)
- Processing and handling up packaging in retail packs

c. Revised Institutional structure

- Secretary DA&FW is the apex controlling authority
- National Advisory Committee (NAC) headed by AS, as policy making and authorizing body for changes and modifications
- National Executive Committee (NEC) headed by JS INM for all executive decisions

d. Certification process

- Simplified documentation process, no documents to be maintained at group level
- Mandatory requirement for RCs to physically verify the group, first in 12 months of registration and then once in 2 years
- Mandatory surveillance and monitoring of RCs by the PGS Secretariat and/or as directed by the NEC

- Defined elaborate sanctions catalogue to deal with defaults and appeal procedures

- Defined labeling procedures in tune with Food laws

e. Simplification in PGS Portal

- Data uploading requirements reduced to just 25%. Need for farm history for past 3 years deleted

- Peer appraisals uploading on portal reduced from individual farmer to one summary sheet for entire group

- Introduction of processing, handling and sale module for end to end traceability. All stages to be registered on the portal

- Provisions for actual yield uploading and transaction certificates based on actual yields

- Each transaction to be done through Transaction certificate and chain maintained till the material is packed in final retail packs.

- All transactions and issue of transaction certificate will be only through JaivikKheti Portal for real time tracking

- Seamless integration of PGS Portal with JaivikKheti portal

- Time restrictions for step-wise data uploading

F. Present status of PGS-India progress

- Active Regional Councils: **65 (As per revised guidelines)**
- Local groups: **42732**
- Farmers registered for certification: **1192003** (Approved)
- Certificates generated: **914974 (Active)**
- Area under organic farming under PGS: **766843 Hectare**

(As on 31-12-2021 source : <https://pgsindia-ncof.gov.in/>)

1. Revision / Modifications in FCO 1985 with reference to Biofertilizers and Organic Fertilizers

- Revision / Modification of Standards and protocols of sampling and testing of Biofertilizers and organic fertilizers to remove inconsistencies and report of subcommittee submitted to DA & FW.
- Standard Operating Procedure has been adopted in accordance with FCO-1985 for disposal of samples received in the N/RCOF for testing.
- Technical upgradation is underway and application for NABL accreditation of Regional Laboratories under NCOF has been submitted successfully.
- Officers of the N/RCOF are undergoing NABL Assessor training course for Bio Fertilizer and Organic Fertilizers.
- Sample tested (January to December 2021)
 - Bio fertilizers: 167
 - Organic Fertilizers: 203

2. National Skill Programmes

- In order to align the targeted HRD programmes with National Skill Qualification Framework, Qualification Pack / NOS prepared by NCOF have been approved by NCVT.
- The QPs focus on Quality Control and Standards for Organic Inputs, Organic Certification through PGS-India programme, Management of biodegradable agro waste to improve the microbial population and organic carbon content in soils, Supply Chain Management with use of JaivikKheti portal and formation of FPO to promote the market of organic produce apart from other aspects of organic farming.

3. Training programmes (online and offline).

- In wake of pandemic Covid 19, most of the trainings of the NCOF have been conducted in online mode through webinars etc.
- During the year (From January 2021 to December 2021):
 - 59 One-Day online farmers training programmes,
 - 11 numbers of 7-Days online training programmes (on pattern of 30-days Certificate Course on Organic farming) and
 - 27 Online training programmes on PGS-India Certification systems to various stakeholders (i.e. farmers, Regional Councils, Service providers and Zonal Councils).
 - 1 number of 7-days training on analysis of Organic Fertilizers

as per FCO - 1985 for state agriculture government department officers.

4. Participation in exhibitions and trade Fairs:

- Biofech-2021 at Noida from 27-30 October 2021.
- India International Trade Fair by ITPO at Pragati Maidan New Delhi-2021 from 14th-28th November, 2021.
- Pre-Vibrant Gujrat Summit at Anand Gujrat from 14-16 December, 2021.
- Jaivik Kheti Kisan Mela at Amroha (U.P.) on 24th December, 2021
- 2 Days workshop on PGS-India organized by Assam State Rural Livelihood Mission at Guwahati on 27th-28th December, 2021.

5. Publication:

- 12 Manuals / pamphlets (Hindi and English) on Organic farming and PGS-India Certification.
 - Translated version of Jaivik Kheti Sahayak Pustika (जैविकखेतीसहायकपुस्तिका) in Bengali, Malayalam, Khasi and Garu.
 - 2 Organic Fertilizer News letter (OFNL)
 - 1 Bio-fertilizer News letter (BFNL)
 - Journals/Magazines of National & International Repute
6. E-Office has been implemented at NCOF and NCOF website updated during the year and further upgradation is under progress.

Government Of India
Ministry Of Agriculture & Farmers Welfare
Department of agriculture, Cooperation and farmers welfare

**Launch of 2nd Version of PGS-INDIA Web-Portal
on 03/05/2021 at 3:00 pm**

<http://pgsindia-ncof.gov.in>

Inauguration
by
Smt. Neerja Adidam
Joint Secretary (INM Division)
Department of Agriculture, Cooperation & Farmers Welfare
Ministry of Agriculture and Farmers Welfare

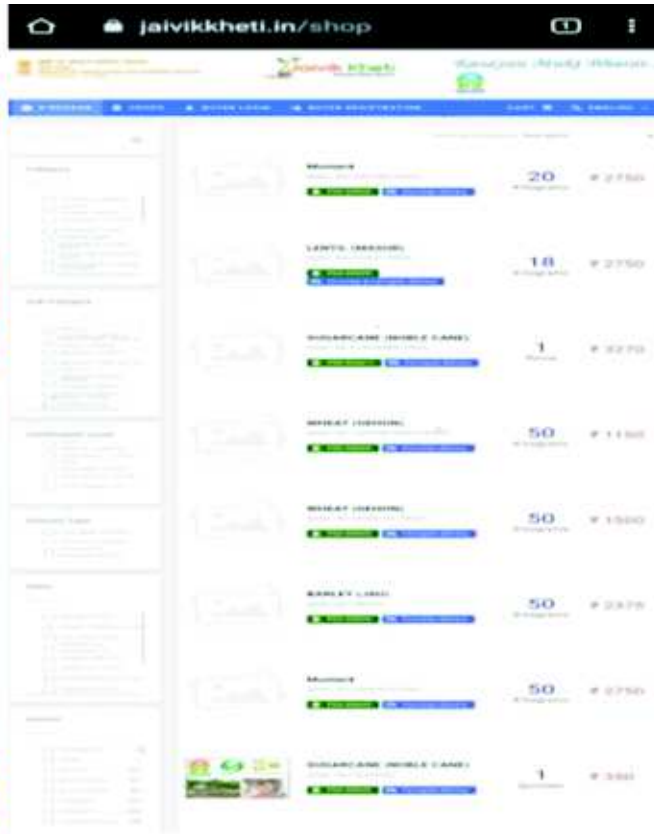
<p><i>Guest of Honor</i> Dr. Y.P. Meena Additional Commissioner INM Division DAG & FW, MoA & FW</p>	<p><i>Guest of Honor</i> Mr. Rajiv Taneja Deputy Secretary INM Division DAG & FW, MoA & FW</p>	<p><i>Guest of Honor</i> Dr. AK Yadav Advisor, MO/CD INM Division DAG & FW, MoA & FW</p>	<p><i>Guest of Honor</i> Dr. Vandana Dairwad Advisor, PKVY INM Division DAG & FW, MoA & FW</p>	<p><i>Guest of Honor</i> Ms. Poojitha Lakshmi, DDO National Informatics Center Ministry of Electronics & Information Technology New Delhi</p>
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Hosted & Executed by Director, NCOF Ghaziabad

Virtual launching of upgraded PGS-India Web Portal



Updated PGS-India Web portal



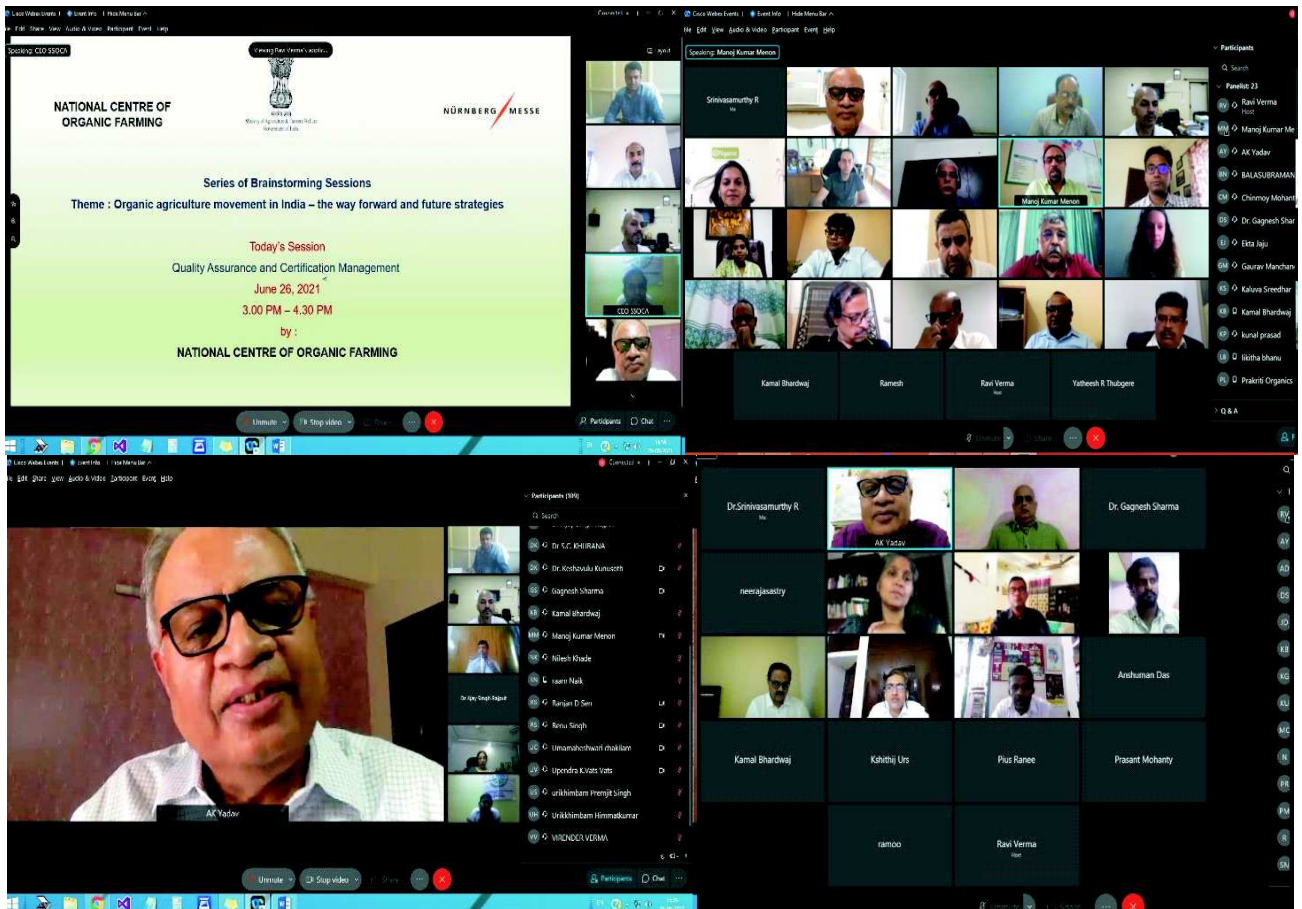
Listing of PGS-India Certified products on Javikkheti Portal



Product and brand developed under PGS-India Certification



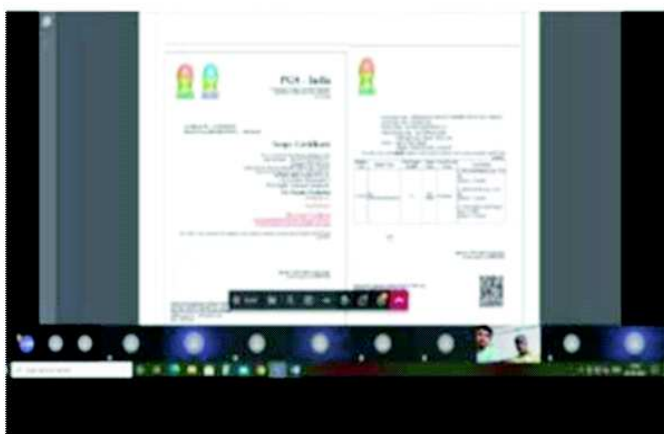
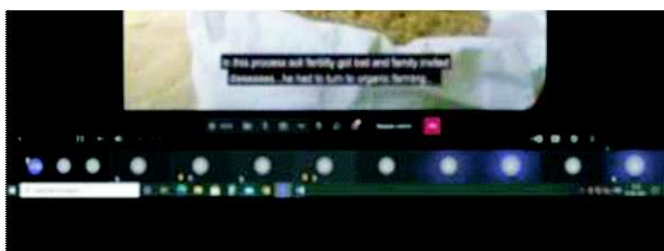
Virtual Interaction of Secretary, DA&FW on 4th May, 2021 with various stakeholders of Organic Industry.



Series of virtual Brainstorming sessions with various stakeholders of Organic Farming



JS (INM) addressing in webinar on 'Interactive Session with Biofertilizer units and Notified Testing Laboratories' held on 15th July 2021 at 3:00 p.m. to 5:00 p.m organized by NCOF, Ghaziabad





Online and Offline training programmes organized by N/RCOF during the year





Participation in various exhibitions and trade fairs by N/RCOF during the year

9.8.3 Paramparagat Krishi Vikas Yojana (PKVY)

The PKVY Scheme is implemented in a cluster mode with min. 20 ha size and states have been asked to implement in cluster size of 1000 ha in plain area and 500 ha in hilly area to facilitate marketing of organic produce. All farmers are eligible but within a group a farmer can avail benefit up to a maximum of 2 ha. and the



limit of assistance is Rs.50, 000 per hac., out of which 62% i.e., Rs. 31,000 is given as incentives to farmer for organic conversion, organic inputs,

on farm inputs, production infrastructure, etc., provided directly through DBT during the conversion period of 3 years.

Objectives

1. To promote natural resource based integrated and climate resilient sustainable farming systems that ensure enhancement of soil fertility, natural resource conservation, on-farm nutrient recycling and minimize dependence of farmers on external inputs;
2. To reduce cost of cultivation thereby enhancing farmer's net income.
3. To sustainably produce chemical free healthy food for human consumption.
4. To protect environment from hazardous inorganic chemicals by adoption of eco-



friendly low-cost traditional techniques and farmer friendly technologies.

5. To empower farmers through their own

institutional development in the form of clusters and FPC/FPO to manage production, processing, value addition and certification;

Pattern of Assistance:

Component	Rate/ha/ for 3 years	Cost per cluster of 20 ha Rs.	Total cost per cluster of 1000 ha in lakh
Cluster formation and capacity building	3000/ha	60,000/-	30.00
Deployment of manpower and management of implementation	4500/ha	90,000/-	45.00
PGS Certification – Service charges to RC and residue analysis	2700/ha	12,000	6.00
Incentive to farmers as DBT or as inputs	31,000/- per ha	620,000	310.0
Marketing, packaging, space rent, transportation	1500/ha	30,000	15.00
Value addition infrastructure	2,000/ha	40,000	20.00
Brand building, trade fairs, publicity, marketing support	5300/ha	1,06,000	3.00
Total	50,000/ha	10,00,000	500.00 lakh

Funding Pattern: PKVY is a centrally sponsored scheme with the funding pattern of 90:10 in hilly states, 100% central share for UTs and for remaining states central and state Govt share in a ratio of 60:40. States had been advised to earmark 30% budget allocation for women farmer's/beneficiaries.

Achievements

- Total fund released under PKVY Scheme is Rs1608.78 crore during the period 2015-16 to 2020-21 (as on 15.01.2022).

- Under PKVY Scheme 30,934 clusters (20 ha each) formed since 2015-16.
- 6.19 lakh ha area covered and 15.47 lakh farmers have been benefitted.
- A dedicated online web portal- www.Jaivikkheti.in / has been created to encourage, sale of organic products directly by farmers to consumers farming by directly connecting the consumers. On Jaivik-kheti portal a total 5.50 lakh farmers have been registered.



- Under Namami Gange Programme Rs 101.56 crore funds has been released for 6181 clusters and 1.23 lakh ha area covered.
- Various Brands have been developed under PKVY Scheme.
- Business tie-ups have been formed with various business groups for marketing of organic produce:
 - M/s Adani Group
 - M/s Home Burps
 - Priyank Associate
 - Advance Crop Care (India) Pvt. Ltd.
 - Prasad Nutriment Pvt. Ltd.
 - All Season Farm Fresh, Jamshedpur

1. Bhartiya Prakritik Krishi Paddhti (BPKP):

BPKP scheme, a sub-scheme of PKVY is aimed at promoting traditional indigenous practices which gives freedom to farmers from externally purchased inputs and largely based on on-farm biomass recycling with major stress on biomass mulching, use of cow dung-urine formulations; plant based preparations time to time working for soil aeration and exclusion of all synthetic chemical inputs directly or indirectly.

Components of BPKP

- i. Deployment of manpower and management cost for 1000 ha Block level implementation of programme including data management and uploading (@ Rs 4,500/ha for 3 years)
- ii. Cluster formation and Capacity building including exposure visits, and trainings of field functionaries (@ Rs 3,000/ha for 3 years)
- iii. PGS certification & Residue analysis (@ Rs 2,700/ha for 3 years)
- iv. Incentive to farmers as DBT (reduced from 31,000/ha to Rs. 2,000/ha)

Pattern of Assistance: Under BPKP the financial assistances provided for 3 years is Rs.12,200/ha.

Achievement: Under BPKP (natural farming) a fund of Rs. 4980.99 lakh has been released for an area of 4.09 lakh ha. to 8 states namely Andhra Pradesh, Chhattisgarh, Kerala, Himachal Pradesh, Jharkhand, Odisha, Madhya Pradesh and Tamil Nadu. In-principle approval has been given to Uttar Pradesh for area 38670 ha.

2. Large Area Certification (LAC)

Under PKVY, Government has initiated Large Area Certification (LAC) programme since 2020-21 to certify large traditional/default organic areas such as hills, islands, tribal or desert belt with no past history of GMO and agro chemical uses. Farmers are provided assistance of Rs. 2700/ha for 3 years for LAC. 14,445 ha area under Car Nicobar and Nancowry group of islands in Union Territory of A & N Islands have been certified. The entire cultivable land of 2700 ha area of Lakshadweep have been certified. Union Territory of Ladakh had been released Rs. 11.475 lakh for LAC of 5000 ha area.

9.8.4 Individual and Small Farmers Group Certification

Individual and small organic farmers groups (5-50 farmers) not covered under any Govt. schemes may also get registered with State Agriculture Department and nearby Regional Council of PGS-India to certify their farm as organic under PGS. Assistance of Rs. 2700/ha for 3 years is provided for PGS Certification (Cost of Certification is directly reimbursed to RC of PGS-India)

9.8.5 Mission Organic Value Chain Development for North Eastern Region (MOVCDNER)



For promotion of certified organic farming for development of domestic and export market of organic produce, Government of India have



launched MOVCDNER schemes in North Eastern States to help farmers to develop value chains of production, processing, certification and marketing through FPO/FPC formation.

Objectives

The scheme aims at development of commodity specific, concentrated, certified organic production clusters in value chain mode to link growers with consumers and to support the development of entire value chain starting from inputs, seeds, certification, to the creation of facilities for collection, aggregation, processing, marketing and brand building initiative. The main focus of the scheme is on export of produce.

The scheme was approved with an outlay of Rs. 400 crore for three years during the year 2015-16. The scheme has completed two phases of three years each and is now moving forward in Phase III.

Components:

- a. **Institution Development** – Creation of FPO/FPCs
- b. **Value Chain Production** – Support for inputs, seeds, certification and commodity specific production and setting up of custom hiring centers
- c. **Value Chain Processing** – Supporting FPO/FPCs for setting up of collection and aggregation centers, integrated processing units, pack houses, transportation vehicles and cold chain component
- d. **Value Chain Marketing and Support services** – Market facilitation, handholding, brand building, brand promotion and contract production

Pattern of Assistance:

Components	Rate for 3 years	Total per cluster of 500 ha /FPO
FPO formation	4075/farmer	20.37 lakh
Support for inputs to farmers	15000/ha	75.00 lakh
Seed supply	17500/ha	87.50 lakh
Custom Hiring centre		10 lakh/FPO
Training, handholding and certification	10,000/ha	10 lakh
Collection & aggregation centre	11.25 lakh/FPO	11.25 lakh/ FPO
Transport vehicle	6.0 lakh (50% subsidy)	6.00 lakh/FPO
Integrated processing units	1-2 per state	600 lakh
Pack house, cold chain	Need based	18.75 lakh
Marketing, branding, publicity,	State Govt.	19.00 lakh/FPO
Project management 5% to states and 0.5% at national level		

Post harvest component funding pattern

Components	Proposed Rate	Current rate in 14 th Commission
Integrated pack house (TFO of 50 lakh) 75% for FPO	37.50	37.25 lakh
Refer van 75% for FPO (TFO 26 lakh)	19.50	18.75 lakh

Cold room, chamber (TFO 25 lakh)	18.75 lakh	18.75 lakh
Minimal processing units (TFO 25 lakh)	18.75	No provision
Integrated processing Unit (TFO 800 lakh)	600 lakh	600 lakh

Funding Pattern: MOVCDNER is a central sector scheme with 100% central share. States had been advised to earmark 30% budget allocation for women farmer's/beneficiaries.

Achievements:

- Total funds released INR 712.48 crore
- 170 FPO/FPCs created covering 153116 farmers and 155495 ha area
- 242 Collection, Aggregation, Grading units, Custom Hiring Centers, 26 processing and pack house entities created under FPO/FPCs and private ownership
- 93 transportation vehicles provided to FPO/FPCs
- 7 states developed their own brands
- Marketing facilitation of ginger, turmeric, pineapple and king chilli have been major success and FPCs have been supported with buyback agreements
- The export of king chilli sauce, pineapple (canned) and ginger flakes to UK, USA, Australia, France and Swaziland have already started
- Industry mentorship model with necessary infrastructure development with 3 FPCs
- Contract production of Ginger and Turmeric with 100% buyback assurance finalized with 3FPOs in Arunachal Pradesh with Parvata Foods
- Contract cultivation of other high value crops such as Perilla, black thai ginger and Calandula flowers is under process.



National Project on Management of Soil Health and Fertility

Soil Health Management (SHM) is one of the most important interventions under National Mission for Sustainable Agriculture (NMSA). SHM aims at promoting Integrated Nutrient Management (INM) through judicious use of chemical fertilizers including secondary and micro nutrients in conjunction with organic manures and bio-fertilizers for improving soil health and its productivity; strengthening of soil and fertilizer testing facilities to provide soil test based recommendations to farmers for improving soil fertility; up-gradation of skill and knowledge of soil testing laboratory staff, extension staff and farmers through training and demonstrations etc.

Soil Health Management (SHM)

The components under Soil Health include setting up of new static Soil Testing Laboratories (STLs), setting up of new Mobile STLs, setting up of Village Level STLs/ Mini STLs, strengthening of existing Static/ Mobile STLs, setting up of new Fertilizer Quality Control Laboratory (FQCL), strengthening of FQCL, setting up of Bio-fertilizer Production Units (BPU), strengthening of BPU, setting up of Bio-fertilizer & Organic Fertilizer Quality Control Laboratories (BOQCL), strengthening of BOQCL, etc. Under the SHM Scheme, the following activities were sanctioned during 2020-21:

- 69 New Static STLs, 5 New Mobile STLs, 59 New Mini STLs, 01 FQCL, 01 New BOQCL & 4 Bio-fertilizer Production Units have been sanctioned for setting up.
- 61 STLs & 29 FQCLs were sanctioned for strengthening.
- 2,33,943 ha area were approved/ sanctioned for promotion/ distribution of Micronutrients.

Soil Health Card(SHC)

“Soil Health Card” was launched on 19th February, 2015 to provide Soil Health Cards to all the farmers in the country. Soil Health Card provides information to farmers on soil nutrient status of their soil and recommendation on appropriate dosage of nutrients to be applied for improving soil health and its fertility. In order to motivate farmers towards regular soil testing and adoption of soil testing recommendations; 60,225 demonstrations and 46,993 farmer's trainings were organized by States during 2020-21:

Financial Status

Funds amounting to Rs. 8.23 lakh has been released under Soil Health Card and no funds has been released under Soil Health Management till 31st December, 2021. Comparison of funds released during the current year (till December) with that of previous years is shown below.

(Rs. in crore)

Year	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22 (As on 31.12.2021)
Amount under Soil Health Management	62.97	44.39	95.50	42.17	78.31	46.99	57.76	0.00
Amount under Soil Health Card	23.89	96.44	133.66	152.77	237.40	112.44	142.18	8.23 (in lakh)
Total	86.87	140.83	229.16	194.94	315.71	159.43	199.94	8.23 (in lakh)

Chapter-10

PRADHAN MANTRI KISAN SAMMAN NIDHI (PM-KISAN)

10.1 Overview

Farmers' Welfare Division of this Department is entrusted with the formulation, implementation, monitoring and evaluation of two new Central Sector Schemes of the Government, namely, the Pradhan Mantri Kisan Samman Nidhi (PM-KISAN) and the Pradhan Mantri Kisan Maan Dhan Yojana (PM-KMY).

10.2 Pradhan Mantri Kisan Samman Nidhi (PM-KISAN):

10.2.1 Salient Features

- The objective of the scheme is to augment the income of families of all land holding farmers subject to certain exclusion criteria relating to higher income status. The Scheme was formally launched on 24th February, 2019.
- The scheme was originally started for Small & Marginal Farmers (SMFs) only, possessing a combined holding of upto 2 hectares of land, but later w.e.f. 01.04.2019 the Scheme was extended to all farmers, irrespective of the size of their land holdings.
- The Scheme aims to provide a payment of Rs. 6000/- per year to be transferred in three equal installments of Rs. 2000/- each, every four months directly into the bank accounts of eligible landholding farmer families.
- For effective implementation of the Scheme, detailed Operational Guidelines have been issued which are amended from time-to-time as and when considered necessary.
- The Scheme is being implemented online

through the Direct Benefit Transfer (DBT) mode for which an exclusive web-portal www.pmkisan.gov.in has been created.

- The identification of beneficiaries for the Scheme is the sole responsibility of the State/UT Governments which upload their necessary details on the PM-KISAN portal for enabling transfer of benefits to them.
- The Scheme is effective from 01.12.2018.
- The cut-off date with regard to the eligibility of farmers for the scheme is 01.02.2019.

10.2.2 Aims and objective of the Scheme

The scheme aims to supplement the financial needs of farmers to enable them to take care of expenses related to agriculture and allied activities as well as domestic needs. This would also protect them from falling in the clutches of moneylenders for meeting expenses and ensure their continuance in farming activities.

10.2.3 Beneficiaries of the Scheme

All landholding farmer families across the country having cultivable land, subject to certain exclusion criteria relating to higher income status are eligible for the benefit under the scheme.

10.2.4 Exclusion criteria:

The following categories of farmers are not eligible for benefit under the scheme:

- (i) All institutional land holders; and
- (ii) Farmer families in which one or more of its members belong to the following categories:

- Former and present holders of Constitutional posts
 - Former and present Ministers/ State Ministers and former/present Members of the Lok Sabha/ Rajya Sabha/ State Legislative Assemblies/ State Legislative Councils, former and present Mayors of Municipal Corporations, former and present Chairpersons of District Panchayats.
 - All serving or retired officers and employees of Central/ State Government Ministries /Offices/ Departments and its field units, Central or State PSEs and Attached Offices /Autonomous Institutions under Government as well as regular employees of the Local Bodies (Excluding Multi-Tasking Staff / Class IV/Group D employees).
 - All superannuated/retired pensioners whose monthly pension is Rs. 10,000/- or more (Excluding Multi-Tasking Staff/ Class IV/Group D employees)
 - All Persons who paid Income Tax in the last assessment year.
 - Professionals like doctors, engineers, lawyers, chartered accountants and architects registered with professional bodies and carrying out professions by undertaking practice.
- (iii) In case of new beneficiaries being uploaded on the PM-KISAN Portal, all land holding farmers' families who are Non-resident Indians (NRIs) in terms of the provisions of the Income Tax Act, 1961 shall be excluded from any benefit under the Scheme.

The number of eligible land holding farmer families has been estimated on the basis of projections of the Agricultural Census 2015-16 data for the year 2018-19. The total number of eligible beneficiaries has been estimated at 12.5

crore.

10.2.5 Mechanism of Implementation of the Scheme

- (i) A high level committee comprising of the Union Ministers of Finance, Agriculture and Land Resources has been constituted for making necessary modifications in the scheme within the overall financial parameters of income support approved by the Government for effective implementation.
- (ii) In some of the North-Eastern States, land ownership is community based. In such states, an alternate implementation mechanism of eligibility will be developed for the farmers and shall be implemented with the approval of a High Level Committee comprising of Ministers of the Ministry of Development of North-East Region (DoNER), Ministry of Rural Development (Department of Land Resources), Ministry of Agriculture & Farmers' Welfare and the concerned State Chief Minister or State nominated Minister.
- (iii) Special identification procedures have been devised for the States of Manipur and Nagaland in view of the community based land ownership in these states.
- (iv) Extension of benefit of the scheme to forest dweller tribes: The Government has decided to include tribals who have been given 'Pattas' under the Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006, subject to other eligibility conditions.
- (v) **Jharkhand:** Jharkhand does not have updated land records, as for many decades the mutation of land records on the basis of succession have not been recorded. Further, transfer of land is also

restricted in these areas. This posed a difficulty in the implementation of the Scheme in Jharkhand. Therefore, with the approval of the HLC, the following procedure shall be adopted for identification of beneficiaries under the PM-KISAN Scheme in Jharkhand-

The farmer shall be asked to submit 'Vanshawali' (Lineage) linked to the entry of land record comprising his/her ancestor's name giving a chart of succession. This lineage chart shall be submitted before the Gram Sabha for calling objections. After approval of the Gram Sabha, the village level/ circle level revenue officials will verify and authenticate the Vanshawali and possession of holding. This authenticated list of farmers after due verification of succession chart shall be counter signed by the District Level Revenue authority. Farmers' names, subject to the exclusion criterion after following the aforementioned process, shall be uploaded on the PM-KISAN portal along with other required details for disbursement of benefit under the Scheme.

(vi) A National Level Review Committee under the Chairmanship of Cabinet Secretary with Secretaries of Department of Economic Affairs, Agriculture, Land Resources and Information Technology as members has been constituted to review and monitor implementation of the Scheme.

(vii) The States shall prepare database of eligible beneficiary landholder farmer families in the villages capturing the Name, Age, Gender, Category (SC/ ST), Aadhaar Number (in case Aadhaar Number has not been issued then Aadhaar Enrollment Number together

with any other prescribed documents for purposes of identification such as Driving Licence, Voters' ID Card, NREGA Job Card or any other identification documents issued by Central/State/ UT Governments or their authorities, etc.), Bank Account Number and the Mobile Number of the beneficiaries. Responsibility of identifying the landholder farmer family eligible for benefit under the scheme shall be of the State / UT Government. In case of beneficiaries in States/UTs of Assam and Meghalaya where Aadhaar number has not been issued to most of the citizens, Aadhaar number shall be collected for those beneficiaries where it is available and for others alternate prescribed documents can be collected for identity verification purposes. States/UTs shall ensure that there is no duplication of the payment transferred to eligible families. Speedy reconciliation in case of wrong/incomplete bank details of the beneficiary should be ensured.

(viii) Possession of Aadhaar number for release of benefits under the Scheme was optional for release of the 1st Installment. It became mandatory for release of the 2nd Installment except for the States/UTs of Assam, Meghalaya and J&K where Aadhaar penetration is miniscule. Release of 3rd Installment onwards w.e.f. 1st August, 2019 was to be made only on the basis of Aadhaar seeded database of all beneficiaries except in respect of the States of Assam, Meghalaya and UT of J&K and Ladakh which remained exempted from this requirement till 31.3.2021. However, this deadline was relaxed by the Government till 30th November, 2019. The mandatory requirement of Aadhaar seeding of data of beneficiaries is applicable for release

of benefits for the 4-monthly periods w.e.f. 1st December, 2019 onwards. In case of beneficiaries in States/UTs of Assam and Meghalaya where Aadhaar number has not been issued to most of the citizens, exemption has been given from mandatory Aadhaar seeding of data for release of benefit transfer till 31.03.2022.

- (ix) For the purpose of exclusion, States have to take a self-declaration from the beneficiaries. In the said self-declaration taken by the States/UT Governments, an undertaking should also be included wherein the consent of the beneficiaries should be taken for using the Aadhaar number for verification of his eligibility for the scheme with the concerned agencies.
- (x) The existing land-ownership system in the concerned State/UT will be used for identification of beneficiaries. Further, State/UT Governments would also expedite the progress of digitization of the land records and linking the same with Aadhaar as well as bank details of the beneficiaries.
- (xi) The lists of eligible beneficiaries would be published at the village level. Small and Marginal Farmer families who are eligible but have been excluded should be provided an opportunity to represent their case.
- (xii) The beneficiaries, whose names are uploaded on PM-Kisan Portal by the State/UT Government in a particular 4-month period / trimester, shall be entitled to receive benefit for that trimester and for further installments pertaining to the subsequent trimesters for that financial year.

10.2.6 Review, Monitoring and Grievance Redressal Mechanism

- (i) There will be a stratified review/

monitoring mechanism at the National, State and District Level. At the National level, the Review Committee will be headed by the Cabinet Secretary. The States shall notify the State and District Level Review / Monitoring Committee.

- (ii) The States shall also notify State and District Level Grievance Redressal Monitoring Committees for looking into all the grievances related to implementation of the scheme. Any grievances or complaints which are received should be disposed off on merit preferably within two weeks' time.

10.2.7 Setting up of Project Monitoring Unit (PMU)

- (i) A Project Monitoring Unit (PMU) at the Central level namely National Farmer Welfare Programme Implementation Society (NFWPIS) has been set up in DA&FW. This PMU is tasked with the responsibility of overall monitoring of the scheme and is headed by the Chief Executive Officer (CEO). PMU also undertakes publicity campaigns (Information, Education and Communication - IEC).
- (ii) Each State/UT Government has designated a Nodal Department for implementation of the scheme and coordinating with the Central Government with regard to implementation of the Income Support Scheme.
- (iii) On the lines of PMU at central level, States/UTs may consider setting up dedicated Project Monitoring Units at State/UT Level. The administrative charges payable to the States/UTs will be provided by the Government of India based on the volume of work and the number of beneficiaries and other

related administrative expenses including cost to be incurred for procurement of stationery, field verification, filling of prescribed formats, their certification and its uploading as well as incentive for field functionaries, publicity, etc.

10.2.8 Release of funds

As on 30-11-2021, an amount of around Rs.1.60 lakh crores has been disbursed and around 11.60 crore beneficiaries have been given the financial benefit under the scheme. The State-wise detail of beneficiaries & fund released under the scheme is at Annexure given below:-

ANNEXURE

S No.	States	Beneficiary	Total Amount (In Rs)
1	Andaman and Nicobar Islands	17,044	28,11,42,000
2	Andhra Pradesh	54,24,866	81,54,70,38,000
3	Arunachal Pradesh	93,904	1,22,84,34,000
4	Assam	27,57,350	31,47,77,66,000
5	Bihar	82,45,009	1,08,54,57,18,000
6	Chandigarh	458	68,42,000
7	Chhattisgarh	34,84,089	40,27,75,22,000
8	Delhi	15,247	21,58,96,000
9	Goa	11,108	14,10,82,000
10	Gujarat	61,36,713	91,51,35,64,000
11	Haryana	19,24,919	30,13,89,64,000
12	Himachal Pradesh	9,41,854	15,33,96,46,000
13	Jammu and Kashmir	11,89,336	17,29,57,20,000
14	Jharkhand	26,42,421	27,16,52,46,000
15	Karnataka	55,83,878	81,11,08,40,000
16	Kerala	36,74,049	57,11,70,26,000
17	Ladakh	18,220	13,73,84,000
18	Lakshadweep	1,911	1,24,16,000
19	Madhya Pradesh	87,88,869	1,17,22,24,64,000
20	Maharashtra	1,11,69,577	1,62,16,03,34,000
21	Manipur	5,07,608	4,40,80,18,000
22	Meghalaya	1,92,142	2,29,21,40,000
23	Mizoram	1,77,349	1,71,50,12,000
24	Nagaland	2,06,523	2,99,27,24,000
25	Odisha	39,19,159	52,05,30,48,000
26	Puducherry	11,129	17,44,10,000
27	Punjab	23,37,437	33,81,27,10,000
28	Rajasthan	75,42,152	1,06,56,75,16,000
29	Sikkim	10,038	10,81,48,000
30	Tamilnadu	45,64,113	66,57,92,20,000
31	Telangana	38,97,170	62,50,23,40,000
32	The Dadra and Nagra Haveli and Daman and Diu	14,705	8,24,78,000
33	Tripura	2,38,023	3,61,18,54,000
34	Uttar Pradesh	2,58,29,073	3,80,07,21,48,000
35	Uttarakhand	9,21,074	13,93,12,74,000
36	West Bengal	35,87,577	14,83,85,60,000
	Total	11,60,76,094	16,08,80,16,80,000

10.3 Pradhan Mantri Kisan Maan Dhan Yojana (PM-KMY)

10.3.1 Salient features

- (i) The Pradhan Mantri Kisan MaanDhan Yojana (PM-KMY) is an old age pension scheme for all land holding Small and Marginal Farmers (SMFs) in the country.
- (ii) The Scheme was formally launched on 12th September,2019.
- (iii) The PM-KMY is a Central Sector Scheme administered by the Department of Agriculture & Farmers' Welfare, Ministry of Agriculture & Farmers' Welfare, Government of India in partnership with the Life Insurance Corporation of India(LIC).
- (iv) The LIC shall be the Pension Fund Manager and responsible for pension payout.
- (v) It is a voluntary and periodic contribution based pension system meant for all land holding Small and Marginal Farmers (SMFs) throughout the country, subject to the aforesaid exclusion criteria.
- (vi) The SMFs shall have the option to allow payment of his/her voluntary contribution to the Scheme from the financial benefits received by them from the PM-KISAN Scheme directly.
- (vii) The eligible SMFs who are desirous of using their PM-KISAN benefit for contributing for PM-KMY, will have to sign and submit an enrolment-cum- auto-debit-mandate form for giving their consent for auto-debiting their bank accounts in which their PM-KISAN benefits are credited, so that their contributions are automatically paid;
- (viii) The eligible SMFs who are not beneficiaries of PM-KISAN or who have not given consent to allow payment from the benefit of PM-KISAN shall submit an enrolment-cum-auto-debit mandate form for giving their consent to auto- debit a bank account which is normally used by them for bank transactions;
- (ix) The Central Government through the Department of Agriculture and Farmers' Welfare shall also contribute an equal amount as contributed by the eligible subscriber, to the Pension Fund. Account of such co-contributions shall be maintained separately by the LIC and these co-contributions along with fund earnings from time to time shall be utilized for pension payment on the date of vesting. Co-contributions would not be paid to subscribers in case of pre- mature exits. In such a case, the co- contributions along with fund earnings will be transferred back to the Pension Fund.
- (x) The State / UT Governments will have the option of sharing the burden of individual SMF beneficiary contribution.
- (xi) Monthly contributions will fall due on the same day every month as the enrolment date. The beneficiaries may also choose an option to pay their contributions on a quarterly, 4-monthly or half-yearly basis. Such contributions will fall due on the same day of such period as the date of enrollment;
- (xii) The amount of the monthly contribution shall range between Rs.55 to Rs.200 per month depending upon the age of entry of the farmers into the Scheme, as per the following contribution chart:

Entry Age	Superannuation Age	Member's contribution (Rs.)	Government's contribution (Rs.)	Total contribution (Rs.)
(1)	(2)	(3)	(4)	(5)
18	60	55	55	110
19	60	58	58	116
20	60	61	61	122
21	60	64	64	128
22	60	68	68	136
23	60	72	72	144
24	60	76	76	152
25	60	80	80	160
26	60	85	85	170
27	60	90	90	180
28	60	95	95	190
29	60	100	100	200
30	60	105	105	210
31	60	110	110	220
32	60	120	120	240
33	60	130	130	260
34	60	140	140	280
35	60	150	150	300
36	60	160	160	320
37	60	170	170	340
38	60	180	180	360
39	60	190	190	380
40	60	200	200	400

(xiii) In case of death of the subscriber before the vesting date, the spouse of the subscriber shall have an option of continuing the scheme by payment of remaining contributions under the scheme, provided she/he is not already an SMF beneficiary of the scheme. The rate of contribution and vesting date shall remain the same. Pension accruals will be calculated as if the subscriber were alive on the vesting date. The same pension would be payable to the spouse. Upon death of the spouse after the vesting date, the pension corpus would be transferred back to the Pension Fund.

(xiv) In case of death of the subscriber before the vesting date, if the spouse does not exercise the option of continuing under the scheme, then the subscribers' contributions along with fund interest earned or Savings Bank Interest whichever is higher would be payable to the spouse under the scheme.

(xv) In case of death of the subscriber before the vesting date, if there is no spouse, then the subscribers' contributions along with fund interest earned or Savings Bank Interest, whichever is higher would be payable to the nominee/s under the scheme. The co-

contributions made by the Government along with fund interest earned after adjusting for difference between Savings Bank Interest payable and fund interest earned, if any will be credited back to the Pension Fund of the Government.

- (xvi) If a subscriber dies after the date of vesting, his/her spouse shall be entitled to receive fifty per cent of the pension received by such an eligible subscriber as Family Pension, provided she/he is not already an SMF beneficiary of the Scheme, and such Family Pension shall be applicable only to the spouse.
- (xvii) After death of the subscriber as well as of his/her spouse, the corpus i.e. total accumulated contributions made by the subscriber and the Government shall be credited back to the fund.
- (xviii) The Eligible SMFs desirous of joining the scheme shall visit the nearest Common Service Centre (CSC) along with his Aadhaar card and bank passbook or account details.
- (xix) The Village Level Entrepreneur (VLE) present at the CSC shall complete the on-line registration process after taking details of Aadhaar number, name, date of birth, spouse and nominee particulars, mobile number (optional), address and a few other details.
- (xx) The on-line registration process includes capturing of bank account particulars and completion of an auto-debit mandate to the bank account of the subscriber for debiting the contribution amount to the subscriber's bank account every month. The demand will be made by the sponsor bank/IDBI on behalf of the LIC of India.
- (xxi) The data would be checked by the CSC through manual verification of bank particulars from supporting documents, demographic authentications of Aadhaar, etc.
- (xxii) The mobile number (optional) given by the subscriber will be verified through an OTP verification process.
- (xxiii) The subscriber will authenticate the data in an on-line generated enrolment form by putting his/her signature.
- (xxiv) The VLE will upload a scanned copy of the signed enrolment-cum-debit mandate form and thereafter enable his/her online payment of initial contribution and give him a receipt.
- (xxv) At this stage, the online registration process would be complete and the system would generate a Pradhan Mantri Kisan Maan-Dhan (PM-KMY) Pension Card with a unique Pension Account Number prominently printed on it.
- (xxvi) Upon completion of the enrolment process and payment of initial contribution, an enrolment-cum-auto-debit-mandate form for taking consent of farmers for auto-debiting from their PM-KISAN benefits through their bank accounts will be generated and signed by the subscriber.
- (xxvii) The CSC-SPV decentralized office would scan the signed enrolment-cum-auto-debit mandate form and upload the same to the CSC-SPV system.
- (xxviii) Subsequent to this a pension card would be generated and given to the subscriber as proof of pension account having been opened.
- (xxix) The CSC-SPV Centre would also return the original enrolment-cum-auto-debit mandate form to the subscriber to be

retained by him.

(xxx) Data of subscribers enrolled would be transferred by CSC-SPV to LIC on T+1 (i.e. the next day) for further process.

(xxxii) The CSCs would charge Rs.30/- per beneficiary for enrolment for the above services. The DA&FW would reimburse the above charge to CSC for which it would raise a consolidated invoice for the purpose.

(xxxii) Eligible beneficiaries may alternatively also enroll themselves by contacting physically the State Nodal Officers (SNOs) (or agencies designated by them) in their respective districts. Eligible beneficiaries may alternatively also enroll themselves online through links provided on the appropriate web-sites.

(xxxiii) The DA&FW will facilitate transfer of bulk data of beneficiaries from the SNOs to the CSC-SPV for the purpose of bulk enrolment of SMFs and also cross-verification of PM-KISAN beneficiaries registered at CSCs.

(xxxiv) A subscriber who desires to change the bank details or any other details which are incorrect, will approach CSC or VLE along with PM-KMY number, Aadhaar Card. However, the date of birth of the Subscriber cannot be changed at any time. The VLE at CSC will validate the credentials of the member on the payment of the amount/ fee as prescribed by the Government from time to time.

(xxxv) For effective implementation of the Scheme, detailed Operational Guidelines have been issued which may be amended from time-to-time as and when considered necessary.

10.3.2 Aims and objective of the Scheme

There have been a series of interventions for

income and price support by the Government for farmers. However, there is a felt need to create a social security net for farmers as old age may result in loss of livelihood for many of them. Farming requires hard work in fields which becomes difficult at an advanced age. The problem is compounded in respect of small and marginal farmers as they have minimal or no savings to provide for old age. The Pradhan Mantri Kisan Maan-Dhan Yojana (PM-KMY) provides for an assured monthly pension of Rs. 3000/- to all land holding Small and Marginal Farmers (SMFs), whether male or female, on attaining the age of 60 years. Farmers falling within the purview of the exclusion criteria are, however, not eligible for the benefit.

10.3.3 Beneficiaries of the Scheme

All Small and Marginal Farmers (SMFs) in all States and Union Territories of the country, who are of the age of 18 years and above and upto the age of 40 years, and who do not fall within the purview of the exclusion criteria are eligible to avail the benefits of this Scheme by joining it.

10.3.4 Exclusion criteria:

The following categories of farmers have been brought under the exclusion criteria:

- (i) SMFs covered under any other statutory social security schemes such as National Pension Scheme (NPS), Employees' State Insurance Corporation Scheme, Employees' Fund Organization Scheme etc.
- (ii) Farmers who have opted for Pradhan Mantri Shram Yogi MaanDhan Yojana (PM-SYM) administered by the Ministry of Labour & Employment
- (iii) Farmers who have opted for Pradhan Mantri Laghu Vyapari Maan-dhan Yojana (PM-LVM) administered by the Ministry of Labour & Employment

(iv) Further, the following categories of beneficiaries of higher economic status shall not be eligible for benefits under the scheme:

- All institutional landholders
- Former and present holders of constitutional posts
- Former and present Ministers/ State Ministers and former/present Members of the Lok Sabha/ Rajya Sabha/ State Legislative Assemblies/ State Legislative Councils, former and present Mayors of Municipal Corporations, former and present Chairpersons of District Panchayats.
- All serving or retired officers and employees of the Central/ State Government Ministries/ Offices/ Departments and their field units, Central or State PSEs and Attached offices/ Autonomous Institutions under the Government as well as regular employees of the Local Bodies (Excluding Multi Tasking Staff / Class IV/Group D employees)
- All persons who paid Income Tax in the last assessment year.
- Professionals like doctors, engineers, lawyers, chartered accountant and architects registered with Professional bodies and carrying out profession by under taking practice.

For the purpose of exclusion State/UT Government can certify the eligibility of the beneficiary based on self-declaration by the beneficiaries. In case the beneficiary is not available /does not reside in the village, State/UT Governments may consider certification based on a declaration by other adult members of his/her family. In case of

incorrect self-declaration, beneficiary shall not be eligible for financial benefit under the Scheme.

10.3.5 Mechanism of Implementation of the Scheme

- a) The Common Service Centres (CSCs) under the Ministry of Electronics and Information Technology and the State Nodal Officers (SNOs) (PM-KISAN) will be the enrolling agencies.
- b) The CSC will complete the on-line registration process after taking details of Aadhaar number, name, date of birth, spouse and nominee particulars, mobile number, address and a few other details.
- c) The CSC will take an auto-debit mandate for debiting contribution amount to the subscriber's bank account every month.
- d) The CSC will thereafter enable online payment of initial contribution and give the subscriber a receipt.
- e) The CSC will provide a PM-KISAN Maan-Dhan Pension Card with a Pension Account Number printed on it.
- f) The CSCs would charge the DA&FW Rs.30/- per beneficiary for enrolment for the above services.
- g) The data of SMF PM-Kisan beneficiaries already available with the SNOs will also be appropriately utilized for enrolment.
- h) The beneficiaries may choose an option to pay their contributions on a monthly, quarterly, 4-monthly or half-yearly basis.
- i) In case of failure of payment of contribution by the subscriber he/she may pay the outstanding installments.
- j) Late fee / interest may be charged for default in payment.

- k) If contributions remain unpaid for a period of six months, such account status would be changed to 'dormant account'. The subscriber will be allowed to regularize contribution by paying the entire outstanding dues, along with interest at the rate as determined by the Government from time to time.

10.3.6 Review, Monitoring and Grievance Redressal Mechanism

- a) An Empowered Committee under the Chairmanship of Cabinet Secretary with Secretaries of Agriculture & Farmers' Welfare, MeITY, Department of Expenditure, Department of Financial Services and any other Secretary concerned as members shall review and monitor implementation of the Scheme through appropriate implementation strategies and to approve any modifications in the Scheme within the overall financial parameters of the Scheme approved by the Cabinet, for effective implementation.
- b) The overall implementation of the Scheme would be done by the Project Monitoring Unit (PMU) namely National Farmer Welfare Programme Implementation Society (NFWPIS) setup for the PM- Kisan Scheme at the Central level in the DA&FW. The PMU shall also undertake a publicity campaign (Information, Education and Communication-IEC) for the Scheme and also incur various administrative expenses.
- c) Each State/UT Government will designate a Nodal Department for implementation of the scheme and coordinating with the Central Government with regard to implementation of the Scheme.
- d) A Grievance Redressal Cell shall be set up both at State and District Levels accordingly

with representation of State Nodal Officers, State Level Bankers' Committee and Regional Manager, LIC. Similarly, the District Level shall have DLBC and LIC Representatives along with District Level Government Officers.

- e) All disputes to the extent of and limited to the transactions routed through the National Automated Clearing House(NACH) system should be routed by the banks through the Dispute Management System (DMS) provided by NPCI. The disputes so raised on the Sponsor Bank shall be resolved within 30 days from the date of dispute. If the Sponsor Bank fails to respond / resolve the dispute within the agreed time line, the disputed amount will be debited to the settlement account of the Sponsor Bank maintained with the Reserve Bank of India(RBI).
- f) Any disputes other than that detailed above shall be resolved by LIC, the Sponsor Bank and the Ministry without any liability on the other participating stakeholders. The process to be followed for dispute resolution is provided in the MoUs.
- g) Any matter related to execution, grievance redressal, dispute resolution etc. shall be referred to the Joint Secretary (Farmers' Welfare), Department of Agriculture and Farmers' Welfare, Ministry of Agriculture & Farmers' Welfare, Krishi Bhavan, New Delhi - 110001 for redressal.

10.3.7 Project Monitoring Unit (PMU):

The PMU set up for PM-KISAN Scheme will also take care of the implementation of PM-KMY.

10.3.8 Farmers registered so far: So far (as on 30-11-2021), 21,42,995 farmers have registered for the Scheme.

Chapter-11

NATIONAL CROP INSURANCE PROGRAMME (NCIP)

Agriculture Insurance

11.1 Keeping in view the risks involved in agriculture and to insure the farming community against various risks, the Ministry of Agriculture & Farmers Welfare introduced a crop insurance scheme in 1985 and thereafter brought improvements in the erstwhile scheme(s) from time to time based on the experience gained and views of the stakeholders, including States and farming community etc. The insurance schemes currently under implementation are the

Pradhan Mantri Fasal Bima Yojana (PMFBY) and the Restructured Weather Based Crop Insurance Scheme (RWBCIS).

Considering the farmers demands, the scheme has been revamped in February 2020. Under revamped scheme, participation is made voluntary for all farmers, whereas earlier, it was compulsory for loanee farmers.

The total funds released by Government of India during last 5 years under various schemes for crop insurance are as under:

(Rs. crore)

Plan/ Year	Insurance Schemes	Expenditure
2017-18	Pradhan Mantri Fasal Bima Yojana (PMFBY) and Restructured Weather Based Crop Insurance Scheme (RWBCIS)	9419.79
2018-19	- do -	11945.38
2019-20	- do -	12638.32
2020-21	-do-	14165.44
2021-22	- do-	9719.24

as on 24.01.2022

11.2 Brief details of the crop insurance schemes being implemented in the country are given below:

11.2.1 Pradhan Mantri Fasal Bima Yojana (PMFBY)

After detailed discussions with various stakeholders including State Governments, representatives of farmer organizations, Government of India had formulated the new Crop Insurance Schemes viz. Pradhan Mantri Fasal Bima Yojana (PMFBY), which is being implemented in various States/Union Territories of the country from Kharif 2016.

The Scheme is being implemented through 18 General Insurance Companies including 5 Government Sector Companies. Under PMFBY, a uniform maximum premium of only 2% of the sum insured is paid by farmers for Kharif crops and 1.5% for Rabi crops. In case of annual commercial and horticultural crops, the maximum premium to be paid by farmers is upto 5%. The premium rates to be paid by farmers are very low and the balance of actuarial premium is being borne by the Government, to be shared equally by the State & Central Government, (except in North Eastern States where the subsidy sharing pattern between Central and

State Govt. is 90:10) to provide full insured amount to the farmers against crop loss on account of natural calamities.

Earlier, there was a provision of capping the premium rate which resulted in low claims being paid to farmers. This capping in earlier schemes has now been removed. In PMFBY farmers will get claim against full sum insured without any reduction. Central Government has rationalized the GoI subsidy sharing in the view of high premium in select crops and areas and to ensure a detailed analysis of the reasons leading to high premium rates. This needs a detailed examination and necessary course correction by the concerned State Government. Central Subsidy for premium is capped up to 30% for unirrigated & 25% for irrigated area/crops. Districts with irrigated area more than 50% (from all sources) will be considered as irrigated districts. Further, the sum insured has been equated to Scale of Finance/Notional Value of the crop.

Efforts are being made to make the scheme technology driven with the primary objective to reduce the delays in claim payment to farmers. Capturing of CCEs data on smartphones/CCE Agri App and its real-time transfer on the National Crop Insurance Portal has been made mandatory from Kharif 2017 to ensure transparency and real time transfer of data. Remote sensing will be used to rationalize the number of Crop Cutting Experiments (CCEs) at unit area level. 8 pilot studies on use of innovative technology in CCEs have been completed by the Department which are coordinated by the Mahalanobis National Crop Forecast Centre (MNCFC). A High-Power Committee constituted in the Department of Agriculture and Farmers Welfare has evaluated the results of the 8 pilots and it has been decided to scale up and mainstream the operationalization of these approaches/ techniques for paddy

crop in 9 States on the pilot basis.

14 more pilot studies by the Government, reputed international and national private agencies on direct yield estimation at Gram Panchayat level using technology have been initiated during the year 2020 which are also being coordinated by the MNCFC.

Under PMFBY, CCEs has increased manifold. Every year around 70 lakh CCEs need to be conducted to arrive at yield data within a short harvesting window of 15-20 days is a challenging task. Smart Sampling and Two Step Yield Estimation has been adopted under PMFBY implementation to rationalize and reduce number of CCEs to be conducted. This will ensure reduction in CCE numbers without impacting quality of sampling and yield estimation results. Further, new age technology will be used to assess crop health using remote sensing and satellite indices.

Smart Sampling, Optimization of CCEs and Direct Yield Estimation at GP Level

After evaluation of results obtained in pilot studies for Smart Sampling Technique, and Optimization of CCEs by the Expert Committee the approaches are being implemented operationally from Kharif 2019 in notified Rice growing areas in Kharif season and Rabi Sorghum, Rabi Rice, Mustard and Wheat in Rabi season. Similarly, technology driven approaches developed during pilot studies for GP level crop yield estimation in Kharif 2019 and Rabi 2019-20 are being tested over 100 Rice growing districts in Kharif 2020 season and 100 Rabi Rice and Wheat growing districts in Rabi 2020-21.

For effective implementation, an integrated National Crop Insurance Portal (www.pmfby.gov.in) has been developed to integrate all the stakeholders on a single platform on a real time basis. This has also enabled access to individual

farmer-wise detailed data. Further, it has been decided to obtain the Aadhar number of insured farmers and details of land records for de-duplication. In addition, Direct Transfer of Benefits (Claims) to farmers account has been initiated from Kharif 2018 season.

Progress of the scheme implementation

The Scheme has completed 5 years of its implementation. Details of coverage and claims (as on 24.01.2022) are given in the following table:

PMFBY & RWBCIS - All India Business Statistics Since Implementation as on 24.01.2022									
Season/Year	Farmer Applications Insured (Lakh)	Area Insured (Lakh ha)	Sum Insured	Farmers Share in Premium	Gross Premium	Reported Claims	Paid Claims	Farmer Applications Benefitted (Lakh)	Claim Ratio
			Rs. Crore						
Kharif 2016	407.7	377.1	1,30,634	2,814	15,887	10,595	10,595	115.6	66.7%
Rabi 2016-17	176.0	188.5	72,247	1,271	5,811	6,212	6,212	41.0	106.9%
2016-17 Total	583.7	565.6	2,02,881	4,085	21,698	16,808	16,808	156.6	77.5%
Kharif 2017	357.3	329.5	1,24,580	2,800	18,273	18,154	18,151	147.1	99.3%
Rabi 2017-18	175.4	178.6	78,054	1,403	6,332	4,004	3,998	30.1	63.2%
2017-18 Total	532.7	508.1	2,02,634	4,203	24,605	22,158	22,149	177.2	90.1%
Kharif 2018	345.3	317.7	1,36,879	3,040	20,782	19,828	18,798	138.9	95.4%
Rabi 2018-19	232.5	207.1	92,651	1,650	8,268	9,527	9,464	85.7	115.2%
2018-19 Total	577.8	524.8	2,29,530	4,690	29,050	29,355	28,261	224.6	101.0%
Kharif 2019	431.4	334.7	1,44,208	3,052	23,709	21,403	20,440	186.7	90.3%
Rabi 2019-20	190.9	170.1	75,822	1,481	8,434	5,900	5,663	42.6	70.0%
2019-20 Total	622.4	504.8	2,20,030	4,532	32,143	27,302	26,103	229.3	84.9%
Upto 2019-20	2,316.5	2,103.5	8,55,076	17,510	1,07,496	95,623	93,322	787.6	89.0%
Kharif 2020	422.0	282.9	1,15,182	2,610	20,555	7,046	6,784	76.1	34.3%
Rabi 2020-21	193.9	167.0	82,378	1,411	11,006	4,386	4,092	37.4	39.9%
2020-21 Total*	615.9	449.8	1,97,560	4,021	31,561	11,432	10,875	113.5	36.2%
Kharif 2021	489.1	246.9	1,00,435	2,302	18,675	3,163	2,863	59.4	16.9%
Rabi 2021-22	170.2	81.7	39,232	745	6,178	-	-	-	NA
2021-22 Total**	659.3	328.6	1,39,666	3,047	24,852	3,163	2,863	59.4	NA
Total	3,591.7	2,881.9	11,92,303	24,578	1,63,909	1,10,219	1,07,059	960.5	NA

* Kharif 2020 claims yet to be reported by Assam and Madhya Pradesh; Rabi 2020-21 claims under finalization;

** Kharif 2021 enrolment under finalization, yield-based claims yet to be initiated; Rabi 2021-22 enrolment under process;

Decline in coverage of farmer applicants in 2017-18 was due to deduplication by making Aadhar mandatory and announcement of Debt Waiver Scheme by some States.

The scheme was very well received by the farming community as 27 States and UTs opted for the scheme in one or more seasons. The

coverage in the first year of the scheme (2016-17) was 30% of Gross Cropped Area (GCA). This was the highest coverage in the history of crop insurance in India. Further, voluntary participation of non-loanee farmers has increased substantially (more than 6 times) as compared to earlier schemes and has reached

37% of total coverage under the scheme in 2019-20. This has been a major achievement under the scheme. To facilitate this, alternate mechanisms for coverage of non-loanees were put in place which included access through Common Service Centres (CSCs) and encouraging direct enrolment on the portal. However, the scheme has been made voluntary for all farmers including loanee farmers from Kharif 2020 season.

During 2016-17 about 584 lakh farmer enrolments were provided crop insurance for a sum of Rs. 2.03 lakh crore and during 2017-18 about 533 lakh farmer enrolments were provided crop insurance for a sum of Rs. 2.02 lakh crore under PMFBY & RWBCIS. There was some decline in coverage in 2017-18 primarily in the category of loanee farmers. The announcement of Debt Waiver Schemes in two big States namely, Maharashtra and Uttar Pradesh made more than 36 lakh farmers in Kharif 2018 season who had availed crop loan, ineligible for the crop insurance as fresh loans were not drawn. At the same time, Direct Benefit Transfer (DBT) was introduced by the Government in April 2017, to help farmers receive claims directly in their bank accounts, which made registration through Aadhar number mandatory. This was a deliberate step by the Government to weed out ghost /duplicate beneficiaries and help genuine farmers through Aadhar based verification and it resulted in further decreasing the number of loanee farmers under the scheme.

Coverage under the scheme has increased from 533 lakh farmer applicants in 2017-18 to 578 lakh applicants during 2018-19 and 615 lakh farmer applicants during 2019-20, which is despite the withdrawal of Bihar State from the scheme from Kharif 2018 season and West Bengal State Government from Kharif 2019 season. The State Governments of Andhra Pradesh, Gujarat, Telangana and Jharkhand have also not implemented the scheme in 2020.

