DPD/Pub./TR/29/2017-18

ANNUAL REPORT : 2017-18

सत्यमेव जयते

GOVERNMENT OF INDIA

MINISTRY OF AGRICULTURE & FARMERS WELFARE

DEPARTMENT OF AGRICULTURE, COOPERATION AND FARMERS WELFARE

DIRECTORATE OF PULSES DEVELOPMENT

VINDHYACHAL BHAVAN-462004

ANNUAL REPORT

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डॉ. ए. के. तिवारी
निदेशक
Dr. A.K. Tiwari
Director

PREFACE

Ensuring food and nutritional security at an affordable rate to > 1.25 billion population remains a national concern and a priority agenda for the current government. The government, since its assumption of power in May, 2014, Agriculture is the back bone of country with its contribution to more than 49 percent employment and 16 percent to national GDP.

In India the Agricultural growth volatility has substantially declined overtime, cereals production exhibiting robust growth to drought with real agricultural GDP growth during 2004-2016 at 3.2 percent. However, the levels of uncertainty growth are still high due to vagaries of the weather and the fact that of total 141.40 million hectares net sown area, 73.20 million hectares (52 percent) is still un-irrigated and rainfed. The government has, therefore, resolved to double the farmersô income by 2022.

The rainfed regions supports >40% of human population and 2/3rd of livestock of the country. More than 80% of total pulses are grown in this region. Pulses, historically vital constituent of cropping and consumption pattern are the only rich source protein (20-25%) for 43 percent vegetarians (Urban ï 48%, rural ï 41%). Besides the double the protein content of wheat and three times that of rice, food legumes tend to fix 72 to 350 kg per ha per year atmospheric nitrogen to N-compounds to soil.

With the twin objectives *i.e.* achieving food and nutritional security vis-à-vis enhancing income of the rainfed farmers, the government decided to harness the potential of pulses. In 2015-16, many farmer centric strategies and programmes such as PMKSY, PMFBY, PKVY, SHM and SHC, e-NAM etc was initiated to achieve the targeted outcomes.

From 2016-17, distribution of pulses seed minikits, incentives on production of quality seeds, creation of seed hubs, enhancing breeder seed production, cluster frontline demonstrations through 578 KVKs etc also initiated for increasing the production and productivity of pulses in the country. Massive awareness campaign in conformity with International year of Pulses (IYOP ï 2016) coupled with implementation of PSS at enhanced MSP; provision of PSF, imposing import duties (30%-gram / lentil, 50% yellow pea, 10% Tur) etc have paid dividends to consumers and pulse growers both.

As a result of enhanced per hectare productivity, the year 2017-18 witnessed a record pulse production of 25.23 million tonnes, a grand success story and revolution in pulses selfï sufficiency.

The annual report is an effort towards a brief summary of activities performed by this directorate for the development of pulses, global & national scenario strategies, Progress of NFSM-Pulses, Stateôs Profile of the assigned states viz., Madhya Pradesh & Chhattisgarh various participation/workshop/training/meeting/ conduct of NLMT, IMCT, Field visit, Studies, Surveys & varietal profile etc.

I acknowledge the sincere efforts of Technical Officers Dr. A.K. Shivhare, Assistant Director, Shri Sarju Pallewar, Statistical Investigator and Ms. Ashwini Tikle, TA for their contribution to bringout the report.

Dr. Shivhare, Assistant Director & Ashwini Tikle, Technical Assistant (NFSM) deserve special mention for the extra-ordinary input, analysis and compilation.

November, 2018 (A.K. Tiwari)

INTRODUCTION

1.0 The Directorate of Pulses Development (DPD), one of the eight Commodity Development Directorates (CDDs) viz Jute, Cotton, Wheat, Millets, Rice, Sugarcane and Oilseeds, under the *crops division* of the Ministry of Agriculture & Farmers Welfare, Department of Agriculture, Cooperation & Farmers Welfare (DAC&FW), was established in 1971 at Lucknow (U.P.) by merging the Regional Extension Unit, Ahmedabad (Gujarat). On the recommendations of "CDDs Re-organization Committee", in 1996, the National Head Quarter of pulses commodity was subsequently shifted to Madhya Pradesh, Bhopal.

2.0 The Directorate of Pulses Development is mandated to co-ordinate and monitor the implementation of all pulse related centrally sponsored/central sector schemes on crops development & research across the country.

3.0 With the bi-focal responsibilities for the assigned states of MP & CG at present, it coordinates and monitors all crop related schemes/programmes/Missions in these states. At present National Food Security Mission (NFSM)ï Pulses is operational in 29 States, 638 districts in the Country and NFSM (Wheat, Pulses, Rice, Sugarcane, Cotton, Jute and Coarse Cereals), National Mission on Sustainable Agriculture (NMSA),National Mission on Agricultural Extension & Technology (NMAET), National Mission on Oilseeds, Oilpalm (NMOOP),Mission on Integrated Development of Horticulture (MIDH), Rashtriya Krishi Vikas Yojana (RKVY) & Bringing Green Revolution In Eastern India (BGREI) etc.

4.0 The Directorate functions as Nodal/Regional office of DAC&FW, Govt of India, New Delhi for MP & CG states to represent in State Level Sanction Committees, Inter-Ministerial Central Teams & Task-force etc.

5.0 The Directorate has been instrumental in conceiving and coordinating the Plan interventions initiated since IVth Plan (1969-70 to 1973-74) onward followed by major CSS, the National Pulses Development Project (NPDP) from VIIth Plan, implemented in 17 major states of the country.To supplement the efforts under NPDP, a Special Food Grain Production Program (SFPP) on Pulses was also operationalised during 1988-89 on a 100% Central assistance basis. Under the GOI-UNDP Co-operation (1997-2003), pulses were identified as priority sector, the ICAR-IIPR was given the project assistance.

6.0 In view of the spectacular achievement in Oilseeds Sector through TMO, pulses were brought within the ambit of TMOP in 1990. From 2004-05, the Integrated Scheme of Oilseeds, Pulses, Oilpalm and Maize (ISOPOM) was launched. The new technologies, timely supply of inputs, extension supports, remunerative price, marketing infrastructure and post-harvest technologies were the focused area to increasing pulses production with the Mission Mode approach.

7.0 The DPD, Bhopal has been actively monitoring the programme implementation at the national level, through National Monitoring Team/ field visits, allocation of Seed Minikits, interface with the Research and other stake holder organizations/ agencies in the country.

8.0 During XIth Plan (2007-08 Rabi)), in pursuance of the resolution adopted in 53rd meeting of National Development Council, a CSS on National Food Security Mission was launched. It was resolved to enhance the production of rice, wheat and pulses by 10, 8 and 2 million tonnes,

respectively by the end of XI Plan. To further supplement the efforts to accelerate the pulses production, during XI Plan a centrally sponsored Accelerated Pulses Production Programme (A3P) (2010-11 to 2013-14)-as cluster demonstration approach; Special initiatives for pulses and oilseeds in dry land area (2010-11); and Integrated development of 60000 Pulses villages in Rainfed Areas (2011-12) both under RKVY and Special plan to achieve 19+ million tonnes of Pulses production during Kharif (2012-13) were also implemented, in addition to NFSM-Pulses. The implementation of the NFSM scheme is continued during XIIth Plan.

9.0 The DPD *drafted the policy paper/guidelines for NFSM -Pulses,* Seed- Rolling Plan ,the draft paper proposed the strategy of area expansion and productivity enhancement in consultation with states and ICAR; restoring soil fertility and productivity; creating employment opportunities; and enhancing farm level economy to restore confidence of farmers of targeted districts. The basic strategies were implementation of interventions in a mission mode through active engagement of all the stake holders at various levels. These interventions include promotion and extension of improved technologies *i.e.,* Seed, INM (micro-nutrient, soil amendments), IPM and resource conservation technologies (RCTs) and capacity building of farmers. Interventions proposed were integrated with the district plan and target for each identified district was fixed. Constant monitoring and concurrent evaluation were proposed for assessing the impact of the interventions for a result oriented approach by the implementing agencies.

10.0 NFSM-Pulses is operational beyond XIIth Plan (2012-13 to 2016-17 in 29 states namely Andhra Pradesh, Arunachal Pradesh, Assam, Bihar, Chhattisgarh, Gujarat, Goa, Haryana, Himachal Pradesh, Jammu & Kashmir, Jharkhand, Karnataka, Kerela, Madhya Pradesh, Maharashtra, Manipur, Meghalaya, Mizoram, Nagaland, Odisha, Punjab, Rajasthan, Sikkim, Tamil Nadu, Telangana, Tripura, Uttar Pradesh, Uttarakhand and West Bengal.

11.0 The DPD, Bhopal recently organized two National Seminar/Workshops on:

i) ñPulses Development: Challenges & Opportunities in Central & Southern Statesò (CIAE, Bhopal: Feb 3rd- 4th,2016); ñPromotion of Pulses in Non-traditional Niches: Summer Cultivationò (IIPR, Kanpur :Feb 9th-10th, 2016);

ii) Two skill development trainings (KVK, CRDE, Sehore: Oct. 7th-8th 2015), KVK, Raisen: Oct. 28th-29th, 2015). In addition, conducted the NLMTs on BGREI, and NFSM, NMOOP in CG and MP states.

12.0 The Directorate accomplishes the task relating to analysis of Area ,Production and Productivity trends/impact of developmental programmes ; research areas and identification of bottlenecks and suggest measures for their rectification and also feedback to ICAR-IIPR through institutionalized mechanism of National Conference/Group Meets on Chickpea, Pigeonpea, MULLaRP, Arid Legumes and DAC-ICAR Interface; Interface with National and International Research Organizations and Stake holders on area of crop Research; fixing targets of production and suggest measures to achieve them; to co-ordinate in programmatic review of all CSSs, special packages (eg. Bundelkhand Package) and to organize and coordinate Seminar/Workshop/Conference /Review Meetings at state and national level.

13.0 Preparation of Weekly Weather Watch Report (WWWR), monitoring of weather/rainfall pattern/temp/coverage/market arrivals and prices of pulses at national level and for all agricultural crops in the nodal states for review of the **Crop Tracking Committee** meeting of

the Ministry; crop tracking during growing season and production estimate forecast, formulation of Annual and Five year National plan, coordination in execution and monitoring of crop production programmes of pulses at national level, assisting states/UTs in initiation, planning, formulation and intensification of crop development programmes in consonance with the ongoing states programme/Contingency Planning/Crop diversification aspects& convergence and monitoring.

14.0 To assess the crop loss/damage to agricultural sector during Natural Calamities as Member Inter-Ministerial Central Team (IMCT) representing the Govt. of India, Department of Agriculture Cooperation& F W;. to act as nodal agency for Technology Transfer/Technology Dissemination/Extension for Pulses Development across the country and to work out Human Resource Development needs at all clientele level and to attend and reply of the Parliament Questions.

15.0 **The Other Existing Activities/Functions include**

i) To monitor the NFSM funded project on Creation of Seed-Hub for Increasing Indigenous Pulse Production in Indiaò. ñEnhancing Breeder Seed Production for increasing Indigenous Pulse Production in Indiaò; Cluster FLDs on Pulses/ Oilseed undertaken by KVKs of MP and Chhattisgarh states under ATARI Zone-IX; to formulate and monitor the Seed Minikit Programme on Pulses at national level, ñEstablishment/ Strengthening of Bio-fertilizer and Bio-control Production Units for Increasing Pulse Production In Indiaò, ñNational Demonstration Project and Value Chain Development of Pulses and Millets in Indiaò, CSS on MM-I on oilseeds and MM III on Tree Borne Oilseeds (TBOs) in Madhya Pradesh and Chhattisgarh states, Mini Mission-II on Oilpalm in Chhattisgarh state under National Mission on Oilseeds and Oilpalm (NMOOP), Dry Land development activities, extension reforms (ATMA), mechanization etc. under NMSA, NMAE&T and RKVY interventions in the state of Madhya Pradesh and Chhattisgarh.

ii) To prepare the Quarterly Progress Report and Annual Progress Report NFSM-Pulses, BGREI (Chhattisgarh); NMOOP & RKVY schemes of assigned states.

iii) To act as Convener/Team Leader, National Level Monitoring Team (NLMT) for Madhya Pradesh and Chhattisgarh under NFSM (Rice, Pulses, Wheat, Commercial Crops, Coarse Cereals) and Bringing Green Revolution in Eastern India (BGREI);To liaise with the other Central Ministries ICAR institutes, SAUs, International Research Organizations, NGOs and other stake holders in the field of Agri. and allied sectors for better Research-Development interface. Also represent Department of Agriculture and Cooperation on their Committee/ events with a view to have direct interface for onward benefits to formulate farmer friendly schemes at national level with a unified approach for the overall development of agriculture sector as a whole; Build data base and maintain the flow of information and ideas between research and development.

iv) To provide crop specific advisories, technical inputs to extension agencies and to Extension Division of the Ministry of Agriculture for skill development, national policies and for the Plan year; To participate in the State Level Crop Training Programmes; Developing leaflets/ Literatures on training manuals;

Unit-I
Pulses in India: 2017-18

1.1 Background

- The Food Security Act-2013 mandatorily envisages the right to nutritional security as well. To ensure access to adequate quantity of quality food at affordable prices to each individual, as per FSA-2013, is governmentôs top priority.

- Pulses are important commodity group of food crops that can play a vital role to address national food and nutritional security and tackle environmental challenges. Pulses share to total foodgrain basket is around 9-10 *per cent* and critical and inexpensive source of plant-based proteins, vitamins and minerals. Pulses are a Smart Food as these are critical for food basket (dal-roti, dal-chawal), rich source of protein *i.e.* 20-25 *per cent* which is double the protein content of wheat and thrice that of rice and help address obesity, diabetes malnutrition etc. Pulse-wise nutritional status is given in (*Table 1.1).*

(Table–1.1): Nutritional level of various pulses

(Unit– mg/100 g)

Name of foodstuff	Gram	Urd	Mung	Kulthi	Lentil	Pea	Tur	Moth	Khesari	Cowpea
Protein (%)	20	24	25	22	25	22	22	25	31	23
Vit. A (I.U.)	316	64	83	119	450	31	220	16	200	60
Vit. C	3			1				2		
Vit. K	0.29	0.19	-	-	0.25	-	-	-		
Thiamine	0.3	0.41	0.72	0.42	0.45	0.47	0.45	0.45	0.39	0.5
Ribo-flavin	0.51	0.37	0.15	0.2	0.49	0.21	0.51	0.09	0.41	0.48
Nicotinic-acid	2.1	2	2.4	1.5	1.5	3.5	2.6	1.5	2.2	1.3
Biotin (g/100g)	10	7.5	-	-	13.2	-	7.6	-	7.5	202
Choline	194	206	-	-	299	-	183	-	-	-
Folic-acid (g/100g)	125	144	-	-	107	-	83	-	100	-
Inositol	240	90	-	-	130	-	100	-	140	-
Pantothenic-acid	1.3	3.5	-	-	1.6	-	1.5	-	2.6	-
Total No. of Vitamins/Minerals	**12**	**11**	**5**	**6**	**11**	**5**	**10**	**6**	**9**	**6**

Source: Indian Council of Medical Research (ICMR), Hyderabad, 2012.

- In India, pulses are generally produced in poor soils not suited to other crops, with a minimum use of resources and have a very low water footprint. They are vital constituent of cropping and consumption pattern. Of the total net sown area of 141.40 million hectares, 52 *per cent i.e.* 73.20 million hectares is rainfed. The pulses cultivation occupies major area under this ecology. The rainfed regions of the country supports 40% of human population and 2/3rd of live stock, further 90% of coarse cereals, 80% pulses, 74% oilseeds, 65% cotton and 48% rice is rainfed.

- Pulses play a greater role in sustaining the economy of the rainfed farming community in a variety of ways. Besides improving soil fertility and physical structure, pulses fit well in mixed/intercropping systems, crop rotation and dry farming, provide green vegetable (pods/beans) and nutritious fodder for cattle as well thereby contributing to a more sustainable food system. Cultivation of pulses builds-up a mechanism to fix atmospheric nitrogen to N-compounds in their root nodules and tend to fix 72 to 350 kg N per ha per year, thereby meeting their own nitrogen requirements to a great extent. The cultivation of the pulses under irrigation is

only about 20% of their cropped area, remaining 80% are grown under *rainfed* conditions. Gram with 35% area under irrigation is the highest pulse crop followed by other pulses crop within < 10% irrigated area.

- In addition to their nutritive value, by virtue of broad genetic diversity in food legumes and climate resilience to sustain well in adverse weather situations, the government of India has, undertaken various measures to tackle the issue of domestic supply constraints of pulses on one hand and addressing the issues of calamity prone rainfed areas farmers to double their income by 2022.

1.2 India's status of pulse production

- The total world acreage under pulses is about 85.40 (Mha) with production of 87.40 (Mt) at 1023 kg/ha yields level. India, with >29 Mha pulses cultivation area, is the largest pulse producing country in the world. It ranks first in area and production with 35 *per cent* and 29 *per cent* respectively. During 2017-18 our productivity at 841kg/ha, has also increased significantly over Eleventh (662 kg/ha) and Twelfth plan (745 kg/ha).

- Thanks to pro-active pulse programme implementation strategies and robust monitoring mechanism of Govt. of India, significant growth in area, production and productivity of pulses has been recorded in the XIIth Plan (2012-13 to 2016-17), *especially during the last 03 years of this Plan period, despite two consecutive drought years of 2014-15 to 2015-16.* More visible and significant increasing trends during 2016-17 and 2017-18, whereby the pulses production reached at 23.13 Mt and 25.23 Mt respectively, is a grand success story in itself. The productivity of pulses has increased 13 *per cent* at 841 kg/ha during 2017-18 from the level of 743 kg/ha during 2014-15. The production growth has been (47 *per cent*) the ever highest.

1.3 Pulses share to total foodgrain basket

- In India foodgrains occupy 65% of total gross cropped area comprising cereals in 50% and pulses in about 15%. Within pulses, gram occupies 5% area followed by Urd 3%, Arhar 2% and Mung 2% the other pulses cover about 3% of gross cropped area.

- Percent share of pulses to total foodgrain production basket remained stagnated between 6-7 *per cent* uptill 2015-16 after the Green Revolution period (1960-70). The area also remained stagnant between 22-24 Mha *i.e.* 19 *per cent* of total food grain area till this period.
- Deceleration of percent production contribution of pulses to total food grains basket prompted the present dispensation in the Ministry of Agriculture & FW to vigorously pursue the NFSM-Pulses with synergistic approach on Research & Development, procurement, marketing, and import-export policies etc.

- The multi-pronged strategy of the government to protect the interest of farmers and the consumers has resulted into enhanced *per cent* contribution of about 9 *per cent* pulses to total food grains during 2017-18 from 6-7 *per cent* till 2015-16 which is the ever highest after 1980-

81. 1990-91 the production of food grains and contribution of pulses to total foodgrains basket is depicted *under (Table-1.2).*

(Table–1.2): Contribution of pulses to food grains basket

{Area- Million ha, Production- Million Tones, Yield- kg/ha}

Year	Pulses			Food grains			Pulses share to foodgrains (%)	
	A	P	Y	A	P	Y	A	P
1950-51	19.09	8.41	441	97.32	50.82	522	19.62	16.55
1960-61	23.56	12.70	539	115.58	82.02	710	20.38	15.48
1970-71	22.54	11.82	524	124.32	108.42	872	18.13	10.90
1980-81	22.46	10.63	473	126.67	129.59	1023	17.73	8.20
1990-91	37.25	20.36	547	140.83	182.49	1300	26.45	11.16
2000-01	20.35	11.08	544	121.05	196.81	1626	16.81	5.63
2010-11	26.40	18.24	691	126.67	244.49	1930	20.84	7.46
2011-12	24.46	17.09	699	124.76	259.32	2079	19.61	6.59
2012-13	23.25	18.34	789	120.77	257.12	2129	19.25	7.13
2013-14	25.21	19.25	764	125.04	265.04	2120	20.16	7.26
2014-15	23.10	17.16	743	122.07	252.67	2069	18.92	6.79
2015-16	24.91	16.35	656	123.22	251.57	2042	20.22	6.50
2016-17	29.44	23.13	786	129.23	275.11	2129	22.78	8.40
2017-18*	29.99	25.23	841	127.56	284.83	2233	23.51	8.85

Source: DES, Ministry of Agri. &FW (DAC&FW), Govt. of India; 2017-18- IVth Adv. Est.*

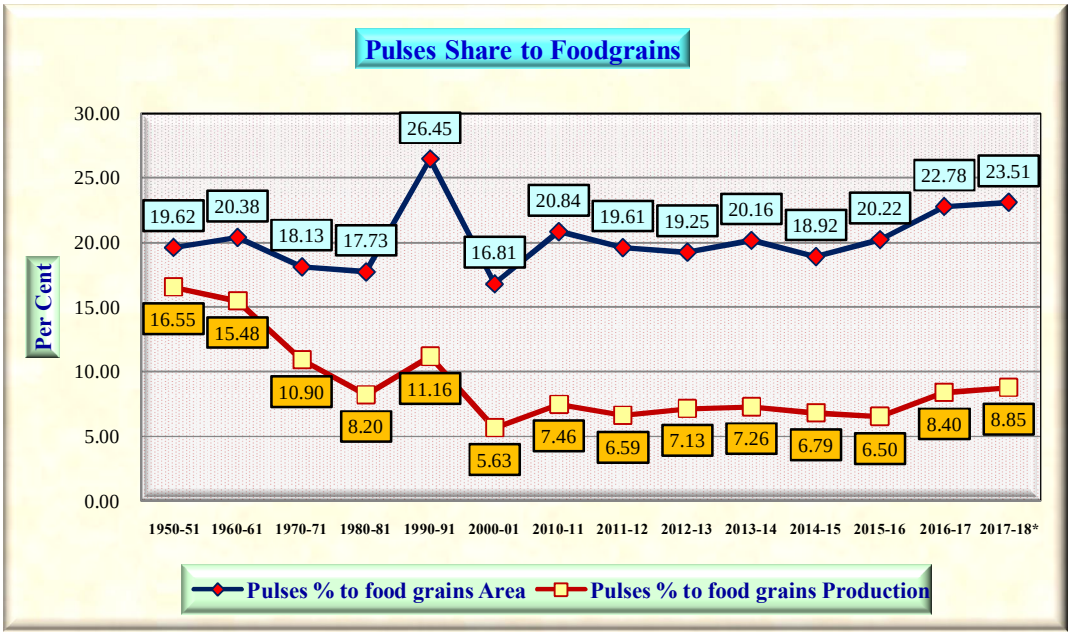


Fig-1.1: Contribution of Pulses to Foodgrains Basket

1.4 Season & crop contribution in total pulse production (2017-18)

Under individual crop category gram with 46 *per cent* production share to total pulses is the highest contributor followed by tur (17 *per cent*), urd (>14%) and mung (8%). The crop-wise APY and *per cent* share to total pulses is given below *(Table-1.3).*

(Table -1.3): Crop contribution to total pulse production

{Area-lakh ha, Production-lakh tons, Yield-kg/ha}

Crop	2017-18*			Contribution (%)	
	Area	Production	Yield	Area	Production
Gram	105.61	112.29	1063	35.21	44.50
Tur	44.31	42.54	960	14.77	16.86
Urd	54.39	35.62	655	18.13	14.12
Mung	42.57	20.09	472	14.19	7.96
Other Kharif Pulses	18.71	8.15	436	6.24	3.23
Other Rabi Pulses	34.34	33.65	980	11.45	13.33
Total Kharif Pulses	**140.83**	**93.45**	**664**	**46.95**	**37.03**
Total Rabi Pulses	**159.10**	**158.90**	**999**	**53.05**	**62.97**
Total	**299.93**	**252.35**	**841**		

Source: DES, Ministry of Agri. & FW (DAC&FW), Govt. of India; 2017-18- IVth Adv. Est.*
OKP – other kharif pulses, ORP – other rabi pulses

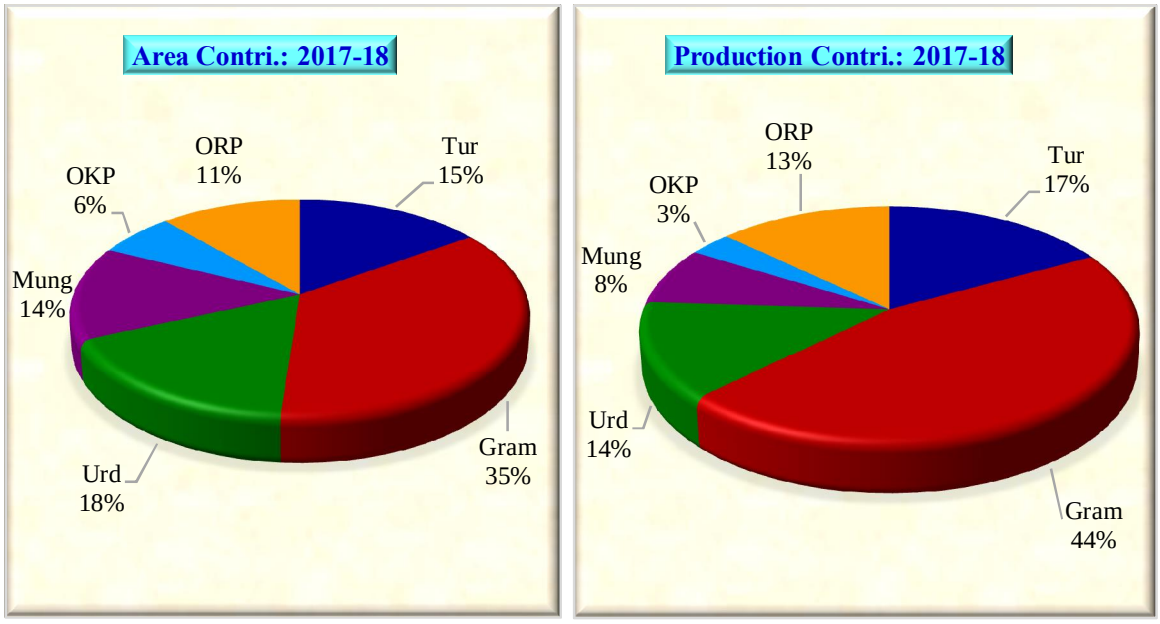


Fig-1.2: Crop contribution in Total Pulses

1.5 States' Contribution – (2017-18)

1.5.1 Total Pulses

- In India, total pulse area and production during 2017-18 has been >299 Lha and 252 Lt respectively. Out of the total area >74 Lha is confined to Madhya Pradesh alone, earning a prime status in pulse production commodity contributing a remarkable 25% of the countryôs pulse area with 32% production, thereby ranking first both in area and production followed by Rajasthan and Maharashtra with 13% each and Uttar Pradesh at 9%.
- Compared to normal production, the estimated production during 2017-18 is 30% higher in case of total pulses, 32% gram, 27% arhar, 58% urdbean, 18% mungbean and 40% higher lentil production.
- More than 90 *per cent* of total pulse production has been contributed by 10 states of MP, Rajasthan, MS, UP, Karnataka, AP, Gujarat, Jharkhand, Tamilnadu and Chhatisgarh.