In spite of overall good monsoon during the first three years of implementation of PMFBY, the claim ratio was about 77.5%, 90.1%, 100.9% and 85.2% in 2016-17, 2017-18, 2018-19 and 2019-20 respectively.

Moreover, the farmers in most affected States received higher claims and the claim ratio was high in these States. Claim ratio in year 2016-17 was – Tamil Nadu-311.3%, Karnataka-157.1% and Andhra Pradesh-117.5%. Claim ratio was higher in 2017-18 in the states of- Chhattisgarh 384.5%, Odisha- 221.9%, Haryana 198.2%, Tamil Nadu 164% and Madhya Pradesh 126.1%. Similarly, in 2018-19, States with higher claim ratio were Andhra Pradesh-172.8%, Tamil Nadu 169.6%, Karnataka-160.8%, Chhattisgarh-12.32% and Jharkhand 172.4%

Under PMFBY, benefits to the farmers are also being provided through early payment of claims directly into the bank accounts of the farmers. There is more transparency in assessment of crop losses and assessment of claims through use of technology etc.

Text SMS is being sent to all loanee farmers whose mobile numbers have been entered on the portal. Acknowledgement receipt is being generated on the portal and made available to banks. All farmers who are enrolling through CSCs or directly on the crop insurance portal are being provided physical receipt at the time of enrolment. Acknowledgement receipt is being provided to all loanee farmers from Kharif 2018 season.

Review of Operational Guidelines of the Scheme and issue of Revised Guidelines

The schemes' implementation is reviewed/monitored constantly through weekly video conferences, one to one meeting with the stakeholders on a regular basis and the National Level Monitoring Committee (NLMC). Learning from the Scheme implementation experience, an

extensive consultative exercise with all implementing partners was made and Operational Guidelines (OGs) of PMFBY/RWBCIS were revised with effect from 1st October, 2018 from Rabi 2018-19 season and are available on the National Crop Insurance Portal i.e. <https://pmfby.gov.in/guidelines> for use of stakeholders under the scheme.

Though scheme and revised Operational Guidelines were made after detailed discussion with various stakeholders viz. farmers, States, insurance companies, financial institutions etc. some points/issues like voluntary coverage of non-loanee farmers, addressing challenges of delay in release of state premium subsidy and Crop Cutting data and leveraging technology for smooth implementation etc. were identified as critical issues in implementation of the scheme during the first eight seasons. Thereafter, after making detailed discussions, the PMFBY/RWBCIS has been revamped with the following changes to make the scheme more beneficial to farmers with effect from Kharif 2020:

- To address the demand of farmers, the scheme has been made voluntary for all farmers. However, there is no change in farmers' share of premium.
- The premium subsidy sharing pattern between Centre and North Eastern States has been changed from 50 : 50 to 90:10. This has been done to allow more States to notify the scheme and existing States to notify more crops and areas to facilitate greater coverage of farmers under the scheme. For the remaining States, the subsidy sharing pattern will continue as 50:50.
- To address the issue of high premium rate for few crops/areas due to adverse selection, the requisite central share of premium subsidy (90 : 10 for North Eastern States and 50 : 50 for remaining States) will be provided for areas/crops having gross premium rate up to 25% for irrigated and up to 30% for un-irrigated areas/crops.
- States have to decide on these high-risk crops/areas. They can remove these crops from notification or notify these crops/areas and bear the entire subsidy over and above 25% for irrigated and 30% un-irrigated crops/areas. Central Govt. will share only up to 25% or 30% of applicable premium as the case may be.
- Besides, alternate risk mitigation measures will be explored for these high-risk areas/crops.
- Insurance companies will now be selected by the States for 3 years in a go instead of one year thereby increasing their commitment and accountability to the farmers.
- Option has been given to the States to choose the notional value of average yield or the Scale of Finance as sum insured in the interest of the farming community.
- In view of the demand of many States, option has been given to States to choose additional risk covers besides shortfall in yield-based cover depending upon the local weather challenges and requirements of the farmers.
- Insurance Companies to pay 12% interest to farmers for delaying claim payment beyond prescribed timelines. Similarly, penalty of 12% interest per month shall be levied on State Government if failing to release state share of premium subsidy within 3 months of requisition by concerned Insurance Company. States delaying the release of subsidy beyond stipulated

timelines cannot participate in upcoming seasons.

- A two-step process of crop yield estimation using weather and satellite indicators etc. is adopted, which will help in early assessment of loss.
- Use of smart sampling technique through satellite data for crop cutting experiments by some states has shown increased efficiency in implementation. This will now be universalized.
- The delay by some States in submission of crop yield data will now be suitably addressed using technological solutions.
- Provision has been made for earmarked administrative expenses @ 3% for strengthening infrastructure and technology for better delivery of the Scheme.

Working Group to examine Alternate Risk management Mechanism under Pradhan Mantri Fasal Bima Yojana has been constituted under the Chairpersonship of CEO, PMFBY consisting of Joint Secretary (Insurance), Department of Financial Services, Joint Secretary (Public Finance), Department of Expenditure, Principal Secretary (Agriculture), State Governments of Maharashtra, Madhya Pradesh, Rajasthan, Gujarat, Assam, Tamil Nadu, Uttar Pradesh & Odisha, CMD-Agriculture Insurance Company of India Ltd. (AICL), CMD-GIC Re, Representatives from IASRI & ISRO and Director- Mahalianobis National Crops Forecast Centre. Later, Department of Expenditure has expressed their inability to be a member in this Working Group. The first meeting of this Working Group has recently been held on 15.11.2021.

11.2.2 Restructured Weather Based Crop Insurance Scheme (RWBCIS)

With the objective to provide coverage for those

crops for which there is no standard/approved methodology for assessment of yield and to overcome the shortcoming under erstwhile NAIS, a pilot Weather Based Crop Insurance Scheme (WBCIS) was launched in 20 States (as announced in the Union Budget 2007-08). However, WBCIS was implemented as a full-fledged component scheme of the National Crop Insurance Programme (NCIP) from Rabi 2013-14 season to Rabi 2015-16. WBCIS intends to provide insurance protection to the farmers against adverse weather incidence, such as deficit and excess rainfall, high or low temperature, humidity etc. which are deemed to impact crop production adversely. It has the advantage to settle claims within the shortest possible time. Under WBCIS, actuarial rates of premium were charged. The scheme has further been restructured on the basis of premium structure and administrative lines of PMFBY and is available in the country from Kharif 2016 as Restructured WBCIS.

Coverage of Women Farmers under PMFBY

All farmers whether sharecroppers, tenant farmers including women farmers growing crops in the areas notified by the concerned State/UT Government are eligible for coverage under the scheme and can insure themselves as per provisions of the scheme. The coverage under the scheme is subject to land records and tenancy contract. Further, the Scheme is demand driven. Since, the scheme has been made voluntary for participation, all farmers including woman farmers are eligible to enroll under the scheme. There are no specific extra benefits/provisions for women farmers under the scheme. However, the Government is bound to pay its share in premium subsidy for all the farmers including women who take up crop insurance.

The coverage of women farmers under PMFBY has remained consistent since inception of the

scheme. Over the last three seasons mainly, Rabi 18-19, Kharif 18 and Kharif 19, out of the total coverage under the scheme approximately 15%-16% women farmers were enrolled under the scheme every year. The State of Maharashtra has achieved maximum enrolment of women farmers, constituting almost 18%-19% of the State's total farmer coverage. Insured area owned by women farmers in the State of Maharashtra is the highest among all participating States since Kharif 18. Union Territories and North East States have recorded poor enrolment of women over the years.

There has been 0.7% increase in the enrolment of Loanee women farmers and a significant increase in the enrolment of Non-Loanee women farmers amounting to approximately 56% increase from Kharif 2018 to Kharif 2019 demonstrating favorable attitude among women farmers towards PMFBY.

In addition, it is also informed that no Audit Para is pending in Credit II Section.

AzaadikaAmrit Mahotsav-India@75 campaign

With a view to contribute to commemorate 75 years of India's independence under "AzaadikaAmrit Mahotsav-India@75 campaign, this department had planned to organize "Crop Insurance Week" or "FasalBimaSaptaah" during Kharif and Rabi enrolment season.

The first Crop Insurance Week was celebrated during the first week of July 2021 (1-7 July) for Kharif season. An extensive IEC campaign was conducted in all notified areas during the campaign in coordination with all Stakeholders viz. State Govt., Insurance Companies, Banks and CSCs etc. For providing special focus in the low enrolment areas, 75 districts having low penetration of the crop insurance were identified wherein preference was given to the aspirational districts. Dedicated campaigns with

day-wise activities were planned and conducted in these identified locations. The virtual inauguration of the Crop Insurance Week was done by Hon'ble Agriculture Minister, Shri Narendra Singh Tomarji on 1st July 2021.

On similar lines the 2nd Crop Insurance Week was also celebrated from 1st Dec- 7th Dec 2021 to support ongoing IEC activities.

The key activities planned under Crop Insurance Week as under:

Activities by States/UTs:

- Address/Message from State Agriculture Minister to the farmers highlighting the benefits of PMFBY.
- Audio-visual/ Radio – Spot campaign in regional channels/ Regional DDK/ AIR focusing on the key messages of PMFBY.
- Half hour special programme on PMFBY by regional DD and AIR including bites/clips in news bulletins, coverage of various events organized by the State Govt.
- Press release in local language through local newspapers including success stories of beneficiary farmers.
- Organize E-Kisansamvad with farmers through Facebook live or any other appropriate digital platform.
- Participation of District Magistrates/ Collectors and other officer bearers to flag off the IEC vans.
- Organization of Village wise special campaign during the period in association with Agricultural Technology Management Agency (ATMA) functionaries, Panchayati Raj Institutions (PRIs), Food Processing Organisations (FPOs) and other farmers organizations etc. District

Agriculture Officers & Block Agricultural Officers may be assigned to implement and supervise these campaigns.

- Special window for enrolment of farmers may be organized during the period with active participation of Banks, Primary Agricultural Credit Societies(PACS), CSC, Insurance Companies preferably nearer to the residence of farmers.

Activities by Insurance Companies:

- District/Block/Zila Panchayat/Gram Panchayat level special programmes
- Display of banners/posters at Govt. Offices, Banks, PACS, CSCs, PRI, FPOs etc.
- Day-wise plan / schedule of the movement of IEC Vans in the block carrying messages on PMFBY with announcement and engaging farmers to clear their doubts

- Distribution of requisite number of publicity materials including pamphlets etc. to field offices of Govt. Offices, Banks, PACS, CSCs, PRI, FPOs etc.

Social Media Campaign:

- Tweeting and retweeting the various events which are organized at National level and the regional level, short clip/bites of the beneficiary farmers, dedicated hashtags and infographics and tweets by influencers, including social media posts/tweets of Hon'ble PM, Union Ministers, Hon'ble Governors, Chief Ministers, other ministers, and dignitaries.
- Use of hashtags #CropInsuranceWeek, #AmritMahotsav, #IndiaAt75, #फसलबीमासप्ताह #अमृतमहोत्सव #PMFBY in each social media post.

Overview

12.1 The Government has taken many policy initiatives for strengthening of farm credit delivery system for providing credit at lower rates of interest to support the resource requirements of the agricultural sector. The emphasis of these policies has been on providing timely and adequate credit support to farmers with particular focus on small and marginal farmers and weaker sections of society to enable them to adopt modern technology and improved agricultural practices for increasing agricultural production and productivity. The policy essentially lays emphasis on augmenting credit flow at the ground level through credit planning, adoption of region specific strategies and rationalization of lending policies and procedures and bringing down the rate of interest on farm loan.

12.2 Policy initiatives for increasing the flow of credit

The Government has initiated several measures to galvanize the institutional credit system to make them more responsive to the needs of farmers. Some of the important measures initiated in this regard are as under:-

12.2.1 Agriculture Credit: Target and Achievement

Government sets target for agricultural credit flow every year, which has increased consistently over the years and it reached Rs. 15,75,398 crore against the target of Rs. 15,00,000 crore during 2020-21. Target for the year 2020-21 has been fixed at Rs.16,50,000 crore and till 30th September, 2021 against this target a sum of Rs.7,36,589.05 crore has been disbursed.

12.2.2 Interest Subvention Scheme

The Interest Subvention Scheme (ISS) was launched in the year 2006-07 with a view to provide concessional short term crop loans including loan availed through Kisan Credit Card (KCC) to the farmers.

ISS is available to farmers availing short term agri loans upto Rs.3.00 lakh at an interest rate of 7% per annum for one year. The short term agri loans include crop Husbandry, Animal Husbandry, Dairying and Fisheries. Additional 3% subvention is also given to the farmers for prompt and timely repayment of loans; the same gets reduced to 4% per annum. The benefits of ISS can be availed by farmers in allied activities like Animal Husbandry and Fisheries and who already possess KCC within the overall limit of Rs.3.00 lakh. New KCC can be issued to Animal Husbandry and Fisheries farmers with provision of benefit of IS & PRI for loan amount upto Rs.2.00 lakh per annum. Interest subvention of 2% and prompt repayment incentive of 3% on restructured crop loans to farmers affected by severe natural calamities for a maximum period of 5 years on the basis of report of Inter-Ministerial Central Team (IMCT) for grant of NDRF assistance and Sub-Committee of National Executive Committee (SC-NEC) is also available. Further IS of @ 2 % is available to Small and Marginal Farmers (SMFs) having Kisan Credit Card (KCC) on post harvest loans against Negotiable Warehouse Receipts (NWRs) i.e. at the same rates as applicable to crop loans for a period of up to six months post harvest.

During the financial year 2020-21, the Department released a sum of Rs. 17,789.72

crore to the implementing agencies i.e. Reserve Bank of India (RBI) / National Bank for Agriculture and Rural Development (NABARD), as subsidy under Interest Subvention Scheme. The Government has allocated a sum of Rs. 19,468.31 crore for the current financial

year for interest subsidy under the scheme. Out of the current year budget, an amount of Rs.8222.761crore has been released to RBI/NABARD under the scheme. Details of funds released during the last five years and current financial year are as under:

(Rs. in Crore)

2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
13,397.13	13,045.72	11,495.67	16218.75	17,789.72	8222.761**

** As on 20.01.2022

12.2.3 Kisan Credit Card Scheme (KCC)

KCC was introduced in 1998 to provide timely credit to farmers to meet short term/long term cultivation requirement, postharvest expenses, consumption requirement etc. KCC is implemented by Commercial Banks, Cooperative Banks and Rural Regional Banks (RRBs) under the overall guidance of Department of Financial Services. Reserve Bank of India had issued master circular on implementation of KCC scheme followed by more instructions from time to time.

This Ministry is actively involved in the promotion of KCC scheme with a view to provide easy access to concessional institutional credit to farmers several steps have been taken to simplify the procedure to have access to KCC. The KCC scheme along with the benefit of IS & PRI have been extended to farmers practicing animal husbandry and fisheries, processing fee, inspection, ledger folio charges and all other

service charges have been waived off for fresh issue/renewal of KCC, collateral free agriculture loan limit has been raised from Rs.1.00 lakh to Rs.1.60 lakh, Standardised application form for KCC has been designed for easy understanding of farmers and a time limit of 14 days (from receipt of farmer's application has been fixed) to provide KCC to all eligible farmers.

To bring the maximum number of farmers under KCC so that they can get loan at a cheaper rate through the ISS scheme, the Government has been running a campaign for saturation of KCC to farmers since, February, 2019. The Govt (DAC&FW and DFS) has further taken up the task of covering 2.5 lakh crore PM KISAN beneficiaries under KCC in a mission mode. Since February, 2020, a renewed saturation drive is being run to cover all left over PM KISAN beneficiaries. As a result, in addition to existing 6.76 crore active KCCs holders, 2.70 crore (as on 10.12.2021) new KCCs have been sanctioned since, February, 2020.

13.1. Overview

The Government has been playing a pivotal role in developing Agriculture Marketing system in the country. Agricultural Marketing Division of Department of Agriculture & Farmers' Welfare (DA&FW) is entrusted to look after a gamut of issues relating to agricultural marketing, starting from conceptualization and formulation of farmers oriented policies and programmes to effective monitoring thereof for proper and efficient implementation.

Agriculture sector needs structured and functional markets, preferably in the vicinity of farmers, to drive growth, employment, remunerative prices and economic prosperity in rural areas of the country. Enabling mechanism are also required to be put in place for procurement of agricultural commodities directly from farmers' field and to establish effective linkage between the farm production, the retail chain and food processing industries. In order to remove restrictive and monopolistic practices of present marketing system, reduce the intermediaries in supply chain, reduce wastages by way of promoting integrated supply and value chain and to benefit farmers through access to global markets, reforms in agricultural markets have to be perceived as an ongoing process. Agriculture sector needs competitive and well-functioning markets for farmers to sell their produce. There is a need to enhance private sector investment in development of post-harvest marketing infrastructure for which various schemes are also implemented by Govt. of India.

13.2 Major Schemes

Major schemes of Agri. Marketing Division

consists of Integrated Scheme for Agricultural Marketing (ISAM) and Central Sector Scheme for Formation & Promotion of new 10,000 FPOs.

ISAM consists of 06 sub-schemes viz. Agricultural Marketing Infrastructure (AMI), National Agriculture Market (e-NAM), Marketing Research and Information Network (MRIN), Strengthening of Agmark Grading Facilities (SAGF), CCS-National Institute of Agricultural Marketing (CCS NIAM), Venture Capital Assistance (VCA).

13.3 Implementation structures and stakeholders

The sub schemes under ISAM namely Agricultural Marketing Infrastructure (AMI), Marketing Research and Information Network (MRIN) and Strengthening of Agmark Grading Facilities (SAGF) is implemented by the Directorate of Marketing & Inspection (DMI), an attached office of Department of Agriculture and Farmers Welfare. Small Farmers Agri-business Consortium (SFAC) implements the sub scheme of e-NAM. CCS National Institute of Agricultural Marketing (CCS-NIAM), provides training, research and consultancy in agri-marketing sector.

Central Sector Scheme for Formation & Promotion of new 10,000 FPOs scheme is implemented through various Implementing Agencies. Presently 13 IAs have been approved for formation and promotion of FPOs viz., Small Farmers' Agri-Business Consortium (SFAC), National Bank for Agriculture and Rural Development (NABARD), National Cooperative Development Corporation (NCDC), National Agricultural Cooperative Marketing Federation of India (NAFED), North Eastern Regional

Agricultural Marketing Corporation Limited (NERAMAC), Tamil Nadu-Small Farmers Agri-Business Consortium (TN-SFAC), Small Farmers Agri-Business Consortium Haryana (SFACH), Watershed Development Department (WDD)-Karnataka, Foundation for Development of Rural Value Chains (FDRVC)- Ministry of Rural Development (MoRD), Gujarat Agro-Industries Corporation Ltd. (GAICL), Uttar Pradesh Diversified Agriculture Support Project (UPDASP). Additional IAs for formation & promotion of Beekeepers FPOs viz. Tribal Co-Operative Marketing Development Federation of India Limited (TRIFED) and National Dairy Development Board (NDDB).

13.4 Integrated Scheme for Agricultural Marketing (ISAM):

13.4.1 Agricultural Marketing Infrastructure (AMI):

To develop Agricultural Marketing Infrastructure including storage infrastructure, Ministry of Agriculture & Farmers Welfare is implementing capital investment subsidy sub-scheme "Agricultural Marketing Infrastructure (AMI)" of Integrated Scheme for Agricultural Marketing (ISAM). The erstwhile two schemes viz. (i) Grameen Bhandaran Yojana (GBY) implemented since 01.04.2001, and (ii) Scheme for Strengthening/Development of Agricultural Marketing Infrastructure, Grading & Standardization (AMIGS) implemented since 20.10.2004 have been subsumed into one scheme known as Agricultural Marketing Infrastructure (AMI) w.e.f. 01.04.2014.

The AMI sub-scheme of ISAM was sanctioned for the XII plan Period (2012- 17). The scheme had been stopped after 05.08.2014 for new projects of General category and after 31.12.2016 for new projects of SC/ST/NER category.

The new operational guidelines 2018 of AMI sub-scheme of ISAM effective from 22.10.2018 has been continued/extended for a period till

31st March, 2021 or the date the recommendations of 15th Finance Commission come into effect, with the following objectives:

- I. To develop marketing infrastructure to effectively handle and manage marketable surpluses of agricultural and allied produce including horticulture livestock, poultry, fishery, bamboo, minor forest produce and such like produce supportive to enhance farmers' income.
- II. To promote innovative and latest technologies in post - harvest and agricultural marketing infrastructure.
- III. To develop alternative & competitive marketing channels for agricultural and allied produce through incentivizing private and cooperative sectors to make investments there for.
- IV. To benefit the farmers individually and collectively through FPOs from farm level processing and marketing of processed produce along with promotion of small size processing units.
- V. To promote creation of scientific storage capacity for storing farm produce, processed farm produce and agricultural inputs etc. to reduce post-harvest & handling losses, promote pledge financing and market access.
- VI. To incentivize developing and upgrading of Gramin Haats as GrAMs to make better farmer-consumer market linkages and also to assist in integration of GrAMs with e-NAM portal so as to improve transparency in trading and better price discovery.
- VII. To provide infrastructure facilities for grading, standardization and quality certification of agricultural and allied produce with the objectives of (a) ensuring produce quality based value realization to

farmers, and (b) promoting pledge financing, e-NWRS and futures trading.

- VIII. To promote Integrated Value Chains through minimal processing/value addition to make the produce more marketable, which includes washing, sorting, cleaning, grading, waxing, ripening, packaging, labeling etc., wherein the product form is not changed.
- IX. To undertake publicity and awareness campaign among the stakeholders including farmers, agri.preneurs, market functionaries of sub-scheme and on other various aspects and functions of agricultural marketing including grading, standardization, quality certification, regulation, reforms, e-trading, promoting farmers facilitation centre for market information & intelligence by FPOs etc.

Brief of the scheme

- a) Under the AMI sub-scheme, there are two components: (i) Storage Infrastructure, and (ii) Marketing Infrastructure other than storage. The main objective of the scheme is to promote development of agricultural marketing infrastructure including storage infrastructure in the country. The scheme is meant for holistic development of agricultural value chain critically focusing each linkage of post-harvest value chain. AMI sub scheme is a back ended capital subsidy scheme and subsidy provided on capital cost of the project to develop agricultural marketing infrastructure and storage infrastructure including Infrastructure for development/upgradation to Rural Haats as Gramin Agricultural Market (GrAMs), common facilitation centre for FPOs, marketing infrastructures in market yards, infrastructure for direct marketing, mobile infrastructure for post-harvest operations including reefer vans, Stand-

alone cold storages up to 1000 MTs, Integrated Value Chain (IVC) Projects up to primary processing stage etc.

- b) The scheme is demand driven, credit linked with provision of back-ended subsidy. The scheme is also reform linked for non-storage infrastructure projects of State/UT agencies and allowed under the scheme for those States/Union Territories that have undertaken following reforms in their respective APMC Acts (i) direct marketing; (ii) contract farming; (iii) setting up of wholesale market for agricultural and allied produce in private and cooperative sector; (iv) e-trading; (v) unified single trading license valid across the State/UT, and (vi) single point levy of market fee across the State/UT.
- c) The provisions with admissible rate of subsidy, subsidy pattern etc. under revised operational guidelines of the scheme are as follows:

Eligible Beneficiaries under the Scheme:

- Individuals, Group of farmers / growers, FPOs/FPCs registered under respective companies Act / cooperatives societies Act / societies registration Act (with minimum 50 number of farmer members); Partnership / Proprietary firms, Companies, Corporations; Non - Government Organization (NGO), Self Help Group (SHG); Cooperatives, Cooperative Marketing Federation; Autonomous Bodies of the Government, Local Bodies, Panchayat, State agencies including State Government Departments and autonomous organization / State owned corporations such as Agricultural Produce Market Committees & Marketing Boards, State Warehousing Corporations, State Civil Supplies Corporations etc.

- Subsidy pattern under the Scheme including Women farmers and entrepreneurs are as follows:
- AMI Scheme is a back ended capital subsidy scheme in which the rate of subsidy varies from 25% to 33.33% based on the category

of eligible beneficiary and provided on the capital cost of the project.

However in respect of women farmers/ entrepreneurs irrespective of the category, the rate of subsidy admissible is 33.33%. The detail of subsidy pattern is as under:

FOR STORAGE INFRASTRUCTURE PROJECTS:

Category	Rate of Subsidy (on capital cost)	Subsidy ceiling		
		50-1000 MT in Rs./MT	More than 1000 MT and up to 10,000 in Rs./MT	Maximum Ceiling (Rs. in lakhs)
A. North Eastern States, Sikkim, UTs of Andaman Nicobar and Lakshdweep Islands, Hilly* areas	33.33%	1333.20	1333.20	133.20
B. In other Areas				
1. Panchayats, Women, Scheduled Caste (SC)/ Scheduled Tribe (ST) entrepreneurs or their cooperatives**/ Self-help groups	33.33%	1166.55	1000.00	100.00
2. For all Other categories of beneficiaries	25%	875/-	750/-	75.00

* Hilly area is a place at an altitude of more than 1,000 meters above mean sea level

** SC/ST Cooperatives to be certified by the concerned officer of the State Government

FOR INFRASTRUCTURE PROJECTS OTHER THAN STORAGE (NON - STORAGE) INFRASTRUCTURE INCLUDING FARMER -CONSUMERS MARKET AND DEVELOPMENT AND UPGRADATION OF RURAL HAATS/RPMs into GrAMs

Category	Rate of Subsidy (on capital cost)	Maximum Subsidy Ceiling (Rs. in lakhs)
A) North Eastern States, Sikkim, States of Uttara khand, Himachal Pradesh, Jammu & Kashmir, UTs of Andaman & Nicobar and Lakshadweep Islands, Hilly* and tribal areas	33.33%	30.00
B) In Other Areas		
1. For Registered FPOs, Panchayati Raj Institutions, Women farmers/entrepreneurs, Scheduled Caste(SC)/Scheduled Tribe (ST) entrepreneurs and their cooperatives**	33.33%	30.00

2. For all Other categories of beneficiaries	25%	25.00
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* Hilly area is a place at an altitude of more than 1,000 meters above mean sea level

** SC/ST Cooperatives to be certified by the concerned officer of the State Government

Mini Oil expeller for extraction of edible vegetable oil (as per FSSAI but without refining) from indigenous oilseeds (viz. Mustard seed, Sesame seed, Ground nut, Linseed, Mahua, Safflower, Nigerseed Oil, Coconut, Almond and Olive only) and Mini Dal mill for primary processing of pulses, which includes cleaning, grading, sorting, splitting, packaging and labelling for promoting direct marketing, are also eligible.

Infrastructure for setting up of common facilitation centre by FPOs/FPCs are eligible under the scheme.

Further, infrastructure projects other than storage (non-storage) Infrastructure including farmer-consumers market and development and up-gradation of rural haats/RPMs into GRAMs) are also eligible under the scheme.

The detailed Operational Guidelines 2018 is available at <https://dmi.gov.in/Schemeamigs.aspx>

13.4.2 National Agriculture Market (e-NAM)

i) Ministry of Agriculture & Farmers' Welfare, Department of Agriculture & Farmers' Welfare (DA&FW), has mandated Small Farmers' Agribusiness Consortium (SFAC) as the Lead Implementing Agency of e-National Agriculture Market (e-NAM).

National Agriculture Market is a pan-India electronic trading (e-trading) portal which seeks to network the existing physical APMCs through a virtual platform to create a unified national market for agricultural commodities. e-NAM is a "virtual" market, but it has a physical market (mandi) at the back end. The Portal provides a single window service for all APMC related information and services. This includes: commodity arrivals, quality & prices, buy & sell offers, provision to respond to trade offers and electronic payment settlement directly into farmers' account, among other services. While material flow (agricultural produce) shall continue to happen through

mandis, the online marketing portal will reduce transaction costs, bridge information asymmetry and help in expanding the market access for farmers.

ii) Scheme Design:

Under the scheme a robust common e-market platform has been set up and deployed in 1000 regulated wholesale markets in 18 States & 03 Union Territories by May 2020.

Department of Agriculture & Farmers Welfare grants onetime fixed cost subject to the ceiling of **Rs.75.00** lakhs per mandi for related equipments / infrastructures. Initially Rs.30.00 lakhs per mandi was allotted as one time fixed grant for computer hardwares, internet facilities, assaying equipments. While, additional Rs.40.00 lakhs per mandi was sanctioned for creation of facilities such as sorting, grading, cleaning and packaging etc further for bio-composting unit per mandi Rs.5.00 lakhs were allocated.

Besides providing free software to trade on e-NAM platform, one-year ground support for hand holding of the mandi staff is provided. In addition, two trainings & awareness camps are organised for the benefit of farmers, Farmer Producer Organisations, traders, commission agents & mandi officials by the Strategic Partner.

iii) Marketing Reforms Mandatory for Joining e-NAM:

e-NAM mandates 3 reforms in State APMC act as a pre-requisite for joining the scheme:

- Provision for e-auction/e-trading as a mode of price discovery;

- ii. Single point levy of market fee across the state; and
- iii. Single trading license to be valid across the state.

iv) Objectives of e-NAM:

Main objectives of the scheme are:

- i. To integrate markets first at the level of the States and eventually across the country through a common online market platform, to facilitate pan - India trade in agricultural commodities;
- ii. To streamline marketing / transaction procedures and make them uniform across all markets to promote efficient functioning of the markets;
- iii. To promote better marketing opportunities for farmers / sellers through online access to more buyers / markets, removal of information asymmetry between farmer and trader, better and real-time price discovery based on actual demand and supply of agri- commodities;
- iv. To establish quality assaying systems for quality assurance to promote informed bidding by buyers; and

- v. To promote stable prices and availability of quality produce to consumers

v) Benefits to Farmers:

- i. Farmers can access prevailing commodity prices information on e-NAM mobile application prior to even going to mandi.
- ii. e-NAM facilitates direct trade between buyers/ traders and farmers across the country.
- iii. Farmers may sell their produce in more than one market.
- iv. Facility of pre-registration of lot is available through mobile app., to facilitate quick gate entry of the lot, benefiting during peak season.
- v. Farmers can see live online bid for their produce (lots) through e-NAM mobile application.
- vi. Details of final bid price of commodity to farmers are received through SMS.
- vii. Prices are determined based on quality assayed parameters.
- viii. Online payment gateway is available for transfer of bid value directly to bank accounts of farmers.

vi) e-NAM Process Flow



vii) e-NAM coverage as on 31st December, 2021

S. No	State/ UT	Mandis Integrated
States		
1	ANDHRA PRADESH	33
2	CHHATTISGARH	14
3	GUJARAT	122
4	HARYANA	81
5	HIMACHAL PRADESH	19
6	JHARKHAND	19
7	KARNATAKA	2
8	KERALA	6
9	MADHYA PRADESH	80
10	MAHARASHTRA	118
11	ODISHA	41
12	PUNJAB	37
13	RAJASTHAN	144
14	TAMIL NADU	63
15	TELANGANA	57
16	UTTAR PRADESH	125
17	UTTARAKHAND	16
18	WEST BENGAL	18
Union Territory (UT)		
19	CHANDIGARH	1
20	J&K	2
21	PUDUCHERRY	2
TOTAL		1000

viii) Key Features of e-NAM

1. Multilingual website and mobile app:

e-NAM Website and Mobile App are multilingual i.e. are available in 12 languages (English, Hindi, Bengali, Marathi, Gujarati, Tamil, Telugu, Punjabi, Odiya, Dogri, Malayalam and Kannada).

2. Mobile application:

Mobile app of e-NAM is available for Android and iOS and can be downloaded from Google Play Store (play.google.com) and Apple Store, respectively.

Facilities to Farmers on Mobile Application are:

- Multilingual (12 languages)
- Locate Mandis in nearby vicinity (100 km) along with route map
- Price information of nearby e-NAM mandis & non-eNAM mandis
- Advance Gate Entry
- Lot Progress Tracking
- Sampling and Assaying Facility

- Online Payment Facility-RTGS/NEFT, UPI, Debit Card and Net Banking
 - SMS Alert regarding Registration, Update of mobile number, Final Bid Price acceptance, Sale Agreement & Receipt of Payment.
- 3. Shopping Cart Feature:**

This feature enables a trader to choose preferred lots from the displayed list of lots available for auction. Once added using 'Add to Shopping Cart', the trader can bid on these selected lots easily and save time.
 - 4. Unified Licensing System for Intra-State Trade**

This feature has been created for traders to apply for intra-state trade license via e- NAM and complete necessary documentary compliance.
 - 5. Online Payment**

e-NAM facilitates direct online payment from traders to farmers/FPOs. Online payment can be done by the trader through multiple modes i.e., Challan (RTGS/NEFT). UPI, Debit Card and Internet Banking. The payment is then directly remitted into the bank account of the farmer via NEFT/RTGS/IFT.
 - 6. Bunching of Multiple Invoices**

This feature enables the trader to make online payment of multiple invoices with a single payment transaction.
 - 7. Online Part Payment Feature**

Online Part Payment of invoice enables a trader to help the farmer in case of any immediate cash needs by allowing part cash and part online payment to farmer. This feature provides option of making Partial Online Payment with Mandi Fee or without Mandi Fee.
 - 8. e-payment Incentives/discounts**

To incentivize adoption of e-payment, various State Governments may propose incentives / discounts on digital transactions. e-NAM application allows for configuration of such discounts/ incentives via application administrator of the State login.
 - 9. MIS Dashboard**

MIS Dashboard provides insight into the performance of each mandi in terms of arrival and trade. This helps the Mandi Board officials, State level officers to compare the performance of trade carried out in the mandis on daily, weekly, monthly/quarterly and 'Year on Year' Basis.
 - 10. Grievance Redressal Management System (GRMS):**

This system helps Mandi Secretary to raise their software/technology issues related to portal/ software and its operations. It also enables tracking the status of grievance and its redressal online. Further, a toll-free number: 1800 270 0224 is also available for all stakeholders to address complaints and queries regarding e-NAM.
 - 11. FPO & Farmgate Module:**

FPO can directly sell their produce from collection centers by uploading produce details with picture/quality parameters online, without the need to physically bring the produce to the mandis, provided the collection center is declared as "deemed mandi" by respective State Govt. / UT. Farmgate module facilitates the farmers to upload lot- wise details of their produce with picture/quality parameters and avail the bidding facility for trade on e-NAM, without the need to physically bring the produce to the mandis.

12. Logistic Module:

Logistic module of e-NAM enables logistics service providers to create their profile with details including Name of the company, area of service, number of vehicles available, base rate etc. Logistics module is currently available in the trader's dashboard enabling them to choose and finalise logistics for movement of their produce.

13. Integration of eNWR with e-NAM

Warehousing Development and Regulatory Authority (WDRA) accredited warehouses have been integrated with e-NAM for trade of Electronic Negotiable Warehouse (eNWR). eNWR issued for deposited stock by farmers at WDRA accredited warehouse is translated to e-NAM as tradable "lot". The WDRA registered warehouses are listed as 'notified market area' or 'deemed mandi' hence,

Farmers do not have to bring the produce at mandi physically.

14. Interoperability between e-NAM and UMP(ReMS)

Interoperability with UMP platform of ReMS (Karnataka) has been done to establish SSO (Single Sign-On) between e-NAM and ReMS (UMP). This enables the traders of both platforms to access more markets and commodities. Traders with respective login credentials can freely navigate to the other platform, without the need for separate login credentials for the other platform.

ix) Onboarding Farmer Producer Organization (FPO) on e-NAM Platform:

As on 31st December 2021, total 2040 FPOs have been onboarded on e-NAM platform from 19 States/UTs.

The State-wise list of the FPOs registered on e-NAM is as under:

Sl. No	Name of State	FPOs onboarded on e-NAM platform
1	Andhra Pradesh	172
2	Chhattisgarh	22
3	Gujarat	103
4	Haryana	238
5	Himachal Pradesh	52
6	Jharkhand	110
7	Kerala	5
8	Madhya Pradesh	99
9	Maharashtra	257
10	Odisha	180
11	Punjab	6
12	Rajasthan	177
13	Tamil Nadu	108
14	Telangana	58
15	Uttar Pradesh	240
16	Uttarakhand	43
17	West Bengal	167
Union Territory		
18	Jammu & Kashmir	1
19	Puducherry	2
Grand Total		2040

x) Progress and Achievements of e-NAM Modules launched:

- a. IMD Weather Forecast for Mandis**
Integration of Weather forecast information from Indian Meteorological Department (IMD) with e-NAM, providing minimum & maximum temperatures along with “current day” forecast for e-NAM mandis and nearby areas. This weather information will help farmers in planning farm operations and marketing decisions.
- b. Real Time Price Dissemination System**
'Market Information Page' designed as a single source of information providing farmers with the current price of the commodities being traded in e-NAM mandis of the respective states.
- c. Cooperative Module**
Cooperative Trading module facilitates Cooperatives to register themselves on e-NAM and to trade their produce directly from their collection centre / warehouses without bringing the produce to the APMCs.
- d. e-NAM Directory**
A directory with compiled information on e-NAM processes and respective mandi information.

xi) Online training of stakeholders in e-NAM mandis

Keeping in mind the challenges of public gathering and following the norms of social distancing, virtual e-NAM trainings were held for the benefit of the stakeholders. In all, 1818 Online training sessions were conducted and 1,14,816 stakeholders were trained during COVID-19 lockdown period. Trainings were conducted via Video Conferencing in local language by trained subject matter experts.

xii) Inclusion of Banking Partners on e-NAM

SFAC has empaneled five (5) banks as settlement banks for e-NAM. Empanelment would allow on-boarding of Banks along with their payment gateway for payment settlement process. This would enable both farmers/FPOs and traders to have smooth online transactions.

xiii) Integration with AGMARKNET, KISAN SUVIDHA, KISAN RATH & UMANG PLATFORMS

e-NAM portal has been successfully integrated with e-portals like AGMARKNET, KISAN SUVIDHA, KISAN RATH and UMANG. This would facilitate mandi trade information and resources, enabling stakeholders to make timely decisions.

xiv) Platform of Platforms

Development of e-NAM as Platform of Platforms (PoP) which facilitates empanelment and integration of service providers such as Trading, Warehousing, Transportation, Quality Assaying etc with e-NAM portal thereby, developing a bigger digital ecosystem, enabling farmers to add value to their produce and facilitate them with ease of agriculture produce marketing. e-NAM PoP is a step towards the concept of “one nation, one market” which will enhance farmers' accessibility digitally to multiple numbers of markets, buyers and value-added services.

13.4.3 Marketing Research & Information Network (MRIN)

Under the MRIN scheme an e-Governance portal has been developed for connecting the farmers to their markets “It is advantageous to have a network down to the mandi level to begin with. This can be progressively extended to villages and household level. Presently, electronic connectivity provided to 3356 markets in the country. More than 300 commodities and 2000 varieties are reported on daily basis on

agmarknet portal. However, more than 300 commodities and 2000 varieties are reported on daily basis on agmarknet portal. This is one of the largest Market Information System in the world and having richest data base available.

Objective:

- To establish a nation-wide information network for speedy collection and dissemination of market information.
- To facilitate collection and dissemination of information for better price realization by the farmers.
- To sensitize and orient farmers to respond to new challenges in agricultural marketing by using Information and Communication Technology (ICT).
- To improve efficiency in agricultural marketing through regular training and extension for reaching region-specific farmers in their own language.
- Linking of all important agricultural markets of the country.
- Daily prices and arrivals of more than 300 commodities and 2000 varieties are reported on the portal.

Assistance under the Scheme:-

- Provision of financial support for organizing training, research, awareness and sensitization campaign to state govt. organization.
- Provision of financial incentive @Rs.1000/- per month to the marketing personnel for uploading data in the portal for more than 20 days in a month.

Dissemination of Mandi Information:

Latest mandi price information is disseminated from the Agmarknet portal through Agmarknet portal (<http://agmarknet.gov.in>), Kisan Suvidha

App, UMANG App, DD Kisan Channel, Kisan Call Center etc.

13.4.4. Strengthening of Agmark Grading Facilities (SAGF):

- a) Quality Control Division (QC Division) of Directorate of Marketing & Inspection (DMI) implements Agricultural Produce (Grading and Marking) Act, 1937 (as amended up to 1986) and other provisions as mandated by Food Safety Standards Regulations 2011 under Food Safety and Standards Act 2006. The agricultural produce are certified under AGMARK if they conform to grade standards under Agricultural Produce (Grading Marking) Act, 1937, General Grading and Marking Rules, 1988 (as amended up to 2009) and specific commodity Rules notified by DMI, Department of Agriculture and Farmers Welfare, Ministry of Agriculture & Farmers Welfare. These standards differentiate between quality and 2-3 grades are prescribed for each commodity. Agmark standards for 230 agricultural commodities have been notified so far under the provisions of the APGM Act 1937 with an aim to provide premium quality products to the consumers, graded raw materials to processor/ manufacturers/ packers and remunerative prices to the farmers. The commodities are from group of vegetables, cereals, pulses, oilseeds, vegetable oils, ghee, spices, honey, creamery butter, wheat, atta, besan, etc.
- b) **Mandatory Agmark certification:** Food Safety and Standards (Prohibition and Restriction on Sale) Regulations 2011 & Food Safety and Standards (Packaging and Labelling) Regulations, 2011 have prescribed compulsory Agmark certification for Four (4) food products i.e. Blended Edible Vegetable Oil, Fat Spread,

Ghee having less Reichert Meissl value than that specified for the area where such ghee is sold and light black pepper.

- c) **Export:** European Union has notified vide commission regulation No 1580/2007 dated 21 December 2007, Agricultural Marketing Adviser to the Government of India as Official Authority and DMI as Inspection Body for checks on conformity of fresh fruits and vegetables for export to Europe from India. In line to that Directorate General of Foreign Trade (DGFT) has notified DMI as inspection and certification body for exports of fruits and vegetables to EU countries. DMI has approved 26 private commercial labs to issue Certificate of Agmark Grading (CAG) for fruits and vegetables (Green chillies, Curry leaves, Okra, Grapes, Pomegranate and Onions etc) for export.
- d) **Implementation & Monitoring:** The Agmark certification scheme is implemented by 11 Regional Offices, 27 Sub Offices, 11 Regional Agmark Laboratories and a Central Agmark Laboratory through QC division at Head Office Faridabad.
- e) **Agmark online certification:** In order to fulfil Hon'ble Prime Minister's Digital India dream, the application/approval processes related to Agmark certification was envisaged to make online and user friendly from offline mode. The software requirement specification (SRS) was prepared to bring physical processes to online mode with several modules. While developing the online software, the application forms were appropriately reoriented to make online filing process simple, fast, transparent, 24x7 and paperless with a facility to upload scanned /PDF documents. There is a provision of online receipt of fees and e-signing at

relevant stages in new online application. On 26.09.2018, the then Hon'ble Union Minister of Agriculture and Farmers Welfare Shri Radha Mohan Singh has launched the online software on agmarkonline.dmi.gov.in web portal for Agmark Certification.

- The software sends SMS/ emails to the applicants/officers/users at relevant stages. Through the Agmark online system, certificate of authorisation (domestic), permission of printing press, permission of laboratories (domestic) and services related to laboratory information management system are provided online.

In compliance of the policy of Government to minimize the regulatory compliances and for ease of doing business, to minimize burden on industry and to minimize human interface, AGMARK certification procedure has been simplified and all the action points/activities identified for simplification in Phase-I (9 items) and Phase-II (7 items) have been completed in due time. Major identified and completed activities are:

1. Renewal of Certificate of Authorization, Printing Press permission and Commercial lab-filing of application: Only intimation to DMI offices for intention to continue required.
2. Printing Presses and Commercial Laboratory(domestic) approval/renewal Approval/Renewal with validity for 5 years earlier it was for 2 years.
3. Inspection of labs for approval for domestic /export grading required: No Inspection is required if the lab is NABL accredited/ISO certified.
4. Requirement of grading minimum quantity during validity period of CA for renewal of CA under Agmark is dispensed with.

5. Training of sponsored Chemists of CA holders/commercial laboratories was provided in physical mode which now changed into online mode.
6. Self generation of Agmark replica serial numbers by CA holder instead of numbers issued by DMI: Present physical system changed in to Online Self generation model by C.A. holders themselves through AQCMS software.
7. Sponsored Agmark chemists having degree with 03 years experience in requisite field be exempted from Agmark training, earlier No such provision existed.
8. Unique number for each CA holder in Replica serial numbers: Running replica serial numbers are more than 15 digits which are issued to CA holders by the concerned DMI office on the request of the CA holders: Provision made in AQCMS software for Online self generation of Replica Serial Number by CA holders themselves in which first 4 digits are unique to each CA holders.

13.4.5 CCS National Institute of Agricultural Marketing (CSSNIAM)

Introduction

Chaudhary Charan Singh National Institute of Agricultural Marketing (CCS NIAM) is an autonomous organization of the Ministry of Agriculture and Farmers' Welfare, Government of India. It was set up as a registered Society in 1988 to strengthen Agricultural Marketing in India and South East Asian Countries. The Institute is mandated to carry out academic activities i.e. Training, Research, Consultancy, Policy Advocacy, International Programs and Education in Agricultural Marketing.

The Institute is playing a pivotal role in creating awareness amongst farmers, farmers' organizations, cooperatives, Agri-Business

companies, Agri-Startups, Agripreneurs, officials of Agricultural Marketing Departments, allied Departments, building capacity of wide range of other stakeholders, undertaking research on contemporary Agricultural Marketing issues, providing consultancy services to decision makers in government, cooperative and private sectors on Agricultural Marketing, policy support to the Government and Non-Governmental Organizations and preparing techno- managers to serve Agri-Business sector through education Programs.

Hon'ble Union Minister for Agriculture and Farmers' Welfare, GoI is the President of the Society. Hon'ble Minister of State for Agriculture and Farmers' Welfare, GoI who is dealing with the society is the Vice-President of the Society Secretary, Department of Agriculture and Farmers' Welfare, GoI is the Chairman of Executive Committee. Standing Committee of Academics of CCS NIAM guides the academic activities of the Institute. Director General of CCS NIAM is the Chairman of the Committee.

Objectives of CCSNIAM

- ❖ To undertake and promote the study of Applied and Operational research in problem areas of Agricultural Marketing and to act as a national level nodal point for co-ordination of various research studies and dissemination of technologies relevant to Agricultural Marketing in the country.
- ❖ To impart training to personnel working at various levels of organizations involved in Agricultural Marketing activities such as State Agricultural Marketing Boards (SAMB), State Development Departments like Agriculture, Horticulture, Animal Husbandry, Fisheries, Forestry, Sericulture, State Agricultural Universities, Co-operative Marketing Societies, Commodity Boards, Input Agencies, Progressive

Farmers and Entrepreneurs etc.

- ❖ To conduct research on long-term projects, policy formulation; prepare status paper on leading issues; case studies in specific marketing problems, processing industries, export management etc., which have a direct bearing on the national economy.
- ❖ To offer consultancy services to State and Central Departments, public-sector undertakings, co-prepare Master Plans for States, Export Institutions, Traders and Farmers.
- ❖ To develop human resources by providing long - term structured courses in Agricultural Marketing through Diploma/ Degree courses.
- ❖ To help State Government to generate self-employment for educated youth by exploring local potential resources.
- ❖ To assist Government to formulate policies on emerging issues in Agricultural Marketing.
- ❖ To cover wide information network in the country in Agricultural Marketing for the benefit of all concerned to evolve efficient, innovative and competitive marketing process.
- ❖ To develop as a 'Centre of Excellence; in the field of Agricultural Marketing by establishing adequate networking with International organizations.

13.4.6 Venture Capital Assistance (VCA)

SFAC is implementing a Central Sector Scheme of Venture Capital Assistance (VCA) to qualifying projects, which promote linkages with farmers for procurement of their produce as raw material and provides employment in rural areas. The Scheme is implemented through banks & provides 26% of the promoters capital or Rs.50.00 lakhs whichever is lower as soft loan

to the agripreneurs.

13.5 Central Sector Scheme for Formation and Promotion of 10,000 Farmer Producer Organizations (FPOs)

The Government of India had launched the Central Sector Scheme for “Formation and Promotion of 10,000 Farmer Producer Organizations (FPOs)” on 29th February, 2020 with the main focus on leveraging economies of scale in production and marketing with a view to enhance productivity through efficient, cost effective and sustainable resource use for ensuring sustainable income oriented farming, thus helping in reduction of cost of farm production and increase in farmers' income. The scheme has a total budgetary outlay of Rs.6865 Crores.

Implementing agencies (IAs) have been approved under the scheme for formation & promotion of FPOs. FPOs are to be developed in produce clusters, wherein agricultural and horticultural produces are grown / cultivated for leveraging economies of scale and improving market access for members.

Salient features of the Scheme:

- a) FPOs will be formed by Cluster Based Business Organizations (CBBOs) and handholding and professional support will be provided for a period of five years to make them economically sustainable. The CBBOs will be supported with five categories of specialists from the domain of Crop husbandry, Agri. marketing / Value addition, and processing, Social mobilization, and IT/ MIS in agriculture & agriculture marketing.
- b) **FPO Management Cost of Rs.18 lakh per FPO** will be provided towards for salary of staffs, registration of FPO, office rent and utility charges, minor equipment cost, travel & misc. expenses etc.

- c) **Equity Grant** will be provided in the form of matching grant upto Rs. 2,000 per farmer member of FPO subject to maximum limit of Rs.15.00 lakh fixed per FPO.
- d) **Credit Guarantee** cover per FPO will be limited to the project loan of Rs.2.00 crore. In case of project loan up to Rs.1 crore, credit guarantee cover will be 85% of bankable project loan with ceiling of Rs. 85.00 lakh; while in case of project loan above Rs.1.00 crore and up to Rs.2.00 crore, credit guarantee cover will be 75% of bankable project loan with a maximum ceiling of Rs.150.00 lakh.
- e) At national level, National Project Management Agency (NPMA) will be responsible for providing overall project guidance, data maintenance through integrated portal and information management and monitoring. The NPMA will be equipped with the technical team with five categories of specialization in Agriculture/Horticulture, Marketing and Processing, Incubation Service, IT/MIS and Law & Accounting to provide overall guidance at the national level.
- f) **Training Support** - The Bankers Institute of Rural Development (BIRD), Lucknow promoted by NABARD is designated as nodal training institution at national level for FPOs promoted by NABARD and SFAC and other allowed/designated Implementing Agencies whether incorporated under Part IX A of Companies Act or registered under Co-operative Societies Act. The BIRD will work in partnership with other reputed organisations like NIRD, MANAGE, NIAM, NIFTEM, VAMNICOM and such other national and regional institutions such as IRMA, Anand and ASCI, Hyderabad, State and Central Government Agriculture Universities, National Level Skill Development Universities, KVKs and other National Level Management and Skill Development Institutions etc.
- g) **Direct Financial Support to FPOs:**
- FPOs will be provided financial assistance upto Rs 18.00 lakh per FPO for a period of 03 years.
 - In addition to this, provision has been made for matching Equity Grant upto Rs. 2,000 per farmer member of FPO with a limit of Rs. 15.00 lakh per FPO and
 - A credit guarantee facility upto Rs. 2 crore of project loan per FPO from eligible lending institution to ensure institutional credit accessibility to FPOs.
- h) While adopting cluster-based approach for produce or produce mix, formation of FPOs will also focus on “One District One Product” approach for development of product specialization, in case the focused agriculture produce has been declared for that district, to promote better processing, marketing, branding & export by FPOs. Further Agriculture value chain organizations forming FPOs and facilitating 60% of market linkages for members produce.

13.6 Achievements:

(a) Agri Marketing Reforms:

- Since the circulation of model APMC Act in 2003, Division has been vigorously pursuing with the States to adopt its provisions. Many of the States made cosmetic partial reforms leading to no noticeable ground level development excepting in few States like Maharashtra, Gujarat, Karnataka, Rajasthan and Madhya Pradesh, have not only amended their marketing laws and put in place

conducive atmosphere but have also made reform linked noticeable progress.

- In order to make model APMC Act, 2003 more holistic, comprehensive and farmers friendly, Marketing Division in consultation with NITI Aayog and States formulated and released model Act “The -- State/ UT Agricultural Produce and Livestock Marketing (Promotion & Facilitation) Act, 2017”, popularly called model APLM Act, in April, 2017. The essence of the model APLM Act, 2017 is to provide complete freedom to the cultivators and livestock rearers to sell their produce, livestock and its product to the buyers and through the marketing channel of their choice offering the better bids. So far, States of Arunachal Pradesh, Assam, Goa, Gujarat, Karnataka, Manipur, Meghalaya, Tripura and Uttarakhand have completely adopted the Model APLM Act, 2017. States of Maharashtra, Nagaland, Tamil Nadu and Uttar Pradesh have also adopted model APLM Act, 2017, though not fully.
- De-regulation of marketing of Fruits & Vegetables – Existing marketing system of fruits & vegetables through network of APMC markets is attributed towards high post-harvest losses, long intermediation in supply chain and low return to the farmers. In order to address this issue, Department has been advocating with the States to provide complete freedom to the farmers as well as buyers and investors to invest in development of marketing infrastructure and supply chain outside the market yards so as to facilitate emergence of various channels of marketing. So far, States of Andhra Pradesh, Arunachal Pradesh, Assam, Chhattisgarh, Goa, Gujarat, Haryana, Himachal Pradesh, Jharkhand, Karnataka,

Madhya Pradesh, Maharashtra, Manipur, Meghalaya, Nagaland, Odisha, Rajasthan, Tripura, Uttar Pradesh, Uttarakhand, West Bengal and NCT of Delhi have adopted this policy.

- Considering the importance of integrating farmers including fruits and vegetable growers with agro-industries with the objectives to mitigate market and price uncertainties, reduce post-harvest losses and create rural employment, Department formulated and released a model Act; “The --- State/ UT Agricultural Produce and Livestock Contract Farming & Services (Promotion & Facilitation) Act, 2018”. The model Act not only provides the facilitative eco-system for contract produce output but also for services all along the agri. food value chain starting from pre-harvest, harvest and post- harvest including marketing. Tamil Nadu and Odisha has legislated “The Tamil Nadu Agricultural Produce and Livestock Contract Farming and Services (Promotion and Facilitation) Act, 2019”, The Odisha Agricultural Produce and Livestock Contract Farming and Services (Promotion and Facilitation) Act, 2020 respectively whereas Punjab has already enacted a separate contract farming Act.

(b) Agricultural Marketing Infrastructure (AMI):

- Since inception of scheme up to 31.12.2021, a total number of 41,001 storage infrastructure projects (Godowns), with storage capacity of 70.90 million MT were sanctioned under the scheme and subsidy of Rs.3260.69 crore has been released. Similarly, 18,909 other marketing infrastructure projects have also been sanctioned and subsidy of Rs.1895 crore has been released so far.

(c) National Agriculture Market (e-NAM):

- So far, 1000 regulated wholesale markets (APMCs) have been integrated to the e-NAM platform in 18 states and 3 UTs.

Directorate of Marketing & Inspection (DMI) an attached office of DAC&FW, has formulated and uploaded, tradable parameters for 175 commodities.

- **Performance at a glance (As on 31st December, 2021):**

#	Particulars	FY 2021-22	Since Inception
a)	No. of Mandis Integrated	-	1000
b)	Stakeholder registration		
	No. of Farmers registered	2.20 Lakh	1.72 Cr
	No. of Traders registered	47,700	2.11 Lakh
	No. of Commission Agents (CAs) registered	10,722	1.01 Lakh
	No. of FPO registered	199	2040
c)	Trade recorded		
	Total Trade Volume (MT)	0.94 Cr MT	5.25 Cr MT
	Total Trade Volume (numbers)*	6.49 Cr	11.54 Cr
	Total Trade Value (Rs Crore)	Rs 36,659 Cr	Rs 1,67,413 Cr
d)	Tradable parameters for notified commodities	-	175

*Betel leaf, Coconut, Bamboo, Sweet Corn & Lemon

(d) CCSNIAM:

- **Training Programs:** In 2020-21, 309 Webinars, On-line Training Programs, Consultancy Programs were organized by the Faculty and with the help of partner Institutes of CCS NIAM covering 15,723 participants. In addition, also 154 farmers have visited to CCS NIAM during the year.
- **Educational Program of CCS NIAM-Preparing Future Agribusiness Managers:** CCS NIAM has one flagships program under the domain of education as a two-year residential Post Graduate Diploma in Management (Agri-Business Management) PGDM (ABM). The program is approved by AICTE being run since 2001 with 100% placement.

The capacity of intake is 69 students per batch and admission intake is depending on the CAT score and individual performance in the Interview and Group discussion. 100% placements have been achieved since inception. Major agri-business companies have recruited students of this program as management trainees (final placements) & have provided summer placement opportunities. Highest package this year was 17.5 Lakh (CTC) & average package was 7.5 lakhs approx.

- **AGROVON 2K20 (B-Fest of PGDM (ABM) CCS NIAM):** Agrovon 2k20 the First-Ever Virtual B-Fest of CCS NIAM was organized on 7th and 8th September 2020 by carrying forward the prestigious legacy of NIAM PGDM

(ABM) 2017-19 Batch. The fest has seen participation from premier B-Schools like IIMA, IIMC, IIML, XLRI, IRMA, NMIMS, and many more. Like every year, Agrovon 2020 has gained entries from national and International B-Schools with a total of 2998 registrations. This event was organized on virtual platform and streamed live on YouTube.

➤ **RKVY RAFTAAR PROGRAMME OF CCS NIAM: PROMOTING AGRI-STARTUPS:**

CCS NIAM is working as a “Knowledge Partner” for Ministry of Agriculture and Farmers' Welfare, is assisting Department of Agriculture, Farmers' Welfare (DAC&FW) in smooth and efficient Execution of RKVY- RAFTAAR Scheme. Incubation programs are offered by NABI i.e. Agripreneurship Orientation Program (AOP-pre-seed stage) and Startup Agri-Business Incubation Program (SABIP- seed stage) offering grant-in-aid support of Rs.5 lakhs and Rs.25 lakhs respectively. NIAM Agri-Business Incubator (NABI) has incubated 115 startups in the last 2 years of incubation out of which 51 startup ideas (28 seed stage and 23

pre-seed stages) were supported with grant-in-aid from Ministry of Agriculture and Farmers' Welfare of Rs.5.31 Crore. NABI has successfully disbursed fund amounting to Rs.175.40 lakhs to the recommended startups by executing Memorandum of Agreement (MoA) with all the recommended startups and rest are in process. CCS NIAM as “Knowledge Partner” provides hand-holding support to 4 Partners R-ABIs in 5 different states including Sri Karan Narendra Agriculture University, Jobner, Rajasthan, Bihar Agricultural University, Sabour, Bhagalpur, Bihar, National Rice Research Institute, Cuttack, Odisha and IIT, Kharagpur, West Bengal.

(e) **Venture Capital Assistance :** SFAC has assisted total 3227 agribusiness projects and sanctioned/released Venture Capital Assistance of Rs.915.39 crore generating private and institutional investment of Rs.10726.76 Crore, which will provide an assured market to 2.08 lakhs farmers for their produce and create direct employment for 113325 persons upto 31.12.2021.

The performance of Venture Capital Assistance Scheme since inception to 2021-22 is as under:

Plan Project	Venture Capital Assistance (Rs. in crore)	Total Project Cost (Rs. in crore)	No. of projects
X Plan (2002-2007)	23.86	262.51	103
XI Plan (2007-2012)	120.17	1461.03	409
XII Plan (2012-2017)	336.34	4062.09	1111
2017-2018	128.48	1385.30	460
2018-2019	130.35	1594.13	453

2019-2020	80.23	923.68	316
2020-2021	80.99	875.90	312
2021-2022 (up to 31.12.2021)	14.97	162.12	63
Total	915.39	10726.76	3227

(f) Central Sector Scheme for Formation and Promotion of 10,000 Farmer Producer Organizations (FPOs)

➤ So far, 4965 FPO produce clusters have been allocated to IAs which includes FPO produce clusters on Area based approach- “One Block One FPO”, Organic FPO produce clusters, Oil seeds FPO produce clusters, Bamboo FPO produce clusters, Agro-forestry based FPOs, Bee keepers FPOs, Special Category FPOs with value chain development. Total 1820 FPOs have been registered all over India.

➤ During the National Level Function,

matching equity grant amounting to Rs 14.04 crore was transferred directly to the bank account of the eligible 351 FPOs thereby covering 1.24 Lakh farmers across the country.

➤ CBBOs have been empanelled by respective Implementing Agencies.

➤ As per scheme mandate, at national level, National Project Management Agency (NPMA) was engaged by SFAC for providing overall project guidance, data maintenance through integrated portal/MIS, information management and monitoring.