(Table-1.4): Statesô Contribution in Area & Production ï Total Pulses

(Area-Lakh ha, Production-Lakh tons)

States	Area	% Contr.	States	Production	% Contr.
Madhya Pradesh	74.80	24.94	Madhya Pradesh	81.12	32.14
Rajasthan	53.29	17.77	Rajasthan	33.86	13.42
Maharashtra	43.52	14.51	Maharashtra	33.04	13.09
Karnataka	30.21	10.07	Uttar Pradesh	22.08	8.75
Uttar Pradesh	22.68	7.56	Karnataka	18.55	7.35
Andhra Pradesh	14.07	4.69	Andhra Pradesh	12.24	4.85
Gujarat	9.10	3.03	Gujarat	9.26	3.67
Tamilnadu	8.65	2.88	Jharkhand	8.45	3.35
Jharkhand	7.93	2.64	Tamilnadu	5.50	2.18
Chhattisgarh	7.84	2.61	Chhattisgarh	5.43	2.15
Others	27.84	9.28	Others	22.81	9.04
All India	**299.93**		**All India**	**252.35**	

Source: DES, Ministry of Agri. & FW (DAC&FW), Govt. of India; 2017-18- IVth Adv. Est.*

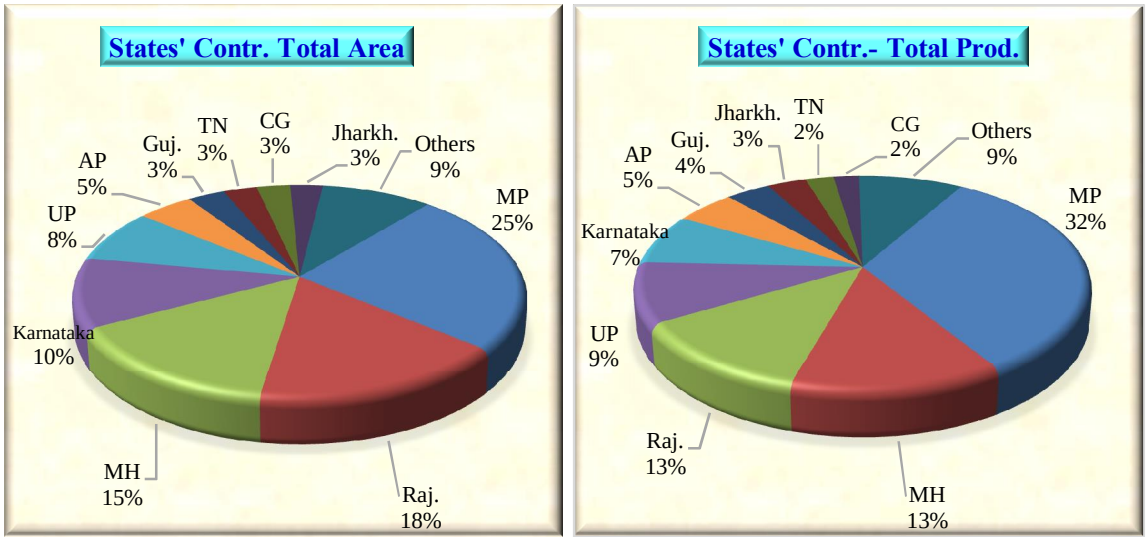


Fig-1.3: Statesô Contribution in Area & Productionï Total Pulses

1.5.2 Kharif Pulses

- The total area coverage and production of Kharif Pulses during 2017-18 has been 140 Lha and 93 Lt respectively. Madhya Pradesh outshined with first rank in production with >24 *per cent* production followed by Rajasthan and Maharashtra with 18% and 16%.
- About 94 *per cent* of total kharif production was realized from 10 states of MP, Rajasthan, Maharashtra, Karnataka, Uttar Pradesh, Gujarat, Jharkhand, Telangana, Odisha and Andhra Pradesh. *(Table-1.5).*

(Table-1.5): Statesô Contribution in Area & Productionï Kharif Pulses

(Area-Lakh ha, Production-Lakh tons)

States	Area	% Contr.	States	Prod.	% Contr.
Rajasthan	37.09	26.34	Madhya Pradesh	22.82	24.42
Madhya Pradesh	26.80	19.03	Rajasthan	16.41	17.56
Maharashtra	22.47	15.96	Maharashtra	14.68	15.71
Karnataka	16.01	11.37	Karnataka	10.68	11.43
Uttar Pradesh	8.92	6.33	Uttar Pradesh	6.33	6.77
Gujarat	5.59	3.97	Gujarat	5.23	5.60
Telengana	4.56	3.24	Jharkhand	4.05	4.33
Odisha	4.41	3.13	Telengana	3.51	3.76
Jharkhand	4.11	2.92	Odisha	2.48	2.66
Andhra Pradesh	3.67	2.61	Andhra Pradesh	1.82	1.95
Others	7.19	5.11	Others	5.43	5.82
All India	**140.83**		**All India**	**93.45**	

Source: DES, Ministry of Agri. & FW (DAC&FW), Govt. of India; 2017-18- IVth Adv. Est.*

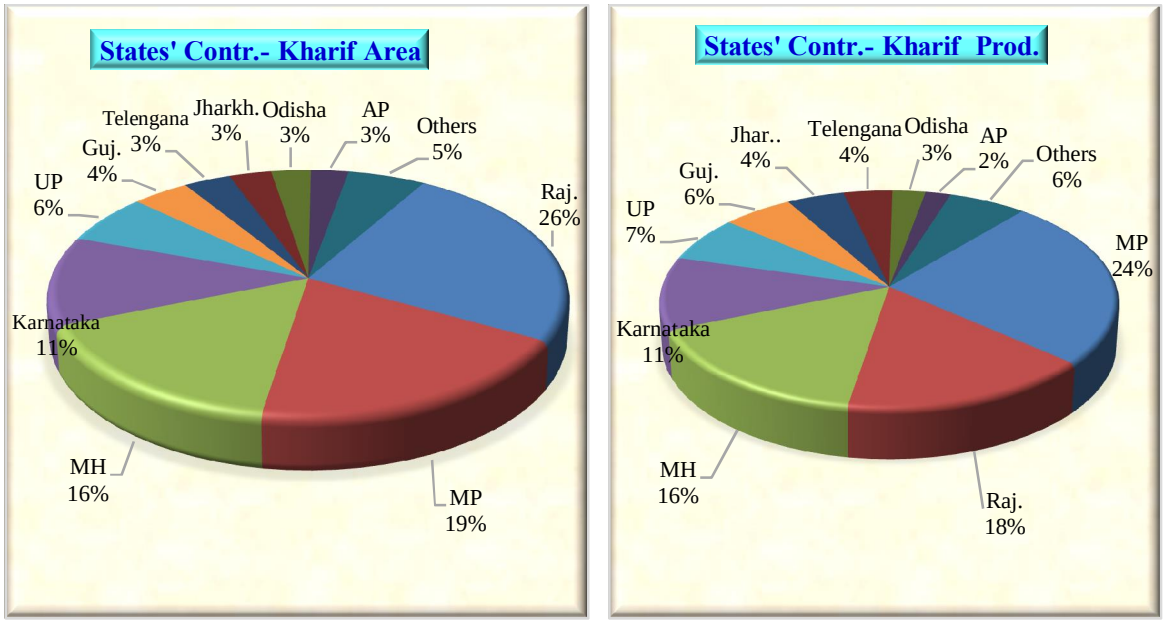


Fig-1.4: Statesô Contribution in Area & Productionï Kharif Pulses

1.5.3 Rabi Pulses

- All India Rabi pulse acreage and production has been recorded in 159 Lha and >158 Lt. Madhya Pradesh with 30 *per cent* of area and 37 *per cent* of total rabi pulse production in the country outshined at first rank.

- More than 90 *per cent* pulse production was recorded from 10 states of MP, MS, Rajasthan, UP, AP, Karnataka, Chhattisgarh, Jharkhand, Gujarat and Bihar *(Table-1.6).*

(Table-1.6): Statesô Contribution in Area & Production- Rabi Pulses

(Area-Lakh ha, Production-Lakh tons)

States	Area	% Contr.	States	Production	% Contr.
Madhya Pradesh	48.00	30.17	Madhya Pradesh	58.30	36.69
Maharashtra	21.04	13.23	Maharashtra	18.36	11.55
Rajasthan	16.20	10.18	Rajasthan	17.45	10.98
Karnataka	14.20	8.93	Uttar Pradesh	15.75	9.91
Uttar Pradesh	13.76	8.65	Andhra Pradesh	10.42	6.56
Andhra Pradesh	10.40	6.54	Karnataka	7.87	4.95
Tamilnadu	6.40	4.03	Chhattisgarh	4.59	2.89
Chhattisgarh	5.84	3.67	Jharkhand	4.41	2.77
Bihar	4.39	2.76	Gujarat	4.03	2.54
Jharkhand	3.82	2.40	Bihar	3.74	2.36
Others	15.04	9.46	Others	13.99	8.80
All India	**159.10**		**All India**	**158.90**	

Source: DES, Ministry of Agri. & FW (DAC&FW), Govt. of India; 2017-18- IVth Adv. Est.*

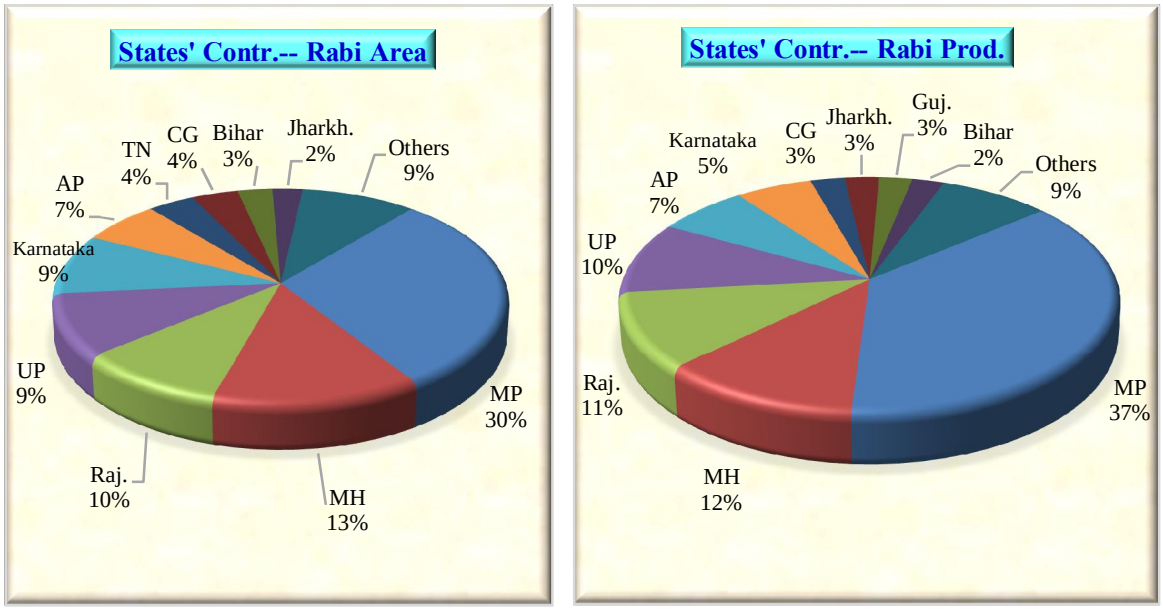


Fig-1.5: Statesô Contribution in Area & Productionï Rabi Pulses

1.5.4 Gram (Chickpea)

- In 2017-18 this crop was cultivated in about 106 Lha. The country harvested a record production of > 112 Lt at a highest productivity level of 1063 kg/ha. As usual, MP has contributed a significant 34% of the total gram area and 41% of total gram production in the country, thereby ranking first both in area and production followed by Maharashtra in area (19% and 16%).

- About 98 *per cent* of gram production of the country during the period under report has been realized by 10 states of MP, MS, Rajasthan, Karnataka, AP, UP, Gujarat, CG, Jharkhand, and Telangana *(Table-1.7).*

(Table-1.7): Statesô Contribution in Area & Production- Gram

(Area-Lakh ha, Production-Lakh tons)

States	Area	% Contr.	States	Production	% Contr.
Madhya Pradesh	35.90	33.99	Madhya Pradesh	45.95	40.92
Maharashtra	20.00	18.94	Maharashtra	17.84	15.89
Rajasthan	15.72	14.89	Rajasthan	16.70	14.87
Karnataka	12.65	11.98	Karnataka	7.21	6.42
Andhra Pradesh	5.20	4.92	Andhra Pradesh	5.85	5.21
Uttar Pradesh	5.01	4.74	Uttar Pradesh	5.79	5.16
Chhattisgarh	3.18	3.01	Gujarat	3.67	3.27
Gujarat	2.93	2.77	Chhattisgarh	3.16	2.82
Jharkhand	2.33	2.20	Jharkhand	2.93	2.61
Telengana	0.97	0.92	Telengana	1.38	1.23
Others	1.72	1.63	Others	1.81	1.61
All India	**105.61**		**All India**	**112.29**	

Source: DES, Ministry of Agri. & FW (DAC&FW), Govt. of India; 2017-18- IVth Adv. Est.*

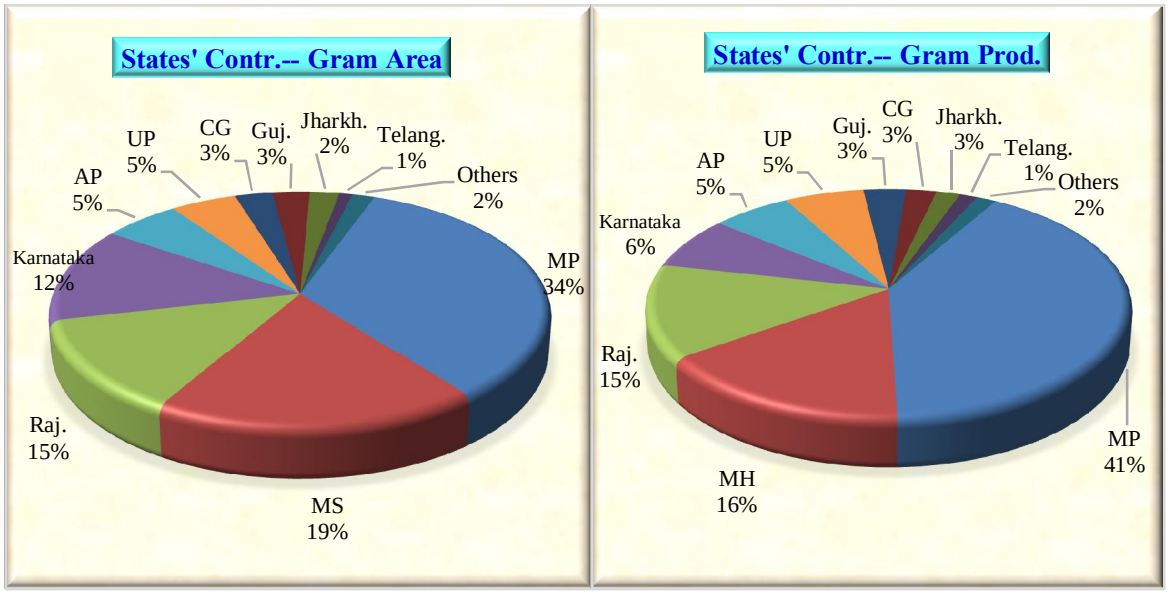


Fig-1.6: Statesô Contribution in Area & Productionï Gram

1.5.5 Arhar (Pigeonpea)

- The countryôs total area coverage and production of tur has been about 44 Lha and 42 Lt respectively. As usual Maharashtra has contributed >28 *per cent* of area and 25 *per cent* of total production during this period. With aggressive ToT in various thematic areas, highest ever productivity levels of 960 kg/ha were achieved during 2017-18 *(Table-1.8).*

- About than 97 *per cent* of Arhar production of the country during the period under report has been realized by 10 states of MS, MP, Karnataka, Gujarat, UP, Telangana, Jharkhand, Odisha, AP and TN *(Table-1.8).*

(Table-1.8): Statesô Contribution in Area & Production ï Pigeonpea

(Area-Lakh ha, Production-Lakh tons)

States	Area	% Contr.	States	Production	% Contr.
Maharashtra	12.29	27.73	Maharashtra	10.73	25.22
Karnataka	8.85	19.97	Madhya Pradesh	8.39	19.72
Madhya Pradesh	6.47	14.60	Karnataka	7.68	18.06
Telengana	3.30	7.45	Gujarat	3.37	7.92
Uttar Pradesh	2.82	6.36	Uttar Pradesh	3.32	7.80
Andhra Pradesh	2.79	6.30	Telengana	2.63	6.18
Gujarat	2.71	6.12	Jharkhand	2.22	5.22
Jharkhand	1.94	4.37	Odisha	1.24	2.91
Odisha	1.38	3.11	Andhra Pradesh	1.19	2.80
Chhattisgarh	0.58	1.30	Tamilnadu	0.61	1.44
Others	1.19	2.68	Others	1.17	2.74
All India	**44.31**		**All India**	**42.54**	

Source: DES, Ministry of Agri. & FW (DAC&FW), Govt. of India; 2017-18- IVth Adv. Est.*

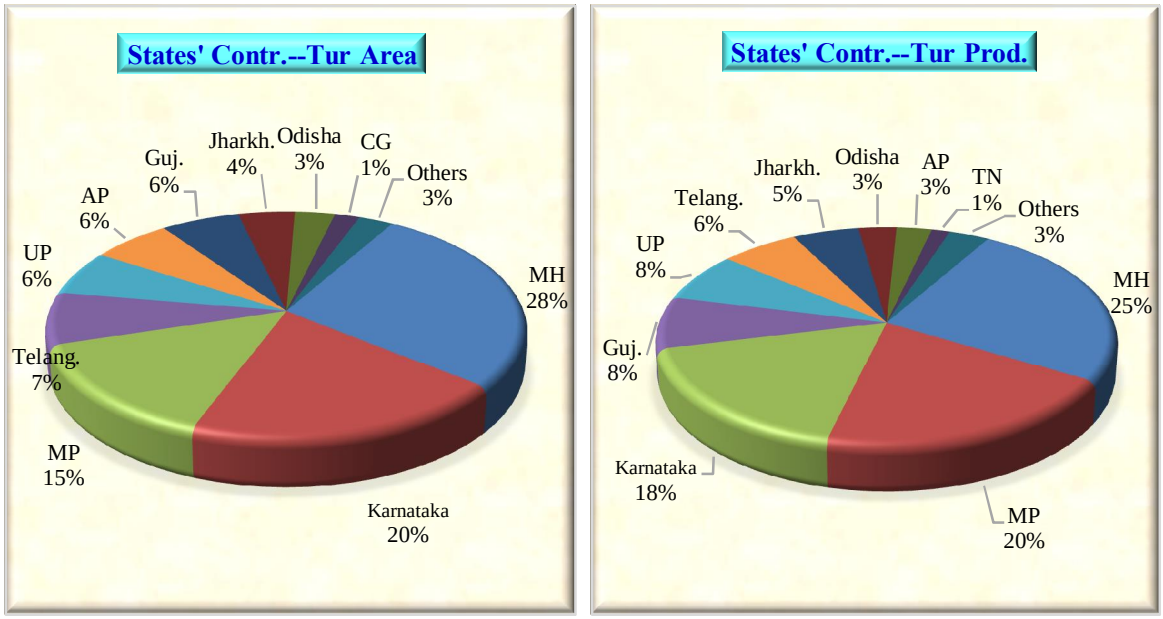


Fig.-1.7: Statesô Contribution in Area & Production ï Arhar/Tur

1.5.6 Mungbean (Greengram)

- During 2017-18, the total coverage under mungbean has been about 42 Lha with a production of 20 Lt. There has been phenomenal increase in area of mungbean in the country from 2015-16 onwards. Rajasthan with >40 *per cent* area and 37 *per cent* of production outshined in the total mungbean contribution in the country during year report.
- More than 90 *per cent* of mungbean production comes from 10 states of Rajasthan, Madhya Pradesh, Maharashtra, Karnataka, Bihar, Andhra Pradesh, Odisha, TN, Gujarat, and Telangana *(Table-1.9).*

(Table-1.9): Statesô Contribution in Area & Production ï Mungbean

(Area-Lakh ha, Production-Lakh tons)

States	Area	% Contr.	States	Production	% Contr.
Rajasthan	17.21	40.43	Rajasthan	7.47	37.18
Maharashtra	4.53	10.64	Madhya Pradesh	2.66	13.23
Madhya Pradesh	4.34	10.19	Maharashtra	1.64	8.17
Karnataka	3.97	9.33	Karnataka	1.28	6.39
Odisha	2.36	5.55	Bihar	1.04	5.19
Tamilnadu	1.85	4.33	Andhra Pradesh	0.99	4.93
Bihar	1.68	3.95	Odisha	0.87	4.31
Gujarat	1.53	3.59	Tamilnadu	0.86	4.29
Andhra Pradesh	1.40	3.29	Gujarat	0.86	4.28
Telengana	0.99	2.33	Telengana	0.65	3.24
Others	2.71	6.37	Others	1.77	8.81
All India	**42.57**		**All India**	**20.09**	

Source: DES, Ministry of Agri. & FW (DAC&FW), Govt. of India; 2017-18- IVth Adv. Est.*

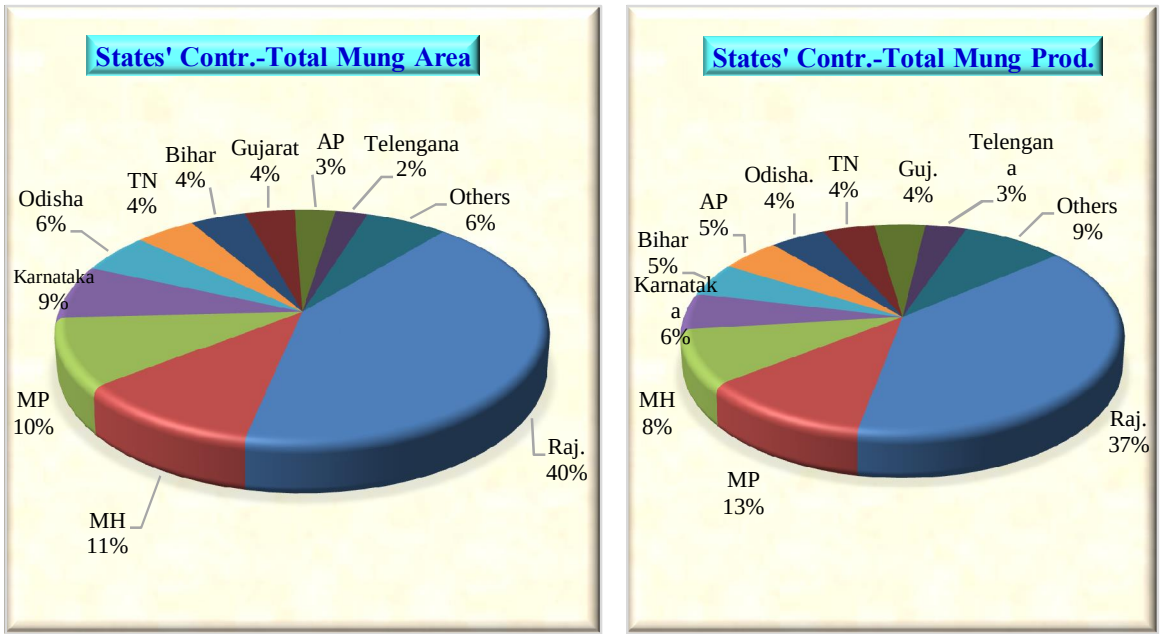


Fig.-1.8: Stateôs Contribution in Area & Production-Mungbean

1.5.7 Urdbean (Blackgram)

- Urdbean crop is also gaining momentum since 2015-16 and there has been phenomenal increase in its coverage. During 2017-18 the crop was cultivated in an area of > 54 Lha. The success of this crop was released with a harvest of about 36 Lt at an ever highest yield levels of 655 kg/ha.

- About 95 *per cent* of urdbean production comes from 10 states of Madhya Pradesh, Rajasthan, Andhra Pradesh, Uttar Pradesh, Tamil Nadu, Maharashtra, Jharkhand, Gujarat, Karnataka and West Bengal. *(Table-1.10).*

(Table-1.10): Statesô Contribution in Area & Production- Urdbean

(Area-Lakh ha, Production-Lakh tons)

States	Area	% Contr.	States	Production	% Contr.
Madhya Pradesh	18.24	33.54	Madhya Pradesh	13.48	37.84
Rajasthan	8.39	15.43	Rajasthan	5.24	14.70
Uttar Pradesh	6.14	11.29	Andhra Pradesh	3.75	10.53
Maharashtra	4.84	8.90	Uttar Pradesh	3.15	8.84
Tamilnadu	4.54	8.34	Tamilnadu	2.85	8.01
Andhra Pradesh	4.03	7.41	Maharashtra	1.77	4.98
Jharkhand	1.48	2.72	Jharkhand	1.32	3.70
Gujarat	1.37	2.52	Gujarat	0.98	2.75
Karnataka	1.36	2.50	Karnataka	0.65	1.84
Chhattisgarh	0.98	1.80	West Bengal	0.63	1.77
Others	3.03	5.56	Others	1.80	5.05
All India	**54.39**		**All India**	**35.62**	

Source: DES, Ministry of Agri. & FW (DAC&FW), Govt. of India; 2017-18- IVth Adv. Est.*

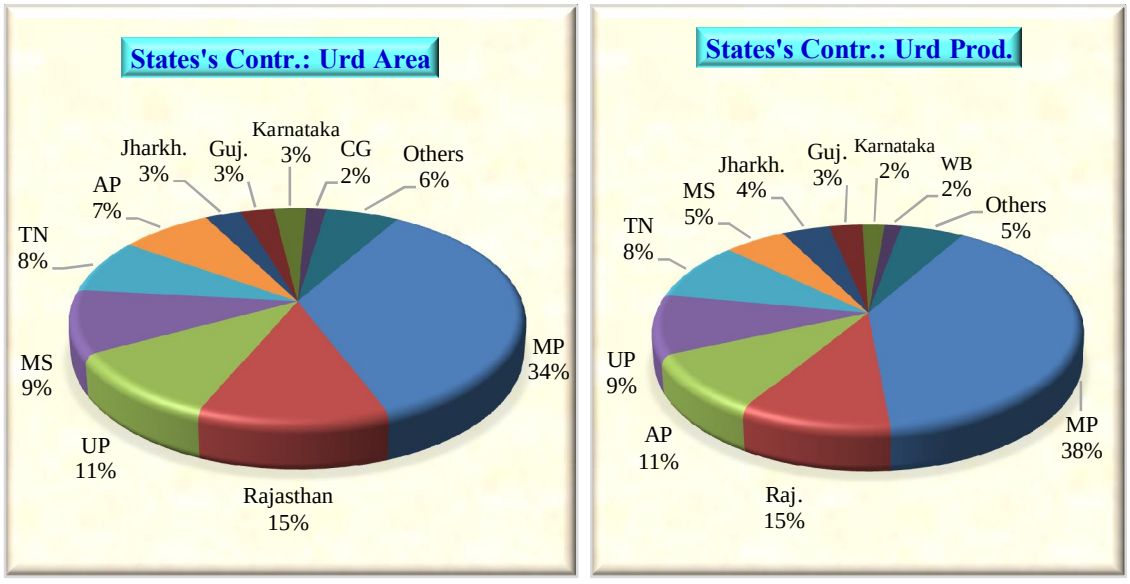


Fig.-1.9: Statesô Contribution in Area & Production- Urdbean

1.5.8 Masoor (Lentil)

- The total area covered under lentil has been 16 Lha during 2017-18. The highest ever production of 16 Lt at 1034 kg/ha is a remarkable success.