13.7 Success Stories of Farmer Producer Organizations promoted by SFAC

1. Vaam Agro Farmer Producer Company Limited	
Scheme	Promoted by SFAC under MIDH
Office Address	262, Bhatasana Vas, Village Vinzuvada, Taluka Mandal, Dist Ahmedabad, Gujarat
Registration No.	U01100GJ2019PTC109266
Date of Registration	25 th July 2019
Share Holder Farmers	500
Paid up share capital	Rs. 10,00,000/-
Commodity	Cumin, Pulses and Pomegranate
Business Activities	Procurement and Processing of Agro Commodities
Licenses & Brand	Seed, Pesticide, Fertilizers
CEO Details	Mr. Ashish Patel, 98985 24282
Financial Turnover	FY 2019-20: Rs. 0.49 Lakh FY 2020-21: Rs. 144.53 Lakh

2. Surydeep Adivasi Pulse Producer Company Limited

Scheme	Promoted by SFAC under NDP -NFSM
Office Address	35, Mukhya Faliyu, Galiba, Jagadiya, Bharuch-393130,Gujarat
Registration No. Date of Registration	U01210GJ2016PTC086146 18th February , 2015
Share Holder Farmers	595
Paid up share capital	Rs. 2,78,730/-
Commodity	Pigeon peas, green gram, gram, paddy and cotton,Vegetables
Business Activities	Input and output marketing, NPM pulses promotion, primary grading, sorting and cleaning, linkages with govt schemes.
Licenses & Brand	APMC, GST, Pesticides
CEO Details	Mr. Rajesh Vsava, 9099681741
Financial Turnover	FY 2018-19: Rs. 47.56 Lakh FY 2019-20: Rs. 59.39 Lakh FY 2020-21: Rs. 102.63 Lakh

3. Naveen Kisan Producer Company Limited

Scheme	Promoted by SFAC under VIUC programme
Office Address	Harda colony Itaunja Bakshi ka talab Lucknow 226203
Registration No. Date of Registration	U01403UP2015PTC070076 13th August, 2015
Share Holder Farmers	1034
Paid up share capital	Rs. 5,37,200/-
Commodity	Banana, Paddy, Potato, Tomato, Wheat
Business Activities	Input activities: Seeds (Wheat, Paddy, Potato and Vegetable and Banana sucker etc.), Non Pesticide Management (NPM) inputs, Fertilizers etc. Output activities: Banana, Potato, Mango and Okra
Licenses & Brand	Seed, Pesticide, Fertilizers, Flowers SaleBrand Name: Naveen Banana
CEO Details	Mr. Rakesh Kumar, 9369897793
Financial Turnover	FY 2019-20: Rs. 18.94 Lakh FY 2020-21: Rs. 35.32 Lakh

4. Warana River Farmers Producer Company Limited	
Scheme	Central Sector Scheme for Formation and Promotion of 10,000 FPOs
Office Address	At Post Milkat No. 2255 Bus Stand Neyer, Tel-Hatkanagle, Dist. Kolhapur, 4161121, Kolhapur, Maharashtra
Registration No. Date of Registration	U01100PN2021PTC200030 5 th April, 2021
Share Holder Farmers	140
Paid up share capital	Rs. 1.40 lakh
Commodity	Soybean, Groundnut
Business Activities	Sale of Soybean Seeds
CEO Details	Shri Amar Gurav, 7507722750
Financial Turnover	FY 2021-22: Rs. 77.50 lakh (as on date)

5. Nandura Krushi Vikas Farmer Producer Company Limited	
Scheme	Central Sector Scheme for Formation and Promotion of 10,000 FPOs
Office Address	S. No. 73/2, Near Mankar Welding, Jalgaon Road, Taluka, Nandura, Buldhana, Maharashtra, 443001
Registration No. Date of Registration	U01100MH2021PTC358902 14 th April, 2021
Share Holder Farmers	750
Paid up share capital	Rs. 15.00 lakh
Commodity	Oilseeds
Business Activities	Spray Pump, Tarpaulin, Onion Seed, Red Gram Procurement
CEO Details	Shri Sagar Hade, 9284313352
Financial Turnover	FY 2021-22: Rs. 21.44 lakh (as on date)

13.8 Meetings & Training conducted for e-NAM Stakeholders

13.8.1 Celebration of Bharat Ka Amrut Mahotsav – 12.04.2021 to 18.04.2021



Launch of e-NAM Directory, IMD Weather information Module, Cooperative Module and Price Dissemination System by Hon'ble Union Minister of Agriculture & Farmers' Welfare, Shri Narendra Tomar Ji. 12-18th April 2021 at Krishi Bhawan, New Delhi.

13.8.2 Digital India 6th Anniversary – 01.07.2021



Interaction of Hon'ble PM Shri Narendra Modi Ji with e-NAM registered FPO M/s Surya Farmer Producer Company – 01.07.2021

13.8.3: Awareness program and field visit by Dr. [Abhilaksh Likhi](#), Additional Secretary, Ministry of Agriculture & Farmers Welfare, Government of India.



13.8.4 Eastern Region Conference on review of 10,000 FPOs scheme at Patna, Bihar on 17.11.2021



a) Bihar Agriculture Minister Sh. Amarendra Pratap Singh inaugurated the session.

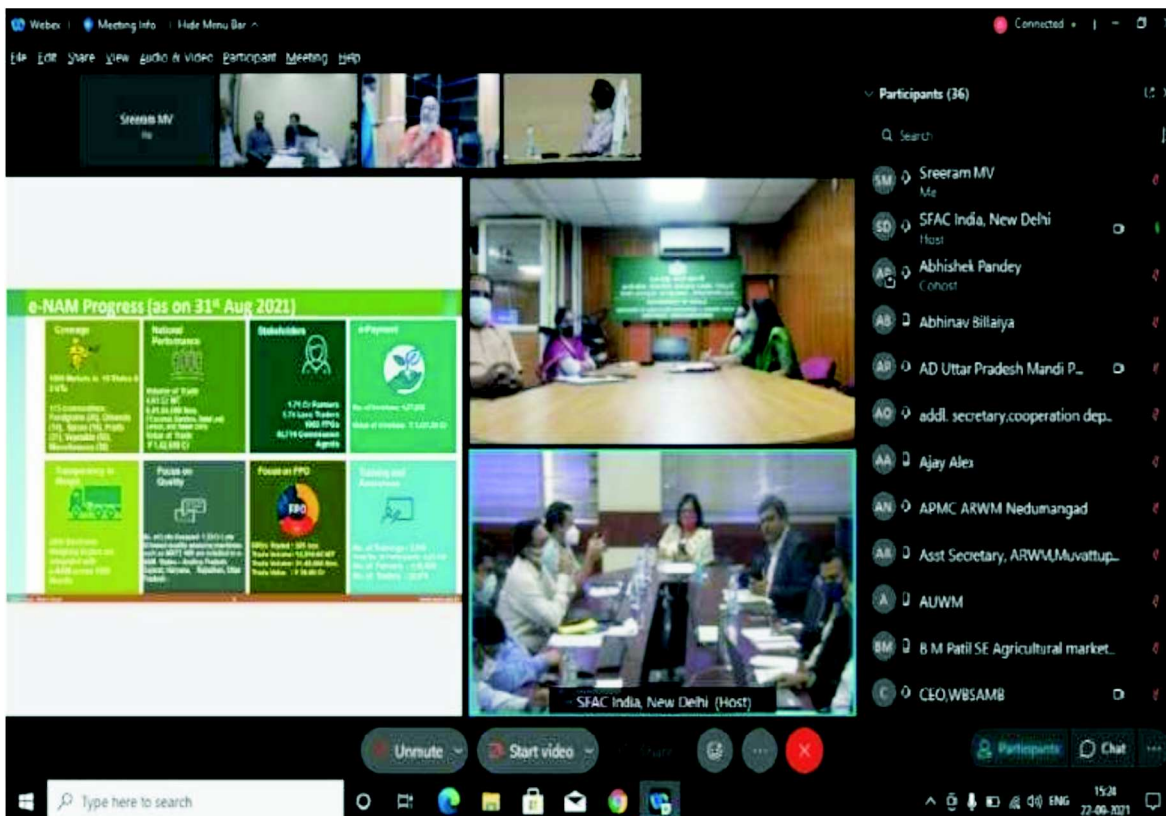


b) Dr N Vijay Lakshmi, Joint Secretary, reviewed the progress of the scheme

13.8.5 On the occasion of transfer of PM- Kisan Samman Nidhi and Equity Grant, Hon'ble PM interacted with FPOs- 1.01.2022.



13.8.6 Performance review meeting of e-NAM States & Union Territories under the Chairmanship of Smt. Ms. Neelkamal Darbari, Managing Director, SFAC – 21st & 22nd September, 2021



14.1 Overview

Agriculture Trade Policy, Promotion and Logistics Development Division of this Department is entrusted with the responsibility of making policy recommendations on export, import and logistics development of agriculture sector and formulation of strategy for boosting international trade in Agri commodities. It is the nodal Division of the Department for coordinating/formulating responses on World Trade Organization's (WTO) Agreement on Agriculture (AoA), matters relating to Preferential Trade Agreements (PTAs)/Free Trade Agreements (FTAs) and agro logistics with the Department of Commerce (DoC), matters relating to the modification in the Custom duty and Goods and Services Tax (GST) on agricultural commodities with the Department of Revenue (DoR).

14.2 India's Agriculture Trade

14.2.1 Agri-Export:

Export of agricultural commodities has helped producers to take advantage of wider international market which, in turn, has incentivized their domestic production. Crops exported in large quantities viz. rice, sugar, and spices have witnessed significant increase in area coverage and growth rate of production. India has emerged as a significant Agri-exporter in crops like rice, spices, cotton, oil meal cake, castor oil, coffee, cashew, tea, fresh vegetables and sugar.

As per available WTO's Trade Statistical Review (2021), the share of India's agricultural exports

and imports in the world agriculture trade in 2020 were 2.2% and 1.4%, respectively. India was in the top 10 ranking of the global Agri exporters.

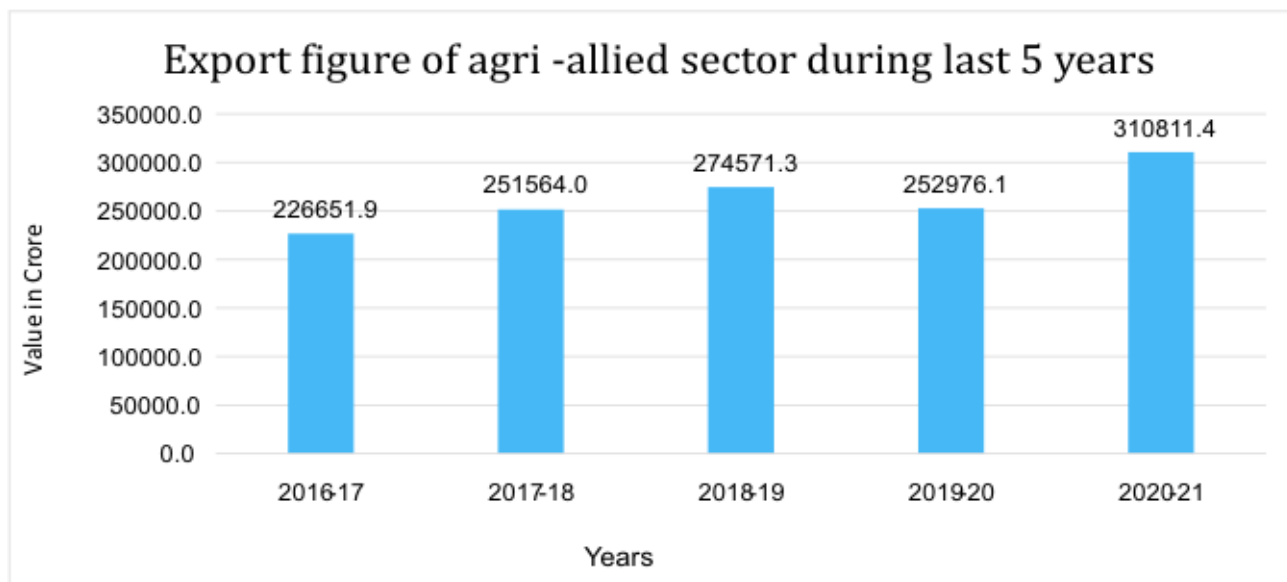
Share of agricultural exports as a percentage of agricultural GVA has increased from 7.45% in 2019-20 to 8.59% in 2020-21 (at current prices). During the same period, share of agricultural imports as a percentage of agricultural GDP has nominally decreased from 4.34% to 4.27%.

The share of agricultural exports in India's total merchandise exports has increased from 11.40% in 2019-20, to 14.40% in 2020-21.

As compared to previous year (2019-20), the Agri and Allied exports in the year 2020-21 increased by 22.86% to Rs. 3,10,811.44 crores. The increase in Agri and Allied exports during 2020-21 was primarily on account of increased exports of commodities like Wheat (839.46%), Vegetable Oils (268.44%), Other Cereals (257.37%), Mollases (154.34%), Rice-other than Basmati (146.92%), Oil meals (99.42%), Cotton Raw Incl. waste (85.27), Sugar (47.83%), Ayush and Herbal Products (31.78%) and Spices (15.16%), which witnessed high growth in the year 2020-21 as compared to previous same period.

Major destinations of exports for India's Agri and Allied commodities were United States of America, China, Bangladesh, United Arab Emirates, Saudi Arabia, Iran, Vietnam, Malaysia, Nepal, Indonesia, Hong Kong, Iraq, Netherlands, United Kingdom, Japan, Sri Lanka and Thailand.

The export of Agri-allied sector during last 5 years is as below:



Source: Department of Commerce, Government of India.

India's top 10 agricultural export commodities (in terms of value) for the year 2016 -17 to 2020-21 are given in the Table -1 below:

Table 1: India's Exports of Top-10 Agricultural Commodities

[Value in Rs. Crores, Quantity in '000' Tonnes]

S. No	Commodity	2016-17		2017-18		2018-19		2019-20		2020-21		2021-22 till November 2021	
		Qty	Value	Qty	Value	Qty	Value	Qty	Value	Qty	Value	Qty	Value
1	MARINE PRODUCTS	1185	39594	1432	47646	1672	47665	1329	47618	1168	44176	922	40033
2	RICE(OTHER THAN BASMOTI)	6771	16930	8819	23437	7648	21171	5056	14400	13149	35557	10882	28932
3	RICE -BASMOTI	3985	21513	4057	26871	4415	32804	4455	31026	4630	29848	2402	15305
4	SPICES	1014	19111	1096	20085	1134	23218	1193	25642	1607	29529	996	19731
5	BUFFALO MEAT	1324	26161	1350	26035	1233	25091	1152	22661	1086	23460	764	16431
6	SUGAR	2544	8660	1758	5226	3990	9523	5799	13982	7518	20669	5409	16800
7	COTTON RAW INCLD. WASTE	996	10907	1101	12200	1143	14628	658	7540	1214	13968	765	11339
8	OIL MEALS	2632	5410	3571	7043	4493	10557	2656	5861	4367	11689	1909	4661
9	CASTOR OIL	599	4522	697	6730	619	6170	594	6324	734	6802	513	6019
10	WHEAT	265	447	322	624	226	424	219	444	2154	4173	4114	8547
	TOTAL AGRICULTURE & ALLIED EXPORTS		226652		251564		274571		252976		310811		230981

Source: Department of Commerce, Government of India.

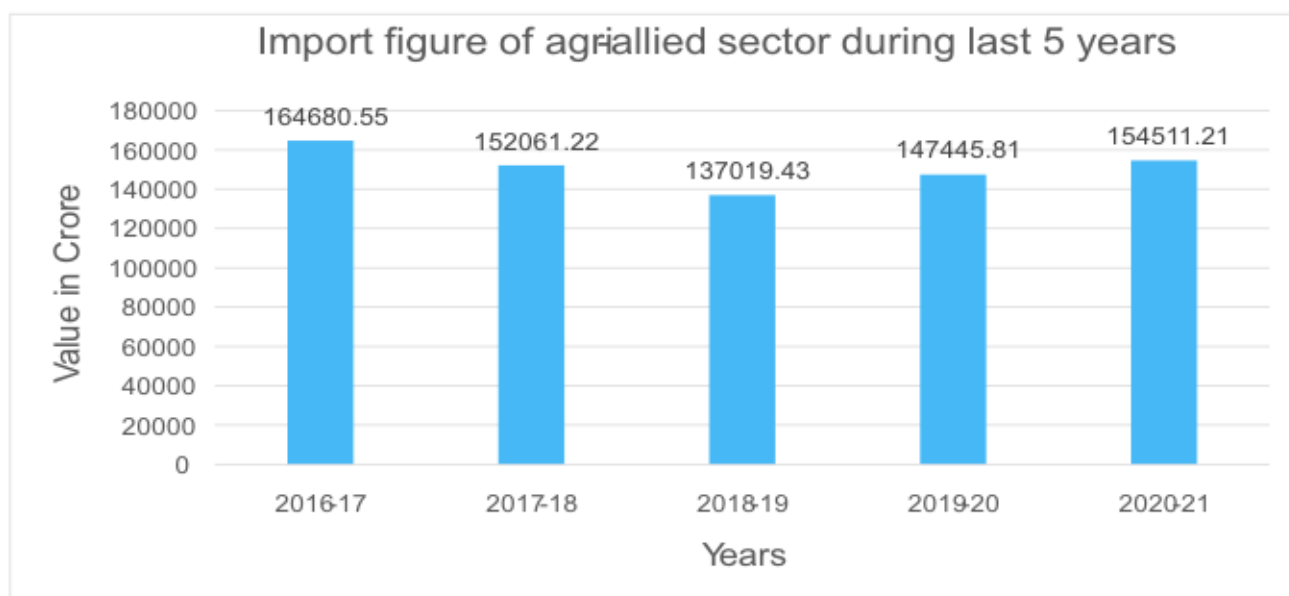
14.2.2 Agri-Imports:

As compared to previous year (2019-20), the Agri and allied imports in the year 2020-21 increased by 4.79% to Rs 154511.21 crore. Increase in value of Agri and Allied imports during 2020-21 were primarily on account of increase in imports of Vegetables Oil (19.79%), Fresh Fruits (11.51%), Pulses (16.79%), Sugar (90.84%), Other Oil Seeds (41.73%), Cocoa Products (10.21%), Marine Products (29.35%), Cereal Preparations (20.29%), Fruits/Vegetable Seeds (24.47%), Ayush and Herbal

Products (33.18%), Tea (60.29%), etc. Similarly, the total merchandise imports increased more significantly, therefore the share of Agri and Allied imports increased from 4.39 % in 2019-20 to 5.30 % in 2020-21.

Major sources of import of India's Agri and Allied commodities are Indonesia, Argentina, Ukraine, Malaysia, United States of America, Brazil, Canada, Afghanistan, Myanmar, Russian Federation, Nepal, Tanzania, China, Singapore, Vietnam, United Arab Emirates, Benin, Thailand, Sri Lanka and Bangladesh.

The import of agri-allied sector during last 5 years is as below:



Source: Department of Commerce, Government of India.

India's top 10 agriculture import commodities in terms of value for the year 2016-17 to 2020-21 are given in the Table 2 below:

Table 2: India's Imports of Top-10 Agricultural Commodities

[Value in Rs. Crores, Quantity in '000' Tonnes]

S. No	Commodity	2016-17		2017-18		2018-19		2019-20		2020-21		2021-22 till November 2021	
		Qty	Value	Qty	Value	Qty	Value	Qty	Value	Qty	Value	Qty	Value
1	VEGETABLE OILS	14010	73048	15361	74996	15019	69024	14722	68558	13540	82123	9618	90531
2	FRESH FRUITS	1040	11241	995	12525	1124	13932	994	14137	1212	15765	938	11557

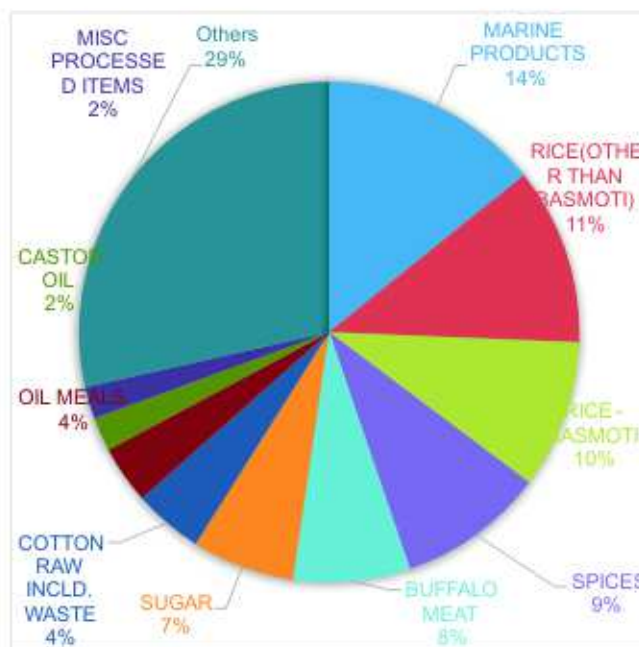
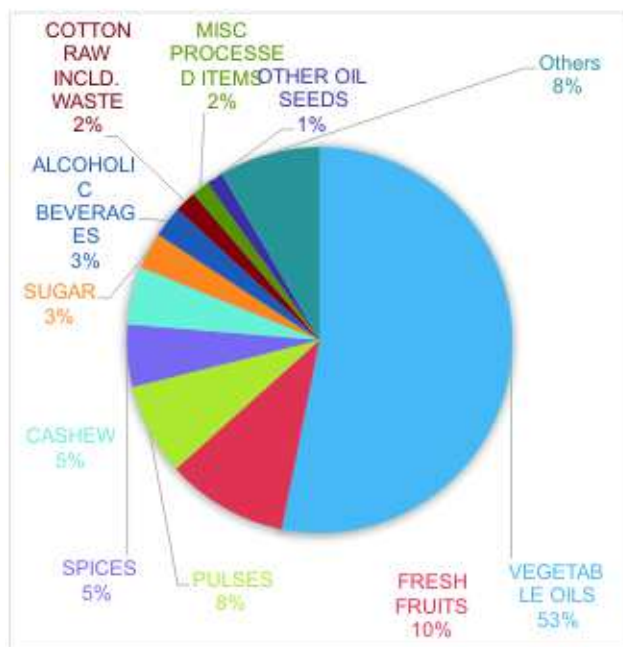
3	PULSES	6609	28524	5608	18749	2528	8035	2898	10221	2466	11938	1808	11070
4	SPICES	240	5758	222	6385	241	7933	321	10187	344	8071	239	6150
5	CASHEW	774	9027	654	9134	840	11162	941	9026	834	7491	703	6681
6	SUGAR	2146	6869	2403	6036	1491	3175	1118	2473	1964	4720	282	955
7	ALCOHOLIC BEVERAGES	-	3581	-	3876	-	4679	-	4644	-	4037	-	2786
8	COTTON RAW INCLD. WASTE	499	6337	469	6307	299	4383	744	9371	231	2861	158	2674
9	MISC PROCESSED ITEMS	-	2116	-	2250	-	2560	-	2636	-	2266	-	2044
10	OTHER OIL SEEDS	117	395	127	365	220	745	411	1528	507	2165	504	3131
	TOTAL AGRI & ALLIED IMPORTS		164681		152061		137019		147446		154511		149585

Source: Department of Commerce, Government of India

Share (in value terms) of top 10 exported and imported agricultural commodities during 2020-21. Agriculture sector posted positive

balance of payment like earlier years. The import was dominated by single commodity namely vegetable oil.

Import share in 2020-21 (Top-10 Items) Export share in 2020-21 (Top-10 Items)



Source: Department of Commerce, Government of India

14.3. EXIM Policy of Agricultural Commodities:

14.3.1 EXPORT:

❖ At present, export of most of the

agricultural commodities (excluding allied products) is free i.e. without any restriction. Only export of Seeds is under restriction and Mustard Oil is permitted for export only in

branded consumer packs of upto 5 kgs with a Minimum Export Price (MEP) of USD 900/MT.

14.3.2 IMPORT:

- ❖ In the agriculture sector, import of Peas, Moong, Urad, Tur, refined palm oil, potato and some seeds of vegetables/spices/cereals/oilseeds, only are under restriction and other commodities (excluding allied products) are free for import.

Details of restriction:

- ❖ To protect the interest of domestic growers/farmers and their livelihood from cheap import of the commodity and also to take care of consumer interest, GoI notified some import restrictions in consultation with Department of Agriculture & Farmers Welfare, Department of Commerce, Department of Consumer Affairs, Department of Food & Public Distribution and Department of Revenue during 2019-20 and 2020-21:

- ✓ Import policy of items under HS Code 15119010 (refined bleached deodorised palm oil), 15119020 (refined bleached deodorised palmoline) and 15119090 (other) were amended from 'Restricted' to 'Free' up to 31.12.2021.

- ✓ Minimum Import Price (MIP) has been imposed on import of the following items to check their cheap imports.

- MIP of Rs 500/kg on Pepper (w.e.f. 06th December, 2017)
- MIP of Rs 251/kg on Arecanut (w.e.f. 17th January, 2017)
- MIP of Rs 680/kg on Cashew Kernel, Broken (w.e.f. 12th June, 2019)

- MIP of Rs 720/kg on Cashew Kernel, Whole (w.e.f. 12th June, 2019)
- MIP of Rs 200/kg on Peas (w.e.f. 18th December, 2019)
- MIP of Rs 150/kg on Desiccated Coconut (w.e.f. 08th January, 2020)
- ✓ Free Import for Tur /Pigeon Peas, Moong and Urad was extended up to 31st March 2022. Also, it was provided that the import consignments of these items with Bill of Lading issued on or before 31st March, 2022 shall be cleared by Customs before 30.06.2022.
- ✓ DGFT vide Notification dated 9th July, 2020 has put port restriction on import of "Cut Flowers" HS Code 0603, to encourage Indian floriculture industry. The import would be allowed through Chennai airport only.
- ✓ To supplement the shortage of production in Potato, Government of India vide Notification dated 30th Oct, 2020 allowed import of Potatoes (HS code 0701 90 00) from Bhutan without license up to 30th June, 2022.
- ✓ **Onion and Onion Seeds:** *To ensure availability to the consumers at reasonable rates during the lean season, the export of fresh/chilled onion was prohibited w.e.f. 14th Sept, 2020. However, keeping the main arrival season, the export of onion become free from 1.1.2021 to protect farmers' interest. Besides this, export of Onion Seeds (HS Code 1209 91 30) was prohibited w.e.f. 29th October, 2020.*

- ✓ With a view to support Indian Bamboo Industry, Department of Revenue vide Notification No. 27/2020-Custom dated 09th June, 2020 has withdrawn the concessional rate of 10% on import of Bamboo for the manufacture of Agarbattis, and levied a uniform rate of 25% on import of Bamboos [HS 1401 10 00].
- ✓ Department of Revenue has revised the Basic Customs Duty rates on some agri items (like apple, edible oil, lentils, cotton, maize etc) with imposition of Agriculture Infrastructure and Development Cess so that overall consumer does not bear additional burden on most of the items.
- ✓ The import duty on edible oil was reduced time to time to meet the demand supply gap to keep a check on edible oil prices.

14.4. Foreign Direct Investment (FDI) Policy in Agriculture Sector:

As per extant FDI Policy, 100% FDI is allowed in

the following sector through automatic route:

- Floriculture, Horticulture, Cultivation of Vegetables & Mushrooms under controlled conditions;
- Development and Production of seeds and planting material;
- Animal Husbandry (including breeding of dogs), Pisciculture, Aquaculture, Apiculture and
- Services related to agro and allied sectors

Further, **100% FDI is also permitted** in tea sector including tea plantations, Coffee plantations, Rubber plantations, Cardamom plantations, Palm Oil plantations and Olive oil tree plantations through automatic route.

FDI in **Multi-Brand retail** is also permitted up to 51% through Government route in agricultural sector with some conditions.

The details of FDI inflows in agriculture sector (Agriculture Service and Agriculture Machinery) in India are given in the Table 3 below:

Table 3: FDI Inflows in Agriculture Sector in India

Year	Amount of FDI Inflows	
	(In Rs. Crore)	(In US\$ Million)
2014-15	796	130
2015-16	673	103
2016-17	618	92
2017-18	821.3	127.4
2018-19	664.7	93.9
2019-20	1040.64	148.04
2020-21	1983.87	266.84
2021-22 (Up to Sep 21)	428.38	57.95

Source: Department for Promotion of Industry and Internal Trade (DPIIT),

14.5 Goods and Services Tax

GST envisages a single tax on supply of goods and Services or both, by amalgamating all the

central indirect taxes (excise duty, countervailing duty and service tax) and state indirect taxes (VAT, luxury tax, entry tax, octroi, etc).

GST rates on most of the raw agricultural items are at 0% (zero per cent). Apart from this, most of the agricultural activities and services are also exempted from imposition of GST. However, for primary processed agriculture items, GST rate is 5% and for secondary/tertiary processed products, the GST rate is 12%. On some farm machinery/component and fertilizers, the GST rate is in the range of 12-18%.

Considering the representations/inputs from various stakeholders/firms/ associations/ farmers etc, this Division has been taking up GST related issues with the GST council, Department of Revenue, Ministry of Finance from time to time.

14.6. Trade Agreement:

14.6.1 FTA/CECA/CEPA/CECPA

Free Trade Agreements/ Preferential Trade Agreements/ Comprehensive Economic Cooperation Agreements/ Comprehensive Economic Partnership Agreements / Comprehensive Economic Cooperation & Partnership Agreements provide opportunities for exports with the trading partners at preferential duties. India has signed agreements with number of regional trading blocs/ countries namely, South Asia Free Trade Area (SAFTA), Asia Pacific Trade Agreement (APTA), Association of South East Asian Nations (ASEAN), Afghanistan, MERCOSUR (trade block of countries viz. Argentina, Brazil, Paraguay and Uruguay), Japan, South Korea, Malaysia, Singapore, Thailand, Bhutan, Nepal, Chile, and Sri Lanka.

The trade agreement negotiations with European Union, Thailand, BIMSTEC, Peru, Israel, Iran, Mauritius, Australia, New Zealand, Canada, UAE and Indonesia are also in various stages of discussion.

14.7 WTO Meetings/Notifications:

14.7.1 WTO Meeting: The Committee on

Agriculture oversees the implementation of the Agreement on Agriculture. Its key responsibility is to monitor WTO member's compliance to their commitments/obligations. The committee, composed up of all WTO members, usually meets three or four times a year. Officers of Trade Division participate in the Meetings of the Committee on Agriculture (CoA) at World Trade Organisation in Geneva, Switzerland. Issues related to India's Pulses Policy, short-term loan, inputs subsidies and Minimum Support Price (MSP) were responded in coordination with Department of Commerce. Officials will also participate in Ministerial Conference in WTO in 2021.

14.7.2 WTO Notifications: As part of India's commitments to the WTO, India needs to notify any new or modified domestic agricultural support measures applied by India during a year and this needs to be notified to the WTO on an annual basis in the form of Domestic Support-1 and Domestic Support-2 Notifications. In this regard, DA&FW has provided requisite inputs to Department of Commerce for preparation and filing of India's DS notification to WTO. The filed/submitted notifications are available online and can be assessed at the WTO website <http://agims.wto.org/>.

14.7.3 Trade Policy Reviews under WTO: WTO conducts Trade Policy Review of its members at regular intervals with a view to reviewing member country's trade policies and practices under multilateral trade disciplines, to make an assessment of compliance with country obligations. India's last Trade Policy Review was held in 2020. The review is an extensive exercise requiring inter-ministerial coordination and detailed preparation. The submission of report is followed by detailed question answer sessions which require compilation of huge trade related documents/data. DAC&FW is required to furnish relevant inputs/information to Department of Commerce for compilation and forwarding to the WTO Secretariat as a part of

India's Trade Policy Review (TPR) at WTO.

14.8. Strengthening India's Agri Export –Creation of Agri-Cells in nations abroad

At the insistence of DA&FW, Agri-cells were created, by Ministry of External Affairs, in 15 Indian Missions viz., Vietnam, USA, Bangladesh, UAE, China, Saudi Arabia, Iran, Malaysia, Japan, Nepal, Indonesia, Argentina, Singapore, Ukraine and Brazil to help bring focus on agricultural exports and optimize potential available in those countries for Indian products. The Agri Cells also compile information on demand supply of various commodities in the host countries which could be utilized by the exporters.

14.9 Export Promotion Forum (EPF):

14.9.1 Product specific Export Promotion Forums (EPF) for eight agri products i.e. Grapes, Mango, Banana, Onion, Rice, Dairy Product, Pomegranate and Floriculture have been created by DOC under the aegis of APEDA at the insistence of DA&FW. They will work on promoting the export of identified potential products in a focussed manner.

14.9.2 Each Export Promotion Forum is having exporters of the related commodity as its members along with official members from DOC, DA&FW and MOFPI along with relevant expert institutions and State Governments. Presently, Chairman APEDA is the chairman of each of these forums. The forums are required to meet regularly to discuss / make recommendations on issues pertaining to export of the respective commodity and invite experts etc. to the meeting for interaction, as required. The Forums will constantly monitor and identify/anticipate developments in the

external/internal situation pertaining to the production and export of their respective commodity and recommend /intervene for taking the necessary policy/ administrative measures.

14.10. Commodity Profile

Trade Division has been regularly maintaining commodity profiles of six prime agricultural products viz. Rice, Wheat, Pulses, Vegetable Edible Oils, Sugar and Cotton. The profile gives a snapshot on the trends in production, export, import, price movements and explains trade policy in brief for the commodity concerned.

14.11 One District One Product (ODOP)

In pursuance of the Honorable Prime Minister's vision on Atma Nirbhar Bharat, several initiatives have been undertaken by Government of India. ODOP is one of such initiative for which DPIIT is working with DGFT and line ministries with the objective to identify at least one product from each district of the country having export potential and thus converting each District into an export/ manufacturing hub by addressing bottlenecks in the supply chain, supporting local farmers, sellers and manufacturers to scale up the production in the district and generate employment in the districts. 707 products have been identified in this scheme for Agri and Allied products. This will be a step forward to open new market linkages and increase visibility in both domestic and international markets for these local products apart from ensuring last mile connectivity which is in line with the PM's call to make the export target of India reach USD 400 billion. A list of state-wise identified agriculture products are listed below:

S.No.	State Name	Product Name
1	Andhra Pradesh	Tomato, Spices (Chilli and Turmeric), Banana, Mango, Onion, Citrus.
2	Arunachal Pradesh	Arecanut, Orange, Large Cardamom, Sesumum, Ginger, Turmeric, Kiwi, Walnut, Pineapple, Apple.

3	Assam	Honey, Potato, Turmeric, Pineapple, Chilli, Ginger, Banana, Black Rice, Arecanut, Mushroom, Mustard, Jackfruit
4	Bihar	Makhana (Foxnut), Mango, Strawberry, Katarni Rice, Chilly, Jardalu Mango, Pea, Mentha, Litchi, Mushroom, Guava, Banana, Pineapple, Tomato, Potato, Onion, Turmeric, Moringa.
5	Chhattisgarh	Mango, Tea.
6	Goa	Jackfruit
7	Gujarat	Mainly processed agriculture items
8	Haryana	Onion, Citrus Fruits, Amla, Guava, Leafy Vegetables Potato, Tomato, Ginger, Carrot, Peas, Mango, Cucurbits
9	Himachal Pradesh	Turmeric, Apple, Mango, Peas and Vegetables, Ginger and Garlic, Mushroom, Potato
10	Jammu And Kashmir	Apple, Spices, Honey.
11	Jharkhand	Tomato, Chilly, Honey, Mango, Guava, Jackfruit, Potato, Green Chilly, Papaya
12	Karnataka	Onion, Fig, Ginger, Turmeric, Tomato, Spices, Millets, Mango, Red Gram, Guava, Banana, Chillies, Pineapple, Lemon.
13	Kerala	Pineapple, Spices, Banana, Jackfruit, Tapioca
14	Ladakh	Apricot.
15	Madhya Pradesh	Orange, Mango, Tomato, Kodo -Kutki, Ginger, Guava, Banana, Potato, Coriander, Green Pea, Chilli, Garlic, Aonla, Turmeric, Onion.
16	Maharashtra	Mandarin Orange, Pigeon Pea, Custard Apple, Guava, Banana, Tomato, Onion, Sapota, Mango, Turmeric, Grapes,
17	Manipur	Ginger, Pineapple, Banana, Kiwi, Orange, Bamboo Shoot, Turmeric, Kachai Lemon, King Chilli, Coconut
18	Meghalaya	Sohiong, Honey, Pineapple, Turmeric, Banana, Jackfruit, Ginger
19	Mizoram	Mizo Chilli, Passion fruit, Turmeric, Pineapple, Turmeric, Mango, Ginger
20	Nagaland	Mainly processed agriculture items
21	Odisha	Mainly processed agriculture items
22	Puducherry	Mainly processed agriculture items
23	Punjab	Honey, Kinnow, Chillies, Potato, Tomato, Litchi, Guava, Mango, Onion, Peas, Pear
24	Rajasthan	Onion, Rose, Mango, Garlic, Pomegranate, Wheat, Mango, Kinnow, Isabgol, Tomato, Orange, Cumin, Sesame Seeds, Coriander, Fenugreek, Guava, Fennel
25	Sikkim	Large Cardamom, Ginger, Red cherry Pepper(Dalley Khorsani)
26	Tamilnadu	Mainly processed agriculture items
27	Telangana	Chillies, Mango, Jowar, Ragi, Minor Millets, Sweet orange, Turmeric, Vegetables, Bamboo Chilli
28	Tripura	Mainly processed agriculture items
29	Uttar Pradesh	Chilli, Aonla, Mango, Banana, Lentil, Mint, Kala Namak Rice, Onion, Guava, Tomato, Basil, Chicory, Mustard, Potato, Banana, Asafoetida, Pea, Turmeric, Garlic, Honey
30	Uttrakhand	Tejpata, Button Mushroom, Milky Mushroom, Malta

14.12 Audit Para

No audit para/observation is pending in Agriculture Trade Policy, Promotion and

Logistics Development Division of this Department

15.1 Overview

Rashtriya Krishi Vikas Yojana (RKVY) was launched as a flagship scheme of the Department of Agriculture & Farmers' Welfare (DA&FW) in 2007-2008 to incentivize States to draw up comprehensive agriculture development plans, taking into account agro-climatic conditions, natural resources and technology for ensuring more inclusive and integrated development of agriculture and allied sectors. The scheme was implemented as a State Plan Scheme till the end of the financial year 2013-14 and is being implemented as a CSS (State Plan) scheme thereafter. In accordance with the directions of the Ministry of Finance, the funding pattern of the scheme from 2015-16 onwards has been altered from 100% funding by the Central Government to in the ratio of 60:40 between the Centre and States (90:10 for North-Eastern and Himalayan States). However, funding pattern to UTs continued as 100% by the Central Government.

The Scheme has been revamped as the Rashtriya Krishi Vikas Yojana - Remunerative Approaches for Agriculture and Allied Sector Rejuvenation (RKVY-RAFTAAR) for implementation from 2017-18 with a major focus on pre & post-harvest infrastructure, besides promoting agri-entrepreneurship, innovations & value addition with the approval of the Union Cabinet on 01.11.2017. A State Level Sanctioning Committee (SLSC) constituted under the Chairmanship of the Chief Secretary of the concerned State/UT is empowered to approve projects under the scheme. The State Agriculture Department is the nodal Department for implementation of the scheme in the State. The scheme is available for the

entire spectrum of agriculture & allied sector activities such as crop development, horticulture, agricultural mechanization, marketing, pre & post-harvest management, animal husbandry, dairy development, fisheries, extension, etc.

15.2. Objectives of RKVY-RAFTAAR scheme

The objectives of the scheme are:

- (I) To strengthen the efforts of farmers through creation of pre and post-harvest agricultural infrastructure that increases access to quality inputs, storage, market facilities etc. and enables farmers to make informed choices.
- (ii) To provide autonomy, flexibility to States to plan and execute schemes as per local/farmers' needs.
- (iii) To promote value chain addition linked production models that will help farmers increase their income as well as encourage production/productivity
- (iv) To mitigate the risk of farmers with focus on additional income generation activities - integrated farming, mushroom cultivation, bee keeping, aromatic plant cultivation, floriculture etc.
- (v) To attend to national priorities through several sub-schemes.
- (vi) To empower youth through skill development, innovation and agri-entrepreneurship based agribusiness models that attract them to agriculture.

15.3 Funding pattern under RKVY-RAFTAAR:

RKVY-RAFTAAR funds would be provided to the States in the following streams:

- (a) Regular RKVY-RAFTAAR - 70% of annual outlay for the following activities:
 - (i) Infrastructure and assets - 50% (of 70%) of regular RKVY-RAFTAAR outlay (20% for pre-harvest infrastructure and 30% for post-harvest infrastructure)
 - (ii) Value addition linked production projects- 30% (of 70%) of regular RKVY-RAFTAAR outlay
 - (iii) Flexi-funds - 20% (of 70%) of regular RKVY-RAFTAAR outlay. States can use this for supporting any projects as per the local needs.
- (b) RKVY-RAFTAAR special sub-schemes as per national priorities -20% of annual outlay; and
- (c) Innovation and agri-entrepreneur development -10% of annual outlay including 2% for administrative costs.

15.4. District and State Agricultural Plans: RKVY guidelines recognize the need for convergence and integration of the various programmes implemented at district / State level through District Agriculture Plans (DAPs) and State Agriculture Plans (SAPs). Revised operational guidelines of RKVY also mandate each State to prepare a State Agriculture Infrastructure Development Programme (SAIDP) in a similar manner to that of DAPs and SAP for identifying a shelf of projects for RKVY - RAFTAAR.

15.5. Income/Production and Target/Achievement

RKVY-RAFTAAR fund is provided to the States/UTs as grant in aid. There is no physical target set for any States at the Central level.

Projects under the scheme are approved and implemented by the States in various agriculture and allied sectors as per their priorities and available resources to meet the needs of farmers for the holistic development of this sector. The state-wise allocation and release of funds and the sector-wise cost of projects approved by States under the scheme during the last two years and current year are given respectively at annexures- 15.1 & 15.2.

15.6 Implementation of sub-schemes

RKVY-RAFTAAR also has provision for implementing national priorities through initiating special programmes as sub-schemes without affecting the autonomy and flexibility of States. Six sub-schemes with focused interventions are being implemented during the current financial year (ie, 2021-22) under **RKVY-RAFTAAR**. The details of the sub-schemes being implemented during the current year and their objectives are given as under:

- i. **Crop Diversification Programme(CDP):** This scheme was launched in 2013-14 to promote technological innovation to encourage farmers to choose crop alternatives. The allocation for this programme during 2018-19, 2019-20 & 2020-21 was Rs. 19.96 crore, Rs. 20 crore and Rs.120 crore respectively. The allocation for the programme for 2021-22 is Rs.120 crore.
- ii. **Reclamation of Problem Soil (RPS):** This programme was initiated as a sub-scheme of RKVY during 2016-17 for enhancing soil fertility & productivity to meet the demand for food grains in the country. The allocation for this programme for 2018-19, 2019-20 & 2020-21 was Rs.20 crore, Rs.20 crore & Rs.25 crore respectively. The allocation for the programme for 2021-22 is Rs.30 crore.

- iii. **Swachh Bharat:** This scheme has been initiated in 2017-18 with an allocation of Rs.47.50 crore for solid and liquid waste management in agriculture. The allocation for the programme in 2018-19 was Rs.36 crore and Rs.55 crore each for 2019-20 & 2020-21. The allocation for the programme for 2021-22 is Rs.40.00 crore.
- iv. **Animal Health & Disease Control:** This programme was launched as a sub-scheme in 2018-19. An amount of Rs.50.62 crore was earmarked for controlling Brucellosis in female calves and strengthening of veterinary infrastructure and mobile veterinary clinics during 2018-19. An amount of Rs.40 crore and Rs.20 crore respectively were earmarked during 2019-20 and 2020-21 for the Rabies control programme, mobile veterinary units and glanders surveillance units under this sub-scheme. The allocation for this programme for 2021-22 is Rs.20.01 crore.
- v. **Area Expansion of Cashew:** This programme was launched as a sub-scheme during 2018-19 in order to augment area and production of cashew in backward districts including tribal districts of States like Kerala, Karnataka, Andhra Pradesh, Odisha and Maharashtra. The allocation for this programme in 2018-19 was Rs.40 crore and for the year 2019-20 & 2020-21 was Rs.25 crore & Rs.20 crore respectively. The allocation for this programme for 2021-22 is Rs.30 crore.
- vi. **Pilot Intervention for Most Vulnerable Drought Prone Area (NRAA):** This programme was also initiated as a sub-scheme in 2018-19 for drought proofing of identified districts of Andhra Pradesh, Karnataka and Rajasthan. The allocation for this programme for 2018-19 was Rs.10

crore and for the year 2019-20 & 2020-21 was Rs.5.40 crore & Rs.5.43 crore respectively. The allocation for this programme for 2021-22 is Rs.6.98 crore.

15.7. Innovation & Agri-Entrepreneurship programme:

A new programme called "Innovation and Agri-Entrepreneurship Development" has been launched under Rashtriya Krishi Vikas Yojana (RKVY-RAFTAAR) in 2018-19 with the objective to promote innovation and agripreneurship by providing financial support and nurturing the incubation ecosystem. Start-ups pertaining to agriculture and allied sectors are being encouraged in order to contribute directly and indirectly to enhancing the income of farmers by providing opportunities to them and to provide employment to youth. In this connection, five (5) Knowledge Partners (KPs) and twenty four (24) Agribusiness Incubators (R-ABIs) have been appointed by this Department to advise on smooth and efficient execution of this programme in various States across the country.

So far, 646 startups operating in agriculture and allied sectors have been selected for financial assistance of Rs. 69.92 crore in instalments and Rs. 33.94 crore has been released. These start-ups were trained for two months at various agribusiness incubation centres i.e KPs & R-ABIs before providing financial assistance.

15.8. Success Stories

Some of the success stories reported by the States under RKVY scheme and by Agri business Incubators under Agri-Entrepreneurship Programme of RKVY are given as **under:**

I. Title: Winning with Wayside Market Stalls

Category: Agriculture

Background & Objectives

Roads in sparsely populated, hilly and inaccessible terrain in States like Arunachal

Pradesh can bring producers of vegetables and fruits and consumers of urban areas together to the advantage of both. Farmers, practicing subsistence agriculture, can realize a better price for their produce if, road side marketing facilities are available. Urban consumers can benefit by buying directly from farmers by paying a reasonable price. Increasing awareness about opportunities and capacity building of farmers coupled with public investment in the state has generated entrepreneurial zeal among some hardworking farmers who are now resorting to commercial production of vegetables. However, limited surplus production mostly from scattered production areas with poor connectivity makes it difficult for a majority of rural farmers or aggregators to bring the produce to urban markets. The situation is far worse for farmers in the case of perishable fruits and vegetables.

Selling of fruits and vegetables at the wayside of major roads is a common phenomenon in hilly areas, more particularly during the winter harvesting season. The involvement of women is a notable feature in such markets.

Intervention

Department of Agriculture, Government of Arunachal Pradesh with the objective to augment production of vegetables and fruits, decided to make a demand side intervention under RKVY aimed to help numerous small farmers who sell their limited produce mostly at the wayside of roads. The intervention targeted farmers of villages/areas with limited road connectivity. It was envisioned that support to growth of way side markets will encourage aggregation by farmers themselves. These markets will connect small farmers to tourists/travelers if not traders thus leading to better price realization. The sheds will protect mostly women and old farmers from adversity of the weather during the trading period. The state government further decided to earmark these

way side market sheds exclusively for women and old farmers. The endeavour is to encourage direct selling to consumers thus ensuring maximum price benefit to the farmers. The demands for support under the project came from local Panchayats who in turn volunteered to donate community land for this purpose. The project provided for investment on infrastructure like tin roofed sheds with concrete, elevated floor or wooden racks, etc. The infrastructure constructed in each way side market is largely semi permanent in nature and will require expenditure on maintenance. State Agriculture Department is exploring ways to ensure recovery of maintenance cost which includes nominal rent collection through agriculture produce market committees. The project was an instant success in terms of infrastructure creation and engagement of people and their institutions. Farmers have been using the new sheds, to their advantage.

Outcome

The markets in many places are increasingly becoming points of aggregation and farmers now have the dual option of both selling either to consumers or to traders. People consider wayside markets as a source of quality local produce. This message has also been aptly disseminated to visiting tourists to the state. The department is all set to engage more stakeholders to ensure that the way side markets receive the promotion they deserve.

II. Agri-Startup Success Story under the Agri-entrepreneurship programme of RKVY RAFTAAR

Innovative Solar Solutions for Farmers

Mr. Sangappa Basappa Sankanagouda, Founder of SPACPT Pvt. Ltd. & Consultancy Centre, has developed five innovations, viz., Push-type high-clearance Solar Sprayer, Solar-operated Green Fodder Hydroponic Machine, Solar operated high tech Vertical Farming system, Power tiller

tractors Equipments and Solar- operated Flourmill-cum-Mixer as part of farm mechanization solutions to support small and marginal farmers.

Mr. Sangappa Sankanagouda from Shiraguppi village, Taluk, Jamakhandi, Bagalkot, District-Karnataka graduated in Agricultural Engineering from the University of Agricultural Sciences, Raichur, Karnataka.

Being from a farming family he was aware of agricultural problems and wanted to address them with affordable solutions. With his knowledge of electrical systems, mechanical systems, solar energy, and engineering, he developed affordable machinery in the sector to address these problems and support small and marginal farmers. With minimal resources Mr Sangappa Sankanagouda came up with four innovative solutions viz., a push type hi-clearance solar sprayer for which he has filed a patent, solar operated hydroponic machine, power tiller tractor and solar operated high tech farming system.

His main objective was to utilize the abundantly available solar energy through technology which would be useful for spraying, producing

fodder and also decrease operational cost and water usage. His vision was to empower farmers through technology innovations.

Area of Operation and Coverage

Currently, sales are in Bagalkot, Bangalore, Chikkamagaluru, Raichur, and Tamil Nadu. His stakeholders include NGOs, Veterinary and Agricultural Institutes. Till date, 110 farmers have adopted the solar sprayer and 33 farmers have adopted the hydroponic system.

Association with MANAGE and Key Takeaways

Training has helped with business basics, MANAGE has encouraged him with mentoring support, promoted his ideas and motivated him. Not just funding support to foster business growth for his innovations but have also gained immense knowledge and support.

Vision as an Entrepreneur

His vision is to increase the production of solar operated hydroponic units and High clearance solar sprayer; other need-based low-cost agricultural machinery, identify the farmers' problems and provide solution-based technologies etc.

Overview

16.1 In accordance with the Government of India (Allocation of Business) Rules, Department of Agriculture and Farmers Welfare (DA&FW) is mandated to coordinate relief measures necessitated by **drought, hailstorm, pest attack** and **cold wave/frost**. Spatial distribution and quantum of rainfall during South West Monsoon (June-September) mainly determines the incidence of drought in the country, as South West Monsoon (SWM) accounts for more than 70% of annual rainfall. DA&FW closely monitors progress of SWM in the country, in coordination with India Meteorological Department (IMD), Ministry of Earth Sciences, and keeps a watch over deficient/large deficient rainfall conditions.

16.2 State Governments initiate necessary relief measures in the wake of natural calamities from State Disaster Response Fund (SDRF), which is readily available with them. Contribution to SDRF is made by Central and State Governments in the ratio of 3:1 for 18 General Category States namely, Andhra Pradesh, Bihar, Chhattisgarh, Goa, Gujarat, Haryana, Jharkhand, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Odisha, Punjab, Rajasthan, Tamil Nadu, Telangana, Uttar Pradesh and West Bengal and in the ratio of 9:1 for 10 Special Category States namely, North Eastern States of Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim and Tripura and hilly States of Himachal Pradesh and Uttarakhand. Government of India supplements the efforts of the State Governments by providing requisite financial and logistic support in the wake of natural calamities. Additional financial assistance over

and above SDRF is considered from National Disaster Response Fund (NDRF) for natural calamities of severe nature, as per established procedure and extant items and norms for assistance from SDRF/NDRF. Allocation under SDRF is made on the basis of recommendations of the Finance Commission and allocation under SDRF is for State Governments only.

16.3 During the year 2021-22, the Government of Himachal Pradesh has submitted Memorandum seeking financial assistance from NDRF in the wake of hailstorm that struck the State during the period of April – May 2021. Inter-Ministerial Central Team (IMCT) visited the State to assess the loss/damage to crops etc. and recommend appropriate financial assistance from NDRF. The government of Rajasthan has declared drought Kharif 2021 and submitted memorandum seeking financial assistance from NDRF. IMCT has been constituted to visit the State for assisting loss/damage to crops and recommend appropriate financial assistance from NDRF.

16.4 DA&FW has reviewed and updated the Crisis Management Plan (CMP) for Drought during the current year i.e. 2021. The Plan defines the roles and responsibilities of various agencies involved in crisis management, including media management during drought. CMP, 2021 was circulated to all States/Union Territories for preparation of State Crisis Management Plan.

16.5 Central Research Institute for Dryland Agriculture (CRIDA), under Indian Council of Agricultural Research (ICAR), has developed detailed district-wise contingency plans to provide a broad advisory to farmers. These

contingency plans prescribe alternate strategies in the event of climate variability by factoring in crops/livestock/aquaculture practices/pattern, soil characteristics, infrastructural facilities, etc. These plans have been developed based on certain simulated models for different weather conditions like occurrence of flood, drought, cyclone, cold wave/frost, etc. CRIDA has so far prepared Contingency Plans for **650** districts of the country.

16.6 Every Ministry/Department is mandated to prepare a Disaster Management Plan under Sections 36/37 of the Disaster

Management (DM) Act, 2005. A National Agriculture Disaster Management Plan (NADMP) has been prepared by the Department. NADMP is designed as a practical guidance document, a work agenda, and a roadmap to include key aspects of Disaster Risk Reduction (DRR) into the sustainable development agenda of agriculture, especially for crop production, sustainable land management and post-harvest management. The plan seeks the synergy of resources and efforts to holistically address disaster risk reduction, climate change adaptation, and sustainable development goals related to the agriculture sector.

17.1 Overview

17.1.1 Mandate and Nature of Work: The mandate of International Cooperation Division is to foster mutually beneficial partnerships with other countries of the world in bilateral as well as multilateral formats. Bilateral Agreements, Memoranda of Understanding (MoUs), Protocols and Work Plans with countries of strategic interest are signed and implemented for furthering cooperation in the field of Agriculture & allied sectors in coordination with the Ministry of External Affairs, other concerned ministries and departments and the Indian Missions abroad. The International Cooperation Division also handles the work related to collaboration with the Food & Agriculture Organization (FAO) and World Food Programme (WFP) of the United Nations, the Department of Agriculture & Farmers Welfare being the Nodal Department in India.

Minister (Agriculture), Embassy of India, Rome: The Indian Ambassador to Italy, Rome is the Permanent Representative of India to the FAO, IFAD and WFP for the purpose of maintaining liaison and coordination with these three Rome Based Agencies (RBAs). Keeping in view the specialized nature and the increasing volume of interactions with the UN agencies and their associated bodies, an agriculture wing headed

by an officer of the rank of Joint Secretary to the Government of India with the designation of Minister (Agriculture), EoI, Rome has been set up as a subordinate office under the administrative control of the DA&FW. The Minister (Agriculture), EoI, Rome has been designated as India's Alternate Permanent Representative (APR) to the three Rome Based Agencies. The Minister (Agriculture), EoI, Rome represents India's interests, particularly in the field of agriculture and allied sectors at the meetings of the three Rome based UN Agencies.

17.2 Bilateral Cooperation

17.2.1 MoU/MoC/Agreements/Work Plans: Department of Agriculture and Farmers Welfare has entered into 71 MoUs/MoCs/Agreements with 66 countries in the field of agriculture. A Memorandum of Understanding (MoU) with Fiji was signed on 22.06.2021 for cooperation in Agriculture sector. In addition to this, a three year Work Programme in Agriculture (2021-2023) on "Indo-Israel Development Cooperation" was signed on 24.05.2021 with an objective to bring the ongoing Centres of Excellence (CoE) to the operational stage and to establish new CoEs in new States.

As a follow up to the various MOUs, meetings of the following Joint Working Groups (JWGs) were held in 2021:

Sl. No	Event and country	Date	Venue
1.	7th Indo German JWG meeting	02.03.2021	Through Video Conferencing
2.	6th Indo-Dutch JWG meeting	10.06.2021	Through Video conferencing
3.	IBSA JWG meeting	31.08.2021	Through Video conferencing

17.3 Cooperation with International Organizations:

17.3.1 Food & Agriculture Organization (FAO):

FAO collaborates with India through provision of trainings, consultancy services, equipments and materials in the field of agriculture and allied sectors under its Technical Cooperation Programme (TCP). FAO, India has formulated a Country Programming Framework (CPF) for India for the period 2019-2022 in line with the UN Sustainable Development Goals (SDGs) within the framework of the United Nations Sustainable Development Framework (UNSDf) and the same has been agreed upon and signed between FAO India and the Government of India.

Major projects currently under implementation in States with FAO's assistance:

- i. Technical Assistance for Development of Sustainable Agricultural Value Chains in Mizoram and Nagaland:-** This project is being implemented to strengthen capacities of government institutions and extension services to support local communities in improved jhum management, sustainable value chain development, and exposure of project staff to best agro-ecological practices.
- ii. Scaling-up agroecology through policy support and Farmer Field Schools (FFS) on Zero Budget Natural Farming:-** This project is being implemented in the state of Andhra Pradesh to strengthen methodologies and capacities in agroecology to improve farmer's livelihoods and ecosystem resilience.
- iii. Sustainable and resilient livelihood options for rain-fed areas of India**

through improved integrated crop livestock farming system:- This project is being implemented in the states of Rajasthan, Odisha & Maharashtra to enhance resilience and sustainability of livelihood options in rural rain-fed areas' farmers through integrated crop livestock farming system.

- iv. Time-critical measures to support the sustainable management of the Fall Army Worm (FAW) in India:-** This project is being implemented across India to improve pest monitoring and surveillance systems, enhance awareness and capacities of farmers and trainers and strengthen institutional frameworks to contain the FAW spread and manage it sustainably.
- v. Green-Ag: Transforming Indian agriculture for global environmental benefits and the conservation of critical biodiversity and forest landscapes:-** The Green-Ag project aims to catalyze transformative change for India's agricultural sector to support achievement of national and global environmental benefits and conserve critical biodiversity and forest landscape in 5 States i.e. Mizoram, Rajasthan, Uttarakhand, Odisha & Madhya Pradesh.
- vi. Fostering Climate Resilient Upland Farming Systems in the Northeast (FOCUS) Project Mizoram:-** To enhance Environmental sustainability and profitability of the farming systems in hill areas.
- vii. Support Implementation of National Agroforestry Policy by Enhancing Tree Cover & Production of Wood:-** To enhance the tree cover outside protected forest land and strengthen the sustainable production of wood and

related products from the agricultural landscape in Uttar Pradesh, Karnataka (major States), Assam, Haryana, Rajasthan (model for digital mapping of area under agroforestry).

viii. Technical Assistance to strengthen capacity of national stakeholders in spice value chain:-

To improve capacity of national stakeholders in the spices value chains to improve the safety and quality of Indian spices (Rajasthan, Andhra Pradesh, Madhya Pradesh, Gujarat).

ix. TCPF: Support Transformative Policy Pathways for Indian Agriculture towards 2030:-

To support the National Policy Workshop: Indian Agriculture Towards 2030 (PAN India).

x. Strengthening institutional capacity in surveillance and monitoring of antimicrobial resistance and antimicrobial use in the animal health sector:-

To strengthen the national monitoring and surveillance of antimicrobial usage in animals and share data with various stakeholders in true spirit of One Health (PAN India).

xi. TCPF: Assessment of Data Systems for Food and Agriculture related SDG Indicators in select States of India:-

To enable select states of India to implement and monitor additional SDG indicators under FAO custodianship and produce a how-to guide for other states in the country and other custodian agencies to understand how to undertake a similar innovative approach in supporting states to compile SDG indicators (PAN India).

xii. Technical support to develop forecasting / predictive techniques to

assist vulnerable farmers and planners at district and state level to make informed decisions on crop choices and plans for rainfed agriculture:-

The proposed TCP envisages developing forecasting/predictive techniques and tools using multiple data points and big data analytics to aid vulnerable farmers and planners to make informed decisions on crop choices, particularly in rainfed areas. The TCP proposes to train local resource persons/rural extension workers in utilizing the tool for deployment with rainfed farmers.

xiii. MTF: Strengthening spice value chain in India and improving market access through capacity building:-

The objective is to build the capacity of stakeholders in the spices value chain to improve the safety and quality of three seed spices (cumin, fennel and coriander) and black pepper in order to increase market access (concerned states are Rajasthan, Andhra Pradesh, Madhya Pradesh, Gujarat).

xiv. Fostering Climate Resilient Upland Farming Systems in the Northeast (FOCUS) Project Nagaland:-

The overall objective of the FAO Technical Assistance is to achieve enhanced environmental sustainability and profitability of the farming systems in hill areas.

xv. Support mitigation of Antimicrobial Resistance (AMR) risk associated with aquaculture in Asia:-

To enhance knowledge, significantly strengthen overall capacity and regulatory framework at different levels for effective monitoring and mitigation of AMR risk associated with production of 2-3 key aquaculture commodities in the

target countries (concerned states are Uttar Pradesh, Andhra Pradesh).

xvi. Strengthened evidence-based decision making and monitoring of progress towards the Sustainable Development Goals (SDGs) through improved national capacities:- To use cost-effective methods and digitization of existing data sources to improve data collection, use and access (PAN India).

xvii. Scaling-up Capacities for Nutrition sensitive Agriculture and Food Systems:- This project builds on achievements of previous projects supported by the Bilateral Trust Fund between the German Federal Ministry of Food and Agriculture (BMEL) and FAO, in order to scale up efforts to develop capacities for nutrition sensitive food systems (PAN India).

Important FAO events/meetings:

- i. 166th Session of FAO Member Council was held virtually from 26 to 30 April 2021 which discussed the issues relating to report of the Committees of Council on Budget matters; COVID-19 situation and impact on food security etc.
- ii. 42nd Session of FAO Conference was held virtually from 14-18 June, 2021. A recorded video speech of Shri Narendra Singh Tomar, Hon'ble Minister, Ministry of Agriculture and Farmers Welfare, India, was delivered in the session.

17.3.2 World Food Programme (WFP):

Set up in 1963, the WFP seeks to provide emergency feeding in places facing acute food insecurity due to natural calamities and man-made causes. WFP has presence in India since 1963, however its role has evolved over time from providing direct food distribution to

providing technical support to the Government of India in achieving food and nutrition security guided by the SDG2. WFP collaborates with the Government of India through the Country Strategic Plans. The current Country Strategic Plan (CSP: 2019-2023) was approved in the 2nd Regular Session of the WFP Executive Board Meeting in Rome during 26-29 November, 2018 followed by a Memorandum of Understanding (MoU) between GoI and the UNWFP to implement the same.