- About 98% has been realized from 07 states of Madhya Pradesh, Uttar Pradesh, West Bengal, Bihar, Jharkhand, Rajasthan and Assam *(Table-1.11).*

(Table-1.11): Statesô Contribution in Area & Production-Lentil

(Area-Lakh ha, Production-Lakh tons)

States	Area	% Contr.	States	Production	% Contr.
Madhya Pradesh	5.96	38.35	Madhya Pradesh	6.79	42.25
Uttar Pradesh	4.84	31.15	Uttar Pradesh	4.98	30.99
West Bengal	1.58	10.17	West Bengal	1.55	9.64
Bihar	1.50	9.65	Bihar	1.39	8.64
Jharkhand	0.69	4.47	Jharkhand	0.60	3.75
Rajasthan	0.31	2.02	Rajasthan	0.34	2.11
Assam	0.27	1.74	Assam	0.20	1.24
Chhattisgarh	0.13	0.84	Uttarakhand	0.07	0.44
Odisha	0.11	0.68	Odisha	0.06	0.35
Uttarakhand	0.10	0.64	Chhattisgarh	0.05	0.29
Others	0.05	0.32	Others	0.05	0.28
All India	**15.54**		**All India**	**16.07**	

Source: DES, Ministry of Agri. & FW (DAC&FW), Govt. of India; 2017-18- IVth Adv. Est.*

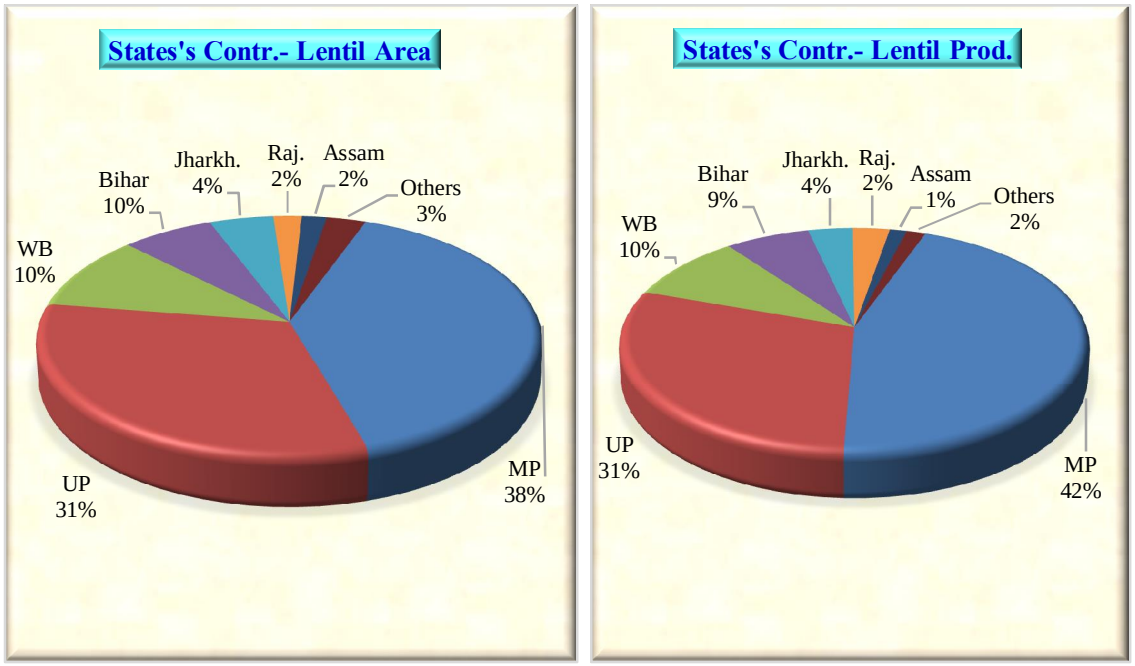


Fig.-1.10: Statesô Contribution in Area & Production-Lentil

Unit - II
12th Plan Pulse Overview

2.1 Background

- Demographic dividend refers to the rise in the rate of economic growth due to rising share of working age people in a population. India's demographic dividend- *i.e.* its working-age (15-59 years) population, largely consisting youth between 15-34 years age, provide an inherent edge and potential to its economy to grow much faster than that of many other countries, including neighbouring China.

- India is the second most populous country in the world with >1/6th of the worldôs population. The stock of population changed from 102 crore in 2001 to 121 crore in 2011, the exponential population growth rate being 1.64 during 2001 to 2011. Although, India occupies only 2.2% of the worldôs land area, it supports approx 18% of the worldôs population.

- The census projection report has further revealed that the proportion of the working age population between 15 and 59 years is likely to increase from 58% in 2001 to > 64 *per cent* by 2021. Such a trend would make the country one of the youngest nations in the world. Thus, one of the Indiasôcompetetive advantages is its demographic dividend.

- The demographic dividend has been regarded as a key factor for economic growth. The existing demographic dividend provides a great opportunity, however, also poses a great challenge. There are many challenges which the country needs to converge these into opportunities. The growth in the working-age ratio is likely to be concentrated in the rainfed and poorest states, mainly cultivating pulses, oilseeds and rearing livestock. Here, the youth have to be strengthened/targeted towards proper nourishment, skill development inagriculture and allied sector, pulses based sustainable cropping system to overcome the issues on climate change and global warming to fully realize the dividend.

- The future agricultural operations are likely to be highly skilled and competitive. The serious challenges to the workforce/youth of these resource poor and rainfed regions viz. lack of skill in scientific crop cultivation, repair and maintenance of farm machineries and implements, production of quality seeds, primary processing, value addition, modern animal husbandry, poor infrastructure (irrigation, go downs/ware houses ,trading centres) and organized pulse markets etc. have been considered by the government while formulating the strategy and roadmap to increase the production of pulses.

- According to the Human Development Report (HDR) published by the United Nations Development Programme (UNDP), India is still in the medium human development category with countries like China, Sri Lanka, Thailand, Philippines, Egypt, Indonesia, South Africa, and even Vietnam has a better rank. Therefore health and education parameters need to be improved substantially to make the Indian workforce efficient and skilled. At the primary level, there are serious problems of health and nutrition that impact the effectiveness of education, learning capacity etc.

- The poor nutritional status of the population is a major challenge where low income, small scaleôs households, has a long term negative implication for economic development. The government has resolved this issue to be addressed through **nutrition-sensitive agriculture interventions,** focusing the pulse crops having multiple nutritional values with essential source of vitamins, micro-nutrient and protein to help attain **nutritional security**. Pulses have better enabling environment to promote dietary and production diversity to address hunger and malnutrition at national level.

  Focus on pulses production and consumption can help overcome malnutrition: India should include pulses in the public distribution system.

- India, a country with high concentrations of poor and malnourished people, long promoted a cereal-centric diet composed of subsidized staple commodities such as rice and wheat to feed its population of more than a billion. Today, however, dietary patterns are changing. Policy makers, researchers, and health activists are looking for ways to fight hunger and malnutrition in the country. As they shift their focus from calorie intake to nutrition, neglected foods such as pulses (the dried, edible seeds of legumes) are gaining attention. There are three kinds of hunger that needed to be dealt with ï calorie inadequacy, protein deficiency and micronutrient deficiency.

The Global Nutrition Report 2017

- India is facing a serious burden of under-nutrition, according to a global report which shows that more than half the women of reproductive age in the country suffer from anemia. The significant burdens of three important forms of malnutrition, used as an indicator of broader trends are i.) childhood stunting-38 per cent of children under five are affected by stunting-children too short for their age due to lack of nutrients, suffering irreversible damage to brain capacity ii.) anemia in women of reproductive age and iii.) overweight adult women.

- About 21 per cent of children under 5 are defined as ôwastedô or ôseverely wastedô- meaning they do not weigh enough for their height.

- Over half of women of reproductive age -51 per cent suffer from anemia a serious condition that can have long-term health impacts for mother and child.
- More than 22 per cent of adult women are overweight, a rising concern as women are disproportionately affected by the global obesity epidemic.
- While the country has shown some progress in addressing under-5 stunting, it has made no progress or presents worse outcomes in the percentage of reproductive-age women with anemia, and is of course in terms of reaching targets for reducing adult obesity and diabetes, the report said.

- The Global Nutrition Report highlights that the double burden of under-nutrition and obesity needs to be tackled as part of Indiaôs national nutrition strategy.

- The Global Nutrition Report 2017 calls for nutrition to be placed at the heart of efforts to end poverty, fight disease, raise educational standards and tackle climate change. A well-nourished child is one third more likely to escape poverty. They will learn better in school, be healthier and grow into productive contributors to their economies. Good nutrition provides

the brainpower, the ógrey matter infrastructureô to build the economies of the future.ò

- With one of the highest rates of child malnutrition in the world, India has won notoriety as one of the nutritional basket cases of the world over the past few years. Although India has witnessed significant progress in its battle against child malnutrition over the past decade, the progress has been quite uneven, and child malnutrition rates still remain high in many parts of the country.

- As in the case of adult under nutrition rates, districts with the highest levels of under nutrition seem to be clustered largely in the central parts of the country. The bottom quartile of districts ranked according to child malnutrition rates includes not just districts from the most deprived tribal belts of central and eastern India but also some of the more urbanized districts of the country such as Udaipur in Rajasthan, Aurangabad in Maharashtra, Lucknow in Uttar Pradesh, Patna in Bihar, and Ranchi in Jharkhand. However, overall urban child malnutrition rates are lower than that of rural India.

- The recent Government has undertaken various measures to impart skill to the Indian workforce to reap the benefits of demographic dividends and to make them employable and help secure a decent job to enhance their income. The National Skill Development Corporation India (NSDC) to contribute significantly (about 30 per cent) to the overall target of skilling / up-skilling 500 million people in India by 2022, mainly by fostering private sector initiatives in skill development programmes and providing funding.

- Pulses are grown in all three seasons. The three crop seasons for the commodity are:
- ***Kharif*** : Arhar (Tur), Urd (Blackgram), Moong (Greengram), Lobia (Cowpea), Kulthi (Horsegram) and Moth;
- ***Rabi*** : Gram, Lentil, Pea, Lathyrus and Rajmash;
- ***Summer***: Greengram, Blackgram and Cowpea.

2.2 Pulses share to total foodgrain basket

- In India foodgrains occupy 65% of total gross cropped area comprising cereals in 50% and pulses in about 15%. Within pulses, gram occupies 5% area followed by Urd 3%, Arhar 2% and Mung 2% the other pulses cover about 3% of gross cropped area.
- Percent share of pulses to total food-grain production basket remained stagnated between 6-7 *per cent* uptill 2015-16 after the Green Revolution period (1960-70). The area also remained stagnant between 22-24 Mha *i.e.* 19 *per cent* of total food grain area till this period.
- Deceleration of percent production contribution of pulses to total food grains basket prompted the present dispensation in the Ministry of Agriculture & FW to vigorously pursue the NFSM-Pulses with synergistic approach on Research & Development, procurement, marketing, and import-export policies etc

- The multi-pronged strategy of the government to protect the interest of farmers and the consumers has resulted into enhanced percent contribution of about 9 *per cent* pulses to total food grains during 2017-18 from 6-7 *per cent* till 2015-16 is depicted *under (Table-2.1).*

(Table–2.1): Contribution of pulses to total foodgrains in India.

{Area- Million ha, Production- Million Tonnes, Yield- kg/ha}

Year	Pulses			Foodgrains			Pulses% to Foodgrains		
	A	P	Y	A	P	Y	A	P	YI
2012-13	23.25	18.34	789	120.77	257.12	2129	19.25	7.13	37.06
2013-14	25.21	19.25	764	125.04	265.04	2120	20.16	7.26	36.03
2014-15	23.10	17.16	743	122.07	252.67	2069	18.92	6.79	35.91
2015-16	24.91	16.35	656	123.22	251.57	2042	20.22	6.50	32.13
2016-17	29.45	23.13	785	129.23	275.11	2129	22.78	8.40	36.88
2017-18*	29.99	25.24	841	127.56	284.83	2233	23.51	8.86	37.66

Source: DES, Ministry of Agri. & FW (DAC&FW), Govt. of India; 2017-18- IVth Adv. Est.*

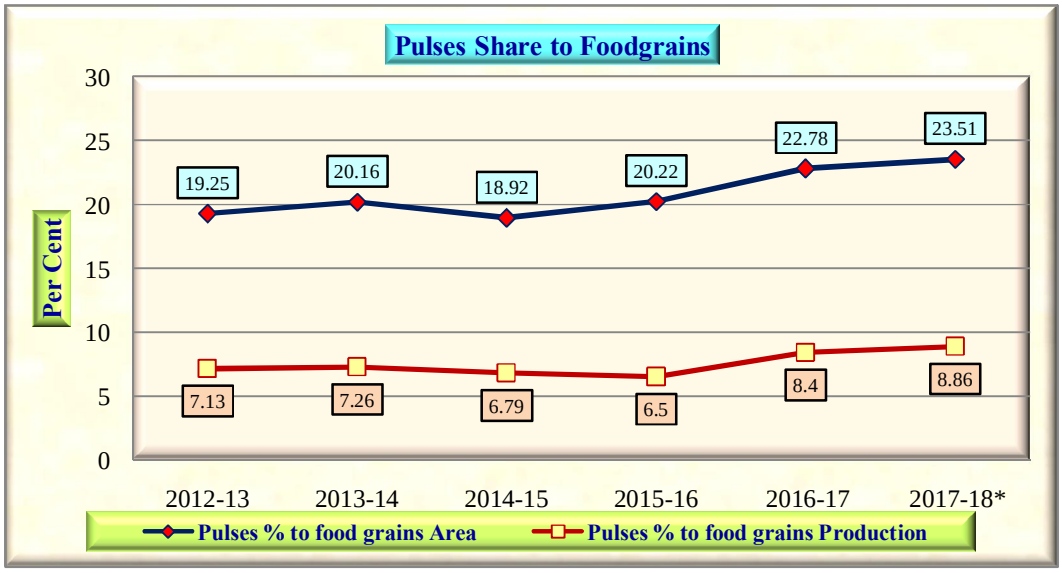


Fig-2.1: Contribution of Pulses to Foodgrains Basket

(Table -2.2): Season-wise Pulse Contribution to Total Pulses

{Area- lakh ha, Production-Lakh Tones, Yield-kg/ha}

Year	Kharif Pulses			% Cont. to Total Pulses			Rabi Pulses			% Cont. to Total Pulses			Total Pulses		
	A	P	Y	A	P	YI	A	P	Y	A	P	YI	A	P	Y
2012-13	99.54	59.16	594	42.8	32.3	75	133.03	124.27	934	57.2	67.7	118	232.57	183.42	789
2013-14	103.33	59.95	580	41.0	31.1	76	148.85	132.60	891	59.0	68.9	117	252.18	192.55	764
2014-15	99.98	57.31	573	42.4	33.4	79	135.55	114.22	843	57.6	66.6	116	235.53	171.52	728
2015-16	113.14	55.30	489	45.4	33.8	74	135.98	108.18	796	54.6	66.2	121	249.11	163.48	656
2016-17	143.63	95.85	667	48.7	41.4	84	150.83	135.47	898	51.2	58.5	114	294.47	231.31	785
2017-18*	140.83	93.45	664	47.0	37.0	79	159.10	158.90	999	53.0	63.0	119	299.93	252.35	841

Source: DES, Ministry of Agri. & FW (DAC&FW), Govt. of India; 2017-18- IVth Adv. Est.*