The UN World Food Programme in India has been instrumental in supporting the Government of India in the National Policy on rice fortification and its implementation in PDS, MDM and ICDS. In addition, the model for local production of nutritious fortified take home rations by women's self help groups, which was developed in Kerala, is being rolled out in Uttar Pradesh, Odisha and Rajasthan. WFP has also supported the national portability of the PDS through the One Nation One Ration Card and has introduced innovations such as the 'Annapurti' which is an automated grain dispensing machine which is linked to the Point of Sale Device in fair price shops and will allow 24/7 access to grain entitlements by PDS beneficiaries, especially migrants in urban areas. WFP is also introducing mobile storage units (500 MT capacity) as an alternative to the 'cover and plinth' mode which reduces post-harvest losses. Their work with women's self-help groups in partnership with the Mission Shakti on value chain development and marketing will result in women's empowerment and increased income. WFP is working with the Development Monitoring and Evaluation Office (DMEO) of NITI Aayog to support national evaluation capacity development. Besides, it is also supporting the evaluation of key pilot interventions to generate evidence around it. WFP has also partnered with the Odisha Millet Mission to promote millet production and consumption and share best practices and has

begun work around building climate resilience capacity of government and smallholder farmers in the state.

The present share of Government of India towards WFP Pledge Contribution is US \$ 1.92 million for a biennium which is used to support the WFP India Country Programme. Besides, GoI makes an annual payment of Rs. 30 Lakh to UNWFP Country Office towards their Local Operating Cost (LOC). India was a member of the Executive Board in 2020 and 2021.

17.3.3 International Fund for Agriculture Development (IFAD)

India is a founder member of IFAD and a key contributor among the member countries. IFAD funds are derived from member contributions (made in replenishment cycles), investment incomes and special funds. Department of Economic Affairs is the nodal department for IFAD in India.

Following projects in agriculture sector are under implementation in different States with assistance from IFAD:

1. **Fostering Climate Resilient Upland farming system in Northeast (FOCUS Nagaland & Mizoram 2017-2024)** – Implemented by the states of Mizoram and Nagaland for a total project cost of US\$ 161.71 million (of which IFAD financing is US\$ 69.75 million), to reach a total of 201,500 households. The project aims to provide farmers with better jhum cultivation practices that will be both more productive and more sustainable, thus creating an ecological balance, enhancing resilience to climate change, and raising farmers' incomes. It also aims to assist jhumia households to adopt alternative farming systems, particularly settled farming, and support improved market access and

value chain development as farmers move to more market-oriented production.

2. **Andhra Pradesh Drought Mitigation Project (APDMP)** – Implemented by the Government of Andhra Pradesh with a project size of Rs.1103 Crore. The overall goal of the project is to improve the incomes and strengthen the drought resilience of 165,000 farm households. The development objective is to strengthen the adaptive capacity and productivity of agriculture in the rainfed areas of five districts in southern AP. This project is scheduled to close in 2022.

17.3.4 Other International Organizations: In addition to the FAO, WFP and IFAD, the Department of Agriculture & Farmers' Welfare represents India in the following International Organizations (Ios):

1. Trust Fund of FAO for Desert Locust in Eastern Region.
2. Trust Fund for International Desert Locust.
3. Organization for Economic Cooperation & Development (OECD).
4. Asia and Pacific Coconut Community (APCC).
5. Asia and Pacific Plant Protection Commission (APPPC).
6. Global Crops Diversity Trust Fund (GCDT)

17.3.5 USAID: National Institute of Plant Health Management (NIPHM), Hyderabad has been collaborating with United States Agency for International Development (USAID) for training purposes and capacity building programmes. The National Institute of Agricultural Extension Management (MANAGE) Hyderabad had

collaborated with USAID for implementation of Feed The Future Indian Triangular Training Programme (FTFITT), in which officials from 20 African and Asian countries were imparted Advanced Agriculture Technology Training. 1144 Officials representing Afghanistan, Bangladesh, Cambodia, Lao PDR, Sri Lanka, Nepal, Mongolia, Myanmar, Vietnam countries from Asia and Botswana, Democratic Republic of Congo, Ghana, Kenya, Liberia, Malawi, Mozambique, Sudan, Rwanda, Tanzania, Uganda countries of Africa participated in this India-USAID Trilateral Collaborative Programme.

17.4 Strategic Groups:

India is a member of multilateral groupings such as G-20 - a forum for global cooperation on international economic and financial issues; BRICS (Brazil, Russia, India, China and South Africa); IBSA (India, Brazil and South Africa); SCO (Shanghai Cooperation Organization); SAARC (South Asian Association for Regional Cooperation); ASEAN (Association of South East Asian Nations); BIMSTEC (Bay of Bengal Initiative for Multi-Sectoral Economic & Technical Co-operation) etc. The Department of Agriculture and Farmers' Welfare represents India in all events related with agriculture and allied sectors.

Important G-20 events/meetings:

- i. **G-20 Agriculture Deputies Meetings** were held virtually on 19-20 April 13-14th July 2021 under Italian presidency, wherein the Drafts of the G20 Agriculture Ministers Communiqué were negotiated and finalized.
- ii. **G-20 Agriculture Ministers' meeting** was held on 17th-18th September 2021. Shri Narendra Singh Tomar, Hon'ble Minister for Agriculture and Farmers Welfare participated through pre-recorded speech. Hon'ble Agriculture

Minister touched upon the issues of research as a driving force behind sustainability and working together to achieve zero hunger goal.

Shanghai Cooperation Organization (SCO): The Shanghai Cooperation Organization (SCO), is a Eurasian political, economic, and security alliance. India officially joined SCO as a full Member on 9 June, 2017 at a summit in Astana, Kazakhstan.

Important SCO events/meetings:

- i. **Two meetings of the SCO Permanent Experts Working Group on Agriculture (PEWG)** were held virtually on 27.05.21 and 16.07.21. Issues on Food Security, trans-boundary epizootic diseases, demonstration base of Agriculture, Electronic Portal for Agriculture, Joint Statement on Food Security, draft action plan of ensuring food security were discussed.
- ii. **6th Meeting of ministers of the SCO member states on agriculture** was held virtually on 12th August, 2021. Shri Narendra Singh Tomar, Hon'ble Minister for Agriculture and Farmers Welfare with other officers of the Ministry participated in the meeting. Hon'ble Agriculture Minister highlighted the importance of millets in food, nutrition and climate resilience. He called upon member states to support celebration of International Year of Millets 2023 for their promotion for nutrition and sustainable agriculture.

17.4.1 BRICS (Brazil, Russia, India, China, South Africa):

India held the Presidency of BRICS countries during 2021. Under India's Presidency, following events /meetings were organized by

the International Cooperation Division for cooperation in Agriculture among BRICS Countries:

i. Meeting of BRICS Working Group on Agriculture:

The Meeting of BRICS Working Group on Agriculture, under the chairmanship of Shri Sanjay Agarwal, Secretary, DA&FW was held virtually on 12-13 August 2021. The meeting had the following outcomes:

- a. In-depth discussion on the BRICS Action Plan 2021- 2024 and endorsement for adoption by the BRICS Agriculture Ministers.
- b. In-depth discussion & finalization of the Draft Joint Declaration of the 11th Meeting of the BRICS Ministers of Agriculture.

ii. 11th Meeting of BRICS Agriculture Ministers:

The 11th Meeting of BRICS Agriculture Ministers was held virtually on 27th August 2021 under the chairmanship of Shri Narendra Singh Tomar, Hon'ble Minister of Agriculture & Farmers Welfare, Govt. of India. The Ministers of Agriculture from Brazil, Russia, China and South Africa deliberated virtually on the theme "BRICS Partnership for Strengthening Agro Biodiversity for Food and Nutrition Security". The Ministers agreed to make the BRICS Agriculture Research Platform (BARP) developed by India functional and encourage research cooperation to improve the use and application of agricultural technologies for meeting the needs of producers and processors. BARP will promote cooperation in the areas of agricultural research, extension, technology transfer, training and capacity building. After the meeting a Joint Declaration of the eleventh meeting

of BRICS Agriculture Ministers covering a wide range of focus areas for future cooperation amongst BRICS countries and the Action Plan for 2021-24 for Agricultural cooperation among BRICS countries, was adopted. The Action Plan 2021-2024 provides for enhanced cooperation in the field of agriculture amongst BRICS nations and focuses on the themes of food security, welfare of farmers, conservation of agro biodiversity, resilience of food and agricultural production systems, promotion of digital agricultural solutions which are integral to the sustainable development of agriculture.

17.4.2 IBSA (India, Brazil, South Africa):

India held the Presidency of IBSA countries during 2021. Under India's Presidency, 7th meeting of the IBSA Joint Working Group (JWG) on Agriculture was held virtually on 31st August 2021 after a hiatus of more than 8 years. Indian, Brazilian and the South African delegations engaged in substantive discussions on the concept note "IBSA Cooperation in Agriculture", prepared by India, suggesting areas of cooperation amongst IBSA countries. The delegations from Brazil and South Africa appreciated the concept note. After detailed discussions, the IBSA members agreed to develop & enhance cooperation in Research & Capacity Development Collaboration on Soyabean, Wheat, Maize, ICT in Agriculture, Climate Resilient Agriculture, Animal Health & Animal Production including Poultry and Agro-processing & Agro- business. It was also decided to prepare an Action Plan as a blue print to take the cooperation forward in the agreed areas.

17.4.3 External Assistance:

There are various projects in the agriculture sector which are being implemented in different States of India with the help of external assistance

provided by foreign agencies/countries such as World Bank, International Fund for Agricultural Development (IFAD), JICA, GEF, Asian Development Bank (ADB) etc.

17.4.4 World Bank Assisted Projects: Currently following projects in the agriculture sector are being implemented by the State governments with assistance from the World Bank through DEA:

1. Assam Agribusiness and Rural Transformation Project;
2. National Agricultural Higher Education Project (NAHEP);
3. National Rural Economic Transformation Project (nRLEP-AF);
4. Himachal Pradesh Horticulture Development Project;
5. Maharashtra Project on Climate Resilient Agriculture;
6. Tamil Nadu Irrigated Agriculture Modernization Project;
7. Jharkhand Opportunities for Harnessing Rural Growth Project;
8. AP Integrated Irrigation & Agriculture Transformation Project;
9. Tamil Nadu Rural Transformation Project (TNRTP);
10. Odisha Integrated Irrigation Project for Climate Resilient Agriculture;
11. Integrated Project for Source Sustainability & Climate Resilient Rain-fed Agriculture in Himachal Pradesh;
12. Maharashtra Agribusiness and Rural Transformation Project;
13. Bihar Transformative Development Project;
14. Uttarakhand Decentralized Watershed Development Project-II.

17.4.5 Japan International Cooperation Agency (JICA): Himachal Pradesh Crop Diversification Promotion Project is being implemented with support from JICA.

International Events:-

17.4.6 UN Food Systems Summit: In 2019, the United Nations Secretary-General called for a global summit on the future of food systems to be organized in September 2021. The summit was to be an inclusive engagement process to deliver progress on all 17 UN Sustainable Development Goals (SDGs) with five objectives i.e. Ensure access to safe and nutritious food for all; Shift to sustainable consumption patterns; Boost nature-positive production; Advance equitable livelihoods; and Build resilience to vulnerabilities, shocks and stress. The Ministry of Agriculture and Farmers Welfare constituted an Interdisciplinary Group (IDG) under the Chairmanship of Prof. Ramesh Chand, Member NITI Aayog to facilitate cross-sectoral consultations to prepare for India's participation in the UN Food Systems Summit 2021. The National Level Dialogue on Agri-Food Systems-Advancing Equitable Livelihoods involving diverse stakeholders was conducted on 12 April, 2021 to seek inputs for preparing the country paper for the Summit. Following major events were organized by the UN Food Systems Secretariat wherein the Department of Agriculture and Farmers Welfare represented India:

- I. UN-Food Systems Pre-Summit -2021** was held virtually on 26-28 July 2021 wherein Shri Narendra Singh Tomar, Hon'ble Agriculture and Farmers Welfare Minister led the 15 member Indian delegation. The Hon'ble Agriculture & Farmers Welfare Minister presented India's position via a pre-recorded speech.
- ii. UN Food Systems Pre-Summit First**

Ministerial Roundtable:- Sushri Shobha Karandlaje, Hon'ble Minister of State for Agriculture and Farmer's Welfare participated in this event on 27.07.21 and delivered her speech on "Transforming Food Systems for Achieving the SDGs: Rising to the challenge".

iii. UN Food Systems Pre-Summit Second Ministerial Roundtable:- Prof. Ramesh Chand, Member, NITI Aayog participated in this event 28.07.21 and delivered his views on "**Strengthening Net Zero Food**

Systems with the Rio-Conventions on Bio Diversity, Climate Change and Desertification."

iv. Food Systems Summit was held on 23rd September, 2021 wherein Shri Narendra Singh Tomar, Hon'ble Agriculture and Farmers Welfare Ministers' participated by sending a pre recorded Speech. Hon'ble Agriculture Minister reassured to ensure food security by promoting sustainable agriculture, ending poverty and hunger, and improving nutrition.

18.1 Overview

The Agriculture Census Scheme is a component of Integrated Scheme on Agriculture Census, Economics and Statistics under which 100 per cent financial assistance is provided to States/UTs for payment of salaries, office expenses, honoraria etc. Agriculture Census is conducted in the country at five yearly intervals. It aims at collecting information related to structural characteristics of operational holdings in the country. Periodic Census is the main source of information on number, area and other basic characteristics of operational holdings such as land use, cropping pattern, irrigation, tenancy status, input use etc. So far, ten Agriculture Censuses have been conducted since 1970-71 and preparatory activities for the 11th Agriculture Census 2020-21 have been initiated.

The constituent activities of the Agriculture Census Programme are carried out in three distinct Phases which are statistically linked together. The Agriculture Census data is collected following a Census-cum-Sample Survey approach, after completion of the reference year. During Phase -I of the Census, data on primary characteristics of operational holdings, like number of holdings and area operated by different size class (marginal, small, semi-medium, medium and large), social groups (SC, ST, Others), gender (male/female), types of holding (individual, joint and institutional), etc. is collected. The second Phase of the Census collects data on detailed characteristics of operational holdings such as, land use, irrigation status, tenancy particulars, cropping pattern etc.

Phase-III of Agriculture Census, (referred as

Input Survey) is conducted as a follow up survey to the Agriculture Census (reference year as next Agriculture year to that of the Agriculture Census) to collect data on input use pattern of operational holdings in the country. Time series data generated through the Agriculture Census provides valuable information on structural changes that take place over time in agriculture sector. The results of Agriculture Census are published in the form of reports and are placed on the website of the Department (<http://agcensus.nic.in>) for public use.

18.2 Activities under taken during 2021-22

The preparatory activities for the next Agriculture Census 2020-21 have been initiated. The Schedules for data collection along with Instruction Manuals for all the three Phases of Agriculture Census 2020-21 have been distributed to all States/UTs. The fieldwork of Phase-I of Agriculture Census 2020-21 which was scheduled on July 2021 has been postponed by a year to July 2022 due to Covid-19 pandemic. The specialized agency to develop end-to-end software for data collection/processing/estimation/tabulation of the next Agriculture Census 2020-21 has also been engaged.

18.3 Way forward in the Forthcoming Agriculture Census 2020-21

For compliance of survey timelines and to ensure reliability & quality of data, collection of data through hand-held devices like smart phones/tablets, extraction of data from computerized land records where land records have been fully computerized and separate reference year for each of the three Phase **are being planned in the Department for the ensuing 11th Agriculture Census 2020-21.**

18.4 Furnishing Information on Action Taken Note as per format of Department of expenditure in Appendix-II:

Sl. No.	Year	No. of Paras/PA reports on which ATNs have been submitted to PAC after vetting by Audit	Details of the Paras/PA reports on which ATNs are pending		
			No. of ATNs not sent by the Ministry even for the first time	No. of ATNs sent but returned with observations and Audit is awaiting their resubmission by the Ministry	No. of ATNs which have been finally vetted by audit but have not been submitted by the Ministry to PAC
So far as Agriculture Census is concerned nothing is pending.					

Chapter-19

SUB-MISSION ON AGRICULTURAL EXTENSION (SMAE)

Agriculture Extension:

19.1 Overview

The Sub Mission on Agricultural Extension (SMAE) under Green Revolution – *Krishonnati Yojana* is being implemented with an objective to restructure and strengthen the agricultural extension machinery with a judicious mix of extensive physical outreach of personnel, enhancement in quality through domain experts & regular capacity building, interactive methods of information dissemination, Public Private Partnership, pervasive & innovative use of Information & Communication Technology (ICT) / Mass Media, Federation of groups and convergence of extension related efforts under various Schemes and programmes of Government of India and the State Governments. The SMAE aims to appropriately strengthen, expand and upscale existing Extension Schemes. The ongoing Extension Schemes include the Central Sector and Centrally Sponsored Schemes being implemented by the Extension Division/Directorate of Extension. Even in the case of Central Sector Schemes which have been subsumed within the Mission, a greater role has been envisaged for the States through their active involvement in planning, implementation and monitoring.

19.2 Objectives and Achievement of Major Schemes

19.2.1 SUPPORT TO STATE EXTENSION PROGRAMMES FOR EXTENSION REFORMS SCHEME (ATMA SCHEME)

The Scheme 'Support to State Extension Programmes for Extension Reforms (ATMA)' implemented since 2005 has now been included

as a Centrally Sponsored component of the Sub-Mission on Agriculture Extension (SMAE) under Green Revolution – *Krishonnati Yojana*. It is now under implementation in **691 districts of 28 States & 5 UTs** of the country. The Scheme promotes decentralized farmer-driven and farmer accountable extension system through an institutional arrangement for technology dissemination in the form of an Agricultural Technology Management Agency (ATMA) at district level. Under the Scheme grants-in-aid is released to states with an objective to support State Governments efforts of revitalization of the extension system and making available the latest agricultural technologies in different thematic areas to increase agricultural production through extension activities viz. Farmers Training, Demonstrations, Exposure Visits, Kisan Mela, Mobilization of Farmers Groups and Setting up of Farm Schools. Through these activities, latest agriculture technologies are disseminated to farmers of the country.

In order to promote key reforms under the Scheme, ATMA Cafeteria 2018 continues to support activities in line with the following policy parameters:

- **Multi-agency extension strategies:** **Atleast 10%** of allocation on recurring activities at district level is to be used through non-governmental sector viz. NGOs, Farmers' Organization (FOs), Panchayati Raj Institutions (PRIs), para-extension workers, agri-preneurs, input suppliers, corporate sector, etc.
- **Farming system approach:** The activities specified in the cafeteria are broad enough to promote extension

delivery consistent with farming systems approach and extension needs emerging through Strategic Research and Extension Plan (SREP).

- **Farmer centric extension services:** The cafeteria provides for group-based extension and it has necessary allocation for activities related to organizing and supporting farmer groups. In order to supplement these efforts, a provision for rewards and incentives to the best organized farmer groups has also been provided.
- **Convergence:** The SREP and SEWP would also be mechanisms for ensuring convergence of all activities for extension. At present, resources for extension activities are being provided under different Schemes of Centre/State Governments. It is mandated that the SEWP, submitted by the State Governments for funding under the Scheme shall explicitly specify the activities to be supported from within the resources of other ongoing Schemes as well as from this Scheme.
- **Mainstreaming gender concerns:** It is mandated that **at least 30%** of resources on programmes and activities are utilized for women farmers and women extension functionaries.

Implementation Status:

- Institutional arrangements viz. Inter Departmental Working Group (IDWG)/ in 28 States and 5 UTs, ATMA Core Committees – Governing Board (GB) & ATMA Managing Committee in 691 Districts; Block Technology Team (BTT) in 6092 Blocks & Block Farmer Advisory Committees (BFACs) reconstituted in 5025 Blocks; District FACs have been

constituted in 537 districts and State Level FACs in 20 States.

- SEWPs of 28 States/5 UTs have been prepared and approved based on District Agriculture Action Plans of 691 ATMA districts. Since the inception of the Scheme in 2005-06 up to 31st December, 2021 has been to the tune of **Rs.6302.85 crore released to States under the scheme. During 2021-22**, against the B.E. of Rs.860.40 crores, an amount of **Rs.296.89 crore has been released** to the States up to 31st December, 2021 for implementation of the Scheme.
- Physical performance of the Scheme since its inception in 2005-06 (April 2005 to December, 2021) is as below:
 - ✓ Over 60263641 farmers including 14810130 farm women (24.58%) have participated in farmer oriented activities like Exposure Visits, Trainings, Demonstrations, Farm Schools & Kisan Melas.
 - ✓ Over 329833 Commodity based Farmer Interest Groups (CIGs)/ FIGs have so far been mobilized under the Scheme.
 - ✓ Over 183435 Farm Schools have been organized on the fields of outstanding farmers.
- Progress of implementation during 2021-22 (up to December, 2021):
 - ✓ 2223335 farmers including 518428 farm women (23.31%) have been reportedly participated in farmer oriented activities like exposure visits, trainings, demonstrations & kisan melas.
 - ✓ 13611 CIGs/ FIGs **organized**.

- ✓ 12514 Farm Schools organized.
- ✓ 16105 specialists & functionaries have been reported as deployed under ATMA upto December, 2021.
- ✓ 117485 Farmer Friends also identified by the states.
- **Projections for the period January – March, 2022:**
 - Over 12,60,000 farmers are projected to be benefited in farmer oriented extension activities like Trainings, Exposure Visits, Demonstration, Farm Schools and Kisan Melas.
 - 4500 Farmers Interest Groups (FIGs) are projected to be mobilized.
 - 3000 numbers of Farm Schools are to be set-up in the field of farmers.

19.2.2 MASS MEDIA SUPPORT TO AGRICULTURAL EXTENSION

This Scheme is utilizing countrywide infrastructure and networks of All India Radio and Doordarshan and focusing dissemination of latest farm practices through Radio and Television networks. The Prasar Bharati, a 'National Public Service Broadcaster' is implementing this Scheme. The objective of the Scheme is to enhance and boost the Agriculture Extension system in the present scenario. At present the farmers need technology, investment, better quality inputs, real time information and most of all the latest know-how for sustaining commercial and cost effective sustainable agriculture. A major shift in the methodology of delivering knowledge to the farm has taken place. Radio and TV have the advantage of reaching a wide audience at a very low cost.

Telecast of Krishi Darshan Programmes on

Doordarshan: Under this Scheme, a 30 minute programme is being telecast 5 days a week through 01 National, 18 Regional Kendras of Doordarshan. Similarly, 96 Rural FM Radio Stations of all India Radio are being utilized to broadcast 30 minutes of programme namely, Kisan Vani (6 days a week) and 03 programmes namely – Krishi Darshan (30 minutes), Hello Kisan (60 minutes) and Choupal Charcha (30 minutes) (5 days a week) on DD Kisan – 24 hour dedicated Channel for agriculture and farming community. A programme 'Kisan Ki Baat', on the lines of Kisanvani is being broadcast from news on AIR (Erstwhile FM Gold channel) Delhi, since September 2018.

Broadcast of Kisan Vani Programme on All India Radio: Under this component, 96 FM/AM stations of All India Radio are broadcasting 30-minute programme six days a week from 6.30-7.00 PM. Each station is broadcasting separate programme in respective dialects/languages.

Telecast/ Broadcast of spots/ jingles advisories under 'Free Commercial Time (FCT)' on AIR and DD: In addition to above regular programmes, the Free Commercial Time (FCT) available under Krishi Darshan and Kisanvani programme is being utilized for dissemination of Advisories on Rabi / Kharif season, Jingles on Cooperatives, spots on Kisan Call Centers, Judicious use of fertilizers, safe use of Pesticides, Machinery and Technology, Farm School, NFSM, Kisan Credit Card and Agri -Clinic and Agri -Business Centers (ACABC), package of practices available to the farmers under National Food Security Mission (NFSM), and other important flagship programmes like Neem Coated urea, Pradhan Mantri Krishi Sinchai Yojna, Crop Insurance Scheme, National Agriculture Market, Soil Health Card, Bee Keeping, NHM, Parampagat Krishi Vikas Yojana and Organic Farming etc and contingency plan developed by State Governments and emergent issues like Drought, Flood etc.

Focused Publicity & Awareness Campaign through other media platforms: Besides above, the 'Focused Publicity & Awareness Campaign' which would cut across all the Divisions of the Ministry was launched on July 5, 2010 to create awareness about the assistance available under various Schemes of the Department of Agriculture, Cooperation & Farmers Welfare. This campaign continued being in an aesthetic, professional and politically neutral manner. Video Spots and Audio spots are being broadcast/telecast through AIR, DD, Lok Sabha TV and also on Private TV Channels. The above spots are being broadcast/telecast through AIR/DD and private national and regional TV channels during news and entertainment programmes. In addition to this, Ministry is using various multimedia platforms i.e. railway panels/ stations, bus panels, exhibitions through Directorate of Field Publicity, web based digital platforms, hoardings etc. for media campaign on above flagship programmes.

Technical Support to DD Kisan Channel: Recently launched DD Kisan, a 24 hour agriculture based channel is catering the requirements of the farming community inclusive of research updates, extension advisories, market rates and weather updates and is also utilized extensively under the MMSAE for dissemination of information.

Support to Community Radio Stations (CRS): To promote agriculture extension through mass media at community level, the Ministry of Agriculture & Farmers Welfare is also providing support for setting up of Community Radio Stations (CRS), which would make a major contribution to agricultural extension by utilizing the reach of radio transmitter and disseminating information and knowledge, produced locally and having relevance for a specific area in local dialects/languages. As on date, 8 CRS are operational in KVKs and NGOs

under this Scheme and broadcasting agriculture programmes.

Print Media/Social Media: Awareness is also created through print advertisements in leading newspapers across the country. Besides, social media platforms viz. Facebook, Twitter, Youtube etc. are also being utilized. The national and regional newspapers are being utilized based on their circulation figures.

Physical and Financial Progress:- During 2021-22 (up to December, 2021), 4095 programmes were telecasted on DD and 22698 broadcasted through All India Radio During the year 2021-22, out of Rs.190.60 crore (BE), an amount of Rs.92.60 crore has been incurred upto 31.12.2021 under Central Sector Scheme 'Mass Media Support to Agriculture Extension' for Krishi Darshan and Kisan Vani Programmes being implemented through Prasar Bharati including 'Focused Publicity and Awareness Campaign' through Radio/ TV /Print and other outdoor media platforms.

Projections for the period January – March, 2022: 1365 programmes are projected to be telecast on Doordarshan and 7566 programmes broadcast through All India Radio.

19.2.3 Establishment of the Agri-Clinics and Agri-Business Centres (AC&ABC)

The AC&ABC Scheme is under implementation since April, 2002. The Scheme aims at creating gainful self-employment opportunities to unemployed agricultural graduates, agricultural diploma holders, and intermediate in agriculture apart from science graduates with post-graduation in agriculture related courses for supporting agriculture development and supplementing the efforts of public extension. **National Institute of Agricultural Extension Management (MANAGE)** is the implementing agency for training component under the Scheme through a network of identified Nodal

Training Institutes (NTIs) in various states. National Bank for Agriculture and Rural Development (**NABARD**) is implementing subsidy component under the Scheme on behalf of Government of India and is monitoring credit support to Agri-Clinics and Agri-Business Centres through Commercial Banks. The credit linked back-ended subsidy @ 36% of the Total Financial Outlay (TFO) capital cost of the project funded through bank loan is available under the Scheme. This subsidy is 44% in respect of candidates belonging to SC/ST, Women and all categories of candidates from North-Eastern and Hill States. Now, benefits of MUDRA Scheme loans also are made available to the entrepreneurs establishing agri-ventures under the Scheme.

The Scheme has been on-boarded with DBT Bharat Mission on 18-04-2017 and Aadhaar particulars have been made mandatory for getting benefits under the Scheme. Online process for training programme has been rolled out on 01-01-2018 through the module www.acabcmis.gov.in. Development of software for complete online process for subsidy is underway. Now benefits of Mudra Loan Scheme have been extended for ACABC Ventures. Provision of extension service to farmers by these agri-preneurs has been made a mandatory component of the Scheme. Details of the Scheme may be seen at www.agriclinics.net.

So far, 78204 candidates have been trained and 32632 agri-ventures have been established in the country during the period of implementation of the Scheme upto December, 2021. Out of the ventures established since inception, 3069 have been subsidised as on December, 2021. During the year 2021-22, starting from April, 3884 candidates have been trained, 1404 agri-ventures have been established and 180 ventures were subsidized upto December, 2021.

Projections for the period January – March, 2022:

- a) 1121 Number of Candidates is projected to be trained.
- b) 1099 Number of Ventures is projected to be established.

19.2.4 Kisan Call Centers (KCC)

The KCC Scheme was launched on 21st January 2004 to provide answer to farmers' queries on agriculture and allied sectors through toll free telephone lines. A country wide common eleven digit number '**1800-180-1551**' has been allocated for KCC. The replies to the queries of the farming community are being given in 22 local languages. KCCs operate from 21 locations in the country covering all the States and UTs. Calls are attended from 6.00 am to 10.00 pm on all 7 days of a week.

In order to make farmers aware of this facility, audio and video spots on Kisan Call Centres have been broadcasts/telecast through All India Radio, Doordarshan and channels. A Kisan Knowledge Management system (KKMS) has been created at the backend to capture details of the farmers calling KCCs. Modified call Escalation Matrix has also been put in place. If the queries are not answered by FTA, it is escalated to concerned Officer for replying the query through KKMS interface within the given time frame.

The restructured Kisan Call Centre programme has many good number of unique features viz. all in one PCs; 100% call recording; call barging; voice mail service; customized IVRS; call conferencing through the experts; feedback at the end of each call; playing state specific advisories during call wait time and SMS to caller farmers giving a gist of answers given by the KCC Farm Tele Advisor; CCTVs and Biometric attendance system at each KCC location, PRI lines with capacity to handle requisite number

of incoming and outgoing lines, call holding time less than 30 seconds. The farmer calling KCC can also register for receiving SMSs from experts on the subject area. With these modernized facilities at each KCC location, there has been encouraging response from farmers.

Since inception of the Scheme till December 2021 over 564.39 lakh calls have been registered in the KCCs. During the current year around 36.92 lakh calls have been received upto December, 2021.

Projections for the period January–March, 2022: Expected number of calls to be answered from KCCs are 13,00,000.

19.2.5 Human Resource Development (HRD) Support

DA&FW has strengthened a network of training institutions in the country by supporting the National Institute of Agricultural Extension Management (MANAGE) at Hyderabad; four Regional Extension Education Institutes (EELs) at the regional level and the State Agricultural Management & Extension Training Institutes (SAMETIs) at the State level.

National Institute of Agricultural Extension Management (MANAGE) is providing training support to senior and middle level functionaries of the State Governments. It is also providing necessary support to the states in implementation of Extension Reforms (ATMA) Scheme. Against 200 training courses planned for 2021-22, MANAGE has conducted 301 training programs during current year. Against BE of Rs.19.79 crore, an amount of Rs.7.39 crore has been released till December, 2021. The implementation of self-financing professional courses viz. two-year Post Graduate Program in Agri-Business Management, one-year 'Post Graduate Diploma in Agricultural Extension Management' in distance learning mode and one year Diploma in Agricultural Extension Services

for Input Dealers (DAESI) by MANAGE (organized on weekends/weekly holidays) are being continued during the year 2021-22.

Extension Education Institutes (EELs): Four Extension Education Institutes namely, Nilokheri (Haryana), Hyderabad (Telangana), Anand (Gujarat), Jorhat (Assam) are functioning at the Regional Level. The objectives of EELs are to improve the skills and professional competence of middle level extension field functionaries of agriculture and allied departments of the State/UTs in the areas of (a) Extension Education; (b) Extension Methodology; (c) Information and Communication Technology; (d) Training Methodology; (e) Communication; (f) Market led Extension; etc. During 2021-22, a total of 220 training programmes have been planned, out of which the EELs have conducted 118 training programmes with 4949 participants during 2021-22. Against the budget grant of Rs.20.49 crore an amount of Rs.5.54 crore has been released to the EELs during 2021-22 till December, 2021.

Projections for the period January– March, 2022: The projection of EELs to conduct 112 training programs to train 2240 participants for the period January-March, 2022 with total expenditure of Rs. 1430.00 lakh upto March, 2022.

Diploma in Agricultural Extension Services for Input Dealers (DAESI): DAESI is of one year (expanded to 48 weeks) regular course launched in October, 2015 with an objective to impart education in agriculture and other allied areas to the Input Dealers so that they can establish linkage to their business with extension services, besides discharging regulatory responsibilities enjoined on them. This programme was earlier implemented through MANAGE @Rs.20,000 per candidate in self-financial mode in Andhra Pradesh,

Maharashtra, Tamil Nadu, Odisha, Jharkhand & West Bengal. It has been decided to implement DAESI programme across the country through SAMETIs with involving Agribusiness Companies, ATMAs, KVKs, Agricultural Colleges & NGOs. So far 41713 input dealers have been trained upto 2020-21. During 2021-22, 43 batches of DAESI programme have been conducted and 1720 input dealers trained till December, 2021.

Projections for the period January- March, 2022: The projection of DAESI to conduct 257 training programs to train 10280 input dealers from January-March 2022 with total expenditure of Rs. 522.00 lakh upto March, 2022.

19.2.6 National Gender Resource Centre in Agriculture (NGRCA)

The National Gender Resource Centre in Agriculture (NGRCA) of the Department of Agriculture & Farmers Welfare established in Extension Division supported under the Scheme of Extension Support to Central Institutes/ Directorate of Extension. NGRCA reflects the national commitment of empowerment of women through 'strategy of mainstreaming and agenda setting'. The Centre acts as a focal point for convergence of all gender related activities and issues in agriculture and allied sectors within and outside DA&FW; addressing gender dimension to agriculture policies and programmes; rendering advocacy/ advisory services to the States/UTs to internalize gender specific interventions for bringing the farm women in the mainstream of agriculture development.

Being a Nodal Agency for Women in Agriculture in DA&FW, Ministry of Agriculture & Farmers Welfare; the Centre is actively involved in the revision of guidelines of various beneficiary oriented schemes/programmes of DA&FW to ensure allocation of resources and flow of

benefits to the women farmers in proportion to their participation in agricultural activities.

The major activities undertaken by NGRCA include:

Occasion of Mahila Kisan Diwas-2021- The Department of Agriculture & Farmers Welfare organized webinar on "Women in Agri-startups: Creating Value with Supply Chain Management" in the series of events for celebrating Mahila Kisan Diwas 2021. This event was organized on 22.10.2021 through Video Conferencing under the guidance of Hon'ble Union Agriculture Minister Shri Narendra Singh Tomar and in the august presence of Shri Kailash Choudhary, Hon'ble Minister of State for Agriculture & Farmers Welfare. The Hon'ble Minister released e-book depicting Success Stories of 75 progressive women farmers and agripreneurs to commemorate 75 years of "Azadi Ka Amrit Mahotsav". The Senior and middle level extension functionaries, women farmers and agri-entrepreneurs and resource person from various training institutes participated in the event. The successful women entrepreneurs from various States also said their views and experiences on the occasion.

PRE-SEASONAL DA&FW-ICAR INTERFACES:

The Extension Division of DA&FW has been organizing pre-seasonal Interfaces before Kharif & Rabi every year involving Department of Agriculture & Farmers Welfare (DA&FW) and Indian Council of Agricultural Research (ICAR). The effort is aimed at understanding the key issues - both from Research and Development perspective in agriculture and allied sectors and evolving joint strategies to address those issues in the coming Kharif/ Rabi season. The issues so emerged warranting actions by States are then flagged in the National Conference on Agriculture for Kharif / Rabi and are discussed threadbare with the States in respective sessions to avoid any gap in their addressal. The

Interface provides a forum to delve deep in to the emerging issues and finalizing specific recommendations for subsequent crop season and are also circulated to State Development Departments, ICAR Institutes, KVKs and concerned organizations for implementation of recommendations at field level.

The Pre-Kharif 2021 DA&FW-ICAR Interface

was organized on 20th April, 2021 and the group recommendations of the said interface were shared with senior officers of State Agriculture Department.

PROGRAMMES OF NORTH-EASTERN STATES:

The status of implementation of Schemes in the North Eastern Region is as follows:

a. Support to State Extension Programme for Extension Reforms

S.No.	Name of the State	No. of ATMA Registered
1.	Arunachal Pradesh	20
2.	Assam	33
3.	Manipur	09
4.	Mizoram	08
5.	Meghalaya	11
6.	Nagaland	12
7.	Sikkim	04
8.	Tripura	08
Total:		105

During the current financial year 2021-22, Budget estimate of Rs.79.30 crore was earmarked for North Eastern States for implementing the Scheme whereas, an amount of Rs.30.00 crore has been released to North Eastern States – Arunachal Pradesh (Rs.6.00 crore), Assam (Rs.5.00 crore), Manipur (Rs.2.25 crore), Meghalaya (Rs.4.50 crore), Mizoram (Rs.3.50 crore), Nagaland (Rs.6.35 crore), Tripura (Rs.1.45 crore) and Sikkim (Rs.0.95 crore) till December, 2021.

b. Establishment of Agri-Clinics and Agri-Business Centres (AC&ABC): Candidates from North-Eastern States are entitled for an additional benefit of 44% subsidy on the Total Financial Outlay (TFO) as against to 36% for General Category Candidates. Details of candidates trained and venture established from since the inception to till December, 2021 is given below:

S.No.	State	Candidates Trained	Ventures Established
		Since Inception	Since Inception
1.	Arunachal Pradesh	48	03
2.	Assam	813	251
3.	Manipur	505	128
4.	Meghalaya	36	03
5.	Mizoram	35	00
6.	Nagaland	187	21
7.	Sikkim	09	01
8.	Tripura	06	01
Total		1639	408

c. Kisan Call Centers (KCCs): The KCC located at Guwahati caters to the needs of Arunachal Pradesh, Assam, Manipur and Nagaland; and KCC located at Agartala caters to the needs of Tripura, Mizoram and Meghalaya. For Sikkim, the KCC is located at Kolkata (West Bengal). Queries are replied in different languages depending upon the area from where the query is received. Since the beginning of Scheme, the calls registered from various states of North-Eastern Region upto December, 2021 are, Arunachal Pradesh (12255), Assam (371017), Manipur (35195), Meghalaya (19014), Mizoram (9243), Nagaland (6154), Sikkim (19371) and Tripura (55005). The calls registered from these states during current year up to December, 2021 are Arunachal Pradesh (453), Assam (21130), Manipur (1052), Meghalaya (1331), Mizoram (1100), Nagaland (679), Sikkim (438) & Tripura (4163).

d. Extension Education Institute (EEI): EEI set up at Jorhat (Assam) in 1987 has been providing training support at the regional level

to the middle level field functionaries of in 8 States of North Eastern Region and West Bengal. During the year 2021-22, 24 courses have been organized with 1234 participants trained till December, 2021. An amount Rs.224.71 lakhs has been released to EEI Jorhat during 2021-22 as against the budget estimate of Rs.435.50 lakh till December, 2021.

Projections for the period January- March, 2022: The projection of EEI, Jorhat to conduct 08 training programs to train 160 participants from January to March, 2022 with total expenditure of Rs. 424.00 lakh upto March, 2022.

Mass Media Scheme in NE Region: The programmes under the Scheme are being disseminated throughout the country including NE region benefiting the farmers of the area. In the NE Region the programmes are being disseminated in regional languages & local dialects through Six FM station and One Regional Kendras.

Chapter-20

SUB-MISSION ON SEED AND PLANTING MATERIAL (SMSP)

20.1 Overview

The mandate of Seeds Division is to promote production and multiplication of quality seeds of all crops so that the required quantities of seeds can be made available in time to farmers in the country. Functions/ responsibilities include:-

- Formulation and implementation of policy and programmes on quality seed production.
- To recommend proposals for import and export of seeds and planting material.
- To supplement the efforts of States/ Union Territories in production and distribution of certified/ quality seeds.
- To deal with matters relating to Intellectual Property Rights in Agriculture, Biodiversity, International Treaty on Plant Genetic Resources for Food and Agriculture, UPOV Convention, Import/ Export of seeds.
- Matters relating to Central PSU - National Seeds Corporation.

- Matters relating to Protection of Plant Varieties & Farmers' Rights (PPV&FR) Authority – an autonomous organization and National Seeds Research & Training Centre (NSRTC), Varanasi, Uttar Pradesh – a subordinate office.
- Matters relating to International Rice Research Institute (IRRI) South Asia Regional Centre (ISARC), Varanasi, Uttar Pradesh.

20.2 Major Schemes – Objectives

(I) Sub-Mission on Seed and Planting Material (SMSP): Sub Mission on Seed and Planting Material (SMSP) is under implementation with the objective to develop/strengthen the seed sector and to enhance production and multiplication of high yielding certified/ quality seeds of all agricultural crops and making it available to farmers at affordable prices and also place an effective system for protection of plant varieties, rights of farmers and plant breeders to encourage development of new varieties of plants. The existing components of the SMSP scheme are as under:

Sl no.	Intervention
i.	Strengthening for seed quality control
ii.	Strengthening of Grow OutTest(GOT) facilities
iii.	Support to seed certification agencies
iv.	Seed Village Programme
v.	Certified seed production of oilseeds, pulses, fodder and green manure crops through Seed Villages
vi.	Seed processing facilities

vii.	Seed storage facilities
viii.	Transport subsidy on movement of Seeds to NE States etc
ix.	National Seed Reserve
x.	Assistance for boosting seed production in the private sector
xi.	Support to Sub-Mission Director and survey / studies
xii.	PPV&FRA

(ii) Production of Breeder, Foundation and Certified/Quality Seeds: Seeds are the basic and critical input for agricultural production. The Indian Seeds programme recognizes three generations of seeds, namely breeder,

foundation and certified seeds. The details of production of breeder, foundation and certified seeds from 2011-12 to 2020-21 are shown in the following table:-

YEAR	Production/Availability of Seed (Metric Tonnes)		
	Breeder Seed (Production)	Foundation Seed	Certified / Quality Seed
2011-12	12338	222681	3536200
2012-13	11020	161700	3285800
2013-14	8229	174307	3473130
2014-15	8621	157616	3517664
2015-16	9036	149542	3435248
2016-17	11071.44	220907	3802904
2017-18	10508.59	195415	4194111
2018-19	10426	180096	3988767
2019-20	9269.21	222504	4310095
2020-21	9115.62	241207.00	4836632.00
2021-22	8451.10(target)	213969	4988286.5

(iii) Strengthening of Seed Quality Control Organizations (State Seed Certification Agencies and State Seed Testing Laboratories):- The responsibility of execution of various provisions of the Seeds Act, 1966 and the Seeds (Control) Order, 1983 vested with State Department of Agriculture. The Seed Inspectors have been appointed under the Act can inspect the premises of seed selling, marketing, processing and seeds storage to draw the samples for seeds testing to ensure seeds standards as per the Indian Minimum Seed Certification Standards, 2013. Appropriate action/legal proceedings may initiate against

the offenders selling sub-standard seeds as per the provisions of the Seeds Act/Rules and Seed (Control) Order. These Inspectors are also authorized to stop the sale of sub-standard seeds and to seize their stocks. Seed Inspectors have also been provided with powers of enforcement under the Environment (Protection) Act, 1986 to regulate the quality of Genetically Modified (GM) crops and also control /curb the sale of unapproved GM event of other crops.

(iv) Policy on Export/Import of Seeds and Planting Materials: - The export /import of seeds has increased with rationalization and

simplification of the export/import regime. This has benefited Indian farmers, the seed industry and entrepreneurs. During the year 2020-21, 104 cases of export and 190 cases of import have been recommended to make available the best seed and planting material to farmers.

(v) Use of Bt. Cotton Hybrid Seeds:

Bt. Cotton is the only transgenic crop approved in the country for commercial cultivation by Govt. of India. The Genetic Engineering Appraisal Committee (GEAC) under the Ministry of Environment, Forests and Climate Change is the nodal agency to grant the permission for commercial release of Bt. Cotton hybrids under the Environment Protection Act, 1986 in the country. At present, approximate 1500 Bt. Cotton hybrid seeds are available for farmers. These Bt. Cotton hybrids can be grown in ten (10) States i.e., Gujarat, Madhya Pradesh, Maharashtra, Andhra Pradesh, Telangana, Karnataka, Tamil Nadu, Haryana, Punjab and Rajasthan as suitable for the particular agro-climate conditions. The area under Bt. Cotton has expanded from 29,000 ha in 2002-03 (0.38% of the total cotton area) to about 120.22 lakh hectare in 2020-21 (92% of the total cotton area) and production of cotton has increased from 86.21 lakh bales in 2002-03 to 364.92 lakh bales in 2020-21.

In order to provide an effective system for fixation of a uniform maximum price and to ensure the availability of Bt. Cotton hybrid seeds to farmers at fair, reasonable and affordable prices, the Government of India issued a Cotton Seeds Price (Control) Order (CSPCO), 2015 on

07.12.2015 under section 3 of the Essential Commodities Act, 1955. Accordingly, the Government has regulated the sale of Bt. Cotton seed by evoking the provisions of the EC Act. For 2021, the price of seed of Bt. Cotton has been fixed at Rs.635/- and for BG-II, Rs.767/- has been fixed for a packet of 450 grams.

(vi) National Seed Reserve: - In order to meet the requirement of seeds of short and medium duration crop varieties during natural calamities and unforeseen conditions, the National Seed Reserve (NSR) a component of Sub-Mission on Seeds & Planting Material is being implemented by 22 implementing agencies in the country namely National Seeds Corporation, State Seed Corporations and State Department of Agriculture, Jharkhand, Tamil Nadu, Himachal Pradesh and Jammu & Kashmir.

Under the scheme, financial assistance is provided to the implementing agencies for revolving funds (Cost of Seeds), maintenance cost to maintain certified and foundation seeds of short and medium duration crop varieties and price differential for left over stock of seeds. Financial assistance is also provided for construction of seed godown, establishment of seed processing plant, cost of material handling equipment, cost of out sourced service and computerization & networking facilities. If a contingency situation occurs, the implementing agencies make available seeds to farmers for re-sowing purpose at a reasonable cost.

The targets, achievements and amount released to the implementing agencies during last three years are as under:-

S. No.	Year	Physical Targets (in lakh qtls.)	Physical Achievements (in lakh qtls.)	Amt. Released (Rs. lakh)
1.	2018-19	3.71	3.14	1149.64
2.	2019-20	3.73	2.70	937.13
3.	2020-21	3.73	2.88	1721.31

(Vii) GM Crop in India

Bt. Cotton is the only genetically modified crop approved for commercial cultivation by Genetic Engineering Appraisal Committee (GEAC) of the Ministry of Environment, Forests & the Climate Change (MoEF&CC) in the major cotton growing States viz. Andhra Pradesh, Telangana, Tamil Nadu, Karnataka, Maharashtra, Madhya Pradesh, Gujarat, Rajasthan, Haryana and Punjab. The area under Bt. cotton has expanded from 29,000 ha in 2002-03 (0.34% of total cotton area) to about 120.22 lakh hectare in 2020-21 (92% of total cotton area) and production of cotton has increased from 86.21 lakh bales in 2002-03 to 354.92 lakh bales in 2020-21.

(xi) Saarc Seed Bank:

India signed an Agreement on establishment and maintenance of a SAARC Regional Seed Bank in November, 2011 at the XVII SAARC summit held at Maldives in 2011 with the objective to provide regional support to national seed security efforts; address regional seed shortage through collective actions, foster inter-country partnerships, to promote increase of Seed Replacement Rate (SRR) with appropriate varieties at a faster rate as far as possible so that the use of quality seed for crop production can be ensured and to act as a regional seed security reserve for the Member States.

Accordingly, the National Seeds Corporation Limited (NSC), New Delhi has been declared as the National Designated Agency to coordinate for establishment and maintenance of the SAARC Regional Seed Bank in India. The National Designated Agency (NDA) would be entrusted with the task of establishing the SAARC Seed Bank as per provisions contained in the agreement. It will work as the National Focal Point also. National Seeds Corporation Limited, State Seeds Corporations and State Department of Agriculture are declared as implementing

agencies for establishment and maintenance of the SAARC Regional Seed Bank in the country.

In addition, the Government of India constituted a National Technical Committee to coordinate all related activities i.e working out modalities and technicalities of participation in the SAARC Regional Seed Bank in the country.

(i) Seed Village Programme: - In order to upgrade the quality of farmer saved seeds which is about 60-65% of the total seeds used for the crop production programme, the following interventions are made:

- (a) 50% assistance for seeds of *cereal crops and 60% for oilseeds, pulses, fodder and green manure crops* is provided for distribution of foundation /certified seeds required for one acre area per farmer.
- (b) Farmers' Trainings : Financial assistance of Rs.15000 per group (50-150 farmers each group) is provided for training of farmers on seed production and post harvest seed technology (Rs.0.15lakh)
- (c) Seed treating/dressing drums : Financial assistance for treating seeds produced in the Seed Village is available @ Rs 3500 per seed treating drum of 20kg capacity and Rs. 5000 per drum of 40kg capacity.
- (d) Seed storage bins: To encourage farmers to develop storage capacity of appropriate quality, financial assistance is available to farmers for purchasing seed storage bins. The rate of assistance is as under:

@33% for SC/ST farmers for 10 qtls. capacity upto a maximum of Rs.1500
@33% for SC/ST farmers for 20 qtls.

capacity upto a maximum of Rs.3000.

@25% for General farmers for 10 qtls. capacity upto a maximum of Rs.1000 @25% for General farmers for 20 qtls. capacity upto a maximum of Rs.2000.

Assistance for purchase of only one

seed bin for each identified farmer is available in the Seed Village Programme. The implementing agency may also distribute smaller seed bins as per demand of farmers and financial assistance is reduced accordingly.

The year-wise physical progress of the programme since 2011-12 is as under: -

Year	Number of Seed Villages Organized	Quantity of Seed Produced (In Lakh Quintals)
2011-12	89,244	199.28
2012-13	78,943	116.708
2013-14	68455	145.14
2014-15	51345	198.20
2015-16	30793	93.40
2016-17	25962	77.76
2017-18	132010	117.14
2018-19	104600	219.89
2019-20	77534	187.49
2020-21	65732	449.43
2021-22(As on 31.12.2021)	14878	38.97

*The progress from most implementing agencies is yet to be received after crop harvest

(xi) Boosting Seed Production in the Private Sector: - Under this component of credit linked back ended subsidy, @40% of the capital cost of the project in general areas and 50% in case of hilly and scheduled areas subject to an upper limit of Rs 150 lakhs per project is funded. Two percent (2%) of the total fund utilized under the component is provided as administrative charges to the nodal agency. So far, **651** such projects have been sanctioned for small entrepreneurs in **18** States with **160.52** lakh qtls. seed processing capacity and storage capacity of 60.06 lakh qtls as on 31.10.2021.

(x) Programme being implemented in the

North-Eastern States: - Details of the programmes being implemented in the NE region is at **Annexure-20.1**.

20.3 Modifications in new policy on Seed Development: -

The National Seed Policy, 2002 provides that all imports of seeds and planting materials etc. promoted subject to EXIM Policy Guidelines and the requirements of the Plants, Fruits and Seeds (Regulation of import into India) Order, 1989 and amendments thereon. The import of parental lines of newly developed varieties will also be encouraged. The policy also ensure that imported seeds and planting materials should

meet the minimum seed standards of seed health, germination, genetic and physical purity as prescribed. All importers will make available a small sample of the imported seed to the Gene Bank maintained by the National Bureau of Plant Genetic Resources (NBPGR). In order to harmonize the New Policy on Seed Development, 1988 with the National Seed Policy, 2002, the following two modifications have been made in the New Policy on Seed Development, 1988:

- (i) Seeds of wheat and paddy – In order to provide to the Indian farmer the best planting material available in the world to increase productivity, the import of seeds of wheat and paddy may also be allowed as per provisions of the Plant Quarantine Order, 2003 as amended from time to time for a period not exceeding two years by companies, which have technical/financial collaboration agreement for production of seeds with companies abroad, provided the foreign supplier agrees to supply parent line seeds/nucleus or breeder seeds/technology to the Indian company within a period of two years from the date of import of the first commercial consignment after its import has been recommended by DAC. For trial and evaluation of the variety sought to be imported by eligible importers, 16 kg. seed in case of wheat and 5 kg. in case of paddy will be given to ICAR or farms accredited by ICAR for sowing. After receipt of satisfactory results of trial/evaluation, an eligible importer may apply for bulk import of such seeds to the Department of Agriculture and Farmers' Welfare.
- (ii) Similar procedure of trial/evaluation has been recommended for import of seeds of coarse cereals, pulses and oil seeds. Further, Seeds Division has simplified the forms for export and import of seeds

and planting material.

20.4 Implementation of OECD Seed schemes in India

The objective of the Organization for Economic Co-operation and Development (OECD) Seed Schemes is to encourage the use of seeds of consistently high quality in participating countries. The scheme authorizes the use of labels and certificates for seeds produced and processed for international trade according to OECD guidelines. The scheme also facilitates the import and export of seeds, by the removal of technical trade barriers through internationally recognized labels. India's participation in OECD schemes aims to enhance seed export capabilities and probabilities. The Department of Agriculture & Farmers Welfare has become a member of the OECD Seed Scheme from 23rd October, 2008 and 259 varieties in more than 20 crops have been listed in OECD list of varieties till now. A National Task Force on OECD Scheme has also been constituted to enhance India's share of seed export through this scheme.

20.5 Gender perspective in agriculture: Sub-Mission for Seeds and Planting Material (SMSP) is under implementation w.e.f. 01.04.2014 with the view to develop/strengthen the seed sector and to enhance production and multiplication of high yielding certified/ quality seeds of all agricultural crops and making it available to farmers at affordable prices and also place an effective system for protection of plant varieties, rights of farmers and plant breeders to encourage development of new varieties of plants.

Financial assistance/ subsidy benefits are equally available/open to all farmers including women farmers. Implementing States/UTs/agencies have been requested to allocate sufficient funds and ensure participation of women farmers.

The Government is implementing a Seed Village Programme to upgrade the quality of farmer's saved seeds under the Sub-Mission on Seeds and Planting Material (SMSP). Under this programme, financial assistance for distribution of foundation/certified seeds at 50% cost of the seeds for cereal crops and 60% for pulses, oilseeds, fodder and green manure crops for production of quality seeds is available for one acre per farmer. The benefits/financial assistance are equally available / open to all farmers including women farmers. Fund/budget exclusively for women farmers is not provided under the scheme, however states are requested to cover an adequate number of women farmers under the scheme. During the year 2020-21, a total of 5.99 lakh women beneficiaries have benefitted under the scheme Seed Village Programme-Certified Seed Production through Seed Village. During the year 2021-22(as on 03.12.2021), 1.73 lakh women farmers have benefitted.

20.6 Organisations under the Seed Division

(i) Protection of Plant Varieties and Farmers' Rights Authority (PPV&FRA)

Implementation of Protection of Plant Varieties and Farmers' Rights

The Department provides administrative support to the Statutory Organization Protection of Plant Varieties and Farmers' Rights Authority functioning as per the provisions of the **Protection of Plant Varieties and Farmers' Rights (PPV&FR) Act in 2001 (53 of 2001)**. The Authority was set up in 2005.

The Authority has the status of a Civil Court with the Chair and Registrars having judicial powers which can be challenged in the High Courts. On farmers' rights and benefit sharing, the order of the Authority is final and cannot be appealed against.

1. Objectives of the PPV&FR Authority

- To establish effective system for plant varieties, rights of farmers and plant breeders and to encourage the development of new varieties of plants
- To recognize and protect the rights of the farmers in respect of their contribution made at any time in conserving improving and making available plant genetic resources for development of new plant varieties
- To protect plant breeders rights to stimulate investment for research and development both in the public and private sector for the development of new plant varieties to ensure availability of high quality seeds and planting material to the farmers.

2. Registry Branches of the PPV&FR Authority

The Head Office of PPV&FRA at New Delhi along with the five branch offices at different locations in India to facilitate breeders from different regions to approach the Registry within their region at Pune (Maharashtra), Shivamogga (Karnataka), Palampur (Himachal Pradesh), Ranchi (Jharkhand) and Guwahati (Assam).

3. Activities of the PPV&FR Authority:-

The Authority provides a system for IP protection on the plant varieties to the plant breeders, the rights of farmers either as cultivators of the varieties or plant breeders and to encourage the development of new varieties of plants. Any variety that essentially fulfills the criteria of distinctiveness, uniformity and stability (DUS) and novelty (in the case of new variety) is eligible for registration under the provisions of PPV&FR Act, 2001.

4. DUS Test Centers

DUS test centres are established in different agro

climatic zones in the country under the National Agricultural Research System (NARS). Each variety has to be evaluated for its being distinct at least in one of the many notified traits under the Guidelines of the species, over any existing variety anywhere in the world (Distinctiveness (D)), while remaining uniform through genetic purity (uniformity (U)) and remain unchanged over two cycles of reproduction for stability (S)) over two seasons (years) after raising at least one generation through sexual propagation in case of seed based varieties or notified vegetative propagation means of the crop species which do not produce seeds. Morphological descriptor sets of characters as they vary crop-species-wise are notified for the species in National Gazetteer of India with full guidelines published in Plant Variety Journal. So far, over the thirteen years of its existence, 165 crop species have been notified with guidelines printed on Plant Variety Journal as well as on website of the PPVFR. The total number of DUS Test Centre is around 145.

5. Plant Variety Journal of India

As provided in the PPV&FR Act (2001), the Authority publishes its official journal “Plant Varieties Journal of India” (PVJI) as a monthly publication. This journal is equal to an **Official Gazette under the PPV&FR Regulations, 2006.**

6. Varieties Registrable in India

- **New Variety**
- **Extant Variety**
- Notified under Seeds Act, 1966
- Farmer's Variety
- Variety of Common Knowledge
- **Essentially Derived Variety of a Protected Variety**

7. Duration of Protection of Varieties in India

Category	Period of Protection (No. of years)		
	Total	Initial	Extended
Trees & Vines	18 from date of registration	9 from date of registration	9 more years from the initial period of protection
Other Crops	15 from date of registration	6 from date of registration	9 more years from the initial period of protection
Extant Notified varieties	15 from date of notification of variety under the Seeds Act, 1966 by the Central Govt.		

8. National Register of Plant Varieties

National Register of Plant Varieties has been kept at the head office of the Registry, containing the names of all the registered plant varieties with the names and addresses of their respective breeders, the rights of such breeders in respect of the registered varieties, the particulars of the denomination of each registered variety, its seed or other propagating material along with specification of salient features thereof and such other matters as may

be prescribed.

9. National Gene Bank

Authority has established National Gene Bank to store the seed material including parental lines submitted by the breeders of the registered varieties. The seed lot is stored under low temperature conditions at 5^o C for the entire registration period, and if necessary after few years of storage in the National Gene Bank, the seed lot will be rejuvenated and replenished at the cost of the applicant. The seed stored in the

National Gene Bank will be used for dispute settlement or when an exigency arises for invoking compulsory licensing provision. Such a seed deposition in the National Gene Bank would dissuade market malpractices or violations as the sample in custody can be drawn to verify the facts. When the period of registration granted lapses, the material automatically moves to public domain.

10. National Gene Fund

A National Gene Fund has been established by the Authority to receive the contributions from:

- The benefit sharing received in the prescribed manner from the breeder of a variety or an essentially derived variety registered under the Act, or the propagating material of such variety or essentially derived variety, as the case may be
- the annual fee payable to the Authority by way of royalty, the compensation deposited by breeders, the contribution from any National and International organizations and other sources

The National Gene Fund shall be utilized for

- Benefit sharing
- Compensation payable to the farmer/community of farmers
- Expenditure for supporting the conservation and use of *in situ* and *ex situ* genetic resources
- Strengthening the capacity of *Panchayats* (local elected government body of the village) in carrying out conservation and use of genetic resources
- Expenditure of the schemes relating to benefit sharing

11. Farmers Rights and Breeders Rights in India

Recognizing the role played by farmers in maintaining seed, selecting for variants in the traditional variety they have been cultivating in the past decades or sharing the seed with others the farmers of India play the role of growers of the variety as well as plant breeders by tradition, the PPVFRA (2001) as a large departure from plant variety protection systems in other countries, enables a farmer in the same manner as a plant breeder to breed and register the variety keeping value of novelty, distinctiveness, uniformity and stability of the new variety.

- **Farmers' rights:**

- Right to breed new variety like any other plant breeder
- Right to register farmers varieties either as a community (in case of land races) or individually (in case of traditional variety or selection in a tradition variety)
- Right to conserve plant varieties as land races or wild relatives of economic plant species as well as their improvement through selection and be entitled for recognition or reward from the Gene Fund
- Entitled to save, use, sow, re-sow, exchange, share or sell his farm produce including seed of a variety protected under the Act. Farmer cannot sell branded seed of a protected variety
- Right to seek compensation in the event a registered variety fails to return expected performance after following the prescribed package of practices

- **Plant Breeders' Rights:** Entitled to produce, sell, market, distribute, import or export the variety

12.Details of applications received and Registration certificates issued:

Applications received from 01.04.2021 to 25.01.2022			
	Public	Private	Farmers
New	17	110	1
Extant Notified	33	5	-
Extant VCK	1	51	-
Extant Farmer	-	-	23
EDV	-	-	-
Total: 241			

Certificate Issued	
New	118
Extant Notified	152
Extant VCK	42
Extant Farmer	89
EDV	-
Total	401

13. International webinar on “Exchange on PVP Post Control Measures”

The international webinar on “Exchange on PVP post control measures” was organized on 8.04.2021 by PPV&FRA in collaboration with Department of Agriculture, Co-operation and Farmers' Welfare, Ministry of Agriculture and Farmers' Welfare, Govt. of India and Federal Ministry of Food and Agriculture (BMEL), Germany under Indo-German Cooperation on Seed Sector Development. More than 200 delegates and participants from India and Germany in addition to representatives from seed industry, DUS centre scientists from all over India and scientists from ICAR & SAUs attended the webinar. This webinar was organized with a view to share the experiences of both the countries to understand the post PVP system.