(Table -2.3): Pigeonpea and Gram Contribution to Total Pulses

{Area- lakh ha, Production-Lakh Tones, Yield-kg/ha}

Year	Pigeonpea			% Cont. to Total Pulses			Gram			% Cont. to Total Pulses		
	A	P	Y	A	P	YI	A	P	Y	A	P	YI
2012-13	38.93	30.23	776	16.7	16.5	98	85.22	88.32	1036	36.6	48.2	131
2013-14	39.04	31.74	813	15.5	16.5	106	99.27	95.26	960	39.4	49.5	126
2014-15	38.54	28.07	729	16.4	16.4	100	82.51	73.32	889	35.0	42.7	122
2015-16	39.63	25.61	646	15.9	15.7	98	83.99	70.58	840	33.7	43.2	128
2016-17	53.38	48.73	912	18.2	21.0	116	96.26	93.78	974	32.6	40.5	124
2017-18*	44.31	42.54	960	14.8	16.9	114	105.61	112.29	1063	35.2	44.5	126

Source: DES, Ministry of Agri. & FW (DAC&FW), Govt. of India; 2017-18- IVth Adv. Est.*

(Table - 2.4): Mungbean and Urdbean Contribution to Total Pulses

{Area- lakh ha, Production-Lakh Tones, Yield-kg/ha}

Year	Mungbean			% Cont. to Total Pulses			Urdbean			% Cont. to Total Pulses		
	A	P	Y	A	P	YI	A	P	Y	A	P	YI
2012-13	27.19	11.86	436	11.7	6.5	55	31.53	19.71	625	13.6	10.7	79
2013-14	33.83	16.05	475	13.4	8.3	62	30.62	16.99	555	12.1	8.8	73
2014-15	30.19	15.03	498	12.8	8.8	68	32.46	19.59	604	13.8	11.4	83
2015-16	38.28	15.93	416	15.4	9.7	63	36.24	19.45	537	14.5	11.9	82
2016-17	43.27	21.65	500	14.7	9.3	63	44.78	28.32	632	15.5	12.2	80
2017-18*	42.57	20.09	472	14.2	8.0	56	54.39	35.62	655	18.1	14.1	78

Source: DES, Ministry of Agri. & FW (DAC&FW), Govt. of India; 2017-18- IVth Adv. Est.*

(Table - 2.5): Lentil and Fieldpea Contribution to Total Pulses

{Area- lakh ha, Production-Lakh Tones, Yield-kg/ha}

Year	Lentil			% Cont. to Total Pulses			Fieldpea			% Cont. to Total Pulses		
	A	P	Y	A	P	YI	A	P	Y	A	P	YI
2011-12	15.62	10.59	678	6.39	6.20	97	7.56	7.06	933	0.08	4.13	134
2012-13	14.23	11.34	797	6.12	6.18	101	7.67	8.43	1099	0.08	4.60	139
2013-14	13.41	10.17	759	5.32	5.28	99	9.63	9.25	960	0.10	4.80	126
2014-15	14.69	10.35	705	6.24	6.04	97	9.75	8.89	912	0.10	5.18	125
2015-16	12.76	9.76	765	5.12	5.97	117	9.03	7.42	821	0.09	4.54	125
2016-17	14.61	12.24	837	4.96	5.29	106						
2017-18*	15.54	16.07	1034	5.18	6..37	123						

Source: DES, Ministry of Agri. & FW (DAC&FW), Govt. of India; 2017-18- IVth Adv. Est.*

2.3 Growth Rate : Total Pulses

The highest production (23 million tonnes) & yield (785 kg/ha) was recorded during 2016-17 followed by 19 & 18 million tones during 2013-14 & 2012-13 (Table-2.6).

(Table-2.6): Growth rate of total pulses

(Area-Million ha, P- Million tones, Y-kg/ha, Growth Rate (GR)-%)

Year	Area	GR	Prod.	GR	Yield	GR	% coverage under irrigation
2012-13	23.26	-1	18.34	1.5	788	2.5	18.6
2013-14	25.23	8.5	19.27	5.1	764	-3.1	19.70
2014-15	23.55	-6.7	17.15	-11.0	728	-4.7	NA
2015-16	24.91	5.8	16.35	-4.7	656	-9.9	NA
2016-17	29.45	18.2	23.13	41.4	785	19.6	NA
2017-18*	29.99	1.6	25.24	9.1	841	7.1	NA

Source: DES, Ministry of Agri. & FW (DAC&FW), Govt. of India; 2017-18- IVth Adv. Est.*

2.4 Growth Rate : Pigeonpea and Chickpea

Pigeonpea : Maximum growth rate in area and producton was recorded with 35% & 90% during 2016-17. The highest area (5.34 million ha) and production (4.87 million tonnes) was also recorded during the same period (Table 2.7).

Chickpea: Maximum growth rate in area was recorded during 2013-14 and 2016-17 with growth rate of 16% & 14%. Maximum production growth rate of 32% and maximum yield growth rate of 16% were also observed during 2016-17. The highest area (10.57 million ha) and production (11.16 million tonnes) was recorded during 2016-17 followed by 9.93 million ha & 9.53 million tonnes during 2013-14 (Table 2.7).

(**Table-2.7):** Growth rate of pigeonpea and chickpea

(A- Million ha, P- Million tones, Y-kg/ha, Growth Rate (GR)- %)

Year	Pigeonpea						Chickpea					
	Area	GR	Prod.	GR	Yield	GR	Area	GR	Prod.	GR	Yield	GR
2012-13	3.89	-2.9	3.02	13.9	776	17.2	8.52	2.7	8.83	14.7	1036	11.7
2013-14	3.90	0.3	3.17	5.0	813	4.7	9.93	16.5	9.53	7.9	960	-7.4
2014-15	3.85	-1.3	2.81	-11.6	729	-10.4	8.25	-16.9	7.33	-23.0	889	-7.4
2015-16	3.96	2.8	2.56	-8.8	646	-11.3	8.40	1.8	7.06	-3.7	840	-5.4
2016-17	5.34	34.8	4.87	90.2	912	41.1	9.63	14.6	9.38	32.8	974	16.0
2017-18*	4.43	-17.0	4.25	-12.7	960	5.2	10.56	9.7	11.23	19.7	1063	9.1

Source: DES, Ministry of Agri. &FW (DAC&FW), Govt. of India; 2017-18- IVth Adv. Est.*

2.5 Growth Rate : Mungbean and Urdbean

Mungbean

Maximum growth rate in area was recorded with 24% & 26% during 2013-14 & 2015-16. The highest production growth rate was recorded during 2013-14 (35%) and 2016-17 (36%) (Table 2.8).

Urdbean

Maximum growth rate in area was recorded during 2016-17 and 2017-18 with growth rate of 23% & 21%. Maximum production growth rate of 45% and maximum yield growth rate of 17% were also observed during 2016-17.

(Table-2.8): Growth rate of mungbean and urdbean

(Area- Million ha, P- Million tones, Y-kg/ha, Growth Rate (GR)- %)

Year	Mungbean						Urdbean					
	Area	GR	Prod.	GR	Yield	GR	Area	GR	Prod.	GR	Yield	GR
2012-13	2.72	-19.7	1.19	-27.4	436	-9.6	3.15	-2.0	1.97	11.6	625	13.8
2013-14	3.38	24.4	1.61	35.3	475	8.8	3.06	-2.9	1.70	-13.8	555	-11.3
2014-15	3.02	-10.7	1.50	-6.4	498	4.9	3.25	6.0	1.96	15.3	604	8.8
2015-16	3.83	26.8	1.59	6.0	416	-16.4	3.62	11.6	1.95	-0.7	537	-11.1
2016-17	4.33	13.0	2.17	36.4	501	20.4	4.48	23.7	2.83	45.1	632	17.6
2017-18*	4.26	-1.6	2.01	-7.4	472	-5.8	5.44	21.4	3.56	25.8	655	3.6

Source: DES, Ministry of Agri. & FW (DAC&FW), Govt. of India; 2017-18- IVth Adv. Est.*

2.6 Growth Rate : Lentil and Fieldpea

Lentil

From 2012-13 to 2017-18, growth rate observed for APY during 05 years for APY. however, the maximum growth rate in area and producton was recorded with 14% & 24% during 2016-17, while the highest productivity was recorded during 2017-18 with 32% and 23% (Table 2.9).

Fieldpea

Maximum growth for acerage reported (25%) for area & and in production 18% during 2013-14.

(Table–2.9): Growth rate of lentil and fieldpea

(Area- Million ha, P- Million tones, Y-kg/ha, Growth Rate (GR)- %)

Year	Lentil						Fieldpea					
	Area	GR	Prod.	GR	Yield	GR	Area	GR	Prod.	GR	Yield	GR
2012-13	1.42	-8.9	1.13	7.1	797	17.6	0.77	0.8	0.84	19.5	1099	14.6
2013-14	1.34	-5.8	1.02	-10.3	759	-4.8	0.96	25.9	0.92	18.6	960	17.6
2014-15	1.47	9.5	1.04	1.7	705	-7.1	0.98	1.5	0.89	10.0	912	-12.6
2015-16	1.28	-13.1	0.98	-5.7	765	8.5	0.90	-7.6	0.74	-3.6	821	-5.0
2016-17	1.46	14.0	1.22	24.4	835	9.1				-16.8		-10.0
2017-18*	1.55	6.2	1.61	32.0	1034	23.8						

Source: DES, Ministry of Agri. & FW (DAC&FW), Govt. of India; 2017-18-IVth Adv. Est.*

2.7 Per capita availability of pulses in India

As a result of stagnant pulse production and continuous increase in population, the per capita availability of pulses has increased considerably. Per capita availability enhanced during 2017-18. In conformity to FSA- 2013 to ensure nutritional security to vegetarian population, the per capita per day availability of pulses which dwindled down to a provisional level of 41-42 g (15-16 kg/annum) between 2011 to 2013, is now attend at the level of 53 g per head/day *i.e* > 19 kg/annum/person *(Table-2.10)*.

(Table- 2.10): Per capita availability of pulses in India

Year	Pulses Availability	
	(g *per capita per* day)	(kg *per capita* per year)
2011	43.0	15.7
2012	41.6	15.2
2013	43.3	15.8
2014	46.4	16.9
2015	43.8	16.0
2016	43.0	15.7
2017 (P*)	52.9	19.3

P - Provisional figures are based on IIIrd Advance Estimates of production for 2017-18,*

Source: Press Information Bureau, Ministry of Agriculture & Farmers Welfare.

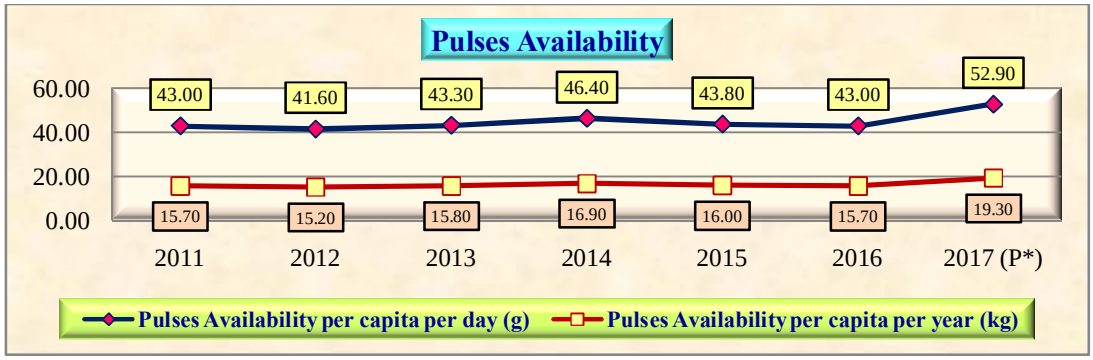


Fig.- 2.2: Pulses Availability

2.8 Projected Demand: (XIth& XIIth Plan)

The XIIth Plan Working Group of Planning Commission (NITI Aayog) had worked-out a demand of pulses from 2012-13 to 2017-18 presented in *Table*-2.11. The working group projected a production gap of 1.79 to 5.70 Mt up till 2015-16.

As a result of phenomenal increase in production of pulses during 2016-17 & 2017-18, consequent upon the implementation of short term, mid-term and long term strategy to promoter the pulse sector, the government meet the pulse demand and moved closer to achieve its target to attend nutritional security by attending self-sufficiency production.

(Table- 2.11): Demand, Production, Growth and Projected Target

(Qty: Million Tonnes)

Year	Demand *	Production	Growth *(%)*	Gap	Target
2007-08	17.29	13.61		-3.68	17.00
2008-09	17.82	13.65	0.29	-4.17	18.00
2009-10	18.37	13.68	0.22	-4.69	18.50
2010-11	18.94	13.72	0.29	-5.22	19.00
2011-12	19.53	13.75	0.22	-5.78	20.00
2012-13	20.13	18.34	33.38	-1.79	18.24
2013-14	20.75	19.25	4.96	-1.5	19.00
2014-15	21.39	17.15	-10.91	-4.24	19.50
2015-16	22.05	16.35	-4.66	-5.70	20.05
2017-18*	23.44	25.23	9.12	1.80	20.75
2018-19**	25.95				25.95

*Note: *Demand includes seed, feed and wastage and based on behaviouristic approach. 2017-18*- IVth Adv. Est; Source: XIIth Plan Working Group (Planning Commission) @3.09% growth rate. 2018-19**- projection .*

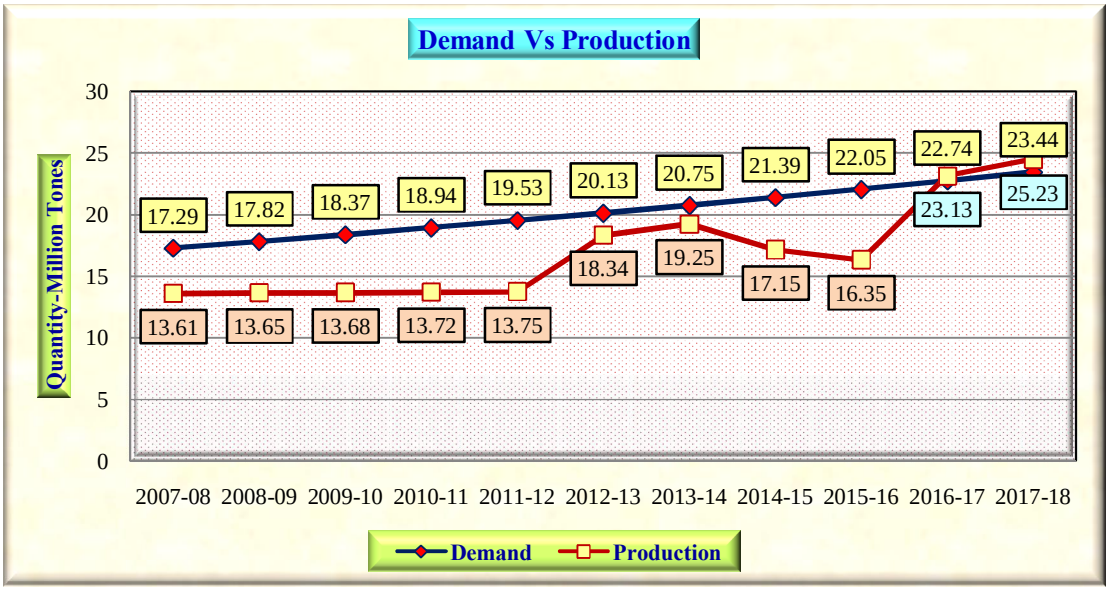


Fig.-2.3: Demand vs Production

2.9 Import/Export and Availability

Import: The import of pulses in India during April, 2014 to March, 2015 was 45.85 lakh tonnes worth Rs.17063 crores against the value of Rs.17196.87 crore for total foodgrains, Rs.121319 crore for total agricultural imports and against Rs.2737087crore for total National Import. The import during April, 2015 to March, 2016 was 57.98 lakh tonnes worth Rs.21176 crore against the import value of Rs. 26841.87 crore for total foodgrains, Rs.140289 bcrore for total agricultural import and Rs.2490298 crore for total National import respectively during this period. The share of Agricultural import to National import was 4.43% and 5.63% respectively during April, 2014 to March, 2015 and April, 2015 to March, 2016.

{Dry Peas contributes the single largest share in India's import basket of pulses registering in the total pulses import}.

Export: The pulses export of the country during April, 2014 to March, 2015 was 2.22 lakh 21ones worth Rs.1218 crore against the value of Rs. 59500.54 crore for total foodgrains, Rs.239681crore for total agricultural exports and against Rs.1896445 crore for total National export.The export during April, 2015 to March, 2016 was 2.56 lakh tonnes worth Rs.1553 crore against the export value of Rs. 42622.29 crore for total foodgrains, Rs.215396 crore for total agricultural export and Rs.1716378crore for total National export respectively during this period. The share of agricultural export to National export was 12.64% and 12.55% respectively during April, 2014 to March, 2015 and April, 2015 to March, 2016.

{Chickpeas contributes the single largest share in India's export basket of pulses registering 85.64% and 84.87% share in the total pulses export during 2014-15 and 2015-16 respectively}.

(Table- 2.12-a): Indiaõs imports and exports of pulses

(Quantity – Lakh tonnes, Values –Crore)

Year	Import		Exports	
	Import Quantity	Import Value	Export Quantity	Export Value
2007-08	28.35	5375	1.64	526
2008-09	24.74	6246	1.36	540
2009-10	35.10	9813	1.00	408
2010-11	27.78	7512	2.09	870
2011-12	34.96	9448	1.74	1068
2012-13	40.13	13345	2.03	1285
2013-14	31.78	11037	3.46	1749
2014-15	45.85	17063	2.22	1218
2015-16	57.98	21176	2.56	1553
2016-17	112.82	22160	1.54	1228
2017-18	82.96	14462	1.35	1120

Source: DGCI&S, Ministry of Commerce, Kolkata;

(Table- 2.12-b): Indiaôs imports and exports of pulses v/s agriculture

(Rs.in Crore)

Year	Import					Exports				
	Total Pulses		Total Agriculture		Total National Imports	Total Pulses		Total Agriculture		Total National Exports
	Actual Value	% to Agri.	Actual Value	% to National		Actual Value	% to Agri.	Actual Value	% to National	
2007-08	5375	23.84	22550	2.23	1012312	526	0.70	74673	11.39	655864
2008-09	6246	21.75	28719	2.09	1374436	540	0.67	81065	9.64	840755
2009-10	9813	18.05	54365	3.99	1363736	408	0.48	84444	9.99	845534
2010-11	7512	14.71	51074	3.03	1683467	870	0.77	113047	9.94	1136964
2011-12	9448	13.47	70165	2.99	2345463	1068	0.58	182801	12.47	1465959
2012-13	13345	13.94	95719	3.59	2669162	1285	0.57	227193	13.90	1634318
2013-14	11037	12.87	85727	3.16	2715434	1749	0.67	262779	13.79	1905011
2014-15	17063	14.06	121319	4.43	2737087	1218	0.51	239681	12.64	1896445
2015-16	21176	18.26	140289	5.63	2490298	1553	0.77	215396	12.55	1716378
2016-17	22160				2577666	1228				1849429
2017-18	14462				3001016	1120				1955541

Source: DGCI&S, Ministry of Commerce, Kolkata.

2.10 Availability Status: Total Pulses & Crop-Wise (2013-14 To 2017-18)

Crop-wise availability of Pigeonpea, Chickpea, Lentil, Mungbean and Urdbean based on domestic production, import and export is summarized under *Table 2.13*. During 2016-17, it is evident from table that the domestic availability of pulses has increased by 57% in total pulses, 89% in tur, 32% in chickpea, and 35% in urd and mung over the previous crop year 2015-16.

(Table-2.13): Import, Export and Availability

(Unit: Lakh Tons)

Year	Domestic Production	Import	Export	Total Availability
Pigeonpea				
2013-14	31.74	4.63	0.04	36.33
2014-15	28.07	5.74	0.09	33.72
2015-16	24.58	4.66	0.001	29.24
2016-17	48.73	7.03	0.12	55.54
Chickpea				
2013-14	95.26	2.76	3.33	94.69
2014-15	73.32	4.19	1.90	75.61
2015-16	70.58	10.31	2.17	78.72
2016-17	93.78	10.81	0.88	103.71
Lentil				
2013-14	10.18	7.09	0.01	17.26
2014-15	10.35	8.16	0.08	18.43
2015-16	9.76	12.60	0.12	22.24
2016-17	12.24	8.29	0.16	20.37
Moongbean /Urdbean				
2013-14	33.04	6.24	0.02	39.26
2014-15	34.63	6.23	0.04	40.82
2015-16	35.38	5.82	0.06	41.14
2016-17	49.97	5.75	0.11	55.61

(Unit: Lakh Tons)

Year	Domestic Production	Import	Export	Total Availability
Total Pulses				
2013-14	192.53	36.44	3.46	225.51
2014-15	171.52	45.85	2.22	215.15
2015-16	163.48	57.98	2.56	218.90
2016-17	231.31	112.82	1.37	342.46

Source: *GOI, MoA &FW, Min. of Commerce& Industry; Domestic production Final Est.and Import & Export 2016-17 (16th Feb., 2018).*

2.11 Exim policies in favour of pulses have paid

2.11.1 Import

- The Cabinet Committee on Economic Affairs (CCEA) as a major step empowered the Committee headed by Food Secretary to review the export and import policy on pulses and consider measures such as quantitative restrictions, prior registration and changes in import duties of pulses depending on domestic production and demand, local and international prices and global trade volumes.

- Farmer-friendly policy measures have helped reduce import of pulses.Import of pulses declined by 30 lakh tonnes from previous year, resulting in saving of foreign exchange amounting to Rs 7,698 crore.

- The government ensured the availability supply as per demand by way of enhanced imports between 2014-15 to 2016-17 at about 5-6 million tons per year in their buffer stock on one hand and swung in to action to combat the natural calamities through development programmes risk management through PMFBY, PSS and PSF procurement on the other.

- Because of back to back record production, Import duty on chickpeas has been fixed at 60%, while that for yellow peas is 50%, 30% for lentils and 10% for tur. Peas which accounted for major share in Indiaôs pulses import declined.

- The government has also imposed a quantitative cap of 2 lakh tonnes per year on tur dal (Mozambique) and 3 lakh tonnes on urad and moong (Mynmar). Recently, the government had imposed quantitative restrictions on some of the pulses to check cheaper imports.

2.11.2 Export of Pulses

- The duties on import were imposed and export was also encouraged to support the farmers. ñThe Cabinet Committee on Economic Affairs (CCEA) has given its approval for removal of prohibition on export of all types of pulses to ensure that farmers have greater choice in marketing their produce and in getting better remuneration for their produce.

- The government lifted ban on export of tur, urad and moong dal, although shipments of these varieties were allowed only through permission from agriculture export promotion body APEDA. All varieties of pulses, including organic pulses, have been made ófreeô for export and kabulichana has also been permitted in a limited quantity. Gram which accounted for major share in Indiaôs pulses export increased.

- Opening of exports of all types of pulses will help the farmers dispose of their products at remunerative prices and encouragethem to expand the area of sowing.

2.11.3 Buffer Stock

- As a major policy to support the consumers as well, the government has taken a number of steps to sustain high pulses production and procured 20 lakh tonnes of pulses directly from the farmers by ensuring minimum support price or market rates, whichever is higher.

- India Pulses and Grains Association (IPGA) has appreciated the buffer stocking policy as a measure to correct price distortions, offer support to pulses selling below MSP (minimum support price) and revitalize the milling industry.

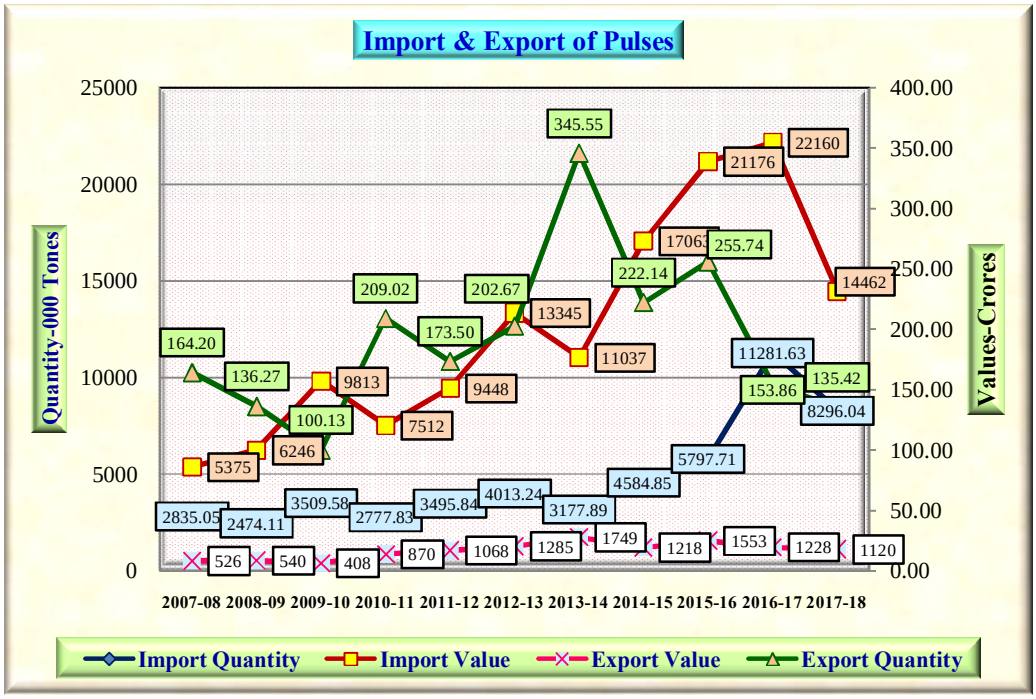


Fig.- 2.4 : Import & Export of Pulses

(Table-2.14): Pulse importing and exporting countries of major pulses (2016-17)

Pulses	Top 5 Export Destinations	Top 5 Import Sources
Peas (PisumSativum)	Shri Lanka DSR (96.3%), Myanmar (1.6%), Bhutan (1.4%), Nepal (0.5%), U Arab EMTS (0.09%).	Canada (54.5%), Russia (10.3%), Luthuania (9.0%), France (6.8%), USA (6.4%)
Chickpeas (Garbanzos)	Pakistan (21.6%), U Arab EMTS (10.6%), Algeria (11.6%), Saudi Arab (9.5%), Sri Lanka (7.3%)	Australia (85.1%), Russia (4.7%), Tanzania (3.8%), USA (1.4%), Canada (0.91%),
Moong/Urad	USA (39.96%), Sri Lanka (13.05%), UK (9.86%), Australia (7.77%), Malaysia (7.63%)	Myanmar (70.37%), Kenya (7.43%), Australia (6.32%), Tanzania (3.15%), Uzbekistan (2.60%).
Lentils (Masur)	Sri Lanka DSR (43.39%), Bangladesh (18.11%), U Arab EMTS (8.35%), Egypt ARP (3.98%), USA (3.67%)	Canada (89.58%), USA (7.47%), Australia (2.88%), Turkey (0.03%), Mozambique (0.03%).
Pigeon Peas(Tur)	USA (40.79%), U Arab EMTS (18.28%), Canada (11.28%), UK (10.75%), Singapore (5.11%),	Myanmar (46.35%), Tanzania (18.71%), Mozambique (15.36%), Malawi (12.56%), Sudan (3.36%)

(%) figures in parenthesis indicates percentage share of global import/export

2.12 Import/Export: Chickpea

Import: The import of pulses in India during April, 2014 to March, 2015 was 4.19 lakh tonnes worth Rs.1334.96 crores against the value of Rs.17196.87 crore for total foodgrains, Rs.121319.02 crore for total agricultural imports and against Rs.2737086.58 crore for total National Import. The import during April, 2015 to March, 2016 was 10.31 lakh tonnes worth Rs.4453.72 crore against the import value of Rs. 26841.87 crore for total foodgrains, Rs.140288.69 crore for total agricultural import and Rs.2490298.08 crore for total National import respectively during this period. The share of Chickpea import to Agricultural import was 1.10% and 3.17% respectively during April, 2014 to March, 2015 and April, 2015 to March, 2016.

{Chickpeas contribute the single largest share in India's export basket of pulses registering 85.64%and 84.87% share in the total pulses export during 2014-15 and 2015-16 respectively}.

Export: The pulses export of the country during April, 2014 to March, 2015 was 1.90 lakh tonnes worth Rs.1021.57 crore against the value of Rs. 59500.54 crore for total foodgrains, Rs.239681.04 crore for total agricultural exports and against Rs.1896445.47 crore for total National export.The export during April, 2015 to March, 2016 was 2.17 lakh tonnes worth Rs.1337.64 crore against the export value of Rs. 42622.29 crore for total foodgrains, Rs.215395.68 crore for total agricultural export and Rs.1716378.05 crore for total National export respectively during this period. The share of Chickpea export to Agricultural export was 0.43% and 0.62% respectively during April, 2014 to March, 2015 and April, 2015 to March, 2016.