The programme was attended by Mr.Elmar Pfuelb, President of Federal Plant Variety Office of Germany (BSA) and also today's speakers from Germany, Ms.Trautwein, Head of Section National and International Variety and Seed

Affairs at Federal Plant Variety Office of Germany (BSA), Mr.Henning Brogmus, Head of Department of Plant Production: Seed Certification & Seed Market Control of the designated Authority of German State, Dr Elmar Weismann, Plant Breeder from Germany and Mr.Dieter Rucker, Head International Relation at German Plant Breeders' Association.

From India, Dr.K.V.Prabhu, Chairperson of PPV&FRA, Sh.Ashwani Kumar, Joint Secretary (Seeds), DA&FW and officers from PPV&FRA and Seed Division of DA & FW attended the webinar.

During the webinar, overview of the PVP system in India and Germany, Enforcement of Plant Breeder's rights in Germany, activities of German Federal Plant Variety Office (BSA) to combine reference collection, similar varieties in DUS testing, post control of seed lots and PVP post control activities, duties of public designated regional authorities responsible for seed certification, market control, seed quality testing etc. on post control of certified seed in

collaboration with BSA in Germany and responsibilities of the PVP owner after PVP grant and registration to the national list (NL) were discussed at length by experts from both Indian and Germany.

14. Plant Genome Saviour Awards/ Rewards/Recognition

On 11.11.2021, Shri. Narendra Singh Tomar Ji **Hon'ble Union Minister for Agriculture and Farmers Welfare** conferred the *Plant Genome Savior Community Awards (2016-17 to 2019-20)*, *Plant Genome Saviour Farmer Rewards 2017-18 to 2019-20* and *Plant Genome Saviour Farmers' Recognitions 2017-18* on **11th November, 2021** at **A P Shinde Symposium Hall, NASC, New Delhi**. Shri. Narendra Singh Tomar, Hon'ble Agriculture Minister also delivered a speech wishing PPV&FR Authority on its foundation day. Further it was also stated that farmers are real conservers of traditional varieties. Authority is having its presence all over India and supports the farmers in their conservation activities of traditional varieties. Government is also working on to double the

farmers income. The Hon'ble Minister of State for Agriculture and Farmers Welfare Sushri Shobha Karandlaje and other dignitaries also graced the occasion.

Dr. K.V. Prabhu, Chairperson, PPV&FRA gave the welcome address stating that India never become a member of UPOV for the benefit of farmers. Farmers Rights is unique feature of our Indian law and now foreign countries are interested in our law. The Hon'ble Agriculture Minister also released the compendium of farmers varieties.

15. Azadi ka Amrit Mahotsav (10.01.2022 to 14.01.2022)

To mark and observe the historic occasion of Azadi ka Amrit Mahotsav (75th Years of India's Independence), the PPV&FR Authority organised a virtual conference to mainstream the farmers varieties of PGSC Awardees/ Reward/Recognition farmers/FSII/ NSAI. The PPV&FR Authority on 14.01.2022 also organised a webinar in collaboration with Delhi University on Legal Aspects Involved in PPV&FR Act, 2001.





On 10.01.2022, the PPV&FR Authority selected certain individual farmers who are rewardees of Plant Genome Saviour Farmer Reward and it was ascertained to solve the difficulties being faced by them in mainstreaming their rewarded varieties into commercial seed chain. It was also examined as to how Authority can facilitate it.

On 11.01.2022, the PPV&FR Authority selected individual farmers who were recognised with Plant Genome Saviour Farmer Recognition and it was also ascertained as to whether the Authority with the help of public-private partnership with farmers can facilitate the mainstreaming of their varieties which were recognised by the PPV&FR Authority.

On 12.01.2022, the PPV&FR Authority selected certain farming communities who were awarded with Plant Genome Saviour Farmer Community Award and it was ascertained with triangular partnership of public-private-farmer whether the farmers varieties can be brought into seed market.

On 13.01.2022, the NSAI and FSII also participated along with the awarded/rewarded farmers regarding the inputs that can be provided by them in mainstreaming of farmers varieties with public-private-farmer partnership.

(ii) National Seed Research and Training Centre (NSRTC), Varanasi

The National Seed Research and Training Centre

(NSRTC) Varanasi (Uttar Pradesh) has been functioning since Oct. 2005 and has been notified as Central Seed Testing and Referral Laboratory (CSTL) with effect from 01.04.2007. The mandate of NSRTC is to have a separate National Seed Quality Control Laboratory to maintain uniformity in Seed Testing and to assure supply of quality seeds at National Level. It also acts as Referral Laboratory under Court of Law for Seed related issues. It is a premiere Institute for capacity building in relation to maintaining Seed Quality assurance by offering HRD activities round the year. The CSTL working under ambit of NSRTC is member Laboratory of International Seed Testing Association (ISTA), since 2007. As per National programme to maintain uniformity in seed testing during 2021-22 (till 15th Oct, 2021), NSRTC has received 13393 nos. of seed samples under 5% re-testing programme, 63 nos. of Court Referred Seed Samples, 83 nos. of seed samples purchased and tested under Market Survey Sample testing programme, 06 seed samples received and analysed under Central Sector Programme and 06 nos. of seed samples under PT programme from ISTA, Switzerland.

NSRTC has organized 02 Online National Training Programme on “Seed Testing” and “Seed Certification” under HRD activities in which 95 participants were trained.

Further, it is also informed that Nodal Officer for OBCs/SCs and STs has been nominated at the level of NSRTC, Varanasi for implementation of reservation policies, as per guidelines issued by DoPT time to time and there is no Audit Paragraph pending in this regard at NSRTC, Varanasi.

(iii) International Rice Research Institute (IRRI), South Asia Regional Center (ISARC): IRRI South Asia Regional Centre (ISARC), Varanasi, India

IRRI South Asia Regional Centre (ISARC), Varanasi

The International Rice Research Institute (IRRI)-South Asia Regional Centre (ISARC) in 2021 continued its activities on facility development, research collaboration, training, and service provision to institutions, scientists, and other stakeholders from India and other South Asian and African nations through its three units:

1. Centre of Excellence in Rice Value Addition (CERVA)
2. Broader Program for Research and Partnership (BPRP)
3. IRRI Research and Education Program (IREP)

The research and extension activities along with research for development outputs delivered by the three ISARC units are briefed hereunder:

1. Centre of Excellence in Rice Value Addition (CERVA)

Centre of Excellence in Rice Value Addition (CERVA) has established state-of-the-art research platforms to undertake systematic grain quality and nutritional profiling, food safety assessment, value-added product development from rice, and sensory evaluation of rice-based products. The major highlights of CERVA activities in different areas are as follows:

Grain Quality Characterization of Rice Landraces of India

The landraces with unique grain quality characteristics were identified from different states of India, including Himalayan regions. The high-value germplasm would also be procured from the ICAR-National Bureau of Plant Genetic Resources (NBPGR). Kalanamak rice, the “Scented Black Pearl of Uttar Pradesh”, had been popularly grown in the region since 600 B.C., especially for its aroma, soft, fluffy texture when cooked, besides possessing multiple nutritional properties. A total of 71 Kalanamak accessions collected from different parts of eastern Uttar Pradesh (U.P.) along with other different landraces were planted for on-farm diversity assessment of agronomic traits and comprehensive grain quality profiling. Comprehensive grain quality evaluation (milling, appearance, and cooking) of these 71 Kalanamak accessions and 33 different landraces were conducted. Important accessions such as Kalanamak2 possessing higher 2-acetyl-1-pyrroline (2AP) content with stable aroma and additional landraces possessing extra elongation properties were identified. By deploying the cooking and eating quality models, high-value germplasm within the Kalanamak collection were also identified.

Nutritional Profiling and Food Safety Assessment of Released Varieties and Traditional Landraces

- A systematic nutritional profiling analysis has been undertaken to profile the IRRI's breeding materials regarding in vitro glycemic index (GI) measurements, 12 micronutrients, heavy metals, measuring total phenolics, flavonoids, and anthocyanins, and monitoring bioactives, using the standardized protocols. Among the high-yielding IRRI's breeding materials, one low GI material (55) and another breeding line with intermediate GI (57) were identified. By

deploying ICP-MS (inductively coupled plasma-mass spectrometry) profiling methods, the bio-fortified rice varieties were found to maintain higher Zn content. Three promising high Zn rice lines are under evaluation in AVT 1 under ICAR-AICRIP trials.

- To establish the baseline of nutritional diversity, CERVA characterized a total of 104 diversity lines for multiple-nutritional targets. By deploying ICP-MS profiling methods, several landraces were identified as a source of multiple micronutrients. Analyses of 36 rice lines grown in the Nadia district of West Bengal revealed a grain arsenic level ranging from 171 to 484 ppb. Two lines showed a level of >400 ppb, while two others showed a level <200 ppb, which is the safe limit set by WHO for milled rice. These low arsenic donor lines would be used in future crossing programs.
- All the Kalanamak collections are being screened for bioactives such as total phenolics, total flavonoids, antioxidant activities (DPPH, FRAP, H₂O₂), and total anthocyanins. LC-MS (liquid chromatography – mass spectrometry) profiling methods have also been standardized to quantify targeted metabolites contributing to antioxidant properties.
- To promote the health benefits of whole grain in pigmented rice, efforts are being made to develop the modeling tools to understand the multi-nutritional diversity and to ensure food safety issues such as pesticides, aflatoxin, etc and mycotoxin.
- Pesticide residues are being tested from commercially available rice samples, including some of the premium quality rice available in supermarkets. Method development and validation for the detection of aflatoxins have been done. To

promote the health benefits of whole grain in pigmented rice, the strategies are being employed to develop modeling tools for understanding the multi-nutritional diversity and ensuring the food safety issues related to pesticide residues, aflatoxins, and mycotoxins, and the profiling methods have been standardized.

Strengthening Research on Rice Bran Oil

To strengthen value addition through rice bran oil, two important strategies need to be addressed which includes (i) increasing the unsaturated fatty acid composition over saturated fatty acids, and (ii) increasing the stabilization of rice bran oil with higher extraction efficiency. Fatty acid profiling works with 100 gene bank accessions, and a few breeding lines resulted in the identification of a few donors with a higher composition of unsaturated fatty acids (oleic acid and linoleic acid).

Rice Value Addition

CERVA identified the popular variety Samba Mahsuri to possess unique features with the highest popping attribute and the black rice germplasm to exhibit good popping characteristics, while retaining high Fe (mg/kg) with higher antioxidant capacity in the end product. Rice-based novel products such as ready-to-eat breakfast cereal (pigmented popped rice), Kalanamak brown rice butter cookies, and black rice fortified cookies have been developed (**Fig. 1**), considering their nutritional values (rich source of nutrients, minerals, and nutraceuticals), health benefits, taste, aroma, ease of digestibility, least allergenicity, bioactive properties, and gluten-free behaviour. Black rice fortified frozen dessert (ice cream) prototype product (rich in bioactive components) has also been developed, and sensory evaluation studies showed its

higher acceptance to the consumers. With the financial assistance from the Agricultural and Processed Food Products Export Development Authority (APEDA), Govt. of India, the CERVA made incredible progress in establishing a food processing lab with modern machinery like Pasta Extruder, Cookies Dropping Machine, Bread Slicer, Tray Dryer, Edge Runner rice flaking machine, Electric Roaster and Rice Rava making machine.

Accreditation of the State-of-Art Laboratories

Application for ISO 17025:2017 accreditation of the state-of-art laboratories has already been submitted to the National Accreditation Board for Testing and Calibration Laboratories (NABL), India.

2. Broader Program for Research and Partnership (BPRP)

ISARC with the Broader Program for Research and Partnership (BPRP) made remarkable progress in developing climate-resilient and stress-tolerant rice varieties (STRVs) along with new high-yielding varieties (HYVs) for meeting market demand and commercial expectations, undertaking innovative research on cereal systems intensification and optimization, strengthening seed systems, GIS, nutrient and water management, and post harvest technologies across different regions of South Asia.

Crop and Natural Resource Management

- Research and extension programs were undertaken towards improving system productivity and reducing environmental footprints by developing, investigating, and disseminating different sustainable intensification practices in rice-based cropping systems (RBCS). These are as follows:

- ISARC established a strong network with 19 National Agricultural Research and Extension System (NARES) partners of 13 Indian states under the umbrella of the Direct-Seeded Rice Consortium (DSRC) to catalyse the wide-scale adoption of mechanized and precise DSR. Compared to puddled transplanted rice (PTR), DSR increased profitability by 13% and energy use efficiency by 21% while reducing irrigation water by 19% and global warming potential by 28%. Even hybrids were found to produce 18-22% higher grain yields than inbreds in DSR.
- Research activities were undertaken in collaboration with 9 NARES partners for developing the conforming management practices with STRVs. In coastal rainfed lowland, application of 39 kg Si/ha resulted in 12-25% higher grain yield in *boro* rice varieties, whereas, in rainfed upland, lathyrus as a post-rice *Rabi* crop was found more resilient to water-stress. A total of 13,529 demonstrations on STRVs (Ranjit-Sub1, Bahadur-Sub1, Swarna-Sub1) and premium quality rice varieties (CR Dhan 909, Kunkuni Joha, Ketaki Joha) were organized in an area of 3,823 ha across all 24 districts of Assam under the Assam Agribusiness and Rural Transformation Project (APART).
- Studies were progressed in collaboration with different ICAR partners to improve varietal performance under futuristic climatic conditions (elevated CO₂, heat, and ozone) and abiotic stresses (submergence and salinity) and optimize the resource conservation practices for newly released salt-tolerant varieties, and site-suited soil management options through regenerative carbon farming, natural farming systems, and modelling of greenhouse gases emission from RBCS.

- The use of site-specific nutrient management improved rice and wheat yields by 18 and 21%, respectively, as compared to state-recommended fertilizer. Real-time nitrogen management based on Rice-Clip and Digital Leaf Colour Chart significantly reduced N application rate by 26 and 51%, respectively, over the farmer's fertilizer practice.
 - IRRI extended technical support to Assam Agricultural University and DoA-ATMA for promoting alternate crop establishment methods improved post-harvest and value-added technologies. Demonstrations on mechanical rice transplanting and DSR in Assam were made in 356 ha and 201 ha, respectively. A total of 10,624 beneficiaries including farmers, input dealers, and farmer producer organizations were benefited through 390 capacity-building activities on mechanized crop establishment methods.
 - Field-level demonstrations were organized to promote (i) pedal-operated paddy threshers in north eastern hill region, (ii) feed block machine for converting paddy straw into nutritive animal feed, compost, or industrial fuel in Odisha and Haryana, (iii) GrainPro in-store drier for improved drying and storage, and (iv) super bags for the storage of rice and dry red chilies.
 - IRRI and the world's largest cooperative (IFFCO) jointly initiated a new project on the evaluation of nano-fertilizers (nano-urea, nano-zinc, and nano-DAP) under different rice- growing environments (rainfed and irrigated) as well as crop establishment methods (PTR and DSR) in eastern U.P. and Assam.
- panel) were phenotyped for yield and related traits, nutritional quality, biotic and abiotic stresses at ISARC, and NARES locations.
- Through genome-wide association study (GWAS), 289 marker-trait associations (MTAs) were identified for thirteen 13 yield and related traits, and 50 MTAs were identified for 7 grain quality and nutritional traits.
 - GWAS analysis of the BPH panel led to the identification of 20 MTAs for three-component traits including disease score, and 4 and 5 MTAs for sheath blight and BLB resistance, respectively. Similarly, 102 and 44 MTAs were identified for drought and submergence panels, respectively. Promising donors were identified based on the phenotyping of genotypes at several locations for the targeted traits.
 - QTL analysis for traits favorable for DSR cultivation like high nutrient uptake, germination from deeper depth traits was initiated. Four QTLs were identified for iron deficiency tolerance having phenotypic variance explained (PVE) range of 6.16-13.62%. Deeper depth breeding lines were evaluated for germination ability (from 8 cm depth), uniform emergence, and high seedling vigour were selected for further advancement to the F4 generation.

Haplotype Diversity Analysis/Breeding

- More than 3,000 genes were identified for haplotype diversity analysis based on available literature. These genes were further categorized based on their function, followed by haplotype analysis of each gene using genomics. The haplotype ranged from 2 to 15 for grain number (134 genes, range 2-15), panicle length (84 genes, range 2-15), tiller number (63 genes, range 2-15),

Innovative Breeding

Germplasm Characterization

- Six 3K subset panels (~300-450 lines in each

drought (182 genes, range 2-15), and submergence (16 genes, range 2-15). In addition, grain quality-related genes responsible for zinc (15), iron (35), aroma (2), and chalkiness (1) traits were also listed.

- 10 Bc₁ F₁ crosses were made to develop HaploNILs for panicle architecture-related traits in 2 genetic backgrounds (MTU 1010 and DRR Dhan 44). A total of 77 haplotype-based markers targeting 13 genes were also developed for haplotype-based breeding.

Development of Multiple STRVs

- A total of 182 multiple stress tolerant breeding lines were developed for transplanted rice in 5 genetic backgrounds which carry 4-15 targeted genes/QTLs.
- A total of 150 advanced generation molecular breeding lines for direct-seeded conditions were also developed which segregate for 5-15 genes/QTLs combinations.
- Breeding to stack multiple genes/QTLs for biotic and abiotic stresses in the background of Sarjoo 52, DRR dhan 42, DRR dhan 44, RP Bio 226, Swarna *Sub1* are also in progress (F₂ generation).
- 07 promising breeding lines were nominated for testing and release to AICRIP-Rice 2021.
- Breeding to stack multiple genes/QTLs for biotic, abiotic and DSR suitable traits in the background of DRR dhan 44 and BRRI dhan 75 are also in progress (F₂ generation).

Landrace Improvement/Healthy Rice

- Landrace improvement programs were undertaken at ISARC for a few of the popular landraces like Tulsi Manjari and Jeera 32, Black rice (Chandauli), Tilak Chandan, and Vishnu Bhog.

- Breeding to enhance grain zinc content and low glycemic index was made through haplotype-based breeding as well as general breeding program.
- A total of 285 Indian genotypes (landrace, high yielding varieties) were sequenced with depth of 25X coverage for structural variant analysis (SNPs, Indels etc).
- A total of upto 3 TB data generated from 285 lines and WGRS analysis of the datasets are going on to identify the unique/promising genomic regions/genes present in the HYVs/landraces.

One IRRI Breeding

- A total of 7 global market segmentation pipelines were mapped to the NARES breeding program, which included 3 pipelines for early duration (TEMS-I, DELS-I, and DELS-R), 3 for medium duration (TMeLS-I, TMeLS-R-drought-prone, TMeLS-R-flood-prone), and 1 for late duration (TlaSF-R).
- A total of 24,374 seed packets of the genomic selection program of all three rice breeding programs (early, medium, and late) were shipped to NARES locations during wet season 2021, which consisted of 1,319 lines of Stage 1 testing and 133 lines of Stage 2 testing.
- A total of 21 lines of OneIRRI Breeding Network are in a different stage of AICRIP testing for different ecologies (rainfed and irrigated)

Robust Seed System and Product Management

Leveraging the 'Seeds Without Borders' policy, ISARC imported around 20 recently released climate-resilient, bio-fortified, short to medium duration HYVs from Bangladesh for extensive evaluation, promotion, and inclusion in the seed

chain in India. Diversified strategies/partnerships have been initialized for early generation seed maintenance and mass production of some of the critical products with NARES (including SAUs, KVKs) in *Kharif* 2021. These products have already been released for India with progressive annualized seed indenting, namely, BRRRI Dhan 75, Bina Dhan 11, Bina Dhan 17. In *Kharif* 2021, a total of 559 on-farm trials were established in Bihar, Chhattisgarh, Odisha, U.P., and included 27 new improved, potential, NARES nominated varieties as grouped into 6 prioritised market segments prevalent in Eastern India. Similarly, in Bangladesh, 236 on-farm trials were established for new improved nominated products. On-farm trials were deployed for the first time across South Asia targeting specific ecology and market segments with the nominated varieties from 20 NARES partners. To strengthen the research collaboration with Nepal, seeds of drought-tolerant and bio-fortified varieties from India were exported, and few are still under the export process for introduction in Nepal and geographic extension (*e.g.* DRR Dhan 45, DRR Dhan 49, Zinco Rice MS, Chhattisgarh Zinc Rice-2, *etc.*).

Farmer outreach/extension programs around quality seed and new varieties were strengthened. New, validated in-demand varieties were demonstrated across South Asia within farmer community/groups, *e.g.* 495 ha of demonstrations (India: 411 ha; Bangladesh: 84 ha) including Cluster demo (3-5 ha), Dealer led demo (0.5 ha) and Rice Chaupal (1 acre). Sixteen crop cafeterias were hosted in South Asia (India: 12; Bangladesh: 4) which would contribute to strategic participatory varietal selection and exhibitions with key seed market stakeholders. Field data collection module is being standardised across SA aligning Global Product Advancement trait criteria (from Rice Breeding and Innovation platform). A total of 80 varieties

(India: 45; Bangladesh 35) were profiled and uploaded within the Global Product Repository hosted in the online RBI platform.

Value Chain and Socio-Economic Aspects

The socio-economic unit contributed to value chain analysis and development, and dissemination, adoption and impact evaluation of IRRI interventions, by integrating inclusive approaches. Multi-criteria-based planting date agro-advisory prototype was developed for rice-wheat system and piloted in Bihar. A randomized controlled trial experiment on agro-advisory was designed and deployed in Bihar through the World Bank-aided Bihar Rural Livelihoods Project (BRLP), locally known as JEEViKA, to evaluate the impact of advisory services through messages and demonstrations on farmers' decisions on planting dates. Branding of premium rice variety BRRRI Dhan 63 (brand name-Soru balam) in Khulna division (Bangladesh) was done, and a good quantity (25 t) was sold by the miller. With this experience, the branding and commercialization activities of BRRRI Dhan 75 and BRRRI Dhan 87 have been extended in 2021-22 *Boro* season in Bangladesh. The paddy trader, retailer, and wholesaler surveys and experiments were rolled out in March 2021, and high heterogeneity was found in terms of perception about the premium traits between these stakeholders.

Medium- to long-term impact study on crop insurance (PMFBY) was undertaken in Odisha. The study revealed a positive and high adoption when crop insurance was bundled with climate-resilient technology such as stress tolerance. Further, a carefully crafted video followed by a virtual experience through crop insurance app proved to be the best scalable option to improve crop insurance awareness among farmers and support their decision-making. Studies on the mental health of farmers during COVID-19 and its impact on farm decisions are underway.

GIS Unit

The geospatial component contributed to developing geodatabases and detailed maps on 2020-21 rice production in Assam and Odisha. These included end-season rice area/yield estimation for *Kharif* 2020, rice-fallow, cropping systems/intensity, and crop diversification site suitability sites mapped at village level for all districts of Odisha. A webGIS-based dashboard was developed for Odisha, integrating a suite of the above-mentioned geospatial data products.

Rice-fallow and cropping systems/intensity maps and rice area mapping are under progress in Assam for 2020-21. Additionally, 100 ha of potato, mustard, lentil, and green pea cluster demos are in preparation for the *Rabi* season in the State. Annual flood inundations were also mapped for the year 2021 in Assam while drought-prone areas are under development. Service area mapping for areas near Farmer Producer Companies in two districts (Majuli and Sivasagar) were developed for better targeting of technologies. In Assam, an Atlas was developed including geospatial outputs prepared for 2019-20, and a WebGIS portal for visualization, data analytics, and geospatial products is under development.

Rice fallow mapping has been initiated for three selected districts in Jharkhand. For Bihar, a data-driven agro-advisory system, with planting date-based targeted approach, acquired through geospatial and crop modelling is in progress.

Facilities Development

The state-of-the-art facilities at ISARC have been well progressed. The Natural Fertilizer Unit has been established and is fully functional for the standardization and evaluation of biofertilizers, biochars, and low-cost organic inputs. The Speed Breeding Facility (**Fig. 2**) would become fully operational from the second week of November 2021, with one research lab, six small

chambers, and two big chambers with programmable temperature, humidity, CO₂ levels, and light intensity, spectrum, and photoperiod. All the modern equipment for leaf collection, DNA isolation, and PCR analysis were installed in Molecular Breeding Laboratory. The development of the Computational Biology Facility is progressing well, with six high-end workstations, ten desktop computers, and UPS operational. The cloud server and glass partitioning work are also in progress. An automatic weather station has been installed at ISARC.

3. IRRI Research and Education Program (IREP)

Significant progress was made under the IRRI Research and Education Program (IREP) mission to provide knowledge and skills to everyone in the agricultural sector across South-Asia and Africa under the South-South collaboration. Key highlights of IREP are as follows:

Short-Term Capacity Development Courses

- Courses on direct-seeded rice (DSR) and alternate wetting and drying (AWD) were developed, launched, and implemented for online and field training of stakeholders from Bayer Crop Science and Dr. Reddy's Foundation in India. Similarly, farmers' field training program on AWD technologies was organized.
- Eight online trainings on Driving Sustainable Rice to Production Course (SRP) were organized, impacting more than 150 participants from Vietnam, Cambodia, Sri Lanka, Myanmar, Philippines, India, Tanzania and Pakistan supporting South-South Cooperation (**Fig. 3**).
- Basic trainings were provided on "Breeding data management system (B4R)" (3-5 Feb. 2021) and "Breeding innovation for crop

improvement to enhance genetic gains" (20 Oct.-16 Nov., 2021) for capacity building of NARES in the area of haplotype-based breeding and breeding innovation (**Fig. 3**).

- Training programs on 'Molecular Breeding for Product Development' and 'Rice-Post Production to Market' are under development for ICAR Scientists.
- Several other courses such as Laser Land Levelling, Rice Straw Management, Biotic and Abiotic stresses in Rice, *etc.* were designed in online learning modules.
- Field training program is being designed for stakeholders from the Bihar Agricultural University under 'Technical and Advisory Support to Climate-Resilient Agriculture.'
- Discussions are being held with the Director-SAARC Agriculture Centre (SAC), Dhaka, Bangladesh for Capacity Development Programs in Partnership with SAC for Member Countries.

Scholars and Youth Engagement

The NARES and Universities were well supported through capacity development of Ph.D., Master and Bachelor students (for research works, internship, and training, respectively), and faculty/researchers (as on-the-job trainees) by hosting them at ISARC. Students from BHU- Varanasi, IIT-Kharagpur, and South Korea have been hosted by ISARC under scholars and youth engagement activities in 2021. With the Ramalingaswami Re-entry Fellowship from the Department of Biotechnology, Govt. of India for 2020-21, Dr. Saurabh Badoni of IRRI has also been hosted to undertake research works in grain quality at CERVA.

Up-gradations under IRRI's Knowledge Platform/Applications:

- Rice Knowledge Bank (RKB) of Assam is

under proposition for up-gradation from RKB to RBCS Knowledge Bank which would include different crops (maize, pulses, peas, oilseeds, and potatoes). With the aim to provide a one-stop source of agricultural knowledge for Assam, it would cover ready-to-use contents by different stakeholders, and training and learning materials on management practices and postharvest management.

- The "RKB website" in English and Assamese along with 'Rice Production Manual', 29 brochures and factsheets, and a small booklet on 'Climate-resilient technologies and rice value chain' was launched by Hon'ble Principal Secretary and Agriculture Production Commissioner to Govt. of Assam, Mr. Rajesh Prasad, IAS under the APART project.

Establishment of Open Educational Resource (OER) Platforms such as Microlearning:

IREP has been working and developing innovative education technology-based solutions. One such Open Educational Resource (OER) is micro-modules, based on IRRI's research and innovations. IRRI is in a good pace of developing micro-modules (**Fig. 4**) to be offered openly on the internet for technology-enabled learning and training (<https://mylearning.irri.org/micromodules>).

Major Events and Programs at ISARC.

1. Fourth ISARC Coordination Committee Meeting

The 4th ISARC Coordination Committee (CoCo) Meeting (**Fig. 5**) was held on 12 March, 2021 at ISARC, Varanasi under the Chairmanship of Dr. Jean Balié (Director-General, IRRI) and Shri Sanjay Agarwal (Co-Chair of Coordination Committee, and Secretary, Department of Agriculture and Farmers Welfare, Govt. of India). The meeting's key agenda was to present the progress status in the year 2020 to the CoCo

members representing various South Asian Countries; formulate the plan for the year 2021; receive feedback from members and other observers; and discuss the way forward.

2. IRRI's Participation in Kalanamak Mahotsav

Kalanamak Mahotsav was organized during 13-15 March, 2021 by the Govt. of U.P. in Siddharthnagar district of U.P. to promote the premium rice variety Kalanamak to a wide range of consumers and provide the market for its global export to the growers. ISARC established an exhibition stall and displayed the ongoing research, product, and by-product development using the Kalanamak rice. Hon'ble Union Minister of State, Department of Agriculture and Farmers Welfare, Govt. of India, Shri Kailash Choudhary, and Hon'ble Member of Parliament, Domariyaganj, Shri Jagdambika Pal felicitated the ISARC Director, Dr. Sudhanshu Singh for taking the Kalanamak research forward and IRRI's commitment to supporting the "One District One Product", an innovative program of the Govt. of U.P. under *Atmanirbhar Bharat Abhiyan* Campaign (Fig. 6a). A three-hour technical session was also conducted by IRRI on the last day of the *Mahotsav* (Fig. 6b).

3. India-Africa Online Knowledge Exchange Workshop

As the World Bank 'Lighthouse India' South-South initiative, the India-Africa Online Knowledge Exchange Workshop on "Rice Value Chain Development" was organized during 1-3 June, 2021 in collaboration with the World Bank and Africa Rice, and with the support of the Foreign, Commonwealth & Development Office (FCDO) of the UK Government, and AfricaRice (Fig. 7). The key objectives of the workshop were (i) to

leverage India's development experience to support the development efforts of other countries especially in Africa and Asia, through the creation, dissemination, and transfer of knowledge, and (ii) to bring together common and complementary knowledge and experience from India and Sub-Saharan Africa and advance the sector in both geographies. The Workshop was inaugurated with the gracious presence of Country Director for the World Bank (India)-Dr. Junaid Ahmad, Hon'ble Minister of Agriculture and Livestock (Govt. of Guinea)-Mr. Roger Patrick Milimono, Secretary, Dept. of Agriculture and Farmers Welfare (Govt. of India)-Shri Sanjay Agarwal, Principal Secretary at the Department for Agricultural Research in the Ministry of Agriculture, Livestock, Fisheries and Irrigation (Gov. of Kenya)-Prof. Hamadi Iddi Boga, Mr Country Manager for the World Bank (Guinea)-Mr. Nestor Coffi, and Senior Agriculture Economist in the Agriculture and Food Practice Group (South Asia Region) at the World Bank-Dr. Iftikhar Mostafa along with a number of delegates from IRRI, India and Africa. It was attended by about 150 participants including 36 eminent speakers ranging from policy-makers, educationists, scientists to international agriculture leaders from reputed CG Centers, government and private organizations.

4. Vanijya Utsav

Vanijya Utsav (Trade Fair) was organized by the APEDA on 26 September 2021 to celebrate the 75th year of Indian independence as "*Azadi Ka Amrit Mahotsav*" at Rudraksh International Cooperation and Convention Centre, Varanasi. The event was overwhelmed with the gracious presence of Hon'ble Union Minister of State, Department of Commerce, Govt. of India, Ms. Anupriya Patel, and Hon'ble Minister of State (Independent Charge, Stamp

and Court Fee, Registration), Govt. of U.P., Shri Ravindra Jaiswal (**Fig. 8a**). With the objectives of disseminating the information on advancements in rice science and technology, and developing the capacities of Farmer Producer Organizations, farmers, and exporters, the ISARC actively participated in the event and exhibited the improved and traditional rice varieties, technologies, and value-added products made from traditional rice varieties. ISARC Director-Dr. Sudhanshu Singh briefed about the centre's effort in bringing on-going high-quality research outputs to the policymakers, agri-leaders, and other stakeholders (**Fig. 8b**).

(i) National Seeds Corporation: The National Seeds Corporation Limited is a Schedule-B Central Public Enterprise under the administrative control of the Department of Agriculture and Farmers' Welfare. It enjoys Mini Ratna (Category-I) status with ISO 9001:2005 & 14001:2015 certification. The performance of NSC during 2020-21 is as under:-

During 2020-21, NSC has produced/

procured 14.99 lakhs quintal seeds. NSC is undertaking seed production of more than 627 varieties/ hybrids/lines including parental lines of about 80 crops consisting of cereals, millets, oilseeds, pulses, fodder, fibers, green manure, potato and a wide range of vegetable crops. During the financial year 20-21, NSC has distributed 14.54 lakh quintals of seed in the country. NSC earned Profit After Tax (PAT) of Rs. 2.44 crores during 2020-21. NSC will pay dividend @ 30% on Profit After Tax after the approval of the share holders at their 58th Annual general Meeting (tentative time on last week of Dec. 2021). The reduced PAT during 2020-21 is due to the change in accounting of production subsidy.

The company is producing all kinds of seeds i.e Test Stock, Breeder Seed, Foundation Seed and Certified Seed. Seed is being produced in the Company's own farms and through seed growers. In addition to seed, the company is providing saplings of fruits & forestry trees and fish seeds to farmers. Focus is to increase production of Oil Seeds, Pulses and Vegetables.

20.7 Photographs

PPV&FRA



Hon'ble Minister of State for Agriculture and Farmers Welfare Shri Shobha Karandlaje visiting the exhibition of farmer varieties on PGSCA ceremony on 11.11.2021



Hon'ble Agriculture Minister Shri. Narendra Singh Tomar releasing the compendium of farmer varieties published by PPV&FR Authority



Hon'ble Minister of Agriculture and Farmers Welfare, Sh. Narendra Singh Tomar, awarding PGSC awards to farming communities.



Hon'ble Minister of Agriculture and Farmers Welfare, Sh. Narendra Singh Tomar, awarding PGSC awards to farming communities.



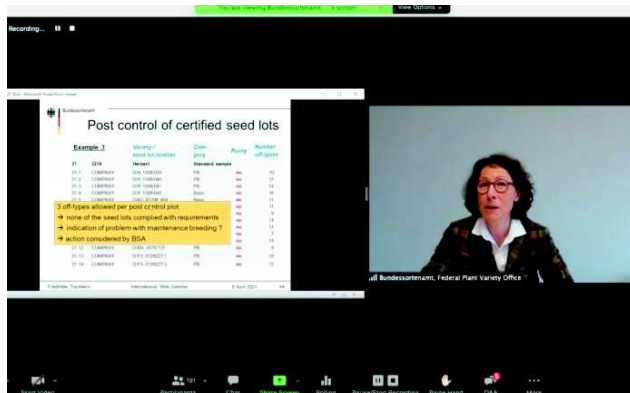
International webinar on “Exchange on PVP post control measures” was organized on 8.04.2021 between PPV&FRA, DA&FW and Germany



Sh. Ashwani Kumar, Joint Secretary (Seeds) addressing the International webinar on “Exchange on PVP post control measures” was organized on 8.04.2021 between PPV&FRA, DA&FW and Germany



German counterparts addressing the International webinar on “Exchange on PVP post control measures” was organized on 8.04.2021 between PPV&FRA, DA&FW and Germany



German counterparts addressing the International webinar on “Exchange on PVP post control measures” was organized on 8.04.2021 between PPV&FRA, DA&FW and Germany

IRRI



Fig. 1. Rice-based value-added products developed from different traditional varieties



Fig. 2. Speed Breeding Facility at ISARC



DRIVING SUSTAINABLE RICE CULTIVATION
Understanding the SRP Standard and Performance Indicators

ONLINE TRAINING
31 Aug - 3 Sep 2021



BREEDING INNOVATION FOR CROP IMPROVEMENT TO ENHANCE GENETIC GAIN

ONLINE TRAINING
October 20 - November 16, 2021

Fig. 3. ICAR Deputy Director General (Crop Science)-Dr. T. R. Sharma and ICAR-IARI Director-Dr; A; K; Singh expressing their thoughts in IRRI’s online training for capacity building

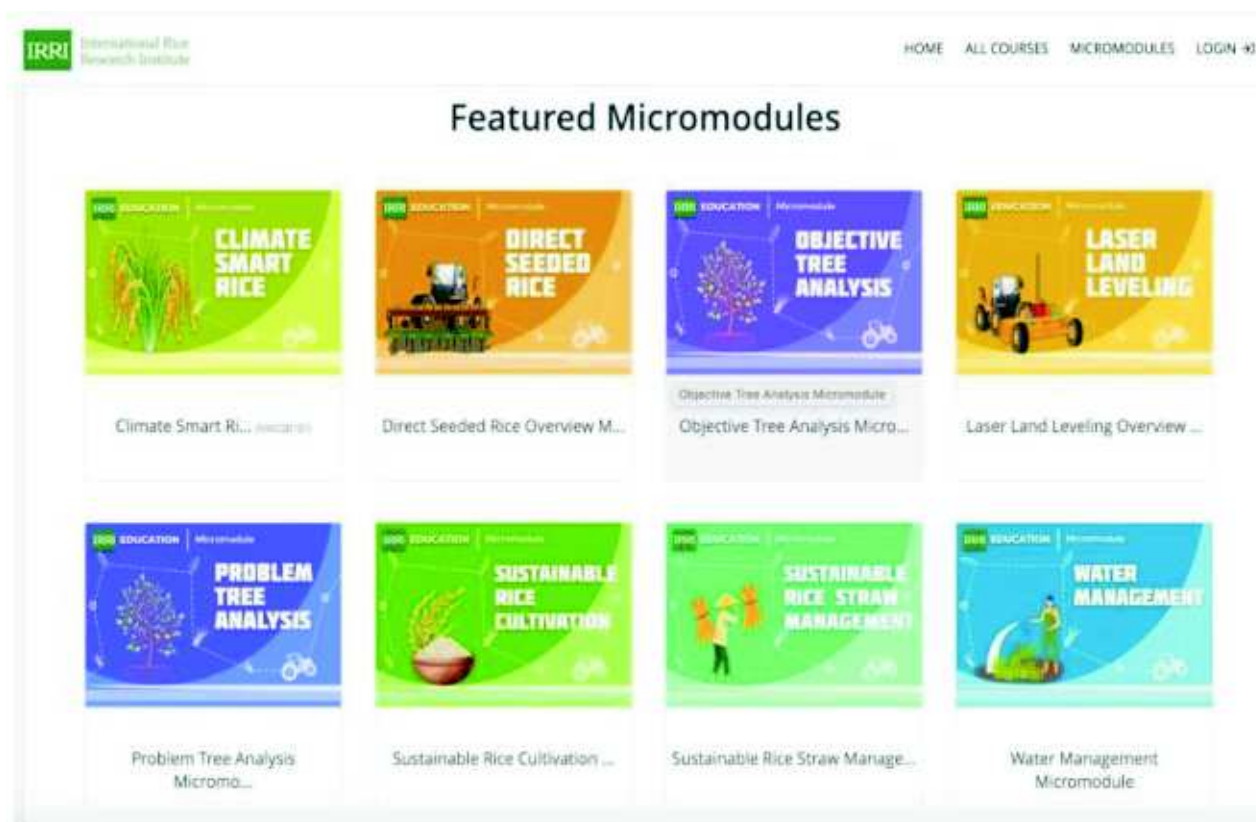


Fig. 4. IRRI Education’s online capacity development offerings and micro-learnings



Fig. 5. Secretary, Dept. of Agriculture and Farmers Welfare (Govt. of India)-Shri Sanjay Agarwal, and Principal Secretary, Agriculture, Agriculture Education, Agriculture Marketing and Export Promotion (Govt. of U.P.) -Dr. Devesh Chaturvedi with the ISARC Team after the 4th Coordination Committee Meeting



Fig. 6. (a) Felicitation of ISARC Director-Dr. Sudhanshu Singh by Hon'ble Union Minister of State for Agriculture and Farmers Welfare (Govt. of India)-Shri Kailash Choudhary, (b) A glimpse of IRRI session in *Kalanamak Mahotsav*



Fig. 7. Secretary, Dept. of Agriculture and Farmers Welfare (Govt. of India)-Shri Sanjay Agarwal, Joint Secretary, Administration and Seeds, Dept. of Agriculture and Farmers Welfare (Govt. of India)-Shri Ashwani Kumar and IRRI Research Director, Dr. Ajay Kohli expressing their views in the India-Africa South-South Exchange Workshop



Fig; 8; (a) Hon'ble Union Minister of State, Dept; of Commerce (Govt; of India)-Ms. Anupriya Patel, and Hon'ble Minister of State (Independent Charge) for Stamp and Court Fee, Registration (Govt. of U.P.) -Shri Ravindra Jaiswal, APEDA Chairman-Dr. M. Angamuthu, APEDA Director-Dr. Tarun Bajaj, APEDA Secretary-Dr. Sudhanshu, District Magistrate of Varanasi-Shri Kaushal Raj Sharma, CEO at GeM Noida-Shri Prasant Kumar Singh, and ISARC Director Dr. Sudhanshu Singh sharing the dais during interactive session, (b) ISARC Exhibition Stall at the Trade Fair (*Vanijya Utsav*)

21.1 Overview

Agriculture Mechanization is an essential input to modern agriculture to increase the productivity and for making judicious use of other inputs like seeds, fertilizers, chemicals & pesticides and natural resources like water, soil nutrients etc. besides reducing the human drudgery and cost of cultivation. Agriculture Mechanization also helps in improving safety and comfort of the agricultural worker, improvements in the quality and value addition of the farm produce and also enabling the farmers to take second and subsequent crops making Indian agriculture more attractive and profitable. It also helps the Indian farming to become commercial instead of subsistence. There is a linear relationship between availability of farm power and farm yield. Therefore, there is a need to increase the availability of farm power from 2.49 kW per ha (2018-19) to 4.0 kW per ha by the end of 2030 to cope up with increasing demand of food grains.

About 85 % of the total land holdings are in small and marginal size groups which need special efforts for its mechanization. Subsequently, recognizing the need to mechanize the marginal and small farmers and for inclusive growth of Farm mechanization Sector in the country a Sub Mission on Agricultural Mechanization (SMAM) was launched in the year 2014-15 with the following objectives:

- Increasing the reach of farm mechanization to small and marginal farmers and to the regions where availability of farm power is low;
- Promoting 'Custom Hiring Centers' to offset the adverse economies of scale arising due

to small landholding and high cost of individual ownership;

- Creating hubs for hi-tech & high value farm equipments;
- Creating awareness among stakeholders through demonstration and capacity building activities;
- Ensuring performance testing and certification at designated testing centers located all over the country.

21.2 Financial assistance in SMAM under its various components: The financial assistance as cost subsidy to the tune of 40-50% is being provided for the individual ownership of the farm machinery which is also applicable for farm machinery component under RKVY, NFSM, NHM & NMOOP schemes for different categories of Machinery & Equipment. The financial assistance @40% is provided for establishment of farm machinery banks to provide the custom hiring services for the benefits of small and marginal farmers. To promote the mechanization in selected village with low level of farm mechanization, financial assistance @80% of the project cost for farm machinery banks is given to the group of minimum 8 farmers.

As a result of different programmes implemented by the Government of India over the years and equal participation from Private Sector, the farm mechanization has been increasing steadily over the years. This is evident from the sale of tractors and power tillers, taken as indicator of the adoption of the mechanized means of farming during the last four years is given below:

Year wise sale of tractors and power tillers.

Year	Tractor Sales (NOS.)	Power tiller Sale (Nos.)
2017-18	7,96,873	51,680
2018-19	8,97,548	51,523
2019-20	7,85,059	46,476
2020-21	9,88,028	54,175

Average farm power availability for the cultivated areas of the country has been increased from 0.48 kW/ha in 1975-76 to 1.84 kW/ha in 2012-13 and reached 2.49 kW/ha in 2018-19.

21.3 Training of Farmers & Technicians:

The Farm Machinery Training & Testing Institutes (FMTTIs) located at Budni (Madhya Pradesh), Hisar (Haryana), Garladinne (Andhra

Pradesh) and Biswanath Chariali (Assam), as per details given below are imparting training to different categories of beneficiaries like farmers, technicians, under graduate engineers, entrepreneurs and the foreign nationals nominated under international exchange treaty on selection, operation, maintenance, energy conservation and management of agricultural equipment.

1.	Central Farm Machinery Training & Testing Institute, Tractor Nagar, P.O. Budni -466455, Distt. Sehore (MP)	
	Phone : 07564-234729	E-Mail : fmti-mp@nic.in Website: http://fmttibudni.gov.in/
2.	Northern Region Farm Machinery Training & Testing Institute, Sirsa Road, Hisar (Haryana)-125001	
	Phone : 01662-276984	E-Mail : fmti-nr@nic.in Website: http://nrfmtti.gov.in/
3.	Southern Region Farm Machinery Training & Testing Institute Tractor Nagar, P.O. Garladinne-515731, Distt. Anantpur (Andhra Pradesh)	
	Phone : 08551-286441	E-Mail : fmti-sr@hub.nic.in Website: http://srfmtti.dacnet.nic.in/
4.	North Eastern Region Farm Machinery Training & Testing Institute, P.O. Biswanath Chariali -784176, Distt. Sonitpur (Assam)	
	Phone : 03715-222094	E-Mail : fmti-ner@hub.nic.in Website: http://nerfmtti.nic.in/

Despite the COVID pandemic, during the year 2020-21, total 11103 trainees were trained till 31st March, 2021 against the annual target of 9000 in different courses. To supplement the

efforts of the FMTTIs outsourcing of the training through the identified Institutions, ICAR Institutions, ATMA Institutions, National innovation Foundation, training programmes

are funded as per norms prescribed by Ministry of Skill Development and Entrepreneurship. During the year 2021-22 till December 2021, total 11582 trainees were trained. During the

year 2021, a special drive for Skilling the Migrant Labourers in the area of agricultural machinery under the “Aatma Nirbhar Bharat Abhiyan” of the Government of India has initiated.



Visit of Ms Shomita Biswas, Joint Secretary, DA&FW to NRFMTTI, Hisar

21.4 Testing and Evaluation of Farm Machinery & Equipment: The Farm Machinery Training and Testing Institute at Budni is authorized to conduct commercial tests on tractors and other agricultural machines as per relevant BIS test codes besides conducting the testing of tractors and power tillers under CMV Rules 1989 CFMTTI is also National designated authority for testing of tractors as per OECD codes. The institute at Hisar, conducts commercial tests on self-propelled combine harvesters, plant protection equipments, agricultural implements and other machines as per relevant BIS codes and authorized to issue the CMVR certificate in respect of the combined

harvesters under CMVR 1989. The Institute at Garladinne is authorized to test power tillers and also conduct tests on various agricultural implements & equipments. The institute at Biswanath Chariali (Assam) tests bullock drawn implements, manually operated equipment, tractor drawn implements, self propelled machines and small hand tools. During the financial year 2020-21, the four FMTTIs altogether have tested 473 machines of various categories, including tractors, power-tillers, combine harvesters, and other machinery and equipments, till 31st March, 2021 against the target of 320. During the year 2021-22 till December 2021, total 239 machines were tested.



Draw bar testing of tractor at CFMTTI, Budni



Drawbar Performance Test of Power Tiller

To cope up with the ever increasing demand of testing of agricultural machines and equipments, DA&FW has designated 36 testing centers of SAU, ICAR and State Governments. During 2021-22, CSIR-Central Mechanical Engineering Institute (CMERI), Durgapur (West Bengal) and Farm Machinery Testing centre at Choudhary Charan Singh Haryana Agricultural University (CCSHAU), Hisar, Regional Research Station, Uchani, Karnal, Haryana was approved as designated testing centers of DA&FW and College of Agricultural Engineering & Technology (CAET), Choudhary Charan Singh Haryana Agricultural University (CCSHAU), Hisar, Haryana authorised to test the All types of Plant protection equipments *i.e.* Sprayers, Dusters, blowers etc in addition to other agricultural machinery.

21.5 Demonstration of Newly Developed

Agricultural/Horticultural Equipment: To support and encourage the Agriculture mechanization at field level and to bring the awareness of new technologies among the farmers, demonstrations of newly developed agricultural equipment including Post harvesting, horticultural equipment have been included under component 1 & 2 of the SMAM scheme. Under these components, 100% financial assistance as Center Sector Scheme is provided for procurement of advance agricultural machines and equipments and also for the field demonstration of farm machinery and post harvesting technology/equipments on farmer's field. Total 335 field demonstrations have been conducted by the FMTTIs during the financial year 2020-21. During the year 2021-22 till December 2021, total 429 demonstrations were conducted.



Demonstrations Activities at the Field(NERFMTTI)

21.6 Custom Hiring Centres: To promote the mechanization of small and marginal farm holdings and farm holding in difficult area with low level of mechanization, the efforts has been made to concentrate on establishment of farm Machinery Bank & Hi tech hub, high productive farm machinery hubs for custom hiring services.

Under the components 4,5 & 6 of the SMAM total 5453 Farm machinery Banks, 55Hi Tech and 3924 Custom Hiring Centers for providing the custom hiring services in the country in 2020-21 and during the year 2021-22 till December 2021, total 2629 Farm machinery Banks, 53 Hi Tech hub and 1540 Custom Hiring Centers were established.



Training at SRFMTTI, Anapur



Visit of Bhutan Technical Delegation at NERFMTTI, Assam

21.7 Farm Mechanization Programmes under various schemes of Agriculture: Financial Assistance in the form of subsidy at the rate of 40-50 percent under RKVY, NFSM & NHM, NMOOP is applicable as per guidelines of SMAM to the farmers for individual ownership of agricultural equipment including hand tools, bullock-drawn/ power-driven implements, planting, reaping, harvesting and threshing equipment, tractors, power-tillers and other specialized agricultural machines.

21.8 Multi lingual Mobile App: The Government has also developed and launched Multi lingual Mobile App “FARMS- Farm Machinery Solutions” which helps the farmers for getting rented farm machinery and implements through Custom Hiring Service Centers (CHC) in their area. As on date, 70,382 CHCs with 1,64,011 Agricultural machinery for renting out are registered on this Mobile app. More than 5.23 lakh farmers as users are registered on this Mobile App.

21.9 Activities in the North-Eastern States: A FMTTI has been established at Biswanath Chariali in the Sonitpur district of Assam, to cater to the needs of human resource development in the field of agricultural mechanization and also to assess the quality and performance characteristics of different agricultural implements and machines in the region. During 2020-21 total 1226 trainees were trained at this NERFMTTI at Biswanath Chariali, Assam against the target of 1000 and have tested 30nos. of agricultural implements and machinery against the annual target of 30. To support the agricultural Mechanization in North Eastern States where the Mechanization level is very low, the maximum permissible subsidy per machine per beneficiary is provided @ 50% limited to Rs. 1.25 lakhs/beneficiary for procurement of various agricultural machinery and equipments for individual ownership, and 95% of the cost of the machinery/Implement up to Rs 10 lakhs per farm Machinery bank for the establishment of Farm Machinery Banks with a

minimum of 8-10 farmers respectively. During the year 2020-21, cost subsidy of Rs.97.03 crores has already been released to NE States under the different components of SMAM. During the year 2021-22 cost subsidy of Rs.62.6 crore has already been released.

21.10 Gender Friendly Equipment for Women: Under the component 1 of SMAM, Agricultural Mechanization through Training,

Testing and Demonstration a total 6503 women have been trained during the Financial Year 2020-21. A list of about 30 identified gender-friendly tools and equipment developed by the Research and Development Organization for use in different farm operations has already been sent to all states and UTs for popularizing them. State governments have been directed to earmark 30 per cent of total funds allocated under SMAM for women beneficiaries.



Training programme for women at SERFMTTI, Anantapur



Field Demonstrations for women at CFMTTI, Budni

21.11 State Agro Industries Corporations: The Government of India had advised the State Governments in the year 1964, to set up State Agro Industries Corporations (SAICs) in the public sector to act as catalysts in providing access to industrial inputs to farmers, for their use in agriculture. Thus, 17 SAICs were set up in the joint sector with equity participation of the Government of India and the respective State Governments of Andhra Pradesh, Assam, Bihar, Gujarat, Haryana, Himachal Pradesh, Jammu and Kashmir, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Orissa, Punjab, Rajasthan, Uttar Pradesh, Tamil Nadu and West Bengal during 1965 to 1970. Many of the State Governments have increased their equity participation as a result of which the Government of India, at present, is a minority shareholder. SAICs have since expanded their basic functions by commencing manufacture and marketing of

agricultural inputs, implements, machines, after-sales service, promotion and development of agro-based units/industries. The Government of India is implementing a policy of disinvestment of its shares in SAICs with a view to give greater decision making power to the State governments by allowing transfer of its shares to state Governments. At present only 10 SAICs are in function which has Government of India equity.

21.12 Promotion of Agricultural Mechanization for In-Situ Management of Crop Residue in the States of Punjab, Haryana, Uttar Pradesh and NCT of Delhi (CRM).

Objectives of the Scheme

- I. Protecting environment from air pollution and preventing loss of nutrients and soil micro-organisms caused by burning of crop residue.

- II. Promoting in-situ management of crop residue by retention and incorporation into the soil through the use of appropriate mechanization inputs.
- III. Promoting Farm Machinery Banks for custom hiring of in-situ crop residue management machinery to offset the adverse economies of scale arising due to small land holding and high cost of individual ownership.
- IV. Creating awareness among stakeholders through demonstration, capacity building activities and differentiated Information, Education and communication strategies for effective utilization and management of crop residue.

Components of Scheme

1. The Scheme has the following components (100% Central Share)
 - i. **Establish Farm Machinery Banks for Custom Hiring of in-situ crop residue management machinery** - financial assistance @ 80% of the project cost is provided to the Co-operative Societies of farmers, FPOs, Self-Help Groups, registered Farmers Societies / farmers groups, Private Entrepreneurs, Group of women farmers or self-help groups for establishment of farm machinery banks or custom hiring centers of in-situ crop residue management machinery. Groups of farmers / Individual farmers having their own tractor / combine harvester

would be preferred for establishing Custom Hiring Centre (CHC). Old established CHCs, with Non-Crop Residue Machinery, will also be eligible for a fresh project under the scheme.

- ii. **Financial Assistance to farmers for Procurement of Agriculture Machinery and Equipment for in-situ crop residue management**- financial assistance @ 50% of the cost of machinery/equipment is provided to individual farmers for purchase of machinery/equipment for crop residue management.
- iii. **Information, Education and Communication for awareness on in-situ crop residue management** - financial assistance is provided to the State Governments, KVKs, ICAR Institutions, Central Government Institutions, PSUs etc. for the activities to be undertaken towards Information, Education and Communication (IEC). The activities will involve mass awareness campaigns through short and long films, documentaries, radio and TV programmes, demonstration camps at various levels, capacity-building programmes, advertisements in print media, star campaigning, award for village / gram Panchayat for achieving zero straw burning, panel discussions on Doordarshan, DD Kisan and other private channels, etc.

iv. FINANCIAL PROGRESS UNDER CROP RESIDUE MANAGEMENT SCHEME:

Year	CROP RESIDUE MANAGEMENT SCHEME							
	Allocation of funds (Rupees in Crore)							
	Allocation	RE	Funds Released					
Punjab			Haryana	UP	NCT Delhi	ICAR	Total	
2018-19	591.80	591.80	269.38	137.84	148.60	0.00	28.51	584.33

2019-20	600.00	600.00	273.80	192.06	105.28	4.52	18.48	594.14
2020-21	600.00	600.00	272.50	170.00	120.20	0.00	8.00	570.70
2021-22	700.00	--	331.94	193.35	159.59	0.00	5.00	689.88
Total	2491.80	2491.80	1147.62	693.25	533.67	4.52	59.99	2439.05

v. PHYSICAL PROGRESS UNDER CROP RESIDUE MANAGEMENT SCHEME

State/ Agency	Number of Machines delivered to the individual farmers and Custom Hiring Centres					No. of Custom Hiring Centres Established				
	2018-19	2019-20	2020-21	2021-22	Total	2018-19	2019-20	2020-21	2021-22	Total
Punjab	27747	23068	24500	31970	107285	3888	5138	12100	0	21126
Haryana	10627	14078	15350	3141	43196	1194	1685	1345	1017	5241
Uttar Pradesh	23305	7171	12087	1469	44032	2300	1650	1661	6	5617
NCT of Delhi	0	111	51		162	0	0	0	0	0
Total	61679	44428	51988	36580	194675	7382	8473	15106	1023	31984

Impact of implementation of the scheme Promotion of Agricultural Mechanization for In-Situ Management of Crop Residue in the States of Punjab, Haryana, Uttar Pradesh and NCT of Delhi has been seen very positive impact on in-situ

management of crop. In this scheme Super straw management, Happy Seed Drill, Chopper/ Shredder, Reversible Mould Board Plough, Zero Seed Drill, Shrub Master and Mulcher has been used by farmers.



KVK, Gurdaspur organized awareness campaign on paddy residue management through mobilization of school students at Govt. High Smart School Basrawan



Demonstration and discussion with farmers on CRM machine use at Nabipur Karnal: KVK NDRI Karnal



Demonstration of Happy Seeder Machine



Germination of wheat crops sown by Happy Seed Drill

22.1 Overview

The Plant Protection Division performs regulatory, monitoring, surveillance and Human Resource Development functions through a scheme called Sub Mission on Plant Protection and Plant Quarantine (SMPPQ) under Green Revolution (Krishonnati Yojana). The primary aim of this Sub Mission is to minimize loss to quality and yield of agricultural crops from the ravages of insect pests, diseases, weeds, nematodes, rodents etc. and to shield our bio-security from the incursion and spread of alien species. The Sub Mission also seeks to facilitate exports of Indian agricultural commodities to global markets and to promote good agricultural practices, particularly concerning to plant protection strategies and techniques. In this regard, the Destructive Insect and Pests Act, 1914 and the Insecticides Act, 1968 provide the legal framework for the regulatory function. The SMPPQ has four important components: -

- (I) Strengthening and Modernization of Pest Management Approach (SMPMA),
- (ii) Strengthening and Modernization of Plant Quarantine Facilities (SMPQF),
- (iii) Monitoring of Pesticide Residues at National Level (MPRNL)
- (iv) National Institute of Plant Health Management (NIPHM).

(A) Directorate of Plant Protection Quarantine & Storage, Faridabad

(I). **Strengthening and Modernization of Pest Management Approach in India (SMPMA)** which includes the following sub components:

(a) CIB&RC:

Implementation of Insecticide Act, 1968: The Insecticides Act, 1968 regulates import, manufacture, sale, transportation, distribution and use of insecticides to prevent risk to humans or animals and for matters connected therewith. A Registration Committee, constituted under Section 5 of the Act, is empowered to register pesticides/insecticides under Section 9 of the Act after verifying that it is efficacious and safe for use by farmers. In order to bring about greater transparency and efficiency in the process of registration of pesticides, on-line registration of insecticides has been partially operationalised. The system enables partial on-line filing of applications for registration in all categories viz under section (4)/9(3B)/9(3)/Export/Endorsements. The Certificates of Registration under section 9(4) along with label and leaflets are being generated from the database of 9(3) created in the Secretariat of CIB&RC in Computerized Registration of Pesticides (CROP) Software. Label/leaflets of pesticides containers have been revised to facilitate farmers in the safe use of pesticide.

During 2020-21, 11556 numbers of certificates of registration/letters/permits have been issued from April 2020 to March, 2021. During 2021-22, 20433 numbers of certificates of registration/letters/permits have been issued from April 2021 to October, 2021 in different categories.

(b) Central Insecticides Laboratory:

As per the Insecticide Act, 1968, the quality control of pesticides is primarily a responsibility of the States. The Central and State Governments

have notified Insecticide Inspectors respectively. These inspectors draw samples of insecticides from manufactures/ dealers and analyse them in 70 State Pesticide Testing Laboratories (SPTLs) spread across the country. At present, 10,303 officers of various State Governments are notified as Insecticide Inspectors to check the quality of pesticides and their management. The Central Government supplements the resources of State/UT Governments in quality control testing of pesticides. At present, 191 Central Government officers are notified as Central Insecticide Inspector and there exists one Central Insecticide Laboratory and two Regional Pesticides Testing Laboratories at Chandigarh and Kanpur under the Directorate of Plant Protection, Quarantine & Storage (DPPQ&S) with an annual testing capacity of 4,700 samples. For the States which do not have facilities for testing pesticides, two Regional Pesticide Testing Laboratories (RPTLs) have been set up by the Central Government at Chandigarh and Kanpur. In addition, the Central Government has established the Central Insecticides Laboratory (CIL) at Faridabad as a referral laboratory. In case of dispute, the samples are referred to the CIL. For quality assurance, the CIL has obtained accreditation from the National Accreditation Board for Testing and Calibration Laboratories (NABL) for biological and chemical testing as per ISO/IEC 17025:2005. The RPTLs have also obtained NABL accreditation for chemical testing. Keeping in view the growth in consumption of bio-pesticides and need to regulate their quality, assistance for setting up bio-pesticide testing facilities is being provided to states. Eight labs and NIPHM have been notified as CIL for testing bio-pesticides. Quality of pesticides is also ensured during registration process by verification of source of Import from Designated National Authority (DNA) of the exporting country. In addition, to ensure quality of pesticides manufactured by Indigenous

Manufacturers, provisions have been made to verify consent from Technical Manufacturer to prevent the use of unregistered technical pesticides in making pesticide formulations. Funds are also provided to State Government through RKVY for setting up/ strengthening pesticide testing labs.

During 2020-21, 1373 Referral, Investigational /PRV samples for Quality Control under Insecticides Act, 1968 received from Courts of Law/Competent Authorities were analyzed. During 2021-22, 1144 Referral, Investigational and PRV samples have been analyzed from April to October.

(c) Techno legal Cell:

A Techno-Legal Cell is a component of the implementation of the Insecticides Act and its main objective is to make concerted efforts to ensure timely availability of quality pesticides to the farming community by ensuring effective implementation of the provisions of the Insecticide Act, 1968. The Techno-Legal Cell also coordinates with States, RPTLs, SPTLs, BPTLs and provides technical and legal expertise to SPTLs, RPTLs and Insecticide Inspectors of Central and State Govt. starting from drawl of samples up to launching of prosecution in case of misbranded samples and illegal practices adopted by any manufacturer/importer. A total No. of 191 officers of the Directorate have been notified as Central Insecticide Inspectors (CIIs) vide Gazette notification GSR 745(E) dated 18.10.2021. State Governments have also notified 10867 Insecticide Inspectors respectively to check the quality of pesticides. Insecticide samples are drawn on a regular basis and analyzed in 71 State Pesticide Testing Laboratories for chemical pesticide testing and 6 Bio-Pesticide Laboratories for Bio-pesticide sample testing with annual capacity of 77575 (conclusively) and two Regional Pesticide Testing Laboratories

with annual capacity of 3100. Total 1780 analyzed by both RPTLs of which 12.5% found to be misbranded.

During 2021-22 till October, 28657 samples were analyzed, 759 were found misbranded, prosecution has been launched in 105 cases against firms which were found to be involved in manufacturing and selling of misbranded pesticides and 2 firms were convicted. Moreover total 99 samples were drawn by CIIs of which 44 analyzed, 07 prosecutions have been launched for violations of provisions of Insecticide Act, 1968.

Teams of CIIs were deputed by JS(PP) for conducting inspection of minimum infrastructure, machinery and quality control laboratory as per the guidelines of CIB&RC and sample drawl for checking the active ingredient at 90 manufacturing premises located in Andhra Pradesh, Telangana, Gujarat, Rajasthan and Uttar Pradesh in the month of September and October-2021.

(d) Integrated Pest Management:

IPM is an eco-friendly approach, which aims at keeping pests below economic threshold level by employing all available alternate pest control methods and techniques such as cultural, mechanical and biological with greater emphasis on use of bio-pesticides. The use of chemical pesticides is advised as a last resort when pests cross the economic threshold level (ETL). The Central Government has established 35 Central Integrated Pest Management Centres (CIPMCs) of the Directorate of Plant Protection, Quarantine & Storage (DPPQ&S) in 28 States and two UTs. The mandate of these Centres is to monitor insects, pests and diseases for forewarning, conservation of natural enemies in farmers' fields, production and field release of bio-control agents, promotion of eco-friendly IPM inputs like bio-pesticides/plant based pesticides and Human Resource Development in

IPM by imparting training to extension officers and farmers through Farmers Field Schools (FFSs) and IPM programs.

IPM activities are propagated through Farmers Field Schools (FFSs). This is a form of "learning by doing" concept evolved from the concept that farmers learn optimally from field observations and experimentation. FFSs are organized to empower farmers to take appropriate crop protection measures on their own. These FFSs are conducted separately for the Kharif and Rabi seasons and each FFS lasts 14 weeks.

During 2020-21, 351 Farmer Field Schools and 33 Human Resource Development programs were conducted in which 13605 farmers, pesticide dealers and State extension officials were oriented about Integrated Pest Management. During 2021-22 (up to October 2021) a total number of 70 Farmer Field Schools and 20 two days Human Resource Development programs were conducted in which 3530 farmers, pesticide dealers and State extension officials were trained about Integrated Pest Management techniques. Out of 20 two days HRD programmes, 12 numbers of two days HRD programmes were conducted for Basmati Rice Growers of Haryana, Punjab, Uttar Pradesh, Uttarakhand and Jammu & Kashmir in coordination with State Agriculture Department and APEDA on safe and judicious use of pesticides with an aim to reduce/prevent pesticide residues in Basmati rice to promote safe and health export.

Fall Army Worm (FAW) is a trans-migratory pest affecting Asia & Pacific region. India is lead country among the South-East Asian region to promote sustainable FAW management / Control measures under FAO-Global initiative for FAW management. Regular surveys, surveillance and monitoring were conducted by the Central Integrated Pest Management Centres (CIPMCs) in collaboration with State Departments of Agriculture, SAUs and ICAR etc.

Awareness cum training programmes were conducted on management of FAW in different States. A virtual meeting on Implementation of the Global Action for FAW control was conducted in July 2021.

Apart from conducting FFS, the CIPMCs carry out pest/disease monitoring, production, release and conservation of bio-control agents. During 2021-22 (up to October 2021), the pest and disease situation was surveyed covering 616.32 thousand hectares area. A total of 1474.85 million bio-control agents were mass produced in laboratories and released against targeted insect-pests in various crops. Augmentation and conservation was taken up in 564.22 thousand hectares.

Under Azadi Ka Amrit Mahotsav (commemoration of 75 years of India's Independence) following activities were identified and assigned by DA&FW related to Plant Protection & Plant Quarantine.

1. Organizing Kisan Goshthi's
2. Organizing IPM Exhibitions by CIPMCs
3. Recognition of 75 IPM farmers

Kisan Goshthi: Organized total 52 Kisan Goshthi by 35 CIPMCs located across India, IPM techniques especially alternate methods like cultural, mechanical, botanical, biological and safe & judicious use of pesticides were discussed during Kisan Goshthi. A total number of 2198 farmers were participated.

IPM Exhibition: Organised total 42 IPM Exhibition covering almost all the States of India by CIPMCs. Various IPM inputs viz. pheromone traps, light trap, neem based pesticides, bio-pesticides, biocontrol agents were displayed during these exhibition. Various IPM techniques (cultural, mechanical, botanical, biological and safe & judicious use of pesticides) were also displayed through Charts, posters. A total number of 1686 farmers were participated.

Recognition of 75 IPM Farmers: IPM division of DPPQ&S identified 75 farmers who undergone training in Farmers Field Schools (FFS) conducted by CIPMCs covering almost all the states of India. Farmers were identified based on adoption of IPM techniques for management of pest/ disease after training in FFS.

“Healthy seed-Healthy produce”- Seed treatment and Grow Safe Food (GSF) programmes were also taken up under IPM FFS programmes. Seed treatment is the application of chemical and biological agents on seeds to control primary soil and seed borne infestation of insects and diseases, which are serious threats to crop production. Since 2006, a seed treatment campaign is taken up every year by Department of Agriculture Co-operation and Farmers Welfare (DAC&FW) during Kharif and Rabi seasons involving State Departments of Agriculture and CIPMCs. During Kharif Season 2021, seed treatment campaign was conducted from May, 2021 to Aug 2021 in 99 villages by CIPMC's in which 3105 farmers were trained about importance of seed treatment. During 2021 Rabi season a seed treatment campaign was carried out at 75 villages of 28 States & 2 UTs through 35 CIPMCs commemorating 75th years of India's Independence. In this campaign demonstration on seed treatment with bio-pesticides and CIB & RC approved label claim pesticides to Rabi crops such as wheat, mustard, chickpea and vegetables was conducted in which 1661 male farmers and 677 female farmers were sensitized about seed treatment and also about safe judicious and need based use of pesticides.

Participation of Women Farmers in IPM activities:- 2128 numbers of women farmers were participated in different IPM activities such as FFS, Kisan Goshthi, IPM Exhibition, 2 days HRD programmes and Seed treatment campaign conducted by 35 CIPMC's during 2021-22 (till date)

(e) Locust Control and Research:

Locust is a trans-boundary migratory pest. It has the ability to fly hundreds of kilometers collectively in swarms. Found in Africa, the Middle East and Asia, they can inhabit some sixty countries and can cover one-fifth of Earth's land surface. Desert locust plagues can threaten the economic livelihood by destroying crops. Swarms of locusts come to India from spring breeding areas of Africa, Middle East and South West Asia during the monsoon season for summer breeding in Scheduled Desert Area of Rajasthan and Gujarat. The scheme Locust Control and Research is being implemented through an Organisation known as Locust Warning Organisation (LWO) established during 1939 and later merged with the Directorate of PPQ&S in 1946. The Locust Warning Organisation (LWO) monitors locust development and its activities over an area of 2.00 lakh sq km of the Scheduled Desert Area (SDA) mainly in the states of Rajasthan and Gujarat and partly in Haryana. The Scheme is being executed through 10 Locust Circle Offices (LCOs) located at Bikaner, Jaisalmer, Barmer, Jalore, Phalodi, Nagaur, Suratgarh, Churu in Rajasthan and Palanpur & Bhuj in Gujarat, Locust Warning Organisation (LWO) Field Headquarters at Jodhpur and Locust Division at Central Headquarter Faridabad (Haryana). Besides, there is one Field Station for Investigation on Locust (FSIL) situated at Bikaner.

To strengthen locust monitoring and forecasting and as per the recommendations made during the 28th Session of the FAO Commission in 2014 for Controlling the Desert Locust in South-West Asia (SWAC), an advanced device named eLocust3 and software RAMSES V4 has been made functional in LWO from January, 2016 with the cooperation of FAO. LWO has a wireless network for exchanging information on locust survey and control between various field offices

and Head quarter. Faridabad. Satisfactory locust control potential is being maintained in the form of pesticides, plant protection equipment, wireless sets, GPS, eLocust3 and trained manpower.

Regularly survey is being carried out in the scheduled desert area to monitor the presence of locust, ecological conditions and also to determine whether locust population has crossed the economic threshold level [adults more than 10,000 per km. and 5-6 hoppers per bush] that may require control. Intensive & Extensive Surveys are undertaken in Desert Locust Active Season as well as in Desert Locust Calm Season.

After recent upsurges during 2019-20 & 20-21, the effective control measures & timely survey for monitoring the locust activity No Locust activity is reported during 2021-22, which is an achievement.

Survey target and achievement for the year 2021-22 (upto Oct) Locust Control

As per survey schedule 2021-2022, 101.95 lakh/Hac target was desired by October 2021, instead of this survey on 110.38 lakh/Hac is achieved by LWO/LCOs which is an achievement.

International Co-operation:

Desert Locust is a trans-boundary pest; it breeds in 30 countries and can migrate to more than 60 countries. Therefore International Cooperation with different countries is essential for effective mitigation of swarms.

- (I) Indo-Pak meetings: The desert in Sindh province of Pakistan and Thar Desert in the states of Rajasthan and Gujarat are ideal grounds for summer breeding of Desert Locust. Regular participation is maintained in the Indo-Pak Border meetings (June to November) for exchange of information on locust

situation between two Countries for effectively monitoring the situation ensuring preparedness to tackle the emergence of locust threat, if any.

- (ii) **SWAC-TOC:** FAO Desert Locust Commissions has three Regional Commissions for Desert Locust Control i.e. Western Region, Central Region and Eastern Region. **FAO Commission for Controlling the Desert Locust in South-West Asia (SWAC)** is FAO's oldest regional locust commission and has 4 member countries: Afghanistan, India, Iran and Pakistan. The Senior Locust Forecasting Officer at FAO HQ acts as the Executive Secretary. Mr. Keith Cressman is Senior Locust Forecasting Officer, FAO (Rome) & Chairman of SWAC. SWAC includes representatives each from Afghanistan, Iran, India and Pakistan. The Senior Locust Forecasting Officer organizes the meetings on monthly basis on virtual mode for sharing current locust situation in the region. India participates regularly in monthly meetings for sharing current desert locust situation of the country. From May 2021 to October 2021, six (6) virtual meetings were organized.

Desert Locust Bulletin:

Desert Locust Situation Bulletins released fortnightly on the basis of information received from FAO on international situation and Desert Locust Survey data conducted by LWO & LCOs. The bulletin provides information on weather parameter, rainfall, swarm movement, breeding, hoppers and Scattered/Isolated adult/Adult group; global information of locust in India & world, Ecological condition for locust breeding, it forecasts locust situation for next 15 days well in advance. Desert Locust Bulletin released, shared among stakeholders viz., State Agriculture/Administration of Rajasthan,

Gujarat, Haryana and Punjab and SWAC countries. During the period from April 2021 to October 2021, fourteen (14) nos. of Bulletins are issued against target of 14 nos.

To strengthen the capabilities:

To further strengthen the ground control efforts, Ministry of Agriculture in collaboration with Ministry of Defence five (05) CDA atomizer kits has been procured from M/s. Micron, U.K. for installation with Mi-17 helicopter as customer furnished equipment, two nos. CDA atomizer has arrived. Installation, demonstration & trials are under process for these received CDA atomizer kits under IAF, Chandigarh.

Desert Locust survey and for real-time reporting using satellites enabled online tools:

- **eLocust3m:**

This is an Android smartphone app developed in 2020 (iOS soon). There are two options for data collection: BASIC and PRO. Basic data is only Locust Type, Area (ha), and Control (yes/no). Pro data is the complete data like eLocust3 tablet. The data is submitted with a photo. Data are saved to the phone and sent whenever there is cell network connection to the National Locust Centre. Data are also shared with other eLocust3m users in the country by chat. It is free to use. Features: basic and complete data, photo, video, chat, multi-language, cell network, near real-time Plant Village: [https:// plantvillage .psu.edu](https://plantvillage.psu.edu)

- **eLocust3g:**

This is a GPS app developed in 2020 for Garmin inReach Explorer+ GPS. It can only be used on this specific GPS. It collects the basic set of data like the eLocust3m BASIC option. There are no photos or chat. The data are sent via the Iridium satellite network in real time to the National Locust Centre. Like eLocust3, it can be used

anywhere, no need for cell network. A monthly subscription is required. Features: basic data, tracking, cell network not required, real-time Garmin Explore: <https://explore.garmin.com>. Procurement of 65 nos. e-locust 3g from FAO is in advanced stage.

Evaluation of fungal pathogen *Metarhizium acridium* as biopesticide against Desert Locust:

Metarhizium acridium is a fungal pathogen of Locust and it is explored and used as biopesticides for control of Desert Locust in Africa specifically in Somalia. FAO recommended the use of *M. acridium* with dose rate of 50 gms dissolved in 1 litre of diesel per hectare for aerial spray and the dose of 2.5gms $\times 10^{12}$ CFU dissolved in 2 litres of diesel per hectare for vehicle mounted and knapsack sprays.

The FAO facilitated the import of 3 kg *M. acridium* from Morocco for its potential use in India. Trials have been conducted at FSIL on bio-efficacy of *M. acridium* against Desert Locust. Mortality rate of 95-100% were observed @50 gm/liter. The cultures are also shared with RCIPMCs for maintaining and multiplication purpose.

II. Strengthening and Modernization Of Plant Quarantine Facilities (SMPQF)

Plant Quarantine:

The objective of Plant Quarantine primarily is to prevent introduction of exotic pests diseases and weeds which are likely to be introduced through import of agricultural commodities or plant material into India and similarly fulfill obligation of the International Plant Protection Convention (IPPC) carrying out phytosanitary certification to prevent introduction of pests, diseases and weeds in other countries through exports of such materials.

The Plant Quarantine (Regulation of Import into

India) Order, 2003 issued under provisions of the Destructive Insects and Pests Act, 1914 (DIP Act) regulates import of plant & plant materials into India. Post entry quarantine inspection is undertaken in case of propagating plant material. Phytosanitary Certificates (PSCs) are issued for export as per International Plant Protection Convention (IPPC), 1951 of the Food and Agricultural Organization (FAO). These functions are being discharged by **72 Plant Quarantine Stations (PQs)** functioning under Directorate of Plant Protection Quarantine & Storage (DPPQS) Faridabad at various international airports, seaports and land customs stations across the country to facilitate international trade of agricultural products.

During the year **2021-22 (Period from 01.04.2021 to 09.11.2021)** Pest Risk Analysis (PRA) was conducted for **55** agricultural commodities to determine potential bio-security risk, if imported. In which 23 agriculture commodities PRA completed and 32 agriculture commodities PRA are under process. Whereas 17 agriculture commodities granted market access have been notified. However, for getting market access of Indian products in other countries technical information for 19 agricultural commodities to the various National Plant Protection Organizations were provided and gained market access to 11 agricultural commodities from various NPPOs. During the period Import Release Order (IROs) were issued for **76206** nos. consignment of plant and plant materials and Phytosanitary Certificates (PSCs) issued for **289631** nos. of consignments of export.

Plant Quarantine stations played important role in bio security as during inspection of imported commodities for various countries during **2021-22 (01.04.21 to 08.11.2021)** intercepted **295** Quarantine pests at various PQ stations.

(III) Monitoring of Pesticide Residue at the National Level (MPRNL): The Scheme was launched in 2005, as a Central Sector Scheme to collect, collate and analyze data and information on a centralized basis, on prevalence of pesticide residues in agricultural products at farm-gate and market yards. Samples of agricultural commodities and food commodities including animal produce are drawn and analyzed in 33 participating laboratories of eight different Ministries/Departments.

All the testing laboratories are accredited by National Accreditation Board for Testing and Calibration of Laboratories (NABL) in the field of pesticide residue analysis as per ISO/IEC 17025. The pesticide residue data generated is shared with concerned State Governments for corrective action for judicious and proper use of pesticides on crops with an integrated pest management approach. The participating laboratories collect the food commodity samples from various Agriculture Produce Marketing Committee (APMC) markets and Public Distribution System (PDS), irrigated water and soil samples from intensive agricultural fields across various parts of the country and analyze them for pesticide residues. The reports of the Scheme are being shared with the States highlighting preponderance of pesticide residues and requesting them to take corrective measures by exhorting the extension machinery to propagate Integrated Pest Management (IPM) and Good Agriculture Practices (GAP).

The laboratories under the scheme have been strengthened by providing nine highly sensitive GC-MS/MS based on latest technology for development of new analytical methods for estimation of multi pesticide residues in food commodities at very low limit of quantification (LOQ).

Under the scheme, 26,048 samples of vegetable, fruits, spices, cereals, pulses, milk, fish/marine,

herbs, tea, meat, egg, oilseeds and water from retail outlets, APMC markets, mother dairy, organic outlets, farm gate located in different parts of India were collected and tested for the possible presence of pesticide residues. The residues were found exceeding FSSAI MRL in 941 (3.6%).

The monitoring data of spices generated under MPRNL was submitted to FAO/WHO/JMPR for risk assessment and MRL fixation. The data was evaluated by the JMPR and 21 MRLs of various spice-pesticide combinations have been adopted and notified by Codex Committee on Pesticide Residues (CCPR). During the 52nd Session of CCPR held during July, 2021, MRLs of acetamiprid and carbendazim have been recommended as 2.0 and 5.0 mg/kg, respectively, on all seed spices.

(B) National Institute of Plant Health Management (NIPHM): The NIPHM was established in the year 1966 as a Central Plant Protection Institute (CPPTI) at Hyderabad. The Institute became an autonomous body in the year 2008 with the expanded scope of promoting sustainable Plant Health Management practices in diverse agro-climatic conditions and Plant Bio-security Management and Pesticide Management through capacity building programs. The NIPHM organizes capacity building programs in areas like Plant Health Management, Bio-Security & Incursion Management and Market Access, Pesticide Management and Plant Health Engineering, provides consultancy services & policy support and undertakes adaptive research in the plant protection domain.

NIPHM has conducted 54 training programmes with a participation of 1661 officers. Another 22 training programmes have been scheduled to be organized till December 2021. During 2021-22, one FFSs training programme was conducted to FFS coordinators under PoCRA, Maharashtra through virtual mode from 26.04.2021 to

30.04.2021, in which 90 FFS coordinators were trained.

Organized training programme to officers

- **Invasive Alien Species: Introduced and Emerging Pests:** An online programme of 3-Days was organized from 06.04.2021 to 08.04.2021 and attended by 49 officials from different departments. Invasive alien species are species that are introduced, accidentally or intentionally, outside of their natural geographic range and that become problematic. The participants are acquainted knowledge on Plant Biosecurity and Emerging Challenges, Regulation with reference to Invasive Species- CBD, IPPC and IUCN, Looming Threats to South Asian Regions, Introduced Insect Pests and their Impact, Invasive Alien Weeds-Prevention and Management, Introduced Pathogens and their Impact, Invasion of Alien Insect Pests and Bio control Intervention for their Management, Plant Pest Incursion Management etc.
- **Fruitfly Surveillance and Management:** *Three online training programmes on Fruit fly was conducted from 19.04.2021 to 23.04.2021 (5 Days), 28.04.2021 to 30.04.2021 (3 Days) in collaboration with KVK and CRIDA, Hyderabad and 30.08.2021 to 03.09.2021. The programme was attended by 47, 61 and 51 officers respectively. The participants provided knowledge on identification & detection of fruit fly species, lure preparation and other different aspects of fruit fly surveillance and management.*
- **Plant Quarantine Procedures for Import and Export:** A 5-Days online programme during 26.04.2021 to 30.04.2021 was organized and wherein attended by 43 participants. The participants were well versed with national procedures and regulations for import and export of agri commodities as per the requirement of the country and obligation towards IPPC and other organizations involved in global trade.
- **Fumigation as a Phytosanitary Treatment (Methyl Bromide and Aluminium Phosphide Fumigation) (Payment Programme):** Three on Campus 15-days programmes from 03.05.2021 to 17.05.2021 (20 participants), 26.07.2021 to 09.08.2021 (20 participants) and 18.10.2021 to 01.11.2021 (18 participants) was organized at NIPHM, Hyderabad. The participants were given exposure on fumigation and relevant NSPM-11, 12 (MBr fumigation) and NSPM-22 (Phosphine fumigation).
- **Stored Grain Pest Detection, Identification and Management:** A 5-days online programme was conducted during the period from 03.05.2021 to 07.05.2021 and 25 participants get trained in stored grain pest detection, their identification and management practices.
- **Customized training programme on WTO and Agri Exports for PAGREXCO officials (Payment Programme):** A 3 Days online programme from 19.05.2021 to 21.05.2021. Different lectures were scheduled in such a way that all the 24 officers get well acquainted with national procedures and regulations for import and export of agri commodities as per the requirement of the country and obligation towards IPPC and other organizations involved in global trade.

- **Awareness programme on Post Entry Quarantine (PEQ):** Two days online programme from 12.05.2021 to 13.05.2021. The said programme was attended by 13 participants. During the programme the officials got well versed with different regulations and legislations in accordance with IPPC, different types of PEQ facilities and their requirement, conditions from growing planting materials and most significantly supervision of Inspection Authority etc.
- **Pest surveillance:** A two five days online programme was organized from 31.05.2021 to 04.06.2021 and 23.08.2021 to 27.08.2021. Pest surveillance provides insights into the health status of a country's agriculture and strengthens the stakeholder's preparedness for preventive actions both in addressing the problems due to domestic pests of serious concern as well as in protection of native agricultural biodiversity from the incursion threats of exotic pests. The programme was attended by 48 participants and 57 participants from different states and departments.
- **Phytosanitary Inspection for Phytosanitary Service Providers for Inspection of Plants/Plant Products & other regulated articles in export (Payment Programme):** As per the requirement of NSPM-23, the 4th batch of Phytosanitary inspection training of Phytosanitary Service Provider (PSSP) is organized at NIPHM for 30 days from 15.06.2021 to 14.07.2021 and 13 eligible aspirants were attended the programme.
- **Stored grain Pest management and Fumigation for CWC officers (Payment Programme):** Three on Campus programmes for 15 days duration was organized exclusively for the technical officials of Central Warehousing Corporation on payment basis from 20.07.2021 to 03.08.2021 (total 28 participants), 17.08.2021 to 31.08.2021 (total 29 participants), 14.09.2021 to 28.09.2021 (total 25 participants).
- **Forced Hot Air Treatment (FHAT) (Payment Programme):** An on campus programme 5 days duration was organized from 26.07.2021 to 30.07.2021 and a total 38 participants were attended the programme. Training focuses on Forced Hot Air Treatment of Solid wood packing material (SWPM).
- **Quarantine pathogens: Seed Health Testing and Molecular Diagnostic Techniques:** A five days training program was conducted through virtual platform from 20.09.2021 to 24.09.2021 (Thirty nine participants). Seed health testing is an important tool for the management of seed-borne and seed-transmitted pathogens. The participants acquired knowledge on different seed health testing methods in order to safeguard Plant Biosecurity and to facilitate safe export of seeds.
- **WTO and Agri Exports for Madhya Pradesh:** A 3-day online programme was organized for agriculture and horticulture officers of Madhya Pradesh from 28.09.2021 to 30.09.2021. Different lectures were scheduled in such a way that all the 34 officers got well acquainted with procedures for export of agri commodities as per the requirement of the country and obligation towards IPPC and other organizations involved in global trade.

- **Irradiation as a phytosanitary treatment:** A 5 days online training was conducted from 04.10.2021 to 08.10.2021 (2 participants). Irradiation is used as one of the phytosanitary treatments in the trade of agricultural commodities as a pest risk management option for prevention of exotic pests. The main objective of this training is to create awareness about irradiation as phytosanitary treatment for export of agricultural and horticultural commodities, treatment development and validation, safety measures and post treatment security.
 - **Certificate Course on Urban Integrated Pest Management (Payment programme):** Two fifteen days on campus programmes were organized from 14.04.2021 to 28.04.2021 and 02.08.2021 to 16.08.2021 at NIPHM. A total of 17 participants and 20 participants from the pest control industry were attended the programme. The programme was organized with an objective to build technical manpower to undertake commercial urban pest control services in human habitations, institutions and industrial premises for structural pest management professionals.
 - **Rodent Pest Management:** Two online programmes were conducted from 17.05.2021 to 21.05.2021 and 23.08.2021 to 27.08.2021 wherein 30 participants and 28 participants were attended. The participants gained knowledge on various aspects related to major rodents pests in Agricultural and Horticultural ecosystem, biology and morphology of rodents, breeding profile of rodents, rodent borne diseases, non-chemical and chemical management of rodent pest etc.
 - **Vertebrate Pest Management - Wild Boar, Monkey and Birds:** Two three days online programme was conducted from 16.06.2021 to 18.06.2021 and 06.10.2021 to 08.10.2021 to impart training on different measures to manage the vertebrate pests at various levels. The programme was attended by 49 officers and 23 officers from different states and departments.
 - **Rodent Pest Management in Food Grain Warehouses:** An exclusive 5 days programme was organised to FCI, CWC and State Warehousing officials from 05.07.2021 to 09.07.2021 through virtual platform and 53 participants were participated. The programme aimed to address various aspects vis-à-vis major rodents pests in urban and storage premises, biology and morphology of rodents, breeding biology of rodents, rodent borne diseases, inspection procedure for rodent pests in storage godowns, rodenticides and mode of action and non-chemical management of rodent pest in storage godowns etc.
 - **Non-Insect Pest Management – Mites, Crabs, Snails, Slugs and Avian:** A 3 days online programme was conducted from 14.07.2021 to 16.07.2021 to train participants in order to practice different measures to manage non-insect pests. The programme was attended by 37 officers from various departments.
- Farmers training programmes:** The following training programmes were conducted to the farmers of Madhya Pradesh, Andhra Pradesh, Maharashtra, Tripura, Uttar Pradesh, Telangana, Tamil Nadu and Kerala.
- **Preparation of Low Cost Bottle Trap**

- and Lures for Fruit Fly Trapping:** Under Kisan Goshti, an online training cum interaction session on management of fruit flies in orange, mango, guava and sweet lime was held on 21.05.2021 (44 farmers) to the farmers of Mandasaur district, Madhya Pradesh. The importance of fruit flies, their biology, damage symptoms, crops affected, management of fruit flies through integrated approaches, preparation of low cost fruit fly trap and lures were explained to the farmers in Hindi language.
- **Integrated Management of Stored Grain Pests:** A Farmer's training cum interactive session was conducted through phone in phone programme in association with Agriculture Department, Yelamanchili, Andhra Pradesh on 22.05.2021. The programme was attended 18 farmers of Yelamanchili, Vishakhapatnam, Andhra Pradesh.
 - **Export products from Maharashtra: Procedure and Benefits:** An online training was organized jointly with KVK Latur, Maharashtra for the progressive farmers on exports of produce and their promotions on 19.06.2021. About 13 farmers were attended the programme and sessions were handled in Marathi to give more clarity on export promotion related to the queries raised by the farmers.
 - **Integrated Fruit fly management strategies to the farmers of Khowai district, Tripura:** This programme was conducted to the farmers of Khowai district, Tripura in collaboration with KVK, Khowai on 22.06.2021 and 30 farmers were attended the programme. The training was focused on effective management of fruit fly.
 - **Stored grain pest detection, identification and management to the farmers of Vizianagaram district, Andhra Pradesh:** A one day off campus programme was organized on 09.08.2021 in Farmers Training center, Vizianagaram to the farmers of various Mandals in Vizianagaram District, Andhra Pradesh and a total of 60 farmers were attended.
 - **Interactive meet in collaboration with Department of Agriculture, Andhra Pradesh on Banana Pest Management (Sigatoka leaf spot):** This meet was organized in collaboration with the Department of Horticulture, Andhra Pradesh on Banana Pest Management (Sigatoka leaf spot) through virtual mode to the farmers of Andhra Pradesh (Kadapa, Kurnool and Chittoor) on 18.08.2021. It was conducted under the chairmanship of Dr S.H. Singh, DG, NIPHM and Dr S.S. Sreedhar, IFS, Commissioner of Horticulture. The faculty from NIPHM, officers from Department of Horticulture and also progressive farmers were participated. Around 62 members were attended. Special emphasis was given on Sigatoka Disease management in Banana.
 - **"Dhaanyam Nilvalo Cheeda peedala gurtimpu marriyu nivarana"** to the farmers of West Godavari District, Andhra Pradesh: A one day virtual training program was organized on 13.10.2021 to the farmers of West Godavari District, Andhra Pradesh. Total 24 participants (Progressive Farmers/farmers) from WG district were attended the programme.
 - **Good Agricultural Practices (GAP) and export promotion of Mango:** Uttar

Pradesh is largest producer of mango in India but very negligible share in export compared to other states of India. Hence, a one day webinar on “*Good Agricultural Practices (GAP) and export promotion of Mango*” was organized in collaboration with Laxmi Jan Kalyan Sewa Sansthan, Muradnagar, Ghaziabad, Uttar Pradesh on 06.10.2021 under Azadi ka Amrit Mahotsav. Total 37 participants (Exporters, Farmers and Pesticide Dealers) were attended the program. The farmers from Shamli, Badaun and Bahraich District of UP attended the program. The GAP in mango related to export requirement and the role of a farmer, exporter and insecticide dealers in export promotion was emphasized.

- **Vertebrate Pest Management:** An online training cum interactive session was organized to the farmers of Warangal District, Telangana on 21.05.2021 under Kisan Goshti. About 42 farmers were attended. The session was conducted in Telugu language and explained about the economic importance of vertebrates (rodents, wild boar and monkeys), their biology, damage symptoms, losses and its managements by adopting integrated approaches including the use of bioacoustics and monkey guns.
- **Vertebrate Pest Management for the farmers of Thiruvarur District, Tamil Nadu:** An Online training programme was organized in association with KVK-Needamangalam-Thiruvarur, Tamil Nadu to the farmers of Thiruvarur District, Tamil Nadu on 18.06.2021. Total 100 farmers were attended the training. The programme addressed different issues and technologies pertaining to Management of Vertebrate

pests in the field through virtual platform.

- **Vertebrate Pest Management to the farmers of Virudhnagar District, Tamil Nadu:** Two online training programmes were conducted in collaboration with Department of Agriculture, Virudhnagar, Tamil Nadu to the farmers of Virudhnagar District, on 25.06.2021 and 28.06.2021. A total of 120 farmers and 80 farmers were participated in the programmes.
- **Rodent Pest Management training to farmers of Khowai District, Tripura:** An online programme was organized to the farmers of Khowai District, Tripura on 29.06.2021 and 30 farmers were participated in the programme. The programme provided knowledge on various aspects and technologies related to rodent pest management.
- **Vertebrate Pest Management to the farmers of Puthukottai District, Tamil Nadu:** An online farmer's programme was conducted to the farmers of Puthukottai District on 01.07.2021. About 63 farmers were attended the programme.
- **Rodent Pest Management:** A farmer's training programme was conducted in collaboration with KVK, Khowai, Tripura to the rice growing farmers on 12.07.2021 and 42 farmers attended.
- **Rodent Pest Management for farmers of Erode District, Tamil Nadu:** Under Azadi ka Amrit Mahotsav, one day online training was organized in collaboration with KVK, Gobichettipalayam, Erode, Tamil Nadu to the farmers and dealers of Erode District, Tamil Nadu on 08.10.2021. 52 farmers and dealers

attended the programme. The training emphasized on sustainable rodent management in agriculture, horticulture ecosystem and in grain storage.

- **Vertebrate Pest Management:** Under Azadi ka Amrit Mahotsav, one day online training was conducted on 13.10.2021 to the famers of Aluva, Kerala. Total 22 farmers were attended the programme.

WEBINARS:

- **National Webinar on “Sustainable Bird Management in Horticultural and Agricultural Ecosystem”:** One day National webinar was organized on 30.06.2021 and different aspects pertaining to management of birds were elaborated by invited experts. Total 360 participants were attended the webinar.
- **Phytosanitary Strategies for Food Security and Market Access of Fruits and Vegetables:** In the light of International Year of Fruits and Vegetables 2021 as declared by the UN General Assembly, NIPHM has conducted one day webinar on 26.08.2021 and 325 participants from across the country participated. During the programme, different issues relevant to plant quarantine policies, phytosanitary measures and trade challenges have taken in consideration. An emphasis was given for urgent need to address the significant and serious shortcomings in the key aspects of export and control system.
- **Grains Management- Regulatory Approaches in Indian and Australian Agriculture:** One day webinar was conducted in collaboration with the Australian Government Department of Agriculture, Water and the Environment

under the auspices of the Australia-India Grains Partnership on 22.09.2021. 53 participants from Govt. of Australia, DPPQ&S, NIPHM, Rice exporters, Warehousing officials etc. were attended.

1. Massive Open Online Course (MOOCs) in Plant Biosecurity (MOOCs):

- a. The fifth batch was conducted during April 1st to June 30th 2021 and 18 participants cleared the final exam.
- b. The sixth batch is commenced on 01.09.2021 with 35 candidates and the programme is being conducted as per the schedule.

2. Massive Open Online Course (MOOCs) in Rodent and Household Pest Management:

- a. The third programme was conducted during 1st April, 2021 to 30th June, 2021 and 29 participants were cleared the exam.
- b. The fourth programme is started on 01.09.2021 with 22 participants. The programme is being conducted as per the schedule.

3. Village Adoption/Plant Health Clinic Activities:

- Monitoring of the activities of Plant Health Clinic at Amdapur and pursued the information of crop seeds sown in Kharif season for demonstration of seed treatment.
- Communicating with the farmers of Plant Health Clinic selected districts (Rangareddy, Warangal Rural, Warangal Urban and Suryapet) on different aspects/giving advisories on the queries raised related to Plant Health viz., nematode management, IPM in vegetable crops and other queries raised

in the whatsApp groups of farmers of said districts.

- **Farmers Advisory Cell:** Advisories were given to **600 farmers** and stakeholders pertinent to different training programmes, organic farming, vermicomposting and NIPHM low cost technologies etc.
- Two faculties from NIPHM visited the farmers at Pamenu village, Chevella and also the snail infested fields on 06.08.2021 for providing advisories on snail management in vegetable crops i.e. carrot, beetroot, cabbage, cauliflower, bottle gourd and tomato and also demonstrated tobacco decoction for snail management.
- A meeting with Chilli Nursery growers at Raghaunathapalem Rythu Vedika, Khammam during August, 2021. The meeting was inaugurated by Honourable Agriculture Minister, Shri. Singireddy Niranjana Reddy. NIPHM has demonstrated the technologies viz. on farm production of bio-fertilizers and bio-pesticides to farmers.

Visit to District Horticulture department Zakerabad for Farmers training: A training was conducted for 175 farmers on “on farm production of biofertilizers and Biopesticides”.

- **In-house projects: In addition to the capacity building programmes, the following in-house projects are in progress for 2021-2022**
 - Studies on impact of rodents in different Human habitat in Hyderabad city:
 - Effect of Hot water dip treatment on storage quality and disinfection of sucking pests in vegetables.
 - Effect of Heat Treatments (Hot Water

Immersion & Forced Hot Air) in controlling post-harvest decay and infestation of pests in seasonal fruits:

- Study on effect of Co₂ Fumigation with and without Phosphine at Different Temperatures:
- Survey of poly houses for the incidence of different pest complex in different crops grown in Rangareddy District.
- **Bio-input production and distribution:** As a farmer friendly institution, as licensed unit, produced about 516 liters of different liquid bio-fertilizers & 250 kg of VAM bio-fertilizers, 30 kg Azolla), distributed/sold 365 L of different liquid bio-fertilizers & 205 kg of VAM bio-fertilizers, 20 kg Azolla) & SI NPV (5 L) & Entomopathogenic Nematodes mother cultures to the farmers. Based on the request of Tobacco Board, Andhra Pradesh and Karnataka and NIPHM supplied Biopesticides (*Trichoderma* & *Pseudomonas*) supplied (2213 L + 2213 L) during June 2021.
- **Quality control of Bio-pesticides:** In this laboratory, the quality analysis of different types of biopesticides samples is carried out (The Gazette of India 12th March 2013). The samples are received through insecticide inspectors as part of the department scheme on quality control. All analytical procedures are carried out as per the BIS specifications and technical guidelines issued by the central insecticide laboratory. The standard operating procedures are periodically updated as per the BIS norms. On an average 5- 10 samples are received for analysis per month. During this period a total 25 biopesticides samples received from different states of India (Uttar Pradesh-02, Gujarat-11, Odisha-02, Rajasthan-02, Bihar-01, Kerala-07) and 23 samples were completed quality parameters analysis.

- Pesticide Formulation Analysis:** Pesticide Management Division has conducted sixty days training program on “Pesticide Formulation Analysis” from 19th April to 17th June , 2021”. A total of 13 trainees were participated from State Agriculture Department, Andhra Pradesh. The aim of the training is to build the capacity of Analysts undertaking the Quality Control analysis of Pesticide Formulations on different analytical technique such as volumetric analysis, chromatographic and Spectroscopic techniques using High Performance Liquid Chromatography (HPLC), Gas Liquid Chromatography (GLC), UV-Vis Spectrophotometer and Fourier-transform infrared spectroscopy (FTIR) as per Bureau of Indian Standard method.
- Inspection and sampling under Insecticide Act 1968:** Three days online training programme on “Inspection and Sampling under Insecticide Act, 1968” was conducted from 3rd to 5th May, 2021. A total of 37 officials/insecticide inspectors were attended the programme from State department of Agriculture. The training focuses on various salient features of the Act and Rules, insecticide registration procedure, the duties and responsibilities of Insecticide Inspectors, procedures of inspection and sampling of Pesticides from the markets and manufacturing industries as per BIS method for sampling of pesticides to build the capacity of Insecticide Inspectors for enforcement of the Insecticide Act 1968.
- Laboratory Quality System Management and Internal Audit as per the ISO/IEC-17025:2017 - a special program conducted for faculties of MAFSU, Nagpur:** A 5 days special programme on “Laboratory Quality System Management and Internal Audit as per the ISO/IEC-17025:2017” was conducted from 17.05.2021 to 21.05.2021 for faculties of Maharashtra Animal & Fishery Sciences University (MAFSU), Nagpur on request basis. 29 faculties from different constituent colleges of MAFSU participated in the program conducted through online mode.
- “Laboratory Quality System Management and Internal Audit as per the ISO/IEC-17025:2017:** The analyst required knowledge on general requirement for the competence of testing and calibration laboratories in accordance with ISO/IEC 17025:2017 and procedure to conduct internal audit for laboratory accreditation. The program is mainly for analyst/officials working in the laboratory. In this context, an online training program for 5 days on “Laboratory Quality management System and Internal Audit as per ISO/IEC 17025:2017” was conducted from 7th to 11th June 2021. A total of 27 participants were participated from different state laboratories.
- Inspection and sampling under Insecticide Act 1968:** Three days program on “Inspection and Sampling under Insecticide Act 1968” was conducted through online mode from 5th to 7th July 2021. A total of 27 officials were participated from various state department of Agriculture (Andhra Pradesh, Jammu and Kashmir, Maharashtra, Puducherry and Uttarakhand). The program is designed for the Insecticide Inspectors/Insecticide Analyst working at state Pesticide Testing Laboratories (PTLs) / Regional PTLs / Central Insecticide Laboratories to *understand* on various salient features of the Act 1968 and Rules 1971 and sampling of Pesticide Formulations procedure as per the requirement of the Insecticide Act, 1968.

- **“Pesticide Formulation Analysis” program for 60 days** has been started through offline mode from 9th Aug to 7th Oct 2021 at new PMD laboratory. A total of 9 officials were participated from various state department of Agriculture (Bihar, Haryana, Maharashtra, and Tamil Nadu). The program is designed for the Insecticide Analyst working at state Pesticide Testing Laboratories (PTLs) / Regional PTLs / Central Insecticide Laboratories. This training focuses more on practical classes rather than theory to learn and perform on various techniques such as volumetric, spectroscopic and chromatographic methods for analysis of quality of pesticide as per the BIS or CIBRC approved method.
- **A “Refresher program on Pesticide Formulation Analysis”** was conducted from 10th to 12th Aug 2021 through online mode. A total of 32 participants were participated from different state pesticide testing laboratory (Andhra Pradesh, Rajasthan, Maharashtra, Karnataka, Kerala and Tamil Nadu). The training is for Insecticide analyst who undergone training on “Pesticide Formulation Analysis-60 days”. The training focuses more on analysis of new pesticides which were not covered during 60 days training on Pesticide Formulation Analysis and discussion on troubleshooting issues related to quality control analysis with respect to new pesticide.
- **Inspection, Sampling and Prosecution Procedures under Insecticide Act, 1968 (ISPP):** Training on “Inspection, Sampling and Prosecution Procedure under Insecticide Act, 1968” was conducted from 20th to 24th Sept 2021. A total of 5 officials were participated from state department of Agriculture Tamil Nadu and Uttar Pradesh. The program is designed for the Insecticide Inspector and Analyst working at state department of Agriculture and Quality control Laboratories. This training focuses more on *Insecticide Act, 1968, enforcement of Act, pesticide registration procedure, duties and responsibilities of Insecticide Inspector and Analyst, Sampling of pesticide under Insecticide Act, amendment to Insecticide Rule 1971.*
- **Laboratory Quality Management System and Internal Audit as per ISO/IEC 17025:2017:** Program Details: Training on “Laboratory Quality Management System and Internal Audit as per ISO/IEC 17025:2017” was conducted from 27.09.2021 to 01.10.2021 through offline mode. A total of 20 Participants were participated from different state pesticide testing laboratory (Maharashtra, Uttar Pradesh, Haryana, Madhya Pradesh, Punjab and Tamil Nadu). The basic idea of the training is to understand the general requirement for testing and calibration laboratory as per International Standard ISO/IEC 17025 2017. This will be benefited to maintain the quality of testing and validity of the test report. The training focuses more on each clauses of the International Standard ISO/IEC 17025 2017 and the practical knowledge of process of Internal Audit.
- **Documentation procedures for NABL accreditation (25.10.2021 to 27.10.2021):** Program Details: Training on “Documentation procedures for NABL accreditation” was conducted from 25th to 27th October 2021 through online. A total of 29 officials were participated from state department of Agriculture of Tamil Nadu, Maharashtra and Jammu & Kashmir. This training focuses more on documents preparation for NABL accreditation such as Quality Manual/ Management system document and other documents for testing Laboratory as per requirement of ISO/IEC 17025:2017.

TESTING / ANALYSIS ACTIVITIES**1) Pesticide Formulation and Residue Analytical Centre (PFRAC)**

Pesticide Formulation and Residue Analytical Centre (PFRAC) is an accredited laboratory by National Accreditation Board for Testing and Calibration Laboratories (NABL) as per ISO/IEC 17025:2017. The certificate number for PFRAC is TC-5338, valid until 12th January, 2022.

i. Monitoring of Pesticide Residues at National Level:

NIPHM is one of the participating centers under the Central Sector Scheme "Monitoring of Pesticide Residues at National Level" funded by Govt. of India. Under the scheme > 100 samples were collected on monthly intervals from markets and farm gates. Farm gate vegetable samples are collected from different Farmer's field located in various districts of Telangana. Market samples are collected from different local markets of Hyderabad (Telangana). The market samples include organic produce and imported fruits. Monthly analysis reports of the collected samples are sent to Project coordinator to identify crops and regions having preponderance of pesticide residues in order to focus extension efforts for Integrated Pest Management (IPM) and Good Agriculture Practices (GAP).

ii) How Safe are Your Fruits & Veggies:

A program on monitoring of fruits vegetables samples for pesticide residues of different markets of Hyderabad is undertaken to make data available for general customers about the pesticide residues in commonly consumed commodities. During the year 2021-2022, a total of 90 samples of vegetables like mango,

okra, tomato, apple and green chilli were collected from different markets of Hyderabad. The details of samples analyzed under the project are given in tables below.

iii) Analysis of Customers Samples

Pesticide Management Division, NIPHM has been receiving tobacco samples from Tobacco Board every year during the tobacco leaf collection and auction season. During March- October, 2021, 35 samples received from Tobacco Board were analyzed and results were submitted to the Tobacco Board. The detected pesticide residue levels were compared with the Guidance Residue Levels (GRL, CORESTA Guide no. 1) to know that detected pesticide residues were below or above the level prescribed at CORESTA Guide no.1.

iv) Analysis of Bio-pesticide samples from Insecticide Inspector (Gazette Notified CIL activity):

The bio-pesticides samples collected by officials of Department of Agriculture in various states are sent to NIPHM for analysis to detect adulteration with synthetic pesticides.

Analysis of Leafy Vegetables and Water samples for Heavy Metal Contamination:

A program on analysis of heavy metals such as Cadmium, Cobalt, Chromium, Manganese, Nickel and Lead in leafy vegetables samples of different markets of Hyderabad is initiated during June, 2018.

PROFICIENCY TESTING

The Pesticide Management Division conducts proficiency testing in Pesticide Formulation and Pesticide Residue Analysis, the participation in which is one of the requirements for the laboratories going for accreditation by NABL under ISO/IEC 17025-2017 and many

laboratories participated in the programs. The purpose of PT is to check the accuracy of the result submitted by the participating Laboratory and it is achieved by comparing participant's results to the assigned value. The participants performance assessment is determined by 'Z' score.

While determining whether a participant's results are satisfactory, unsatisfactory, or questionable, the following rules are used;

- a) When the value of $Z \leq 2$, the results are considered satisfactory.
- b) When the value of $Z \geq 3$, the results are considered unsatisfactory.
- c) When the value of $Z \geq 2$ and $Z \leq 3$, the results are considered questionable.

1) PT program in Pesticide Residue Analysis:

During the year 2021-22, 02 PT schemes were conducted for Pesticide Residue Analysis and 03 PT schemes were conducted on Pesticide Quality Control Analysis. The details about the programs are furnished below:

Pesticide Residues in Agricultural Commodities: Two PT schemes were conducted in Pesticide Residue Analysis in the month of August 2021.

2) PT in Pesticide Formulation Analysis

A total of 3 PT schemes were conducted in the area of quality control of pesticide formulations till date

OTHER ACTIVITIES

- **Monitoring of Certificate Course on Insecticide Management for Dealers/Distributors of pesticides:** The Insecticides (Second Amendment) Rules, 2017 (Notification No. GSR 106 (E) dated 01.02.2017 issued under the Insecticides Rules 1971) specifies the educational qualification for Insecticide dealers/distributors. The existing dealers/distributors who are not having the prescribed educational qualification, but who possess a valid license as on the 1st February, 2017, may undergo certificate course of twelve week duration with one class a week in Insecticides Management. As per the instruction of Ministry of Agriculture and Farmers Welfare, NIPHM is designated as a nodal agency for monitoring the conduction of this program. The conduction of this program by KVKs, SAMETIs or SAU is being monitored by NIPHM and the organization conducting the program are depositing an amount of Rs.250/- per participant as monitoring charges to NIPHM.

23.1 Overview

Women farmers play an important role in the agriculture sector and development of rural economy. Agriculture, the single largest production endeavour in India and contributing substantially to the GDP, is increasingly becoming a female activity. Agriculture sector employs 80% of all economically active women; they comprise 33% of the agricultural labour force and 48% of self-employed farmers. Women play a significant and crucial role in agricultural development including, main crop production, livestock production, horticulture, post-harvesting operations, agro/social forestry, fishing etc. Increasing percentage of female operational holders during different Agriculture Censuses indicates participation of more and more women in operation and management of agricultural holdings in the country.

National Policy on Farmers, 2007 has included ***“mainstreaming the human and gender dimensions in all farm policies and programmes”*** as one of the major policy goals. Accordingly, Gender Mainstreaming initiatives are being promoted in the Department of Agriculture & Farmers Welfare (DA&FW), Ministry of Agriculture & Farmers Welfare, by way of building their capacities and improving their access to inputs, technologies and other farming resources. Mainstreaming of gender concerns is being addressed by (i) earmarking 30% of funds for women under various major schemes/programmes and development interventions; (ii) taking pro-women initiatives to help women derive the benefits of beneficiary-oriented components of various programmes/ schemes and missions. Focus is also being given on formation of women Self

Help Groups (SHGs), capacity building interventions, linking them to micro credit, enhancing their access to information and ensuring their representation in decision making bodies at various levels.

To fulfill the mission of gender mainstreaming in agriculture & allied sectors, the National Gender Resource Centre in Agriculture (NGRCA) in Extension Division is working as a focal point for convergence of all gender related activities and issues within and outside DA&FW; addressing gender dimension to agriculture policies and programmes; rendering advocacy/ advisory services to the States/UTs to internalize gender specific interventions. NGRCA aims at forging effective functional linkages with other related departments, agencies and institutions for women empowerment.

23.2 Current Initiatives of NGRCA

Being a Nodal Centre for Women in Agriculture in DA&FW, the centre is actively involved in the following activities:

- An e-book on the '**Success Stories of Progressive Women Farmers and Agripreneurs**' was prepared by NGRCA collating best practices and success stories of 75 women farmers and agripreneurs. This book will help the extension functionaries and officials at State, District and Block Level in making women farmers aware of interventions and best practices facilitating them to derive benefits of the tailor made provisions of various Schemes/ Programmes of the Ministry.
- **Mahila Kisan Diwas-2021**- The Department of Agriculture & Farmers

Welfare organized webinar on “**Women in Agri-startups: Creating Value with Supply Chain Management**” in the series of events for celebrating Mahila Kisan Diwas 2021. This event was organized on **22.10.2021** through Video Conferencing under the guidance of Hon'ble Union Agriculture Minister Shri. Narendra Singh Tomar and in the august presence of Shri Kailash Choudhary, Hon'ble Minister of State for Agriculture & Farmers Welfare. The Hon'ble Minister released e-book depicting Success Stories of 75 progressive women farmers and agripreneurs to commemorate 75 years of “**Azadi Ka Amrit Mahotsav**”. The Senior and middle level extension functionaries, women farmers and agri-entrepreneurs and resource person from various training institutes participated in the event. The successful women entrepreneurs from various States also shared their views and experiences on the occasion.

23.3 MAINSTREAMING EFFORTS OF VARIOUS DIVISIONS OF DA&FW

The important mainstreaming and gender budgeting efforts within various Subject Matter Divisions of DA&FW are given as under:

A. AGRICULTURE EXTENSION

Support to State Extension Programs for Extension Reforms (ATMA): The Scheme “**Support to State Extension Programs for Extension Reforms (ATMA)**” implemented since 2005 has now been included as a Centrally Sponsored components of the Sub-Mission on Agriculture Extension (SMAE) under Green Revolution – Krishonnati Yojana. It is now under implementation in 691 districts of 28 States & 5 UTs of the country. The Scheme promotes decentralized farmer-driven and farmer accountable extension system through an

institutional arrangement for technology dissemination in the form of an Agricultural Technology Management Agency (ATMA) at district level. Under the Scheme grants-in-aid is released to States with an objective to support State Governments efforts of revitalization of the extension system and making available the latest agricultural technologies in different thematic areas to increase agricultural production through extension activities vi; Farmers Training, Demonstration, Exposure visit, Kisan Mela, Mobilization of Farmers Groups and Setting up of Farm Schools. Through these activities, latest agriculture technologies are disseminated to farmers in the country.

The gender mainstreaming efforts under the Scheme include:

- Minimum 30% of resources meant for programmes and activities are required to be allocated to women farmers and women extension functionaries with specific documentation of expenditure and performance for women being maintained;
- Women farmers are to be involved in different decision making bodies at district and block level such as (ATMA) Governing Board and ATMA Management Committee at district level;
- Women are represented in Farmers Advisory Committees (FACs) set up at block/ district and state level; more women are involved as 'Farmer Friends' under the newly introduced mechanism for extension delivery below the block level through a 'Farmer Friend'; and
- Farm Women's Food Security Groups (FSGs) @ at least 2 per block to be formed annually for ensuring household food and nutritional security providing assistance of Rs. 10,000/ per group.

Since inception of the Scheme in 2005-06, a total

1,48,10,130 Farm Women (24.58% of the total benefited farmers) have participated in farmer oriented activities like Exposure Visits, Training, Demonstrations & Kisan Melas. During FY 2021-22 (upto January, 2022), 19,10,485 farmers including 5,18,428 farm women (27.13%) have reportedly participated in farmer oriented activities like Exposure Visits, Trainings, Demonstrations & Kisan Melas.

Mass Media Support to Agriculture Extension Scheme (MMSAE): The primary objective of the Central Sector Scheme **Mass Media Support to Agriculture Extension Scheme (MMSAE)** since its inception in 2004-2005 is to create awareness/publicity of schemes /missions/ government new initiatives/ advisories /modern technologies related to agriculture and allied sector for the welfare of farming community through Electronic & Print Media & later Social Media added to harness the potential & growth in spread of mobiles & internet usage even in the rural areas. The scheme is being implemented through Doordarshan, DD Kisan and All India Radio to telecast & broadcast the sponsored agriculture and allied sector programmes. Under the scheme, a Krishi Darshan programme of 30 minutes (05 days a week) (5.30 – 6.00 PM) being telecast through 18 Regional Kendras of Doordarshan, 03 programmes namely Krishi Darshan (30 minutes) (5.30 – 6.00 PM), Hello Kisan (60 minutes) (6.00 - 7.00 PM) and Choupal Churha (30 minutes) (9.00 – 9.30 AM) (05 days a week) on DD Kisan & 30 minutes of programmes namely Kisan Vani (06 days a week) (6.30 - 7.00 PM) through 96 Rural FM Radio Stations of All India Radio are being utilized to broadcast. Since, September 2018 a new agriculture programme “Kisan Ki Baat” was being broadcast on FM Gold Channel, Delhi, (3.10 – 3.40 PM), on the lines of Kisan Vani programme.

In addition to above, the 'Focused Publicity & Awareness Campaign' through Audio-Video Spots are also being broadcast/telecast through

DD, AIR and Private TV-Radio Channels operating at National & Regional Level for the benefits of the farming community. Besides, publicity & awareness is also carried out through Outdoor Publicity as well as through print advertisements in leading newspapers across the country. In view of growth in spread of mobiles and internet usage even in the rural areas, social media platforms viz Facebook (www.facebook.com/agrigoi), Twitter (www.twitter.com/agriGoI), Instagram ([instagram/AgriGoI](https://www.instagram.com/AgriGoI)) and Youtube (www.youtube.com/agrigoi) etc are also being utilized for the publicity. DD/AIR have been requested to produce and telecast/broadcast the women specific programmes for their benefits/awareness on pro-women provisions available in the various schemes of DA&FW besides publicity on gender interventions through electronic and social media.

Establishment of Agri-Clinics and Agri-Business Centres (AC&ABC) : Under the scheme Sub-Mission on Agricultural Extension (SMAE) of Green Revolution (Krishonnati Yojana) of Extension Division of Department of Agriculture & Farmers Welfare, a Central Sector component, “Establishment of Agri-Clinics and Agri-Business Centres (AC&ABC)” has been under implementation since April, 2002 to supplement the efforts of public extension, support agricultural development and create gainful self-employment opportunities to unemployed youths with qualification in agriculture and allied sectors.

The scheme promotes involvement of agripreneurs trained under the AC&ABC scheme in providing advisory and extension services to the farmers in agriculture and allied areas through agri-ventures established with financial supports. These agripreneurs are actively involved in providing advisory and extension services to the farmers on various technologies including soil health, cropping practices, plant protection, post harvest technology etc.

The National Institute of Agricultural Extension Management (MANAGE), Hyderabad is the implementing agency for Training Component and National Bank for Agriculture and Rural Development (NABARD) is the implementing agency for Subsidy Component of AC&ABC scheme.

Under the scheme, residential training of 45 days duration is imparted to unemployed candidates in the age group of 18-60 years who possess degree/ diploma in agriculture and allied subjects, intermediate in agriculture, science graduates with PG in agri related courses and graduates in life sciences and environmental sciences through selected Nodal Training Institutes (NTIs) in various parts of the country. The NTIs also provide hand-holding to the trained candidates for establishment of agri-ventures in agriculture and allied areas and facilitates in providing loan assistance from banks and subsidy support through NABARD.

There is a provision of credit linked back-ended upfront composite subsidy on the bank loan availed by trained candidates under the Scheme. The subsidy is 44% in respect of women, SC/ST and all categories of candidates from North-Eastern and Hill States and 36% in respect of other categories. The subsidy is admissible for loans up to Rs.20 lakhs in case of individual and Rs.100 lakhs in case of Group Projects (for ventures set up by a group of 5 trained candidates).

During the current year (2021-22), 3884 candidates have been trained and 1404 have established their ventures which include 460 and 155 women candidates respectively. Since inception of the scheme, 78204 candidates have been trained and 32632 agri-ventures have been established in the country till 31.12.2021. Out of these 6593 and 1971 respectively are women candidates. Among the ventures established, 3069 have been granted with subsidy as on 31.12.2021 which includes 141 ventures

established by women candidates. During the current year subsidy was extended to 12 women candidates. The agri-ventures established under the scheme are acting as active supplementary institutions for Government Extension mechanism in the States/UTs.

Recently, benefits of MUDRA loan scheme have been inducted under AC&ABC scheme. Also, the scheme has been on-boarded with DBT Bharat Mission for implementation of Direct Benefit Transfer (DBT) and Aadhaar particulars have been made mandatory for getting benefits under the scheme. Online process has been rolled out on 01.01.2018 through <https://acabcmis.gov.in> for training programmes under the scheme and details of subsidy distribution are captured on the online portal. Details of the scheme may be seen at the website www.agriclinics.net.

Extension Education Institutes (EEIs): Ministry of Agriculture and Farmers Welfare has established four Extension Education Institutes on regional basis at Nilokheri (Haryana); Hyderabad (Telangana); Anand (Gujarat) and Jorhat (Assam) to cater to the training needs of middle-level field extension functionaries working under agriculture and allied departments of States/UTs of respective regions. The programmatic activities of EEIs include organization of on-campus/off-campus trainings, workshops, conferences etc. in the areas of communication technology, extension methodology, training management, Agriculture Knowledge Information System (AKIS) and Information Technology. During 2021-22, the Extension Education Institutes (EEIs) conducted training courses with 4949 field extension functionaries including 1479 women extension functionaries.

Diploma in Agricultural Extension Services for Input Dealers (DAESI): DAESI is of one year (spread in 48 weeks; 1 day per week) diploma programme for agri-input dealers launched in October 2015. The National Institute of

Agricultural Extension Management (MANAGE) is implementing DAESI Programme in all States through State Agricultural Management & Extension Training Institutes (SAMETIs), Krishi Vigyan Kendras & State Agricultural Universities. There is a course fee is Rs.20,000/- per candidate, out of which Rs.10,000/- is borne by DA&FW and Rs.10,000/- is to be contributed by input dealer. The GOI provides Rs.4.00 lakh for one batch of DAESI Programme @ Rs. 10,000/- per candidate for a batch of 40 input dealers. The objective of DAESI is to impart education to the input dealers to upgrade their knowledge on latest technologies in agriculture and allied sectors, rules and regulations for sale of agri-inputs and transform them into para extension workers for providing better extension services to the farmers. During 2021-22, under DAESI programme; training was provided to 1720 input dealers including 42 women candidates.

Skill Training (National Skill Development Mission): The skill training programmes of min. 200 hours duration were operationalized in DA&FW after the Gazette Notification issued by Ministry of Skill Development and entrepreneurship (MSDE) in July, 2015. The budget provision was made under Rashtriya Krishi Vikas Yojana (RKVY) to operationalize skill training courses through National Training Institutes, State Level Training Institutes (SAMETIs), Krishi Vigyan Kendras and State Agricultural Universities.

Skill Training of Rural Youth (STRY): The

component aims at training rural youths, rural artisans (blacksmiths, carpenter etc. designing/manufacturing farm implements) including farm women across the country. The training under this component would be of 7 days duration for 15 trainees per batch and would focus on specific vocational areas in agriculture & allied sectors. Both public and private/ Non-Governmental Institutions including Vocational Training organisations, Youth Organisations (like Nehru Yuva Kendra) will be actively involved in implementation of this programme. Under STRY, there is a provision of Rs. 42,000/- for one batch of skill training for 15 candidates as per the cost norms of ATMA cafeteria @ Rs.400/- per farmer per day. During the year 2021-22, a total number of 1600 women were trained under STRY.

B. AGRICULTURE CENSUS

Agriculture Census is conducted at five yearly intervals to collect data on structural characteristics of operational holdings in the country. Since 1995-96, gender dis-aggregated data is being collected in Agriculture Census. The scope of collection of gender dis-aggregated statistics is restricted to number of operational holdings, corresponding operated area by different size classes of holdings, social group (SC, ST and others) and types of holdings (individual, joint and institutional).

Percentage of female operational holdings by size classes as per results of latest Agriculture Census 2015-16 and 2010-11 is given in the following table-

Sr. No.	Size Group	2010-11	2015-16
1	Marginal (Below 1.00 ha.)	13.63	14.68
2	Small (1.00-2.00 ha.)	12.15	13.44
3	Semi-Medium (2.00-4.00 ha.)	10.45	11.76
4	Medium (4.00-10.00 ha.)	8.49	9.76
5	Large (Above 10.00 ha.)	6.78	7.88
	All Size Groups	12.78	13.96

Increase in percentage of female operational holders during the different Agriculture Censuses indicates participation of more and more women in operation and management of agricultural holdings in the country.

C. AGRICULTURAL MARKETING

In order to provide single window approach, user and investment friendly atmosphere, all the ongoing six Plan Schemes implemented during the XI Plan period have been put under one umbrella “**Integrated Scheme for Agricultural Marketing (ISAM)**”. It aims to (i) promote agri-marketing through creation of marketing and agribusiness infrastructure including storage, (ii) incentivize agri-market reforms, (iii) provide market linkages to farmers, (iv) provide access to agri-market information and (v) support quality certification of agriculture commodities. ISAM scheme is having five components, namely: (i) Agricultural Marketing Infrastructure (AMI), the objective of this component is to create market infrastructure including Storage Infrastructure and Integrated Value Chain Projects (IVC) [the schemes of Grameen Bhandaran Yojana (GBY) and Development/ Strengthening of Agricultural Marketing Infrastructure, Grading and Standardization (AMIGS) has been merged as AMI] (ii) Marketing Research and Information Network (MRIN) (iii) Strengthening of Agmark Grading Facilities (SAGF), (iv) Agri-Business Development (ABD) through Venture Capital Assistance (VCA) and Project Development Facility (PDF) and (v) Training, Research and Consultancy through Choudhary Charan Singh National Institute of Agriculture Marketing (NIAM).

Under Agricultural Marketing Infrastructure (AMI) component, Women are eligible for subsidy @ **33.33%** as against 25% for others.

D. CROPS

National Food Security Mission was launched in 2007-08 to increase the production of rice,

wheat and pulses by 10, 8 and 2 million tonnes, respectively by the end of 11th Plan through area expansion and productivity enhancement; restoring soil fertility and productivity; creating employment opportunities and enhancing farm level economy. The basic strategy of the Mission is to promote and extend improved technologies of package of practices of crops through various types of demonstrations (FLDs/Cluster FLDs), distribution of HYVs/Hybrid seeds, production of seeds, distribution of micro-nutrients/ soil ameliorants/bio-fertilizers, plant protection chemicals/bio-pesticides, improved resource management tools/ machineries /implements, efficient water application devices, capacity building of farmers and local initiatives; award for best performing States etc. From the year 2020-21, primary processing units/small storage bins/flexibility interventions has been added as per local requirement.

As per the operational guidelines of NFSM, at least 30% of funds is to be allocated for women farmers, 33% allocation of the fund is to be made for small and marginal farmers.

E. FARMERS WELFARE

• Pradhan Mantri Kisan Samman Nidhi (PM-KISAN):

The **Pradhan Mantri Kisan Samman Nidhi (PM-KISAN)** is a Central Sector Scheme, being implemented since 1st December, 2018. The Scheme aims at providing financial assistance to landholding farmer families across the country, subject to certain exclusion criteria, to enable them to take care of expenses related to agriculture and allied activities as well as domestic needs. Under the Scheme, an amount of Rs. 6000/- per year is transferred in three 4-monthly installments of Rs.2000/- directly into the bank accounts of the farmers once their correct and verified data is received on PM-KISAN web portal from respective State/UT Government, and thereafter, its validation through Aadhar/PFMS/IT database.

Under PM-KISAN Scheme, any landholding farmer irrespective of gender can get the benefit of the Scheme subject to exclusion criteria related with higher income status. As on 31.12.2021, more than 2.94 crore female beneficiaries have been given the benefit of the Scheme out of approximately 11.72 crore beneficiaries.

- **Pradhan Mantri Maan Dhan Yojana (PM-KMY):**

The **Pradhan Mantri Kisan Maan Dhan Yojana (PMKMY)**, a Central Sector Scheme is being implemented in order to provide social security net for the Small and Marginal Farmers (SMF) by way of pension, as they have minimal or no savings to sustain their livelihood during their old age and to support them in the event of consequent loss of livelihood. Under this scheme, a minimum fixed pension of Rs. 3,000/- will be provided to the eligible small and marginal farmers, subject to certain exclusion clauses, on attaining the age of 60 years. The Scheme is a voluntary and contributory pension scheme, with entry age of 18 to 40 years. The beneficiary can opt to become member of the Scheme by subscribing to a Pension Fund. The beneficiary would be required to contribute Rs 100/- per month at median entry age of 29 years. The Central Government shall also contribute to the Pension Fund in equal amount. Contribution shall be made to a Pension Fund managed by the Life Insurance Corporation which will be responsible for pension pay out.

Under PM-KMY Scheme, any small and marginal farmer having cultivating landholding upto 2 hectares and falling in the age group of 18 to 40 years, can enroll themselves irrespective of gender. The number of female farmers registered under the Scheme is 7,14,055 out of total of 21,41,949 farmers as on 31.2.2021.

F. HORTICULTURE

Mission for Integrated Development of

Horticulture (MIDH) is an umbrella scheme on horticulture subsuming the ongoing schemes i.e. National Horticulture Mission (NHM), Horticulture Mission for North East & Himalayan States (HMNEH), Central Sector Schemes of National Horticulture Board, Coconut Development Board (CDB) and Central Institute for Horticulture, Nagaland, which is area/project based and are targeted to benefit the farmers specifically small and marginal farmers. The MIDH aims at promoting holistic growth of the horticulture sector through area based regionally differentiated strategies.

The schemes of Horticulture Division are area/project based and are targeted to benefit farmers specially small and marginal farmers. The MIDH aims to promoting holistic growth of the horticulture sector through area based regionally differentiated strategies and the Annual Plans received from the State Implementing Agencies were finalized for implementation in selected Districts adopting cluster approach for each fruit and vegetable crop.

Keeping in mind the overall social objectives that funds have to be targeted for the benefit of women, the State Horticulture Missions/Implementing Agencies under MIDH has been instructed to target at least 30% of the funds for Women farmers/beneficiaries while giving subsidy as well as for training purposes for development of skills for growing horticulture crops. The flow of funds for women farmers is being determined on rational basis keeping in view the nature of the programme, its area of operation and the proportion of these categories of population in the operational area. Horticulture Division is making efforts to stipulate in each and every administrative approval to provide for a pro-women allocation of at least 30% and the implementing agencies have been asked to ensure that the said funds are given to women beneficiaries/entrepreneurs as

far as possible. Further, in the Operational Guidelines of MIDH more incentives are being given to women farmers under the component 'Horticulture Mechanization.

G INTEGRATED NUTRIENT MANAGEMENT

Organic Farming is being promoted under the Schemes **Paramparagat Krishi Vikas Yojana (PKVY) and Mission Organic Value Chain Development for North Eastern Region (MOVCDNER)** and States are advised to earmark 30% of Budget allocations for women beneficiaries/farmers. States may prefer Women farmers/women Self Help Groups (SHGs) formed under Ministry of Rural Development while choosing the organic farming areas.

H. MECHANIZATION AND TECHNOLOGY

For recognizing the need to mechanize the marginal and small farmers, and for inclusive growth of farm mechanization Sector in the country a **Sub Mission on Agricultural Mechanization (SMAM)** was launched in the year 2014-15 with the following objectives:

- Increasing the reach of farm mechanization to small and marginal farmers and to the regions where availability of farm power is low;
- Promoting Custom Hiring Centres' to offset the adverse economies of scale arising due to small land holding and high cost of individual ownership;
- Creating hubs for hi-tech & high value farm equipments;
- Creating awareness among stakeholders through demonstration and capacity building activities;
- Ensuring performance testing and certification at designated testing centres located all over the country.

The SMAM provides a suitable platform for converging all activities for inclusive growth of

agricultural mechanization by providing a 'single window' approach for implementation with a special focus on women farmers with the following provisions:

- State Governments have been directed to earmark 30 per cent of total funds allocated under SMAM for women beneficiaries.
- 10% more assistance for women beneficiary to procure Agricultural Machinery, implements and equipment including PHT under component 2 and 3.
- In order to reduce the drudgery and increasing efficiency in farm operations, number of agricultural implements and hand tools suitable for farm women has been developed by Research & Development organizations under ICAR. The list of gender friendly equipment has been sent to all States/UTs for popularizing them through various schemes of Government.

Mechanization for women: Under the component 1 of Sub Mission of Agricultural Mechanization (SMAM), Agricultural Mechanization through Training, Testing, and Demonstration, a total 6503 women have been trained during the Financial Year 2020-21 at FMTTIs. In Financial Year 2021-22 up to September 2021, 4453 women were trained.

A list of about 30 identified gender-friendly tools and equipment developed by the Research and Development Organization for use in different farm operations has already been sent to all states and UTs for popularizing them. State governments have been directed to earmark 30 per cent of total funds allocated under SMAM for women beneficiaries.

To mark the 75 Years of Independence, an event "Azaadi ka Amrut Mahotsav" was organized on 24th August 2021. During the webinar, a "Live Interaction Session" with Senior Officers of

DA&FW was organised with Trainees and Farmers attending the specialised 2-3 days duration Training programmes for women farmers at Farm Machinery Training and Testing Institutes (FMTTIs) and field demonstrations programmes in the selected cluster of 18-20 villages of identified Districts with lowest availability of farm power/unit area in their State.

I. NATURAL RESOURCE MANAGEMENT

Sub-Mission on Agro forestry (SMAF) under National Mission for Sustainable Agriculture (NMSA) is under implementation since 2016-17 to encourage tree plantation on farm lands along with crops/cropping system as part of the recommendation of the National Agroforestry Policy, 2014. Agroforestry helps in creating additional source of income to the farmers including woman farmers. Under the Mission, multipurpose tree species with short, medium and long term returns are encouraged, so that both the male and female farmers get additional income at regular intervals.

Women farmers are associated at every level of SMAF activities and as per SMAF Operational Guidelines, at least 50% of the allocation is to be utilized for small, marginal farmers of which at least 30% should be women beneficiaries/farmers associated with the scheme.

National Bamboo Mission (NBM): The restructured National Bamboo Mission (NBM) was launched during 2018-19.

The objectives of the restructured National Bamboo Mission are:

- To increase the area under bamboo plantation in non-forest Government and private lands to supplement farm income as well as fulfill quality raw material requirement of industry.
- To improve post-harvest management through establishment of innovative primary processing units near the source

of production, primary treatment and seasoning plants, preservation of technologies and market infrastructure

- To promote product development in the bamboo sector through entrepreneurship & business models at micro, small and medium levels
- To rejuvenate the ailing bamboo industry as a global force to reckon with
- To promote skill development, capacity building, awareness generation for development of the bamboo sector
- To realign efforts to reduce dependency on import of bamboo and bamboo products by way of improved productivity and suitability of domestic raw material for industry so as to enhance the income of primary producers.

NBM focuses on development of the complete value chain of the bamboo sector to link growers with consumers starting from planting material, plantation, creation of facilities for collection, aggregation, processing marketing, micro, small & medium enterprises, skill development and brand building in a cluster approach mode. 10 major commercially important bamboo species namely *Bambusa tulda*, *B. bambos*, *B. balcooa*, *B. cacharensis*, *B. polymorpha*, *B. nutans*, *Dendrocalamus asper*, *D. hamiltonii*, *Thyrostachys oliveri*, *Melocanna baccifera* etc have been identified so as to have market ready plantations.

The scheme is being implemented in non-forest Government land or lands of private farmers in the States where it has social, commercial and economic advantage. The NBM implementing States are Assam, Arunachal Pradesh, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim, Tripura, Madhya Pradesh, Maharashtra, Chhattisgarh, Odisha, Karnataka, Uttarakhand, Bihar, Jharkhand, Andhra Pradesh, Telangana, Gujarat, Tamil Nadu, Kerala, Uttar Pradesh and Himachal Pradesh. The Union Territory of Jammu &

Kashmir has also been included under NBM in the year 2020-21.

Gender outlook

Women are equally encouraged to benefit from the implementation of all components of the National Bamboo Mission. States are advised to earmark 30% of the allocated budget for women beneficiaries / farmers under NBM. Most of the states have taken initiatives to encourage women in the Bamboo sector to improve their

economic status through generating employment, establishment of primary processing units, bamboo agarbatti units, handicrafts etc. The Maharashtra Bamboo Development Board has set an example through the initiative of the **Gadchiroli Agarbatti Project (GAP)** for improving the per capita income of the people of the district; a majority are women, and shared their success story titled **Gadchiroli Agarbatti Project-“A Viable Women Based Rural Enterprise Model”**.

GADCHIROLI AGARBATTI PROJECT

A VIABLE WOMEN BASED RURAL ENTERPRISE MODEL

Background of the Initiative

Gadchiroli is the eastern most district of Maharashtra, with a total area of 1,491,554 hectares, of which 1,133,009 hectares (76%) of land mass is covered by dense forests. Despite its rich biodiversity, there is a clear absence of opportunities for employment. The Forest Department is the largest employer in the district. Yet, these are daily wage works, which are of varying kinds. Being tagged as an area highly prone to Left-wing extremism brings in a sense of trepidation for any new social, entrepreneurial experiments to be set up. Violence in the past has discouraged private investments in the region. At the same time, given that 76% of the district is covered by forests; opportunities to make a living from agriculture are quite limited and prone to the vagaries of rainfall. One of the sources of employment is collection and sale of tendu leaves and mahua flowers, and daily wage work by the Forest Department. It is in this context that the Gadchiroli Agarbatti Project (GAP) was formulated. The project is aimed towards livelihood generation through a process hitherto foreign to the region.

GAP currently has 32 centres functional as Agarbatti Producing Centres, employing approximately 1100 people; close to 90% of them are women. Every centre has 10 to 12 agarbatti making machines, and every woman earns Rs 10 for every kilogram of agarbatti; i.e, approximately to Rs. 5000 per month.

The initiative

The Project was kick-started in May 2012, with the setting up of Agarbatti Producing Centres. Between May and June 2012, five centres were started, one in each of the Forest Divisions of Gadchiroli district. By November 2012, two more Centres were opened, and today, there are 32 centres fully operational across the entire district.

The Project Milestones

1. The project has been operation since end of 2012 and has been providing regular employment to around 1100 tribal women (some of them are ex-Naxal) in raw agarbatti making

activity using auto feeder machines and hand rolling. On an average, GAP produces around 100 tonnes of raw agarbatti and other pooja related products per month. Even during the COVID crisis, GAP produced 150 tons of agarbatti in April and May 2020 and distributed around Rs. 30 lakh as wages in Gadchiroli.

2. Post 31st August 2019, Government of India put restrictions on free import of agarbattis and demand for local agarbatti increased. GAP could immediately pass on the benefit to women by increasing their wages from Rs. 8 per kilo to Rs. 10 per kilo which helped them to earn an additional Rs. 1200 income per month.

3. The hand rolling agarbattis are providing additional income to around 350 women who work from home and earn around Rs. 2800 per month. These figures will improve over the period of time.

4. Introduction of smart card, weighing machines, producer groups, and tally software based accounting system, cashless payment, medical insurance, annual day-award function, excursions and exposure visits, etc.

Support from Maharashtra Bamboo Development Board (MBDB)-

In May 2020, MBDB supported GAP with 25 new Agarbatti Machines and Rs. 6,45,000 towards working capital for the Hand Rolled Agarbatti making project. When the country was facing COVID, the support provided by MBDDB really helped around 350 families with a stable income source. GAP could disburse around Rs. 30 lakh as wages in the month of April and May 2020 to 1100 women of the district.

Application of Grant Support from MBDDB

The 25 Agarbatti making machines were installed as under:

Village Name	Number of Machines	Employment to ST women of the respective village
Chamoshi, Thesil Chamoshi	5 machines	12 Women
Jaynagar, Thesil Chamoshi	5 machines	12 Women
Nikatwada, Thesil Chamoshi	5 machines	12 Women
Ghot, Thesil Chamoshi	5 machines	12 Women
Pavimurunda, Thesil Chamoshi	5 machines	12 Women
Total	25 Machines	60 Women

J. PLANT PROTECTION

'Sub-Mission on Plant Protection and Plant Quarantine' is under implementation through

which regulatory, monitoring, surveillance and capacity building functions are undertaken with regard to Plant Protection and Plant Quarantine. Under this mission, Integrated Pest Management

(IPM) with a mandate to popularize adoption of IPM through training and demonstration in crops, inter-alia promotion of biological control approaches in crop protection technology. Under this scheme, farmers are being made aware about the judicious use of chemical pesticides and use as per the prescriptions given in the label and leaflets. It encompasses pest control techniques such as cultural, mechanical and biological with minimum dependence on chemical pesticides. The Government has established 35 Central Integrated Pest Management Centres in 28 States and two Union Territory in the country. These Centers impart field oriented training to extension functionaries and farmers through Farmers' Field Schools, 2 days & 5 days Human Resource Development programmes to promote IPM.

Major emphasis is given on judicious use of chemical pesticide, safety in use of pesticides, alternate tools for pest management viz; cultural, physical, mechanical methods of pest control as well as use of bio-pesticides and bio-control agents, effects of pesticides on natural enemies of pests, do's and don'ts of pesticide including proper application equipment and technique.

Keeping into consideration changes in various parameters like pests, disease, registration of new pesticides, Agro Eco-System Analysis (AESAs) based technology for pest management and regional variations, IPM packages have been developed. During the last 8 years (2014-15 to 2021-22), 22096 women farmers have been trained on latest IPM technology in various crops.

National Institute of Plant Health Management (NIPHM), Hyderabad is regularly conducting training programmes for Agricultural Officers, Extension officers, Faculty members from various Universities and colleges across India for then capacity building in plant health management. During 2020-21, NIPHM has

imparted training to 4164 officials including 980 female officers.

K. POLICY

The **National Policy for Farmers, 2007 (NPF)** announced by the Government envisages the following measures aimed at women's empowerment:

- Asset reforms under land, water and livestock for an equitable share to women farmers.
- Better access to inputs and services, science and technology, implements, credit and support services like creches, child care centres, nutrition, health and training.
- Encouragement to women for participating in group activities aimed at achieving economies of scale through farming groups.
- Involvement of women in conservation and development of bio-resources.

The Policy provisions, inter alia, include asset reforms in respect of land, water, livestock, fisheries, and bio-resources; support services and inputs like application of frontier technologies; agricultural bio-security systems; supply of good quality seeds and disease-free planting material, improving soil fertility and health, and integrated pest management systems; support services for women like crèches, child care centers, nutrition, health and training; timely, adequate, and easy reach of institutional credit at reasonable interest rates, and farmer-friendly insurance instruments; use of Information and Communication Technology (ICT) and setting up of farmers' schools to revitalize agricultural extension; effective implementation of MSP across the country, development of agricultural market infrastructure, and rural non-farm employment

initiatives for farm households; integrated approach for rural energy, etc. Many of the provisions of the NPF are being operationalised through various schemes and programmes which are being implemented by different Central Government Departments and Ministries.

L. RAINFED FARMING SYSTEMS (RFS)

Under the National Mission for Sustainable Agriculture (NMSA) and Pradhan Mantri Krishi Sinchai Yojana-Per Drop More Crop (PMKSY-PDMC); at least 50% of the allocation is to be utilized for small and marginal farmers of which at least 30% are women beneficiaries/farmers.

M. RASHTRIYA KRISHI VIKAS YOJANA (RKVY)

RKVY is a Centrally Sponsored Scheme (State Plan) scheme which provided flexibility and autonomy to states in the process of selection, planning, approval and execution projects in agriculture and allied sectors as per their priorities under this scheme. Hence, RKVY scheme do not set any specific target for women beneficiary under the scheme at the central level. Further, RKVY is primarily a project oriented scheme, the benefit of which is available to all sections of the farming community. However, it is the responsibility of the state government to ensure that adequate coverage is given to women in case they are implementing beneficiary oriented schemes under the scheme. As such, no data on women beneficiary under Normal RKVY scheme is available.

Under the Innovation and Agri. entrepreneurship programme being implemented under RKVY, a total of 646 start-ups have been selected in various areas of agriculture and allied sectors for providing financial support through Knowledge Partners and Agri Business Incubators. Out of these selected Start-ups, 173 start-ups are led by women entrepreneurs.

N. SEEDS

Under the Sub-Mission on Seeds and Planting Material (SMSP), the Seed Division is implementing the Seed Village Programme to upgrade the quality of farmer's saved seeds. Under this programme, financial assistance for distribution of foundation/certified seeds at 50% subsidy for cereal crops and 60% for pulses, oilseeds, fodder and green manure crops for production of quality seeds is available/provided for farmers including women farmers. The scheme is demand driven and implemented by the concerned State for welfare of all farmers including that of women farmers. There is no separate budget allocated/ earmarked and released exclusively for woman farmers. However, implementing States/ agencies are requested to cover adequate participation of women farmers' in the scheme.

During 2019-2021, 11.46 lakh and during 2021-22 (as on 08th November, 2021), 0.29 lakh women farmers were benefitted under the Seed Village Programme and Certified Seed Production through the Seed Village Programme of SMSP.

THE WAY FORWARD:

National Sample Survey (NSS) data shows, that there has been a steady decline of men in agriculture over the last three decades. This trend can be conveniently termed as "Feminization of Indian Agriculture". As more and more men have moved to non-farm work in the industrial and service sectors, women have remained in agriculture in substantive manner. Keeping in view women's' contribution in farming; the need of the hour is greater inclusion of women farmers in planning schemes & programmes, and also in developing strategies to successfully implement them.

Realizing the present feminized agriculture scenario, women farmers contribution in agriculture and understanding that it is 'Gender'

that differentiates the roles, responsibilities, resources, constraints and opportunities of women and men in agriculture, precise gender information is the need of the hour. Incorporating gender into agricultural development is the requirement for articulating gender perspectives in development activities.

In line with the National Agricultural Policy-2000, provisions under National Policy for Farmers-2007 and recommendations of the Report on Doubling of Farmers Income, the strategy of the Government is to focus on women farmers' empowerment and development welfare by making farming viable both for men

and women. This may improve farm women's access to productive resources including agricultural extension services thereby bringing overall improvement in the lives of rural women. This may not only enhance the production and productivity of agricultural sector and improve overall national food security but would also smoothen the transition of women from being beneficiaries of the Programmes & Schemes to their active participation in shaping the empowerment. A brief summary of flow of benefits to women under various schemes/programmes of the DA&FW is given in **Annexure 23.1**.





Training programme for women at SERFMPTI, ANATAPUR



Field Demonstrations for women at CFMPTI, Budni



Field Demonstrations for women at NERFMPTI, Assam



Chapter-24

SUMMARY OF AUDIT PARAS/ OBSERVATIONS

24.1 Soil and Land Use Survey of India

Pending Audit Paras and their status:

i) Bangalore Centre:

S. No.	Para No.	Audit Paras	Present Position/Action Taken
1.	Finding No. 12	Short deductions of TDS	Under Process
2.	Finding No. 16	Review of TA Claims – irregularities Noticed	Under Process

ii) Hyderabad Centre: -

S. No.	Para No.	Audit Paras	Present Position/Action Taken
1	Finding Para No. 07	Review of Transfer TA irregularities in respect of Sh. A. K. Singh, FO (Retd.) and Sh. Rajesh Kumar, JCA	In respect of Sh. Rajesh Kumar, JCA excess amount recovered and Sh. A. K. Singh, Ex. FO was sent his representation for waving off and the same send to Audit requesting for dropping the para.
2	Finding No. 13	Incorrect payment of arrears due to grant of ACP & MACP in r/o Sh. K.M.K. Murthy, Retired, Sh. N. Mallaiah, (at that time in service) & S.T. Selukar (Retired) AFO's	In compliance this office has send letter No. 1-28/2012-AISH/807/3 to the concerned to remit the excess amount immediately till date no reply from the concerned and the same intimated to Audit.
3	Finding Para No. 16	Irregular Deduction / Contribution of NPS	Excess amount recovered in both cases. In respect of Sh. Amol Laxman Shinde, AFO intimated to Audit for dropping the para. In case of Sh. Karamvir, AFO will be intimated to Audit for dropping the para.

iii) Nagpur Centre:

S. No.	Para No.	Audit Paras	Present Position/Action Taken
1	Finding No. 05	Splitting up of Sanction in order to avoid obtaining sanction from higher authority	In this office store purchasing is done mostly for field work before start of field season and for digital and Cartographic work and for other maintenance of the office. The purchases are made depending up on the requirement of Staff. The order for different store material is placed in different dates but the NCCF had produced the bill in one date and therefore this confusion arises. The order date is also given with the bill number. Since all the purchases were made on different dates through NCCF and within the powers of Soil Survey Officer Nagpur and the sanction from Higher Authority was not taken. Matter can be checked by next Audit Party since it is as per rule the para may please be dropped.
2	Finding No. 13	Splitting of Sanction to avoid obtaining Sanction from Higher Authorities.	Old Para letter sent to HQ for expose to sanction. The sanction can be shown to next Audit Party.
3	Finding No. 14	Avoidable expenditure of Rs. 4,79,825/- due to payment of penalty on power factor to MSEB Nagpur lack of action on the part of Depart for last 10 years	The payment was made to from Central Govt. to State Govt. since long back the para may please be dropped.

iv) Noida Centre: -

S. N.	Para No.	Audit Paras	Present Position/Action Taken
1	Finding No. 01	Irregularity in TA Bills in r/o Sh. Subodh S. Pawar, AFO	Sh. Subodh S. Pawar, AFO has been transferred to Ahmedabad Centre. Therefore, a letter issued to SSO Ahmedabad Centre for recovery of the amount Rs. 1325/- from Sh. Subodh S. Pawar, AFO under intimation to this office.

2	Finding No. 2	Not adherence of HBA insurance rule - Insurance to Property	A letter issued to Sh. P. L. Meena, Driver Special Grade to submit the necessary certificate to this office for the further action.
3	Finding No. 03	Unauthorized payment of HRA and less recovery of license fee	Under Process
4	Finding No. 04	Excess expenditure on consumption of petrol and maintenance of Vehicle.	Ex-post facto sanction is in under process for the excess expenditure on consumption of POL and maintenance of vehicle No. MH 31 CN 6367, MH 31 AG 9707 and MH 31 AG 9708 for the financial year 2015-16, 2016-17 and 2017-18.
5	Finding No. 05	Non-Verification of qualifying service after 18 years' service or 05 years before Retirement (Updated)	The service books are being maintained and the same will be sent to audit for dropping the para.
6	Finding No. 06	Cash Book not maintained as per receipt & payment rules	The cash book is being maintained and the same will be sent to audit for dropping the para.
7	Finding No. 07	Physical Verification of Stores not upto date - Urgent action is to be taken	The Physical verification of store articles has been done till 2018-19 and the unserviceable store articles has been disposed off through public auction on dated 28.08.2020. The Physical Verification of Store articles for the FY 2019-20 and 2020-21 is under process.
8	Finding No. 08	Excess expenditure beyond delegated financial power to Head of Office	After the cross verification of bill vouchers it is observed that this letter not belongs to Noida Centre; it may be possible this belongs to SLUSI, HQ, New Delhi. The same will be initiated to audit for dropping the para.
9	Finding No. 09	Verification of Pay Bill Register from the Audit Period	Under Process

'10	Finding No. 10	Maintenance of Service Book	The service books are being maintained and the same will be sent to audit for dropping the para.
11	Finding No. 11	No paper form-16 prepaid to ascertain Income-Tax payable by the Staff	Under Process, a letter issued to DDO for the further action.
12	Finding No. 12	Non – Issue of photocopy of Service Book to officials -	The service books are being maintained and the same will be sent to audit for dropping the para.

v) Ranchi Centre:

S. N.	Para No.	Audit Paras	Present Position/Action Taken
1	Finding No. 09	Violation of the Delegation of Administrative & Financial Powers by the Soil Survey Officer, Ranchi	Approval for expenditure the ex-post facto sanction is under process.
2	Finding No. 14	Less payment made in TTA Bill in respect of Sh. Mahesh Chand, SSO	The difference of TTA Bill computed by the audit party amounting to Rs. 12,860/- has already been paid to Sh. Mahesh Chand, SSO on dated 12.09.2012 (vide Cash Book Vol 19, page no. 89) vide this office Bill NO. 138 dated 11.09.2012 by presenting a revised TTA Bill. Hence, the request has already been made to audit to drop the para.

24.2 Rashtriya Krishi Vikas Yojana (RKVY)

No audit para pertaining to RKVY Division is pending. However, Performance Audit of Rashtriya Krishi Vikas Yojana (RKVY) was conducted for the period 2007-08 to 2012-13 (ending March 2013) by C&AG and it submitted the report in both the Houses of Parliament on 5th May 2015. Final comments of DA&FW on the vetting comments of C&AG have been submitted to PAC on 10.10.2019. The details in this regard are given below :

Sl. No	Year	No. of Paras/PA reports on which ATNs have been submitted to PAC after vetting by Audit	Details of Paras /PA reports on which ATNs are pending		
			No. of ATNs not sent by the Ministry even for the first time.	No. of ATNs sent but returned with observations and Audit is awaiting their resubmission	No. of ATNs which have been finally vetted by Audit but have not been submitted by the Ministry to PAC.

1	2015	Performance Audit of RKVY has been done by C&AG for the period 2007-08 to 2012-13 (ending March 2013) and the report was submitted in both the Houses of Parliament on 5 th May 2015. The Draft ATN on the observations made in the report were furnished to Audit on 27.06.2016 and the revised ATN were furnished on 22.05.2018 on the basis of vetting remarks offered by C & AG on the first ATN. The vetting remarks of C & AG on the revised ATN have been received on 2.10.2018 and the same have been circulated to all the concerned States. Final comments of DA&FW on the vetting comments of C&AG have been submitted to PAC on 10.10.2019.	-	-	-
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25.1 Overview

Accounting Organization of Department Of Agriculture and Farmers Welfare:

The Secretary as Chief Accounting Authority in the Department of Agriculture and Farmers Welfare discharges his functions with the assistance of Financial Adviser and Chief Controller of Accounts.

25.1.2 As per Rule 70 of GFR 2017, the Secretary of a Ministry/Department as Chief Accounting Authority of the Ministry/Department shall:

- (i) Be responsible and accountable for financial management of his Ministry or Department;
- (ii) Ensure that the public funds appropriated to the Ministry or Department are used for the purpose for which they were meant;
- (iii) Be responsible for the effective, efficient, economical and transparent use of the resources of the Ministry or Department in achieving the stated project objectives of that Ministry or Department, whilst complying with performance standards;
- (iv) Appear before the Committee on Public Accounts and any other Parliamentary Committee for examination;
- (v) Review and monitor regularly the performance of the programmes and projects assigned to his Ministry to determine whether stated objectives are achieved;
- (vi) Be responsible for preparation of expenditure and other statements

relating to his Ministry or Department as required by regulations, guidelines or directives issued by Ministry of Finance;

- (vii) Ensure that his Ministry or Department maintains full and proper records of financial transactions and adopts systems and procedures that shall at all time afford internal controls;
- (viii) Ensure that his Ministry or Department follows the Government procurement procedure for execution of works, as well as for procurement of services and supplies, and implements it in a fair, equitable, transparent, competitive and cost-effective manner;
- (ix) Take effective and appropriate steps to ensure his Ministry or Department:-
 - (a) Collects all moneys due to the Government and
 - (b) avoids unauthorized, irregular and wasteful expenditure.

25.1.3. As per Para 1.3 of Civil Accounts Manual, the Chief Controller of Accounts for and on behalf of the Chief Accounting Authority is responsible for :-

- (a) Arranging all payments through the Pay and Accounts Offices/Principal Accounts Office except where the Drawing and Disbursing Officers are authorized to make certain types of payments.
- (b) Compilation and consolidation of accounts of the Ministry/ Department and their submission in the form prescribed, to the Controller General of Accounts; preparation of Annual Appropriation Accounts for the

Demands for Grants of his Ministry/ Department, getting them duly audited and submitting them to the CGA, duly signed by the Chief Accounting Authority.

- (c) Arranging internal inspection of payment and accounts records maintained by the various subordinate formations and Pay and Accounts Offices of the Department and inspection of records pertaining to transaction of Government Ministries / Departments, maintained in Public Sector Banks.

25.1.4. The Chief Controller of Accounts, Ministry of Agriculture and Farmers Welfare performs his duties with the assistance of Controller/ Assistant Controller of Accounts, three Pr. Accounts Officers at HQ and 10 Pay and Accounts Offices. Four Pay and Accounts Offices are located in Delhi/NCR, two in Mumbai, One each in Chennai, Cochin, Kolkata and Nagpur. All payments pertaining to the Department /Ministry are made through PAOs/CDDOs attached with respective PAOs. DDOs present their claims /bills to the designated PAOs/CDDOs, who issue cheques/releases e-payment after exercising the necessary scrutiny as per provisions contained in Civil Accounts Manual, Receipt and Payment Rules and other order issued by Government from time to time.

25.1.5. As per Para 1.2.3 of Civil Accounts Manual, Principal Accounts Office at HQ functions under a Principal Accounts Officer who is responsible for :-

- a) Consolidation of the accounts of the Ministry/Department in the manner prescribed by CGA;
- b) Preparation of Annual Appropriation Accounts of the Demands for Grants controlled by Ministry/Department, submission of Statement of Central Transactions and material for the Finance

Account of the Union Government(Civil) to the Controller General of Accounts;

- c) Payment of loans and grants to State Government through Reserve Bank of India and wherever this office has a drawing account, payment therefrom to Union Territory Government/ Administrations;
- d) Preparation of manuals keeping in view the objective of management accounting system if any, and for rendition of technical advice to Pay and Accounts Offices, maintaining necessary liaison with CGA's Office and to effect overall coordination and control in accounting matters;
- e) Maintaining Appropriation Audit Registers for the Ministry/ Department as a whole to watch the progress of expenditure under the various Grants operated on by the Ministry/Department;

Principal Accounts Office/Officer also performs all administrative and coordinating function of the accounting organization and renders necessary financial, technical, accounting advice to department as well as to local Pay & Accounts offices and Out Station Pay & Accounts offices.

25.1.6. As per provisions contained in Civil Accounts Manual, Pay & Accounts offices make payments pertaining to respective Ministries/ Departments and in certain cases payments will be made by the departmental Drawing and Disbursing Officers (DDOs) authorized to draw funds, by means of cheques drawn on the offices/branches of accredited bank for handling the receipts and payments of the Ministry/Department. These payments will be accounted for in separate scrolls to be rendered to the Pay and Accounts Offices of Ministry/ Department concerned. Each Pay and Accounts Office or Drawing and Disbursing Officer authorized to make payments by cheques/e-payments, will draw only on the particular

branch/branches of the accredited bank with which the Pay and Accounts Office or the Drawing and Disbursing Officer as the case may be, is placed in account. All receipts of the Ministry/Department are also be finally accounted for in the books of the Pay and Accounts Office. The Pay and Accounts office is the basic Unit of Departmentalized Accounting Organization. Its main function include:-

- a. Pre-check and payment of all bills, including those of loans and grants-in-aid, submitted by Non-Cheque Drawing DDOs.
- b. Accurate and timely payments in conformity with prescribed rules and regulations.
- c. Timely realization of receipts.
- d. Issue of quarterly letter of credit to Cheque Drawing DDOs and post check of their Vouchers/bills.
- e. Compilation of monthly accounts of receipts and expenditures made by them incorporating there with the accounts of the cheque Drawing DDOs.
- f. Maintenance of GPF accounts other than merged DDO and authorization of retirement benefits.
- g. Maintenance of all DDR Heads.
- h. Efficient service delivery to the Ministry/ Department through banking arrangement by way of e-payment.
- i. Adherence to the prescribed Accounting Standards, rules and principles.
- j. Timely, accurate, comprehensive, relevant and useful financial reporting.

25.1.7. The overall responsibilities of Departmental Accounting Organization in respect of Ministry of Agriculture and Farmers Welfare are:-

- a. Consolidation of monthly accounts of Ministry and its submission to the CGA.
- b. Annual Appropriation Accounts.
- c. Statement of Central Transactions.
- d. Preparation of "Accounts at a Glance".
- e. Union Finance accounts which are submitted to the CGA, Ministry of Finance and Principal Director of Audit.
- f. Payments of grants-in-aid to Grantee Institutions / Autonomous Bodies etc.
- g. Rendering technical advice to all PAOs and Ministry; if necessary in consultation with other organizations like DoPT, Ministry of Finance and CGA etc.
- h. Preparation of Receipt Budget.
- i. Preparation of Pension Budget.
- j. Procuring and supplying of cheque books for and on behalf of PAOs/Cheque Drawing DDOs.
- k. To maintain necessary liaison with Controller General of Accounts office and to effect overall co-ordination and control in accounting matters and accredited Bank.
- l. To verify and reconcile all receipts and payments made on behalf of Ministry of Agriculture and Farmers Welfare through the accredited Bank i.e. State Bank of India.
- m. To maintain accounts with Reserve Bank of India relating to Ministry of Agriculture and Farmers Welfare and to reconcile the cash balances.
- n. To ensure prompt payments.
- o. Speedy settlement of Pension/Provident fund and other retirement benefits.
- p. Internal Audit of the Ministry, subordinate and attached offices under Ministry of

Agriculture and Farmers Welfare and its Grantee institutions, Autonomous Bodies etc.

- q. To make available accounting information to all concerned Authorities/Divisions.
- r. Budget co-ordination works of Ministry of Agriculture and Farmers Welfare.
- s. Monitoring of New Pension Scheme and revision of pension cases from time to time.
- t. Computerization of Accounts and e-payment.
- u. Administrative and co-ordination function of the accounting organization.
- v. Roll out of PFMS under Central Sector Schemes in Grantee Institutions/Autonomous Bodies.
- w. Non-Tax Receipt Portal (NTRP) in Ministry of Agriculture and Farmers Welfare.

25.1.8 Accounting information and data are also provided to the Financial Advisor and Chief Accounting Authority to facilitate effective budgetary and financial control. Monthly and progressive expenditure figures under various sub-heads/object-heads of the grant of the Ministry of Agriculture and Farmers Welfare are furnished to Budget Section of the Ministry including Senior officers. Progress of expenditure against budget provisions are also submitted weekly to the Secretary and Addl. Secretary & Financial Adviser as well as Heads of Divisions of the Ministry, controlling the grant for purposes of better monitoring of expenditure in last quarter of the financial year.

25.1.9. The Accounting organization also maintains accounts of long-term advances such as House Building Advance, Motor Car Advance and GPF accounts of employees of the Ministry.

25.1.10 The verification and authorization of

pensionary entitlement of officers and staff members is done by the Pay & Accounts Offices on the basis of service particulars and pension papers furnished by Heads of Offices. All retirement benefits and payments like gratuity, cash equivalent to leave salary as well as payments under Central Government Employees Group Insurance Scheme; General Provident Fund etc. are released by Pay & Accounts Offices on receipt of relevant information / bills from DDOs.

25.2 Internal Audit Wing:

- a) The Internal Audit Wing carries out audit of accounts of various offices of the Ministry to ensure that rules, regulations and procedures prescribed by the government are adhered to by these offices in their day to day functioning. Internal Auditing is an independent, objective assurance and consulting activity designed to add value and improve an organization's operations. It basically aims at helping the organization to accomplish its objectives by bringing a systematic, disciplined approach to evaluate and improve the effectiveness of risk management, control and governance processes. It is also an effective tool for providing objective assurance and advice that adds values, influence change that enhances governance, assist risk management, control processes and improve accountability for results. It also provides valuable information to rectify the procedural mistakes/deficiencies and thus, acts as an aid to the management. The periodicity of audit of a unit is regulated by its nature, volume of work and quantum of funds.
- b) The Internal Audit Wing working under the overall guidance of Chief Accounting Authority and Financial Advisor has focused on strengthening governance structures,

capacity building and leveraging technology in appropriate manner to ensure an efficient and effective Internal Audit practice.

- c) In pursuance of O/o Controller General of Accounts, Department of Expenditure, Ministry of Finance, OM no. G.25014/33/2015-16/MF.CGA/IAD/306-53 dated 15.05.17 and as per provisions contained in Generic Internal Audit Manual (Version 1.0) issued by O/o CGA, Audit Committee has been constituted in this Ministry under the Chairmanship of AS & FA (Agriculture & Farmers Welfare) with the approval of

Secretary (Agriculture and Farmers Welfare) and terms of reference of Internal Audit Committee has been defined in O/o CCA OM No.Agri/IAW/Audit Committee(DAC)/2020-21/158-195 dated 08.09.2020.

- d) During the financial year 2020-21, the focus of Audit was to detect errors in fixation of Pay paid in excess as well as in short.

Status of Outstanding Internal Audit paras in the Department of Agriculture and Farmers Welfare(DA& FW) as on 30.09.2021 are given below:-

Department	Outstanding Paras upto 31.03.2021	Paras Raised from 01.04.2021 to 30.06.2021	Paras Dropped from 01.04.2021 to 30.06.2021	Total Outstanding Paras as on 30.06.2021
DA & FW	1007	59	29	1037
TOTAL	1007	59	29	1037

Department	Outstanding Paras upto 30.06.2021	Paras Raised from 01.04.2021 to 30.09.2021	Paras Dropped from 01.04.2021 to 30.09.2021	Total Outstanding Paras as on 30.09.2021
DA & FW	1037	06	112	931
TOTAL	1037	06	112	931

Department	Outstanding Paras up to 30.09.2021	Paras Raised from 01.10.2021 to 31.12.2021	Paras Dropped from 01.10.2021 to 31.12.2021	Total Outstanding Paras as on 31.12.2021
DA& FW	931	30	108	853
TOTAL	931	30	108	853

25.3 Banking Arrangements:-

State Bank of India is the accredited bank for PAOs and its field offices in the Ministry of Agriculture & farmers Welfare. e-payments processed by the PAOs/CDDOs are settled through CMP, SBI, Hyderabad in favor of the bank account of vendors/beneficiaries. In some cases, Cheques issued by the PAOs/CDDOs are presented to the nominated branch of the accredited bank for payment. The receipts are

also remitted to the accredited banks by the respective PAOs/CDDOs apart from Non-Tax-Receipt Portal (NTRP). Any change in accredited bank requires specific approval of Controller General of Accounts, Department of Expenditure, Ministry of Finance.

Principal Accounts Office has 10 (Ten) Pay & Accounts Offices. Four PAOs are located in Delhi/NCR, two in Mumbai, one each in Chennai, Cochin, Kolkata and Nagpur. All payments

pertaining to the Department/Ministry are made through PAOs/CDDOs attached with respective PAOs. Drawing and Disbursing Officers present their claims/bills to the designated PAOs/CDDOs, who issue releases e-payment after exercising the necessary scrutiny as per provisions contained in Civil Accounts Manual, Receipt and Payment Rules and other orders issued by Govt. from time to time.

25.4 Initiatives on e-payment

The e-payment system in all Pay & Accounts Offices of Ministry of Agriculture & Farmers Welfare had been successfully implemented from 2011 onwards.

e- Payment System

Since, the IT Act, 2000 recognizes the digitally signed documents or electronic records digitally authenticated by means of an electronic method or procedure in accordance with the provisions of section 3 of the Act, the Controller General of Accounts had developed a facility in COMPACT for electronic payment (e-payment) through digitally signed electronic advices. This had replaced the existing system of payment through cheque while leveraging the COMPACT application running in all Pay & Accounts Offices in all Ministries/ Departments of Central Government.

The e-payment system developed was a fully secured web based system of electronic payment services which introduces transparency in government payment system. Payment of dues from the government under this system were made by credit of money directly into the bank account of payee through a digitally signed e-advices generated from COMPACT through the 'Government e-payment Gateway (GePG)' on a secured communication channel. Necessary functional and security certification were obtained from STQC Directorate for its roll out. The system was implemented in all Central Government Civil

Ministries/ Departments in a phased manner.

GePG has further been upgraded to PFMS system, which is an integrated Financial Management System of Controller General of Accounts, for sanction preparation, bill processing, payment, receipt management, Direct Benefit Transfer, fund flow management and financial reporting

Public Financial Management System (PFMS)

Public Financial Management System (PFMS) initially started as a Plan Scheme named CPSMS of the erstwhile Planning Commission in 2008-09 as a pilot in four states of Madhya Pradesh, Bihar, Punjab and Mizoram for four Flagship schemes e.g MGNREGS, NRHM, SSA and PMGSY. After the initial phase of establishing a network across Ministries / Departments, It has been decided to undertake National roll-out of CPSMS (PFMS) to link the financial networks of Central, State Governments and the agencies of State Governments. The scheme was included in 12th Plan initiatives of erstwhile Planning Commission and Ministry of Finance. Presently PFMS is the scheme of Department of Expenditure, Ministry of Finance and being implemented by O/o Controller General of Accounts across the country.

2. As per MoF, DoE, OMNo.66 (29) PF-II/2016 dated 15/07/2016, Hon'ble Prime Minister has emphasized the need for improved financial management in implementation of Central Plan Schemes so as to facilitate Just-in-Time releases and monitor the usage of funds including information on its ultimate utilization. The Public Financial Management System (PFMS) is administered by the O/o controller General of Accounts in the Department of Expenditure which is an end-to-end solution for processing payments, tracking, monitoring, accounting, reconciliation and reporting. It provides the scheme managers a unified platform for

tracking releases and monitoring their last mile utilization.

3. In order to abide by the directions to implement Just-in-time releases and monitor the end usage of funds, it has been decided by Ministry of Finance to universalise the use of PFMS to cover all transactions/payments under the Central Sector Schemes. The complete monitoring of these schemes require mandatory registration of all Implementing Agencies (IAs) on PFMS and mandatory use of Expenditure, Advances & Transfer (EAT) module of the PFMS by all IAs. The Implementation Plan covers the complete universe of Central Sector Schemes, which inter-alia requires the following steps to be taken by each Ministry/Department:-

- (i) All central schemes have to be mapped /configured and brought on the PFMS platform.
- (ii) All Implementing Agencies (IAs) receiving and utilizing funds needs to be mandatorily registered on PFMS.
- (iii) Usage of PFMS modules has to be made mandatory for all registered agencies for making payments, advances and transfers.
- (iv) All Departmental Agencies incurring expenditure in respect of Central Sector Schemes must register and compulsorily use the PFMS Modules.
- (v) All Grantee Institutions have to adopt PFMS modules for making Payments/Transfers /Advance from Grants received from the Central Govt. This will enable generation of on-line Utilization Certificates for claiming funds from the Central Government.
- (vi) Ministry has to take an action for integrating their respective systems/applications with the PFMS.

Modules to implement the Mandate

Modules developed/under developed by PFMS

for stakeholders as per the Union Cabinet approval and mandate are as under:

A. Fund Flow Monitoring [EAT Modules]

- (a) Agency registration
- (b) Expenditure management and fund utilization through PFMS EAT module
- (c) Accounting Module for registered agencies
- (d) Treasury Interface
- (e) PFMS-PRI fund flow and utilization interface
- (f) Mechanism for State Governments towards fund tracking for State schemes
- (g) Monitoring of Externally Aided Projects (EAP)

II. Direct Benefit Transfer (DBT) modules

- (a) PAO to beneficiaries
- (b) Agency to beneficiaries
- (c) State treasuries to beneficiaries

III. Interfaces for Banking

- (a) CBS (Core Banking Solutions)
- (b) India Post
- (c) RBI (Reserve Bank of India)
- (d) NABARD & Cooperative Banks

Modules to Implement Enhanced mandate

1. PAO Computerization-Online payments, receipts and accounting of Govt. of India
 - (a) Programme Division module
 - (b) DDO module
 - (c) PAO module
 - (d) Pension module
 - (e) GPF & HR module

- (f) Receipts including GSTN
- (g) Annual Financial Statements
- (h) Cash Flow Management
- (I) Interface with non - civil ministries

2. Non-Tax Receipt Portal.

Other Departmental Initiatives

To leverage the capabilities of PFMS, several other departments have approached PFMS for developing utilities for their departmental need as follows:-

- (i) CBDT PAN Validation
- (ii) GSTN bank account validation

Implementation Strategy

An Action Plan has been prepared and approved by Ministry of Finance for phased implementation of Public Financial Management System (PFMS).

Improved Financial Management through:

- Just in Time (JIT) release of funds
- Monitoring of use of funds including ultimate utilization

Strategy:

Universal roll-out of PFMS which inter alia includes

- Mandatory registration of all Implementing Agencies (IA) on PFMS and
- Mandatory use of Expenditure Advance & Transfer (EAT) Module of PFMS by all IAS

I. Implementation Strategy for Central Sector (CS) schemes/transaction

Activities to be completed

- Mandatory registration and use of EAT module by IAS

- Mapping of all relevant information of Schemes
- Uploading of budget of each scheme on PFMS
- Identify implementation hierarchy of each scheme
- Integration of System Interface of specific schemes with PFMS e.g. NREGASoft, AwasSoft
- Deployment and training of trainers

II. Implementation Strategy for Centrally Sponsored Schemes

Activities to be undertaken by states

- State Treasury Integration with PFMS
- Registration of all SIAs on PFMS (1st level and below)
- Mapping of state schemes with corresponding central schemes
- Configuration of State schemes on PFMS
 - Configuring State Schemes components
 - Identify and configure hierarchy of each state scheme
- Integration of PFMS with schemes specific software application
- Deployment and training of trainers
- Continuous support for implementation.

At present, all ten (10) Pay & Accounts Offices of M/o Agriculture & Farmer welfare, four (4) PAOs are located in Delhi/NCR, Two in Mumbai, One each in Chennai, Cochin, Kolkata and Nagpur are functioning successfully on PFMS. All payments are routed through PFMS and e-payments being directly credited into the beneficiary's bank account.

I. Employees Information System (EIS)

Module of PFMS: This Module has been implemented in all Drawing & Disbursing Offices of Ministry of Agriculture & Farmer Welfare.

II. CDDO Module of PFMS: CDDO module of PFMS has been rolled out in all Cheque Drawing and Disbursing Offices of Ministry of Agriculture & Farmer Welfare.

III. Online Portal (Bharatkosh) for collection of Non-Tax Revenue in the Ministry:

- The objective of Non-Tax Receipt Portal (NTRP) is to provide a one-stop window to Citizens/ Corporate /Other users for making online payment of Non-Tax Revenue payable to Government of India (GoI).
- Non-Tax Revenue of Government of India comprise of a large bouquet of receipts, collected by individual departments/ ministries. Primarily these receipts come from Dividends, Interest receipts, Spectrum charges, RTI application fee, purchase of forms/magazines by students and many other such payments by citizens / corporate/other users.
- The online electronic payment in a completely secured IT environment, helps common users /citizen from the hassle of going to banks for making drafts and then to Government offices to deposit the instrument for availing the services. It also helps avoidable delays in the remittance of these instruments into Government account as well as eliminates undesirable practices in the delayed deposit of these instruments into bank accounts.
- NTRP facilitates instant payment in a transparent environment using online payment technologies such as Internet

Banking, Credit/Debit Cards.

- NTR Portal has been functional in new Ministry of Agriculture & Farmer Welfare since inception in FY 2019-20.
- The collection of Non-Tax revenue of the Department of Agriculture & Farmers Welfare in the current Financial Year 2021-22 upto 31/12/2021 was Rs. 473.00Crores of it and Rs. 271.16 Crores have been collected through Bharat Kosh on NTR e-portal.

IV. Expenditure, Advance and Transfer (EAT) Module of PFMS:

All eight (08) Autonomous Bodies of Ministry of Agriculture & Farmer welfare have been on-boarded on Expenditure Advance Transfer (EAT) module of PFMS.

25.5 New developments in the Ministry:

Enforcement of enhanced security layers in online payment process in Public Financial Management System (PFMS)

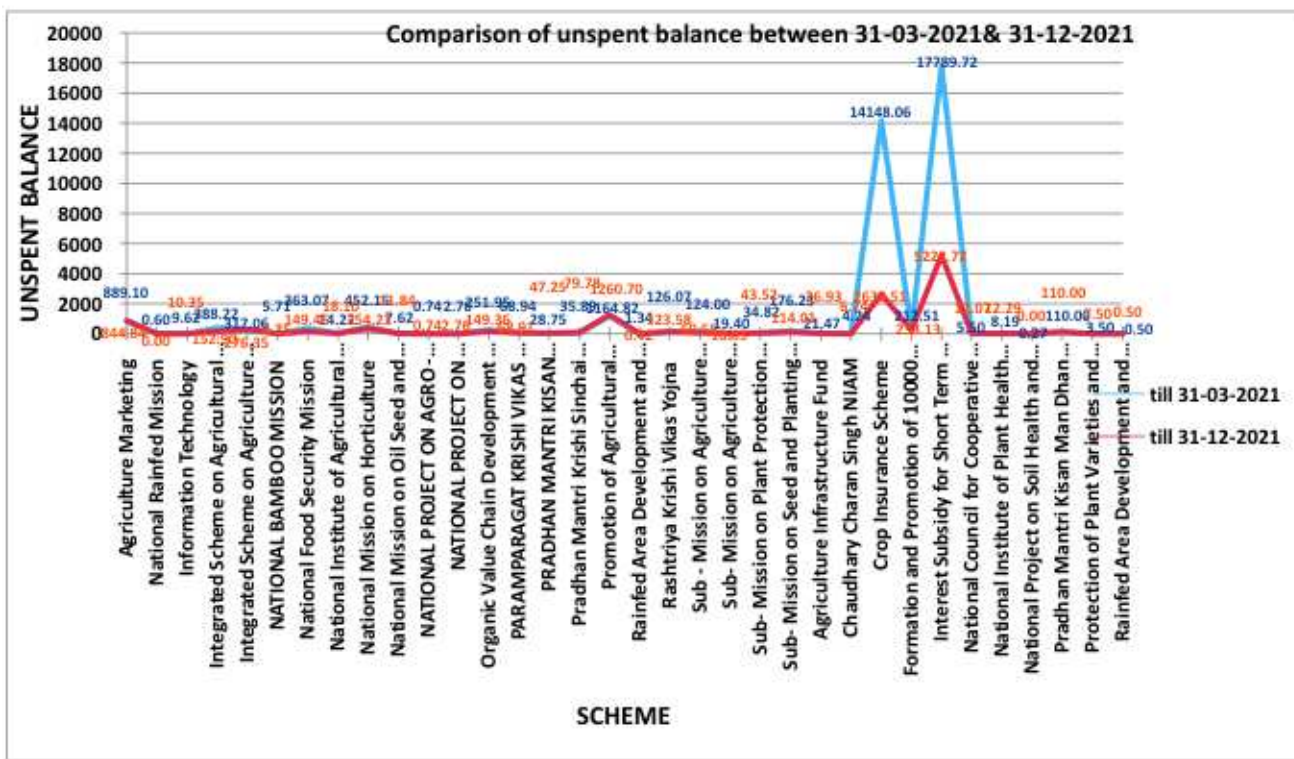
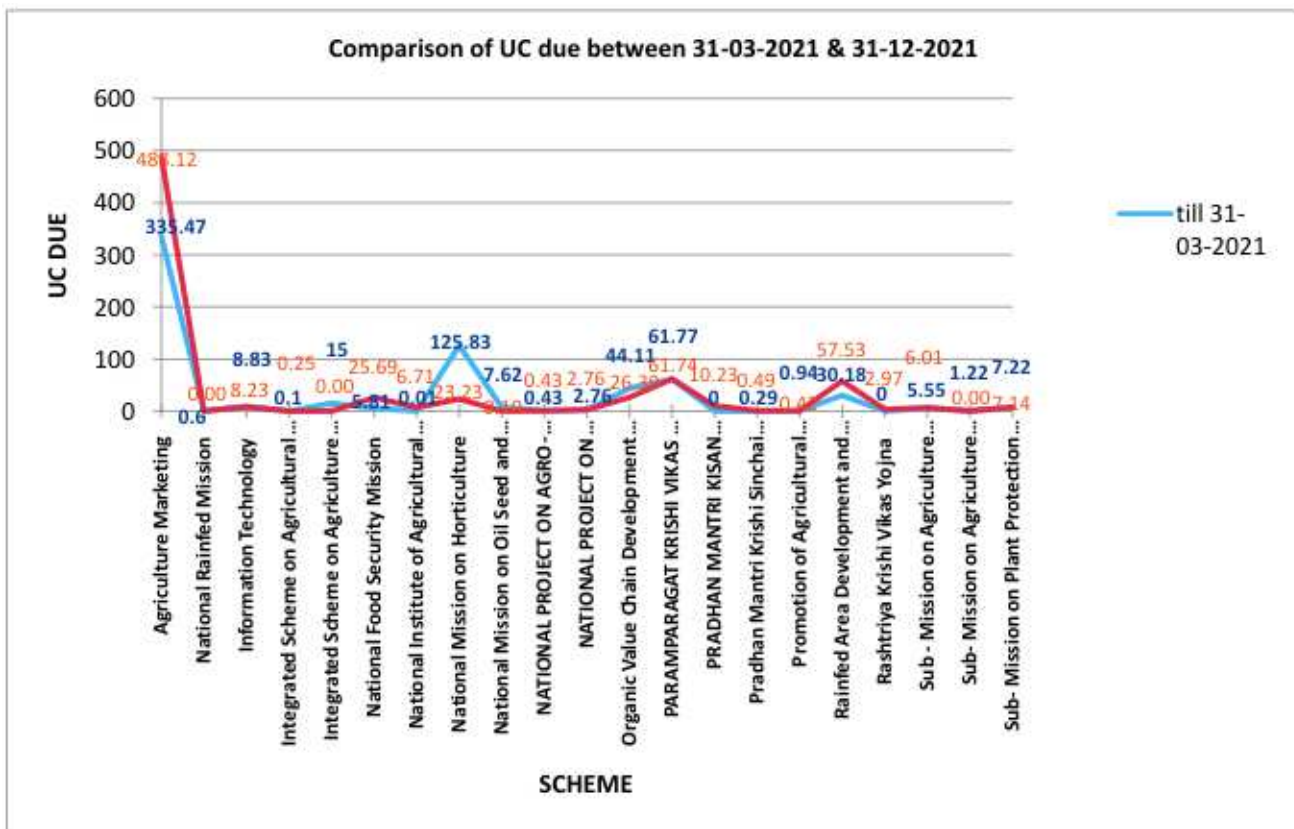
In order to ensure safety measures on PFMS platform, the following features are being enforced for treasury operations:

- a) Verification of each payment request with physical bill without fail before putting the digital signature by Pay & Accounts Offices (PAOs).
- b) Use of NIC/GOV domain e-mail IDs for user registration by the officials dealing with PAO and DDO module of PFMS.
- c) Immediate deactivation of user(s) found to be no longer active
- d) Deactivation of user ID/Digital key of PAO/ AAO user type at the time permanent transfer/superannuation.
- e) Implementation of OTP based log in system on PFMS in phased manner.

Details of Unspent balances and Utilization Certificate in r/o Implementing Agencies under all Schemes of DA&FW

(Rs. in Crores)

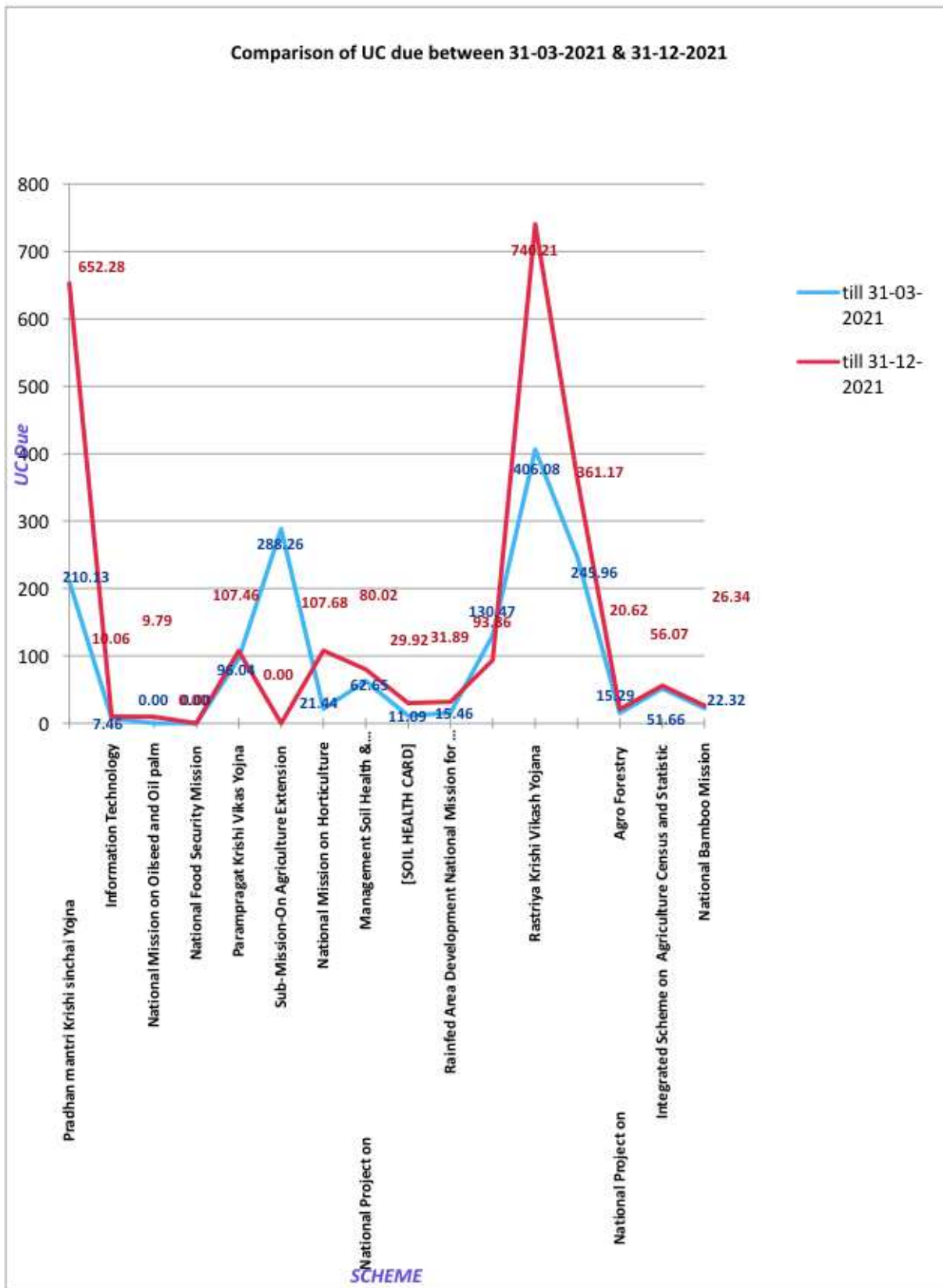
Scheme Name	As on 31.03.2021			As on 31.12.2021		
	UC due upto 2018-19	UC not due	Unspent Balance	UC due upto (19-20)	UC not due	Unspent balance
1	2	3	4	5	6	7
Agriculture Marketing	335.47	553.63	889.10	488.12	356.72	844.84
National Rainfed Mission	0.6	0.00	0.60	0.00	0.00	0.00
Information Technology	8.83	0.79	9.62	8.23	2.12	10.35
Integrated Scheme on Agricultural Cooperation	0.1	388.12	388.22	0.25	152.65	152.90
Integrated Scheme on Agriculture Census and Statistics	15	302.06	317.06	0.00	276.35	276.35
NATIONAL BAMBOO MISSION	0	5.71	5.71	0.00	2.25	2.25
National Food Security Mission	5.81	357.26	363.07	25.69	123.76	149.45
National Institute of Agricultural Extension Management	0.01	14.21	14.22	6.71	11.39	18.10
National Mission on Horticulture	125.83	326.33	452.16	23.23	330.98	354.21
National Mission on Oil Seed and Oil Palm	7.62	0.00	7.62	0.10	11.74	11.84
NATIONAL PROJECT ON AGRO - FORESTRY	0.43	0.31	0.74	0.43	0.31	0.74
NATIONAL PROJECT ON PROMOTION OF ORGANIC FARMING	2.76	0.00	2.76	2.76	0.00	2.76
Organic Value Chain Development for North East Region	44.11	207.84	251.95	26.39	122.97	149.36
PARAMPARAGAT KRISHI VIKAS YOJANA	61.77	7.17	68.94	61.74	7.17	68.91
PRADHAN MANTRI KISAN SAMMAN NIDHI	0	28.75	28.75	10.23	37.02	47.25
Pradhan Mantri Krishi Sinchai Yojana - Per Drop More Crop	0.29	35.60	35.89	0.49	79.29	79.78
Promotion of Agricultural Mechanization for in - situ Management of Crop Residue	0	1164.82	1164.82	0.00	1260.70	1260.70
Rainfed Area Development and Climate Change	0.94	0.40	1.34	0.42	0.00	0.42
Rashtriya Krishi Vikas Yojna	30.18	95.89	126.07	57.53	66.05	123.58
Sub - Mission on Agriculture Extension	0	124.00	124.00	2.97	66.58	69.55
Sub- Mission on Agriculture Mechanisation	5.55	13.85	19.40	6.01	12.04	18.05
Sub- Mission on Plant Protection and Plant Quarantine	1.22	33.60	34.82	0.00	43.52	43.52
Sub- Mission on Seed and Planting Material	7.22	169.01	176.23	7.14	106.87	114.01
Agriculture Infrastructure Fund	0	21.47	21.47	0.00	26.93	26.93
Chaudhary Charan Singh NIAM	0	4.24	4.24	0.00	6.74	6.74
Crop Insurance Scheme	0	14148.06	14148.06	0.00	2639.51	2639.51
Formation and Promotion of 10000 Farmer Producer Organisations (FPOs)	0	212.51	212.51	0.00	233.13	233.13
Interest Subsidy for Short Term Credit to Farmers	0	17789.72	17789.72	0.00	5222.72	5222.72
National Council for Cooperative Training	0	5.50	5.50	0.00	12.07	12.07
National Institute of Plant Health Management	0	8.19	8.19	0.00	12.29	12.29
National Project on Soil Health and Fertility	0	0.27	0.27	0.00	0.00	0.00
Pradhan Mantri Kisan Man Dhan Yojana	0	110.00	110.00	0.00	110.00	110.00
Protection of Plant Varieties and Farmers Rights Authority	0	3.50	3.50	0.00	7.50	7.50
Rainfed Area Development and Climate Change	0	0.50	0.50	0.00	0.50	0.50
Total	653.74	36133.31	36787.05	728.44	11341.87	12070.31

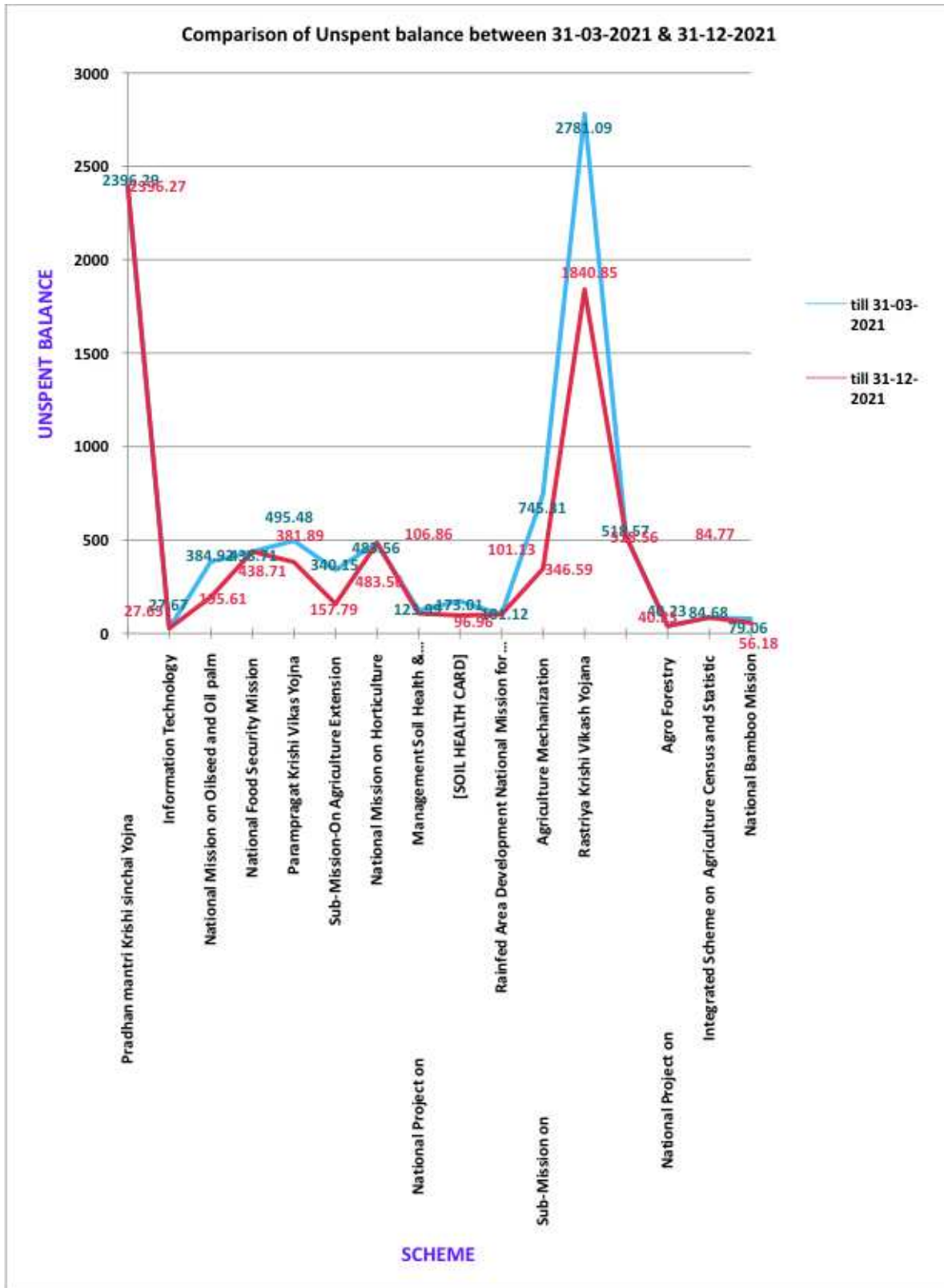


Details of Unspent balances and Utilization Certificate in r/o States under all schemes of DA&FW

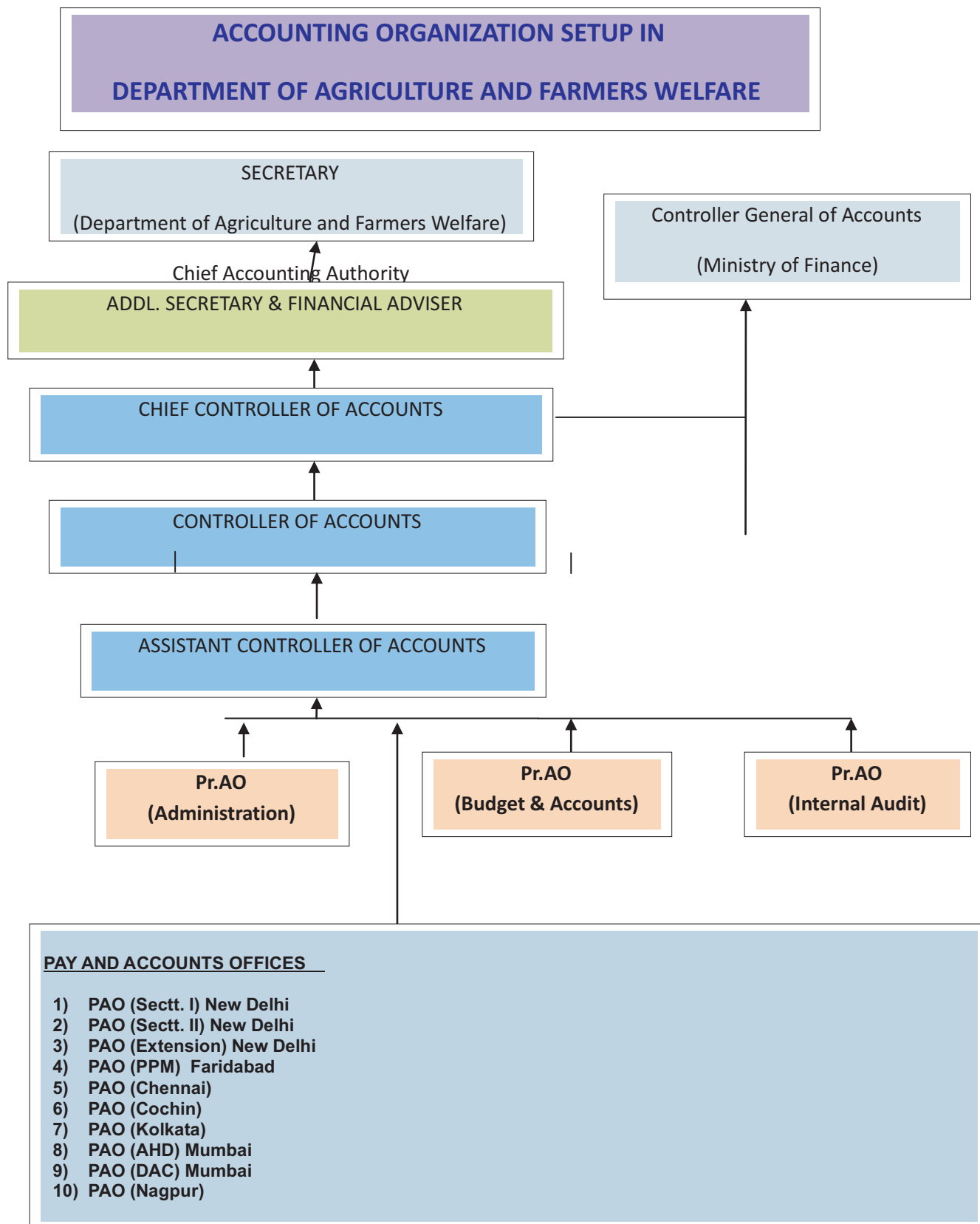
Rs. in crore

Name of Scheme/Item	As on 31st March 2021		As on 31-12-2021		
	Unspent Balances (upto 20-21)	Pending UCs (upto 18-19)	Total Releases in Fy 2020-21	Unspent Balances (upto 20-21)	Pending UCS (upto 19-20)
Pradhan mantri Krishi Sinchai Yojna	2396.29	210.13	2526.70	2396.27	652.28
Information Technology	27.67	7.46	17.40	27.65	10.06
National Mission on Oilseed and Oil palm	384.92	0.00	371.01	195.61	9.79
National Food Security Mission	438.71	0.00	1025.27	438.71	0.00
Parampragat Krishi Vikas Yojna	495.48	96.04	370.63	381.89	107.46
Sub-Mission-On Agriculture Extension	340.15	288.26	622.23	157.79	0.00
National Mission on Horticulture	483.56	21.44	1126.47	483.56	107.68
National Project on Management Soil Health & Fertility	123.99	62.65	199.17	106.86	80.02
Soil Health Card	173.01	11.09		96.96	29.92
Rainfed Area Development National Mission for Sustainable Agriculture	101.12	15.46	127.73	101.13	31.89
Sub-Mission on Agriculture Mechanization	745.31	130.47	980.02	346.59	93.86
Rastriya Krishi Vikash Yojana	2781.09	406.08	2502.43	1840.85	740.21
Sub Mission On Seed & Planting Material	518.57	245.96	102.72	518.56	361.17
National Project on Agro Forestry	40.23	15.29	26.23	40.23	20.62
Integrated Scheme on Agriculture Census and Statistic	84.68	51.66	28.70	84.77	56.07
National Bamboo Mission	79.06	22.32	72.27	56.18	26.34
Total	9157.40	1579.33	9073.71	7273.61	2327.37





ACCOUNTING ORGANISATION OF THE DEPARTMENT



CHAPTER - 2**FUNCTIONS AND ORGANIZATIONAL STRUCTURE
LIST OF FUNCTIONAL DIVISIONS IN THE DEPARTMENT OF AGRICULTURE AND
FARMERS' WELFARE****DIVISIONS:**

1. Administration
2. Agricultural Census
3. Agricultural Marketing
4. Budget, Finance and Accounts
5. Credit
6. Crops & Post Harvest Management of Foodgrain
7. Digital Agriculture
8. Drought Management
9. Economic Administration
10. Extension
11. Farmers Welfare
12. General Coordination
13. Hindi
14. Horticulture
15. Investment and Price Support
16. Integrated Nutrients Management
17. International Cooperation
18. Mechanization and Technology
19. Natural Resource Management
20. Plant Protection
21. Policy
22. Plan Coordination
23. RKVY
24. Rainfed Farming System
25. Seeds
26. Oil Seeds
27. Agriculture Trade Policy, Promotion & Logistics Development
28. Vigilance

CHAPTER - 2

FUNCTIONS AND ORGANIZATIONAL STRUCTURE

INVENTORY OF FIELD FORMATIONS

I. ATTACHED OFFICES

1. Directorate of Economics & Statistics, Shastri Bhavan, 'B' Wing, New Delhi.
2. Commission for Agricultural Costs and Prices, Shastri Bhavan, 'F' Wing, Second Floor, New Delhi.
3. Directorate of Plant Protection, Quarantine and Storage, N.H.IV, Faridabad (Haryana).
4. Directorate of Marketing & Inspection, N.H.IV, Faridabad (Haryana).
5. Mahalanobis National Crop Forecast Centre, New Delhi.

II. SUB-ORDINATE OFFICES

1. Central Farm Machinery Training & Testing Institute, Budni (Madhya Pradesh).
2. Northern Region Farm Machinery Training & Testing Institute, Hissar (Haryana).
3. Southern Region Farm Machinery Training & Testing Institute, Garladinne, Distt. Anantapur (A.P).
4. North Eastern Region Farm Machinery Training & Testing Institute, Biswnath Chariali, Distt. Sonitpur (Assam).
5. Directorate of Cotton Development, Bhoomi Sarvekshan Bhawan, Near Centre Point School, Seminary Hills, Katol Road, Nagpur, Maharashtra -440013.
6. Directorate of Jute Development, 234/4, Acharya Jagdish Bose Road, Nizam Palace Campus, Kolkata- 700020 (West Bengal).
7. Directorate of Millets Development, Mini Secretariat Building, Room No. 710, 6th Floor, Bani Park, Jaipur (Rajasthan).
8. Directorate of Sugarcane Development, 8th Floor, Hall No.3, Kendriya Bhavan, Aliganj, Lucknow - 226024 (U.P).
9. Directorate of Rice Development, 191, Patliputra Colony, Patna -800013 (Bihar).
10. Directorate of Wheat Development, CGO Building, Hapur Road Chauraha, Kamla Nehru Nagar, Ghaziabad (U.P).
11. Directorate of Extension, Krishi Vistar Bhavan, Dr. K.S. Krishna Marg, IARI Campus, Pusa, New Delhi-110 012.

12. Directorate of Oilseeds Development, Telhan Bhavan, Himayat Nagar, Hyderabad (A.P).
13. Directorate of Pulses Development, 8th Floor, Vindhyachal Bhavan, Bhopal - 462004 (M.P).
14. Central Fertiliser Quality Control & Training Institute, N.H. IV, Faridabad (Haryana).
15. National Centre of Organic Farming, C.G.O. Complex, Kamla Nehru Nagar, Hapur Road Chungi, Ghaziabad (U.P).
16. Directorate of Cashewnut and Cocoa Development, M.G. Road, Kochi -682011 (Kerala).
17. Directorate of Arecanut and Spices Development, Cannanore Road, Kozhikode -673005 (Kerala).
18. Office of the Minister (Agriculture), Embassy of India, ROME (ITALY).
19. All India Soil and Land Use Survey, IARI Campus, Pusa, New Delhi -110 012.
20. National Seed Research & Training Centre (NSRTC) VARANASI (U.P).
21. Central Institute of Horticulture, Medziphema, Nagaland.

1. PUBLIC SECTOR UNDERTAKINGS

1. National Seeds Corporation, New Delhi.

2. AUTONOMOUS BODIES

1. Coconut Development Board, Kochi (Kerala).
2. National Horticulture Board, Gurgaon (Haryana).
3. Small Farmers' Agri Business Consortium, New Delhi.
4. National Institute for Agricultural Extension Management, Hyderabad (A.P).
5. National Institute of Agricultural Marketing, Jaipur (Rajasthan).
6. National Institute of Plant Health Management, Hyderabad (A.P)
7. National Centre for Cold Chain Development, 2nd Floor, B-Wing, Janpath Bhawan, New Delhi.

3. AUHTORITIES

1. Protection of Plant Varieties and Farmers' Rights Authority, NASC Complex, DPS Marg Opp. Todapur, Delhi -110012.
2. National Rainfed Area Authority, NASC Complex, Dev Prakash Shastri Marg, Pusa, New Delhi- 110012.

Annexure 15.1 (a)

Statewise Allocation and Release of funds under Normal RKVY and Sub-schemes for 2019-20 as on 31.03.2020

(Rs. in crore)

Sl. No.	Name of the States	Normal RKVY						BGREI	CDP		RPS		AEIC		ANMHIT		Swatch Bharat		NRAA		AFDP		Total Sub-Scheme		Grand Total	
		Allocation Normal RKVY	1st installment	2nd installment	Total of Normal RKVY	Additional	Total RKVY		Allocation	Release	Allocation	Release	Allocation	Release	Allocation	Release	Allocation	Release	Allocation	Release	Allocation	Release	Allocation	Release	Allocation	Release
1	Andhra Pradesh	200.84	100.42	100.41	200.83	62.89	263.72		2.13	1.06		1.83	0.92	1.55	0.00				2.00	1.00	2.00	1.00	9.51	3.98	210.34	267.70
2	Bihar	129.00	62.49	0.00	62.49	0.00	62.49	52.00	0.18	0.09	1.00	0.50	2.30	0.00									55.53	52.59	184.53	115.08
3	Chhattisgarh	66.79	33.40	33.39	66.79	0.00	66.79	59.21			3.00	1.50	1.50	0.75									65.87	61.46	132.66	128.25
4	Goa	16.00	3.31	0.00	3.31	0.00	3.31					0.18	0.00	0.10	0.05							0.28	0.05	16.28	3.36	
5	Gujarat	109.82	54.91	47.70	102.61	0.00	102.61		2.01	2.01		1.44	0.35	2.30	0.00						2.50	2.50	8.25	4.86	118.07	107.47
6	Haryana	63.37	31.69	22.00	53.69	0.00	53.69		3.02	0.00	1.48	0.00	1.10	0.00								5.60	0.00	68.97	53.69	
7	Himachal Pradesh	24.10	12.05	12.05	24.10	0.00	24.10						0.80	0.37								0.80	0.37	24.90	24.47	
8	Jammu & Kashmir	20.37	7.94	0.00	7.94	0.00	7.94						0.80	0.00								0.80	0.00	21.17	7.94	
9	Jharkhand	72.90	30.91	0.00	30.91	0.00	30.91	33.86				1.44	0.00	1.30	0.60							36.60	17.53	109.50	48.44	
10	Karnataka	179.36	89.68	89.67	179.35	0.00	179.35		1.60	0.80	3.00	1.50	1.44	1.30	0.00				2.00	1.00	2.00	1.25	11.84	5.09	191.20	184.44
11	Kerala	64.29	29.10	35.18	64.28	0.00	64.28					2.16	0.90	0.50	0.00							2.66	0.90	66.95	65.18	
12	Madhya Pradesh	178.70	89.35	89.35	178.70	38.04	216.74					1.03	0.52	2.80	0.00							3.83	0.52	182.53	217.26	
13	Maharashtra	251.06	125.54	125.53	251.07	0.00	251.07		0.00		1.82	0.00	1.08	0.00	0.00						5.00	2.50	10.70	2.50	261.76	253.57
14	Orissa	136.29	68.14	68.15	136.29	42.53	178.82	61.13	0.02	0.01	1.50	0.75	7.20	3.60	1.70	0.00						71.55	65.48	207.84	244.30	
15	Punjab	82.75	39.41	0.00	39.41	0.00	39.41		7.06	0.00			1.15	0.00								8.21	0.00	90.95	39.41	
16	Rajasthan	159.21	79.61	0.00	79.61	0.00	79.61						3.10	1.50	0.00				1.40	0.00	2.00	0.75	6.50	2.25	165.71	81.86
17	Tamil Nadu	166.70	83.36	83.35	166.71	52.99	219.70		0.05	0.03	3.88	1.94	1.44	0.65	0.65						3.25	1.63	9.93	4.97	176.63	224.67
18	Telangana	259.77	129.89	0.00	129.89	0.00	129.89		0.10	0.05			1.30	0.65								1.40	0.70	261.18	130.59	
19	Uttarakhand	22.57	11.28	11.29	22.57	6.81	29.38						0.80	0.80			1.90					0.80	50.13	23.37	32.08	
20	Uttar Pradesh	288.22	144.12	97.22	241.34	0.00	241.34	48.60	3.59	3.59			4.90	2.45							2.75	2.75	59.84	56.22	348.06	297.56
21	West Bengal	164.12	82.05	0.00	82.05	0.00	82.05	56.51	0.18	0.09			0.36	0.18	0.83							59.15	55.10	223.27	137.15	
	Total "MH -3601"	2656.21	1308.65	815.29	2123.94	203.26	2327.20	311.36	19.95	7.73	15.68	6.19	21.76	7.73	35.50	8.65	1.90	5.40	20.00	12.38	20.00	12.38	429.65	335.26	3085.86	2664.46
1	Arunachal Pradesh	17.61	8.73	8.88	17.61	2.18	19.79				1.25	0.62	0.60	0.00								1.85	0.62	19.46	20.41	
2	Assam	154.79	77.40	77.39	154.79	0.00	154.79	63.64					1.50	0.00								65.14	60.49	219.93	215.28	
3	Manipur	15.53	7.76	7.77	15.53	0.00	15.53				0.50	0.25	0.30	0.00								0.80	0.25	16.33	15.78	

Annexure 15.1 (b)

Statewise Allocation and Release of funds under Normal RKVY and Sub-schemes for 2020-21 as on 31.03.2021

Sl. No.	Name of the States	Normal RKVY						BGREI		Crop Divers. Prog.		RPS		Cashew		ANMHLT		Swatch Bharat		NRAA		Total Sub-Scheme		Grand Total		
		Allocat ion RKVY	1st instal lment	2nd instal lment	Total of Normal RKVY	Addit ional	Total RKVY	Allocat ion	Relea se	Alloc ation	Relea se	Alloc ation	Relea se	Alloc ation	Relea se	Alloc ation	Relea se	Alloc ation	Relea se	Alloc ation	Relea se	Alloc ation	Relea se	Alloc ation	Relea se	
1	Andhra Pradesh	17881	52.28	126.53	178.81	134.1	312.92			3.19	1.21		1.01	0.50	0.00	0.00	2.00	1.00	6.20	2.72	185.0	315.64				
2	Bihar	13200	0.00	0.00	0.00	0.00	0.00	45.39	45.39	0.27	0.00				0.00	0.00			47.16	45.39	179.1	45.39				
3	Chhattisgarh	7245	36.24	35.11	71.35	0.00	71.35	51.63	33.42			0.36	0.00	0.00	0.00	0.00			53.99	33.42	126.4	104.77				
4	Goa	1787	8.94	0.00	8.94	0.00	8.94					0.00	0.00	0.00	0.00	0.00			0.00	0.00	17.87	8.94				
5	Gujarat	13115	65.58	50.71	116.29	0.00	116.29			3.02	3.01	0.00	0.00	0.00	0.00	0.00			3.02	3.01	134.1	119.30				
6	Haryana	6201	15.50	46.11	61.61	0.00	61.61			23.10	5.75	1.00	0.50		0.00	0.00			24.10	6.25	86.11	67.86				
7	Himachal Pradesh	2702	11.87	0.00	11.87	0.00	11.87								0.00	0.00			0.00	0.00	27.02	11.87				
8	Jammu & Kashmir	8.20	0.00	0.00	0.00	0.00	0.00								0.00	0.00			0.00	0.00	8.20	0.00				
9	Jharkhand	6405	0.00	0.00	0.00	0.00	0.00	29.53	0.00			0.00	0.00	0.00	0.00	0.00			29.53	0.00	93.58	0.00				
10	Karnataka	23860	119.30	77.86	197.16	0.00	197.16			2.40	0.00	6.00	3.00	0.72	0.00	0.00	2.00	0.50	11.12	3.50	249.7	200.66				
11	Kerala	6126	30.63	0.00	30.63	0.00	30.63					2.16	0.00	0.00	0.00	0.00			2.16	0.00	63.42	30.63				
12	Madhya Pradesh	17096	43.00	0.00	43.00	0.00	43.00					0.00	0.00	0.00	0.00	0.00			0.00	0.00	170.9	43.00				
13	Maharashtra	28686	100.00	99.62	199.62	0.00	199.62			0.00		1.50	0.00	2.52	0.00	0.00			4.02	0.00	290.8	199.62				
14	Orissa	12973	46.78	0.00	46.78	0.00	46.78	53.30	53.30	0.04	0.00	1.50	0.00	6.03	0.00	0.00			60.87	53.30	190.6	100.08				
15	Punjab	8436	0.00	0.00	0.00	0.00	0.00			61.60	8.00				0.00	0.00			61.60	8.00	145.9	8.00				
16	Rajasthan	15841	76.84	81.57	158.41	0.00	158.41								0.00	0.00	1.43	0.72	1.43	0.72	159.8	159.13				
17	Tamil Nadu	16413	82.05	82.08	164.13	0.00	164.13			0.08	0.08	6.50	3.25	6.12	6.12	0.00			12.70	9.45	176.8	173.58				
18	Telegana	17688	0.00	0.00	0.00	0.00	0.00			0.16	0.00				0.00	0.00			0.16	0.00	177.0	0.00				
19	Uttarakhand	4664	23.32	15.32	38.64	0.00	38.64								0.00	0.00				0.00	38.97	46.64	77.61			
20	Uttar Pradesh	33389	83.48	207.99	291.47	0.00	291.47	42.38	29.55	25.87	25.87				0.00	0.00			68.25	55.42	402.1	346.89				
21	West Bengal	15459	38.94	91.52	130.46	0.00	130.46	49.28	39.71	0.28	0.00			0.00	0.00	0.00			49.56	39.71	204.1	170.17				
	Total "MH - 3601"	269987	834.75	914.42	1749.17	134.1	1883.28	271.51	201.37	1200.0	43.93	20.00	6.75	18.92	6.62	0.00	5.43	2.22	435.86	299.86	3135.6	2183.14				
1	Arunachal Pradesh	2496	10.30	14.66	24.96	18.29	43.25					1.50	0.75			0.00			1.50	0.75	26.46	44.00				
2	Assam	13300	66.50	54.83	121.33	0.00	121.33	55.49	53.09			0.00	0.00		0.00	0.00			55.49	53.09	188.4	174.42				
3	Manipur	1823	9.00	0.00	9.00	0.00	9.00					1.00	0.00			0.00			1.00	0.00	19.23	9.00				
4	Meghalaya	2031	10.07	0.00	10.07	0.00	10.07					0.50	0.25	0.54	0.27	0.00			1.04	0.52	21.35	10.59				

Annexure 15.1 (c)

Statewise Allocation and Release of funds under Normal RKVY and Sub-schemes for 2021-22 as on 31.12.2021
 Crop Diversification Programme (CDP), Reclamation of Problematic Soil (RPS), Area Expansion on Cashew, Animal Health (ANMHL), Swatcha Action Plan (SAP) and National Rainfed Area Authority (NRAA)

Sl. No.	Name of the States	Normal RKVY				CDP		RPS		Cashew		ANMHL		SAP		NRAA		Total Sub-Scheme		Grand Total		
		Allocati on Normal RKVY	1st installme nt	2nd installme nt	Total of Normal RKVY	Allocati on	Relea se	Allocati on	Relea se	Allocati on	Relea se	Allocati on	Relea se	Allocati on	Relea se	Allocati on	Relea se	Allocati on	Relea se	Allocati on	Relea se	Total % of Relea se
1	Andhra Pradesh	194.38	0.00	0.00	0.00	3.19	0.00		2.16	0.00	0.62	0.00				0.00	0.00	5.97	0.00	200.36	0.00	0.00%
2	Bihar	139.53	69.77	0.00	69.77	0.27	0.00	0.23			0.92	0.00						1.42	0.00	140.95	69.77	49.50%
3	Chhattisgarh	86.53	43.27	0.00	43.27			2.90	1.08	0.00	0.52	0.00						4.50	0.00	91.03	43.27	47.53%
4	Goa	17.78	0.00	0.00	0.00				0.00	0.00	0.04	0.00						0.04	0.00	17.82	0.00	0.00%
5	Gujarat	135.76	67.88	0.00	67.88	3.02	1.51		3.24	0.00	1.23	0.00						7.49	1.51	143.25	69.39	48.44%
6	Haryana	59.89	29.92	0.00	29.92	23.10	11.55			0.00	0.61	0.00						24.00	11.55	83.89	41.47	49.43%
7	Himachal Pradesh	23.35	11.68	0.00	11.68						0.10	0.00						0.10	0.00	23.45	11.68	49.81%
8	Jharkhand	56.38	0.00	0.00	0.00				2.16	0.00	0.58	0.00						2.74	0.00	59.11	0.00	0.00%
9	Karnataka	212.54	61.88	0.00	61.88	2.40	1.20	0.30	0.00	0.00	1.51	0.00						4.20	1.20	216.74	63.08	29.10%
10	Kerala	57.55	28.78	0.00	28.78				2.16	0.00	0.38	0.00						2.54	0.00	60.10	28.78	47.89%
11	Madhya Pradesh	193.22	96.62	0.00	96.62				2.16	0.00	1.33	0.00						3.49	0.00	196.71	96.62	49.12%
12	Maharashtra	241.08	0.00	0.00	0.00	0.00		1.06	0.00	0.00	1.68	0.00						8.14	0.00	249.23	0.00	0.00%
13	Orissa	99.12	24.79	0.00	24.79	0.04	0.00	0.41	0.00	0.00	2.29	0.00						8.14	0.00	107.26	24.79	23.11%
14	Punjab	89.12	44.56	0.00	44.56	61.60	30.80				0.38	0.00						61.98	30.80	151.11	75.36	49.87%
15	Rajasthan	175.59	0.00	0.00	0.00						1.68	0.00						1.68	0.00	177.27	0.00	0.00%
16	Tamil Nadu	190.93	90.18	0.00	90.18	0.08	0.04	0.97	0.00	2.70	0.58	0.00						7.04	2.74	197.96	92.92	46.94%
17	Telangana	206.97	0.00	0.00	0.00	0.16	0.00				0.52	0.00						0.68	0.00	207.64	0.00	0.00%
18	Uttarakhand	53.55	15.47	0.00	15.47						0.11	0.00						0.11	0.00	53.66	15.47	28.83%
19	Uttar Pradesh	273.21	131.77	0.00	131.77	25.87	12.93				1.98	0.40						2.785	13.33	301.06	145.10	48.20%
20	West Bengal	185.21	92.61	0.00	92.61	0.28	0.14		0.00	0.00	1.51	0.00						1.78	0.14	186.99	92.75	49.60%
	Total "MH - 3601"	2691.68	809.18	0.00	809.18	120.00	58.17	6.16	0.00	29.16	18.58	0.40						173.89	61.27	2865.58	870.45	30.38%
1	Arunachal Pradesh	12.53	6.27	0.00	6.27			2.18	0.00		0.02	0.00						2.20	0.00	14.74	6.27	42.55%
2	Assam	159.52	79.76	0.00	79.76				0.00		0.42	0.21						0.42	0.21	159.95	79.97	50.00%
3	Manipur	21.29	10.65	0.00	10.65			1.97	0.00		0.00	0.00						1.97	0.00	23.25	10.65	45.80%
4	Meghalaya	21.58	0.00	0.00	0.00			1.26	0.00	0.84	0.02	0.00						2.12	0.00	23.70	0.00	0.00%
5	Mizoram	32.22	16.11	0.00	16.11			1.43	0.00		0.00	0.00						1.43	0.00	33.65	16.11	47.87%

6	Nagaland	15.27	7.64	0.00	7.64	1.87	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.87	0.00	17.14	7.64	44.56
7	Sikkim	9.38	4.14	0.00	4.14			0.00	0.02	0.00									0.02	0.00	9.40	4.14	44.03
8	Tripura	52.27	26.14	0.00	26.14				0.00	0.00									0.03	0.00	52.31	26.14	49.97
	Total "MH - 2552"	324.07	150.71	0.00	150.7	8.70	0.00	0.00	0.84	0.00	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.07	0.21	334.15	150.9	45.17
1	Delhi	0.10	0.00	0.00	0.00														0.13	0.00	0.23	0.00	0.00%
2	Puducherry	4.00	0.00	0.00	0.00														0.04	0.00	4.04	0.00	0.00%
3	Jammu & Kashmir	9.90	0.00	0.00	0.00														0.68	0.00	10.58	0.00	0.00%
	Total "MH - 3602"	14.00	0.00	0.00	0.00														0.86	0.00	14.86	0.00	0.00%
1	Andman & Nicobar	2.60	1.30	0.00	1.30														0.01	0.00	2.61	1.30	49.78
2	Chandigarh	0.10	0.00	0.00	0.00														0.03	0.00	0.13	0.00	0.00%
3	D & N Haveli	0.10	0.00	0.00	0.00														0.00	0.00	0.10	0.00	0.00%
4	Daman & Diu	0.10	0.00	0.00	0.00														0.01	0.00	0.11	0.00	0.00%
5	Lakshadweep	0.10	0.00	0.00	0.00														0.00	0.00	0.10	0.00	0.00%
6	Ladakh	9.00	0.00	0.00	0.00														0.00	0.00	9.00	0.00	0.00%
	Total Us (2401)	12.00	1.30	0.00	1.30						0.00								0.90	0.00	12.90	1.30	10.08
	(Admin/Innovation/UTs/National)	120.00	18.82		18.82														0.00	0.00	120.00	18.82	15.68
	Grand Total (MH - 2401)	3149.76	980.01	0.00	980.0	30.00	58.17	120.00	0.00	2.70	20.01	40.00	0.00	6.98	0.00	0.00	0.00	0.00	246.99	61.48	3712.44	1040.	28.02
	(States+Us+Admin/Innovation/UTs/National)				1														BE		3712.44	%rels	28.02
																			BE		2000.00	%rels	52.01

Note :- Rs. 145.73 crore to be allocated under Normal RKVY. This fund was related to the BGREI sub-scheme

Annexure 15.2 (a)

Sector wise Approved Projects Cost 2019-20

Sr No	State	CROP	HORT	SERI	ANHB	OTHR	FISH	COOP	IPMT	SEED	FINM	AMEC	EXTN	MRKT	NONF	ITFC	AGRE	NRM	IRRI	ORFM	DDEV	Total
1	ANDHRA PRADESH	0.00	43.14	9.72	50.00	6.37	20.37	0.00	2.50	32.36	5.22	26.54	1.76	0.00	0.00	0.00	37.63	0.00	0.00	75.00	19.61	330.21
2	ARUNACHAL PRADESH	0.00	0.00	0.00	0.00	6.60	0.00	0.00	0.00	0.00	0.00	3.75	3.35	43.98	1.50	0.00	0.00	3.50	0.00	7.63	0.00	70.30
3	BIHAR	80.90	0.00	0.00	0.00	0.43	0.00	0.00	0.00	14.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	96.01
4	CHATTISHGARH	2.80	30.33	0.00	0.00	0.26	12.52	0.00	11.62	11.65	0.00	0.00	3.29	0.00	0.00	0.00	0.00	0.00	11.00	0.00	0.00	83.47
5	GOA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.50	0.00	0.00	0.00	0.80	0.00	0.12	0.00	0.00	5.42
6	GUJARAT	12.40	16.34	0.00	26.76	44.51	5.00	0.00	10.00	114.60	0.90	4.65	1.38	2.00	0.00	0.00	50.98	0.75	0.00	1.00	5.20	296.47
7	HARYANA	67.82	15.93	0.00	61.23	1.51	8.00	0.00	5.04	30.56	2.78	0.00	30.60	0.00	0.52	1.29	36.67	31.07	31.25	4.25	6.32	334.83
8	HIMACHAL PRADESH	3.50	2.77	0.00	6.92	4.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.47	3.96	0.00	0.00	0.00	22.94
9	KARNATAKA	35.08	33.87	12.22	31.78	35.05	23.73	5.16	11.31	23.97	0.00	35.00	14.59	0.00	0.00	0.00	34.62	50.55	1.00	21.00	0.00	368.94
10	KERALA	54.97	6.10	0.00	13.94	18.99	8.37	0.00	0.00	0.00	0.00	5.00	0.43	0.35	0.00	0.00	5.51	16.00	5.59	3.50	0.00	138.75
11	M.P.	0.00	8.45	0.00	59.97	0.00	9.79	0.00	0.00	71.17	0.00	53.12	2.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	206.64
12	MAHARASHTRA	3.60	144.83	0.00	1.63	0.00	0.00	0.00	0.20	0.00	0.00	62.96	0.00	13.99	7.49	0.00	0.00	45.00	0.00	1.98	0.00	281.68
13	MANIPUR	0.00	1.52	0.00	2.63	1.03	1.80	1.14	0.00	2.10	0.00	0.00	0.00	0.00	2.43	1.60	0.00	0.69	0.00	0.00	0.00	14.95
14	MEGHALAYA	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.99
15	MIZORAM	0.00	0.00	0.00	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09
16	NAGALAND	6.45	2.53	1.43	4.14	3.82	3.00	0.39	0.75	3.00	0.00	6.10	1.62	4.40	0.69	0.40	1.85	4.85	0.98	2.55	0.00	48.95
17	ORISSA	108.94	51.83	0.00	17.40	9.80	19.91	0.00	6.19	0.00	1.30	128.32	0.00	0.00	0.00	0.00	29.70	0.00	0.00	0.00	0.00	373.39
18	PUNJAB	8.08	4.39	0.00	10.50	0.00	0.00	0.00	0.00	28.00	0.00	0.00	0.00	0.00	0.00	0.00	37.36	100.00	0.00	5.00	5.42	198.75
19	RAJASTHAN	0.00	0.00	0.00	3.20	2.58	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	10.00	8.14	9.09	0.00	0.00	0.00	35.01
20	TAMILNADU	139.04	22.10	0.00	36.27	0.00	17.86	15.23	22.52	0.38	6.45	31.23	168.00	23.14	0.00	0.00	3.56	3.00	0.00	0.00	0.00	503.98
21	TELANGANA	8.58	26.14	11.45	98.32	0.00	2.00	12.60	24.73	36.84	1.02	120.00	0.00	0.00	0.00	0.00	37.79	0.00	0.00	0.00	0.00	379.48
22	TRIPURA	41.32	1.43	0.00	9.11	0.00	4.69	0.00	0.00	0.00	0.00	0.00	33.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	89.56
23	U.P.	166.15	42.89	4.42	46.10	10.95	0.97	32.00	0.00	9.42	3.30	0.00	59.06	0.00	0.00	0.00	42.56	0.00	2.00	39.59	14.68	474.09
24	WEST BENGAL	94.83	9.63	2.06	0.30	0.00	24.70	33.46	2.50	17.82	0.00	40.40	7.61	0.00	0.00	0.00	0.22	0.00	6.55	0.00	0.00	240.08
Total		834.45	466.22	41.30	480.28	146.22	162.71	99.98	99.36	396.54	20.97	517.06	332.06	87.86	12.63	13.29	328.85	268.46	58.49	161.49	67.73	4595.97

Total Cost : Rs. 4595.97

CROP - CROP DEVELOPMENT; HORT - HORTICULTURE; SERI - SERICULTURE; ANHB - ANIMAL HUSBANDRY; OTHR - INNOVATIVE PROGRAMMES / OTHERS; FISH - FISHERIES; COOP - COOPERATIVES/COOPERATION; IPMT - INTEGRATED PEST MANAGEMENT; SEED - SEED; FINM - FERTILISERS AND INM; AMEC - AGRICULTURE MECHANISATION; EXTN - EXTENSION; MRKT - MARKETING AND POST HARVEST MANAGEMENT; NONF - NON FARM ACTIVITIES; ITEC - INFORMATION TECHNOLOGY; AGRE - RESEARCH (AGRI/HORTI/ANIMAL HUSBANDRY etc); NRM - NATURAL RESOURCE MANAGEMENT; IRRI - MICRO/MINOR IRRIGATION; ORFM - ORGANIC FARMING / BIO FERTILISER; DDEV - DAIRY DEVELOPMENT

Annexure 15.2 (b)

Sector wise Approved Projects Cost 2020-21

(Rs. in crore)

Sr No	State	CROP	HORT	SERI	ANHB	OTHR	FISH	COO P	IPMT	SEED	FINM	AMEC	EXTN	MRKT	NONF	ITEC	AGRE	NRM	IRRI	ORF M	DDEV	Total
1	ANDHRA PRADESH	0.00	49.00	7.84	0.00	156.58	46.33	0.00	1.14	22.15	0.00	1.60	40.76	0.00	0.00	0.00	19.85	0.00	0.00	0.00	0.00	345.26
2	CHATTISHGARH	115.26	25.42	0.00	0.00	0.00	20.97	0.00	4.08	8.73	0.00	0.00	1.80	0.00	0.00	0.00	0.00	0.00	3.06	8.75	0.00	188.07
3	GUJARAT	69.01	0.00	0.00	0.00	0.00	0.00	0.00	1.80	81.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	152.30
4	HARYANA	43.77	14.54	0.00	23.00	2.00	11.65	0.00	1.00	54.70	0.00	0.00	0.00	32.67	0.00	0.00	13.89	52.31	20.00	0.00	17.35	286.87
5	KARNATAKA	5.99	71.61	21.07	24.75	51.93	18.04	6.97	1.09	15.84	2.00	34.10	26.11	5.38	0.00	0.00	37.20	65.00	0.00	0.00	0.00	387.08
6	KERALA	51.00	19.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.36	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.00	0.00	70.82
7	MADHYA PRADESH	0.00	30.02	0.00	35.36	2.92	14.50	73.44	5.15	35.40	28.05	84.64	2.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	13.67	325.18
8	MAHARASHTRA	0.00	11.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	31.33	42.95
9	MANIPUR	0.00	3.00	1.34	0.00	0.73	1.57	0.60	0.00	0.08	0.00	0.42	0.00	5.75	0.00	0.00	0.00	0.13	0.00	0.09	0.00	13.70
10	MEGHALAYA	0.00	0.73	0.00	1.17	0.00	0.50	0.20	0.00	0.00	0.00	0.21	0.00	0.00	2.66	0.00	0.00	2.20	0.00	0.00	0.00	7.67
11	NAGALAND	0.00	0.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.49
12	ORISSA	90.79	78.91	0.00	0.00	0.00	1.02	0.00	54.45	12.26	0.00	8.54	0.00	0.00	0.00	0.00	9.23	4.42	0.00	0.00	0.99	260.60
13	PUNJAB	47.57	46.25	1.00	12.53	0.90	2.29	0.00	6.45	18.55	68.84	0.00	0.00	8.83	7.61	0.00	34.70	0.00	20.00	0.00	23.99	299.50
14	RAJASTHAN	0.00	323.29	0.00	0.00	0.00	2.34	26.00	6.91	1.00	0.00	0.00	1.00	0.00	0.00	0.00	4.05	32.10	0.00	0.00	0.00	396.68
15	TAMILNADU	112.89	45.40	0.00	16.90	0.00	8.53	5.50	20.00	3.06	8.05	10.50	0.00	52.50	0.00	0.00	0.00	4.45	0.00	12.80	10.36	310.94
16	TELANGANA	5.77	67.92	16.76	41.63	0.00	5.55	0.00	2.33	31.85	1.14	132.00	0.00	8.50	0.08	0.00	17.09	0.00	0.00	0.00	0.00	330.60
17	TRIPURA	29.39	3.44	0.00	16.05	0.00	5.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.07	0.00	0.00	0.00	57.96
18	UTTAR PRADESH	254.42	105.10	9.10	27.55	0.00	19.11	23.19	1.05	13.75	3.60	0.00	159.38	0.00	0.00	0.00	22.24	16.21	0.00	41.48	0.00	696.17
19	UTTARAKHAND	0.00	0.00	0.00	1.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	33.86	35.35	
20	WEST BENGAL	120.36	11.33	1.39	18.01	0.00	1.28	0.00	3.00	23.77	0.00	28.56	19.26	66.83	0.00	0.00	0.00	0.00	6.35	0.00	0.00	300.15
Total		946.22	907.44	58.50	218.46	215.06	158.68	135.90	108.43	322.61	111.68	300.93	250.34	180.46	10.35	0.00	158.25	180.89	49.48	96.98	97.68	4508.32

Total Cost : Rs. 4508.32

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Annexure 15'2 (c)
(Rs. in crore)

Sector wise Approved Projects Cost 2021-22

Sr No	State	CROP	HORT	SERI	ANHB	OTHR	FISH	COOP	IPMT	SEED	FINM	AMEC	EXTN	MRKT	NONF	ITEC	AGRE	NRM	IRRI	ORFM	DDEV	Total
1	GUJARAT	8.00	0.00	0.00	2.10	7.42	6.20	0.00	3.00	40.60	0.00	25.00	8.06	3.13	0.00	0.00	23.18	0.00	0.00	0.00	8.96	135.66
2	HARYANA	93.59	29.49	0.00	19.00	2.10	15.60	0.00	4.00	30.00	0.65	0.00	2.00	0.00	0.00	0.00	26.97	53.00	42.34	0.00	6.28	325.02
3	HIMACHAL PRADESH	4.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.05
4	KARNATAKA	0.00	6.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.16	0.00	0.00	0.00	0.00	7.11
5	KERALA	24.44	33.44	0.00	0.00	0.00	0.00	0.00	0.12	1.55	0.00	0.00	0.00	1.43	2.55	0.00	1.71	4.69	0.00	2.19	19.77	91.88
6	MADHYA PRADESH	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	21.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	21.67
7	MAHARASHTRA	0.00	198.23	0.00	85.29	1.36	0.00	0.00	0.00	1.81	3.53	150.00	0.87	19.70	0.00	0.00	0.00	0.00	100.00	1.90	13.56	576.25
8	MEGHALAYA	0.00	1.19	0.00	0.00	0.38	0.00	0.00	0.00	0.00	0.00	0.68	0.30	0.00	0.00	0.00	0.00	0.64	0.00	0.00	0.00	3.19
9	ORISSA	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	26.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	26.46
10	RAJASTHAN	15.00	0.35	0.00	10.83	17.49	0.40	0.00	6.58	0.00	1.03	0.00	0.00	0.00	0.00	0.00	15.81	0.00	0.00	0.00	0.00	67.51
11	TAMILNADU	62.85	37.92	0.00	40.81	0.00	15.17	3.55	20.00	0.30	2.48	23.79	67.17	6.75	0.00	0.00	5.44	3.28	8.50	29.20	29.72	356.93
12	TRIPURA	39.73	11.86	0.00	5.55	2.20	5.84	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.97	0.00	0.00	0.00	67.15
13	WEST BENGAL	73.89	10.75	2.57	110.30	3.49	1.88	9.86	3.00	54.92	5.00	42.17	19.69	1.13	0.00	0.00	14.65	15.00	19.83	1.40	0.00	389.55
	Total	321.57	330.19	2.57	273.89	34.43	45.09	13.41	36.70	129.19	12.69	268.08	119.77	32.14	2.55	0.00	87.93	78.58	170.67	34.69	78.28	2072.42

Total Cost: Rs. 2072.42

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Annexure-20.1
Seeds Programmes in North-Eastern States

S. No	Schemes/ Programmes Approved	Details of Schemes/ Programmes/ Activities taken	Target for 2018-19	Achievement 2018-19	Target for 2019-20	Achievement 2019-20	Target for 2020-21	Achievement 2020-21	Target for 2021-22	Achievement 2021-22
1.	National Seed Reserve (NSR)	The basic objective of this component is to keep seed available for meeting requirement during natural calamities.	65600 Quintals	59525 Quintals	68380 Quintals	60465 Quintals	68380	57780 (expected)	65100 Quintals	44580 Quintals (as on 14.01.2022)
2.	Transport Subsidy on movement of Seeds to North-Eastern States including Sikkim, Himachal Pradesh, J&K, Uttarakhand and Hill areas of West Bengal.	The topographical situation and climatic condition being not conducive for the production of seeds in the North-Eastern States. (a) Reimbursement of 100% difference between road and rail transportation cost to implementing States/agency for movement of seeds produced outside the state and movement to identified state capital/district headquarter. (b) The actual cost, restricted to maximum limit of Rs. 60/- per quintal for the movement of seed within the State from State Capital/ district headquarters to sale outlets/sale counters is being reimbursed to implementing State/agency.	It is a reimbursement programme. Therefore, targets cannot be pre-fixed as transportation of seeds depends on demand which varies from year to year.	For NE States a quantity of 18226.83 qtl transported exclusively to NE States. An amount of Rs. 102.23 lakh has been reimbursed. The Total quantity of seeds transported including NE States is 1,55,149,06 Quintals (upto 31.03.2017)	As mentioned in Col. 4	For a quantity of 12753.43 quintals transported exclusively to NE States, an amount of Rs. 40.205 lakh has been reimbursed. The total quantity of seeds transported including in NE States is 300270.64 quintals (upto 29.11.2019). An amount of Rs. 383.40 lakh has been reimbursed.	As mentioned in Col. 4	For a quantity of 13674.84 quintals transported exclusively to NE States, an amount of Rs. 49,217.16 lakh has been reimbursed. The total quantity of seeds transported including in NE States is 142217.95 quintals An amount of Rs. 247.06 lakh has been reimbursed.	As mentioned in Col. 4	For a quantity of 51551.92 quintals transported exclusively to NE States, an amount of Rs. 247.35 lakh has been reimbursed. The total quantity of seeds transported including in NE States is 254919.94 quintals An amount of Rs. 485.86 lakh has been reimbursed upto (14.01.2022)

Annexure-23.1

WOMEN IN AGRICULTURE AT A GLANCE

DIVISIONS/ SUBJECT MATTER AREA	SCHEME/COMPONENT	FLOW OF BENEFIT TO WOMEN IN SCHEMES/PROGRAMMES
Agriculture Extension	National Gender Resource Centre in Agriculture	<ul style="list-style-type: none"> x An e-book on the 'Success Stories of Progressive Women Farmers and Agripreneurs' was prepared by NGRC! collating best practices and success stories of 75 women farmers and agripreneurs. This book will help the extension functionaries and officials at State, District and Block Level in making women farmers aware of interventions and best practices facilitating them to derive benefits of the tailor made provisions of various Schemes/Programmes of the Ministry. x Mahila Kisan Diwas-2021- The Department of Agriculture & Farmers Welfare organized webinar on "Women in Agri-startups: Creating Value with Supply Chain Management" in the series of events for celebrating Mahila Kisan Diwas
	Support to States for Extension Reforms	<ul style="list-style-type: none"> x Minimum 30% of resources meant for programmes and activities are required to be allocated to women farmers and women extension functionaries with specific documentation of expenditure and performance for women being maintained; x Women farmers are to be involved in different decision making bodies at district and block level such as (ATMA) Governing Board and ATMA Management Committee at district level; x Women are represented in Farmers Advisory Committees (FACs) set up at block/ district and state level; x More women are involved as 'Farmer Friends' under the newly introduced mechanism for extension delivery below the block level through a 'Farmer Friend' ; x Farm Women's Food Security Groups (FSGs) @ at least 2 per block to be formed annually for ensuring household food and nutritional security providing assistance of Rs. 10,000/ per group; <p>Since inception of the Scheme in 2005-06,</p>

		total 1,48,10,130 Farm Women (24.58% of the total benefited farmers) have participated in farmer oriented activities like Exposure Visits, Training, Demonstrations & Kisan Melas (up to September, 2021). During FY 2021-22 (upto January, 2022), 1910485 farmers including 518428 farm women (27.13%) have reportedly participated in farmer oriented activities like Exposure Visits, Trainings, Demonstrations & Kisan Melas.
	Establishment of Agri-Clinics & Agri-Business Centres (AC&ABC)	Under AC&ABC, there is a provision of credit linked back-ended upfront composite subsidy on the bank loan availed by trained candidates. The subsidy is 44% in respect of women, SC/ST & all categories of the candidates from North-Eastern and Hill States and 36% in respect of other categories. During the current year (2021-22), 3884 candidates have been trained and 1404 have established their ventures which include 460 and 155 women candidates respectively. Since inception of the scheme, 78204 candidates have been trained and 32632 agri-ventures have been established in the country till 31.12.2021. Out of these 6593 and 1971 respectively are women candidates. Among the ventures established, 3069 have been granted with subsidy as on 31.12.2021 which includes 141 ventures established by women candidates.
	Extension Education Institutes	During 2021-22, the Extension Education Institutes (EEIs) conducted training courses with 4949 field extension functionaries including 1479 women extension functionaries.
	Diploma in Agricultural Extension Services for Input Dealers (DAESI)	During 2021-22, under DAESI programme; training was provided to 1720 input dealers including 42 women candidates.
Agriculture Census	Agriculture Census	Percentage of female operational holdings as per results of latest Agriculture Census 2015-16 and 2010-11 is 13.96 percent and 12.78 percent respectively. Increase in percentage of female operational holders during different Agriculture Censuses indicates participation of more and more women in operation and management of agricultural holdings in the country.
Agricultural Marketing	Integrated Scheme for Agricultural Marketing (ISAM)	Women under AMI are eligible for subsidy @ 33.33% as against 25% for others.
Crops	National Food Security Mission (NFSM)	As per the operational guidelines of NFSM, at least 30% of funds is to be made for women farmers , 33% allocation of the

		fund is to be made for small and marginal farmers.
Farmers Welfare	Pradhan Mantri Kisan Samman Nidhi (PM-KISAN)	Under PM-KISAN Scheme, any landholding farmer irrespective of gender can get the benefit of the Scheme subject to exclusion criteria related with higher income status. As of 31.12.2021, more than 2.94 crore female beneficiaries have been given the benefit of the Scheme out of approximately 11.72 crore beneficiaries.
	Pradhan Mantri Kisan Maan-Dhan Yojana (PM-KMY)	Under PM-KMY Scheme, any small and marginal farmer having cultivating landholding upto 2 hectares and falling in the age group of 18 to 40 years, can enroll themselves irrespective of gender. The number of female farmers registered under the Scheme is 7,14,055 out of total of 21,41,949 farmers as of 31.12.2021.
Horticulture	National Horticulture Mission(NHM), Horticulture Mission for North East & Himalayan States (HMNEH), Central Sector Schemes of National Horticulture Board, Coconut Development Board (CDB) and Central Institute for Horticulture, Nagaland	Horticulture Division is making efforts to stipulate in each and every administrative approval to provide for a pro-women allocation of at least 30% and the implementing agencies have been asked to ensure that the said funds are given to women beneficiaries/ entrepreneurs as far as possible. Further, in the Operational Guidelines of MIDH more incentives are being given to women farmers under the component 'Horticulture Mechanization.
Integrated Nutrient Management	Paramparagat Krishi Vikas Yojana (PKVY), Mission Organic Value Chain Development for North Eastern Region (MOVCDNER), Soil Health Card & Soil Health Management scheme	Under the National Mission for Sustainable Agriculture, INM Divisions are implementing Paramparagat Krishi Vikas Yojana (PKVY), Mission Organic Value Chain Development for North Eastern Region (MOVCDNER), Soil Health Card & Soil Health Management scheme; States have been requested to earmark atleast 30% of budget allocations for women beneficiaries/farmers.
Mechanization and Technology	Sub Mission on Agricultural Mechanization (SMAM)	<ul style="list-style-type: none"> x State Governments have been directed to earmark 30% of total funds allocated under SMAM for women beneficiaries. x 10% more assistance for women beneficiary to procure Agricultural Machinery, implements and equipments including PHT under component 2 and 3. x In order to reduce the drudgery and increasing efficiency in farm operations, a number of agricultural implements and hand tools suitable for farm women have been developed by Research & Development organizations under ICAR. The list of gender friendly equipments has been

		<p>sent to all States/UTs for popularizing them through various schemes of Government.</p> <p>Gender Friendly Equipment for Women: Under the component 1 of SMAM, Agricultural Mechanization through Training, Testing, and Demonstration, a total 6503 women were trained at FMTTIs during the Financial Year 2020-21. During Financial Year 2021-22 up to September 2021, 4453 women trainees trained.</p>
NRM	Sub-Mission on Agro forestry (SMAF)	<p>Sub-Mission on Agro forestry (SMAF) under National Mission for Sustainable Agriculture (NMSA) is under implementation since 2016-17 to encourage tree plantation on farm lands along with crops/cropping system as part of the recommendation of the National Agroforestry Policy, 2014. As per SMAF Operational Guidelines, at least 50% of the allocation is to be utilized for small, marginal farmers of which at least 30% should be women beneficiaries/farmers associated with the scheme.</p> <p>Under the National Bamboo Mission (NBM), women are equally encouraged to benefit from the implementation of all components of the National Bamboo Mission. States are advised to earmark 30% of the allocated budget for women beneficiaries / farmers under NBM.</p>
Plant Protection	Central Integrated Pest Management Centers (CIPMCs)	<p>A total of 22096 Nos. of women farmers were trained on Integrated Pest Management (IPM) techniques through Farmers Field School (FFS) from 2014-15 to 2021-22 by 35 Central Integrated Pest Management Centers (CIPMCs) of Ministry of Agriculture & Farmers Welfare, Government of India situated across 28 states and 2 Union Territories.</p> <p>National Institute of Plant Health Management (NIPHM), Hyderabad is regularly conducting training programmes for Agricultural Officers, Extension officers, Faculty members from various Universities and colleges across India for their capacity building in plant health management. During 2020-21, NIPHM has imparted training to 4164 officials including 980 female officers.</p>
Policy	National Policy for Farmers, 2007	<p>The National Policy for Farmers, 2007 announced by the Government envisages the following measures aimed at women's empowerment:</p> <ul style="list-style-type: none"> x Asset reforms under land, water and livestock for an equitable share to

		<p>women farmers.</p> <ul style="list-style-type: none"> x Better access to inputs and services, science and technology, implements, credit and support services like creches, child care centres, nutrition, health and training. x Encouragement to women for participating in group activities aimed at achieving economies of scale through farming groups. x Involvement of women in conservation and development of bio-resources.
Rainfed Farming Systems (RFS)	National Mission for Sustainable Agriculture (NMSA)	Under the National Mission for Sustainable Agriculture (NMSA) and Pradhan Mantri Krishi Sinchai Yojana-Per Drop More Crop (PMKSY-PDMC); atleast 50% of the allocation is to be utilized for small and marginal farmers of which atleast 30% are women beneficiaries/farmers.
Rashtriya Krishi Vikas Yojana	Innovation and Agri.-entrepreneurship programme	Under the Innovation and Agri.-entrepreneurship programme being implemented under RKVY, a total of 646 start-ups have been selected in various areas of agriculture and allied sectors for providing financial support through Knowledge Partners and Agri Business Incubators. Out of these selected Start-ups, 173 start-ups are led by women entrepreneurs.
Seeds	Sub-Mission for Seed and Planting Material (SMSP)	<p>There is no separate budget allocated/ earmarked and released exclusively for woman farmers. However, implementing States/ agencies are requested to cover adequate participation of women farmers' in the scheme.</p> <p>During 2019-2021, 11.46 lakh and during 2021-22 (as on 08th November, 2021), 0.29 lakh women farmers were benefitted under the Seed Village Programme and Certified Seed Production through the Seed Village Programme of SMSP.</p>



Department of Agriculture & Farmers Welfare
Ministry of Agriculture & Farmers Welfare
Government of India
Krishi Bhawan, New Delhi-110001
www.agricoop.nic.in