(Table-2.15): Importing & Exporting Countries : Chickpea

(Quantity-Thousand Tonnes)

S.No.	Import			Export		
	Country	Aveg.*	% Share	Country	Aveg.*	% Share
1	Australia	376.61	53.73	Pakistan IR	63.45	31.00
2	Austria	131.79	18.80	Algeria	32.91	16.08
3	Russia	76.87	10.97	Turkey	24.70	12.07
4	Sri Lanka DSR	32.49	4.64	Sri Lanka DSR	14.77	7.21
5	Tanzania Rep	18.11	2.58	U Arab EMTS	11.26	5.50
6	Thailand	12.63	1.80	Saudi Arab	9.00	4.40
7	Mexico	12.23	1.74	Spain	5.40	2.64
8	U S A	6.89	0.98	Tunisia	5.31	2.59
9	Myanmar	6.31	0.90	Egypt ARP	4.48	2.19
10	Ethiopia	5.72	0.82	Libya	3.94	1.92
11	Canada	4.96	0.71	Iraq	3.43	1.67
12	Argentina	2.30	0.33	Kuwait	2.99	1.46
13	Mozambique	2.15	0.31	Malaysia	2.17	1.06
14	Sudan	2.14	0.31	Jordan	1.99	0.97
15	Uzbekistan	1.95	0.28	France	1.88	0.92
16	El Salvador	1.93	0.27	Iran	1.79	0.88
	Ukraine	1.91	0.27	Vietnam Soc. Rep	1.75	0.85
17	Others	10.78	1.54	Others	5.27	2.57
	Total	**700.95**		**Total**	**204.70**	

Source: *Ministry of Commerce and Industry; Aveg.*- 2012-13 to 2016-17*

2.13 Import/Export: Pigeonpea

Import: The import of pulses in India during April, 2014 to March, 2015 was 5.75 lakh tonnes worth Rs.2635.85 crore against the value of Rs.17196.87 crore for total foodgrains, Rs.121319.02 crore fortotal agricultural imports and against Rs.2737086.58 crore for total National Import. The import during April, 2015 to March, 2016 was 4.63 lakh tonnes worth Rs.3318.23 crore against the import value of Rs. 26841.87 crore for total foodgrains, Rs.140288.69 crore for total agricultural import and Rs.2490298.08 crore for total National import respectively. *The share of Pigeonpea import to Agricultural import was 2.17% and 2.37% respectively during April, 2014 to March, 2015 and April, 2015 to March, 2016.*

Export: The pulses export of the country during April, 2014 to March, 2015 was 0.012 lakh tonnes worth Rs.8.82 crore against the value of Rs. 59500.54 crore for total foodgrains, Rs.239681.04 crore for total agricultural exports and against Rs.1896445.47 crore for total National export.The export during April, 2015 to March, 2016 was 0.040 lakh tonnes worth Rs.52.55 crore against the export value of Rs. 42622.29 crore for total foodgrains, Rs.215395.68 crore for total agricultural export and Rs.1716378.05 crore for total National export respectively during this period. *The share of Pigeonpea export to Agricultural export was 0.004% and 0.024% respectively during April, 2014 to March, 2015 and April, 2015 to March, 2016.*

(Table-2.16): Importing & Exporting Countries: Pigeonpea

(Quantity-Thousand Tonnes)

S.No.	IMPORT			EXPORT		
	Country	Avg.*	% Share	Country	Avg.*	% Share
1	Myanmar	235.51	44.05	U S A	0.90	25.50
2	Tanzania Rep	131.21	24.54	U K	0.62	17.54
3	Mozambique	94.70	17.71	U Arab EMTS	0.50	14.17
4	Malawi	38.39	7.18	Canada	0.41	11.64
5	Sudan	17.00	3.18	Singapore	0.21	5.98
6	Kenya	11.15	2.09	Mozambique	0.16	4.60
7	Uganda	4.38	0.82	Thailand	0.16	4.58
8	Nigeria	1.26	0.23	Brunei	0.11	3.20
9	Benin	0.22	0.04	Malaysia	0.09	2.67
10	Afghanistan Tis	0.21	0.04	Saudi Arab	0.07	1.86
11	Canada	0.18	0.03	Australia	0.06	1.76
12	Australia	0.12	0.02	Angola	0.04	1.26
13	Malaysia	0.10	0.02	Sri Lanka DSR	0.04	1.16
14	Sri Lanka Dsr	0.09	0.02	Kuwait	0.03	0.75
15	Ethiopia	0.06	0.01	Tanzania Rep	0.02	0.57
16	U Arab Emts	0.03	0.01	Korea RP	0.02	0.43
17	U S A	0.03	0.005	New Zealand	0.01	0.33
	Total	**534.62**		**Total**	**3.53**	

Source: *Ministry of Commerce and Industry; Aveg.*- 2012-13 to 2016-17.*

2.14 Import & Export: Lentil

Import: The import of pulses in India during April, 2014 to March, 2015 was 8.16 lakh tonnes worth Rs.3418.48 crores against the value of Rs.17196.87 crore for total foodgrains, Rs.121319.02 crore for total agricultural imports and against Rs.2737086.58 crore for total National Import. The import during April, 2015 to March, 2016 was 12.60 lakh tonnes worth Rs.6713.00 crore against the import value of Rs. 26841.87 crore for total foodgrains, Rs.140288.69 crore for total agricultural import and Rs.2490298.08 crore for total National import respectively during this period. The share of Lentil import to Agricultural import was 2.82% and 4.79% respectively during April, 2014 to March, 2015 and April, 2015 to March, 2016.

Export: The pulses export of the country during April,2014 to March, 2015 was 0.080 lakh tonnes worth Rs.49.85 crore against the value of Rs. 59500.54 crore for total foodgrains, Rs.239681.04 crore for total agricultural exports and against Rs.1896445.47 crore for total National export.The export during April, 2015 to March, 2016 was 0.118 lakh tonnes worth Rs.83.05 crore against the export value of Rs. 42622.29 crore for total foodgrains, Rs.215395.68 crore for total agricultural export and Rs.1716378.05 crore for total National export respectively during this period. The share of Lentil export to Agricultural export was 0.021% and 0.0.039% respectively during April, 2014 to March, 2015 and April, 2015 to March, 2016.

(Table–2.17): Importing & Exporting countries: Lentil

(Quantity-Thousand Tonnes)

S. No.	IMPORT			EXPORT		
	Country	Aveg.*	% Share	Country	Aveg.*	% Share
1	Canada	675.60	81.97	Sri Lanka DSR	1.76	23.50
2	U S A	82.97	10.07	Bangladesh PR	0.98	13.08
3	Australia	46.26	5.61	Myanmar	0.93	12.37
4	Argentina	18.31	2.22	U Arab EMTS	0.62	8.27
5	Myanmar	0.26	0.03	U S A	0.39	5.20
6	Nepal	0.23	0.03	U K	0.39	5.14
7	Turkey	0.16	0.02	Pakistan IR	0.38	5.13
8	Sri Lanka DSR	0.10	0.01	Iraq	0.30	4.04
9	Mozambique	0.08	0.01	Nepal	0.25	3.28
10	Afghanistan TIS	0.07	0.01	Singapore	0.21	2.75
11	Korea RP	0.06	0.01	Malaysia	0.20	2.72
12	Vatican City	0.03	0.003	Australia	0.14	1.86
13	Uzbekistan	0.03	0.003	Turkey	0.10	1.34
14	Kenya	0.03	0.003	Egypt A RP	0.09	1.25
15	Tanzania Rep	0.01	0.002	Kuwait	0.09	1.25
16	Ukraine	0.01	0.001	Bhutan	0.08	1.07
17	Unspecified	0.01	0.001	Saudi Arab	0.07	0.97
18	Pakistan IR	0.005	0.001	Jordan	0.07	0.97
19	Madagascar	0.004	0.001	Netherland	0.07	0.92
20				Others	0.37	4.91
	Total	**824.23**		**Total**	**7.50**	

Source: *Ministry of Commerce and Industry; Aveg.*- 2012-13 to 2016-17.*

2.15 Import/Export: Fieldpea

Import: The import of pulses in India during April, 2014 to March, 2015 was 19.52 lakh tonnes worth Rs. 4970.16 crores against the value of Rs.17196.87 crore for total foodgrains, Rs.121319.02 crore for total agricultural imports and against Rs.2737086.58 crore for total National Import. The import during April, 2015 to March, 2016 was 22.45 lakh tonnes worth Rs.5466.94 crore against the import value of Rs. 26841.87 crore for total foodgrains, Rs.140288.69 crore for total agricultural import and Rs.2490298.08 crore for total National import respectively during this period. The share of Fieldpea import to Agricultural import was 4.10% and 3.90% respectively during April, 2014 to March, 2015 and April, 2015 to March, 2016.

{Dry Peas contributes the single largest share in India's import basket of pulses registering in the total pulses import}.

Export: The pulses export of the country during April, 2014 to March, 2015 was 0.039 lakh tonnes worth Rs.13.63 crore against the value of Rs. 59500.54 crore for total foodgrains, Rs.239681.04 crore for total agricultural exports and against Rs.1896445.47 crore for total National export.The export during April, 2015 to March, 2016 was 0.064 lakh tonnes worth Rs.24.32 crore against the export value of Rs. 42622.29 crore for total foodgrains, Rs.215395.68 crore for total agricultural export and Rs.1716378.05 crore for total National export respectively during this period. The share of Fieldpea export to Agricultural export was 0.006% and 0.011% respectively during April, 2014 to March, 2015 and April, 2015 to March, 2016.

(Table-2.18): Importing & exporting countries: Fieldpea

(Quantity-Thousand Tonnes)

S. No.	IMPORT			EXPORT		
	Country	Aveg.*	% Share	Country	Aveg.*	% Share
1	Canada	1256.96	62.40	Sri Lanka DSR	3.13	80.55
2	Russia	219.60	10.90	Myanmar	0.21	5.39
3	U S A	158.37	7.86	Nepal	0.20	5.21
4	France	95.41	4.74	Pakistan IR	0.10	2.66
5	Australia	89.57	4.45	Ukraine	0.06	1.42
6	Lithuania	75.47	3.75	Bangladesh PR	0.05	1.32
7	Ukraine	73.20	3.63	Argentina	0.04	1.13
8	Estonia	12.51	0.62	Bhutan	0.03	0.84
9	Argentina	10.23	0.51	U S A	0.03	0.65
10	Romania	8.86	0.44	Maldives	0.02	0.52
11	Germany	4.61	0.23	Kuwait	0.003	0.07
12	Bulgaria	3.24	0.16	South Africa	0.002	0.06
13	Myanmar	1.71	0.08	U Arab EMTS	0.001	0.03
14	Moldova	1.32	0.07	Denmark	0.001	0.03
15	Turkey	0.80	0.04	Singapore	0.001	0.02
16	Others	2.37	0.12	Australia	0.001	0.02
	Total	**2014.26**		**Total**	**3.88**	

***Source**: Ministry of Commerce and Industry; Aveg.*- 2012-13 to 2016-17*

(Table -2.19): Total pulses: Crop/Season-wise contribution

{Area-lakh ha, Production-lakh tonnes, Yield-kg/ha}

Crop	Season	Area	% Contr. To Tot. Pulses	Prod.	% Contr. To Tot. Pulses	Yield
Arhar	Kharif	41.90	16.58	32.88	17.45	785
Urd	Kharif	27.00	10.68	14.72	7.81	545
	Rabi/Summer	8.14	3.22	6.10	3.24	749
	Total	35.13		20.82		593
Moong	Kharif	24.93	9.86	10.51	5.58	421
	Rabi/Summer	9.62	3.81	5.60	2.97	582
	Total	34.55		16.11		466
Horse gram	Kharif	2.27	0.90	1.06	0.56	466
	Rabi/Summer	2.09	0.83	0.98	0.52	468
	Total	4.36		2.04		467
Moth	Kharif	10.53	4.16	3.32	1.76	315
Chickpea	Rabi	89.45	35.39	84.25	44.72	942
Lentil	Rabi	13.94	5.52	10.77	5.72	773
Peas & Beans	Rabi	9.33	3.69	8.81	4.68	945
Lathyrus	Rabi	4.58	1.81	3.84	2.04	837
Other Pulses	Kharif	5.30	2.10	3.03	1.61	572
	Rabi/Summer	3.69	1.46	2.54	1.35	689
	Total	8.99		5.58		620
Kharif Pulses		**111.92**	**44.28**	**65.51**	**34.77**	**585**
Rabi/Summer Pulses		**140.84**	**55.72**	**122.90**	**65.23**	**873**
Total Pulses		**252.77**		**188.41**		**745**

Source: *DES, DAC&FW, GoI, ND (Normal- Avg. 2012-13 to 2016-17).*

(figures in parenthesis indicates % share of crop).

Unit – III
Production Trends

3.1 Global Scenario: Crop-Wise

The total world acreage under pulses as recorded during 2016 is about 823.82 lakh ha with production at 818.00 lakh tones and productivity 993 kg/ha (Table -3.1).

In the world, pulses are grown by 198 countries. Beansdry was cultivated by 152 countries, which contributed about 57.18 % area to total world area, Chickpea by 58 contributed about 16.85%, Peasdry by 98 contributed 9.26%, Pigeonpea by 23 contributed 10.05%, Lentil by 56 contributed by 6.65%. The share to World production of Beans dry was 47.63% followed by Peasdry 17.56% followed by Chickpea 16.69%, Pigeonpea 10.40% and Lentil 7.72%.

(Table-3.1): Global Ranking: Crop-wise

{Area-lakh ha, Production-lakh tonnes, Yield-kg/ha}

Crop	Area	% to Total	Production	% to Total	Productivity
Chickpea	138.84	16.85	136.52	16.69	983
Lentil	54.81	6.65	63.16	7.72	1152
Pigeon pea	82.82	10.05	85.06	10.40	1027
Pea	76.26	9.26	143.63	17.56	1884
Beans	471.10	57.18	389.63	47.63	827
Total Pulses	**823.82**		**818.00**		**993**

Source: *FAO Statistics 2016.*

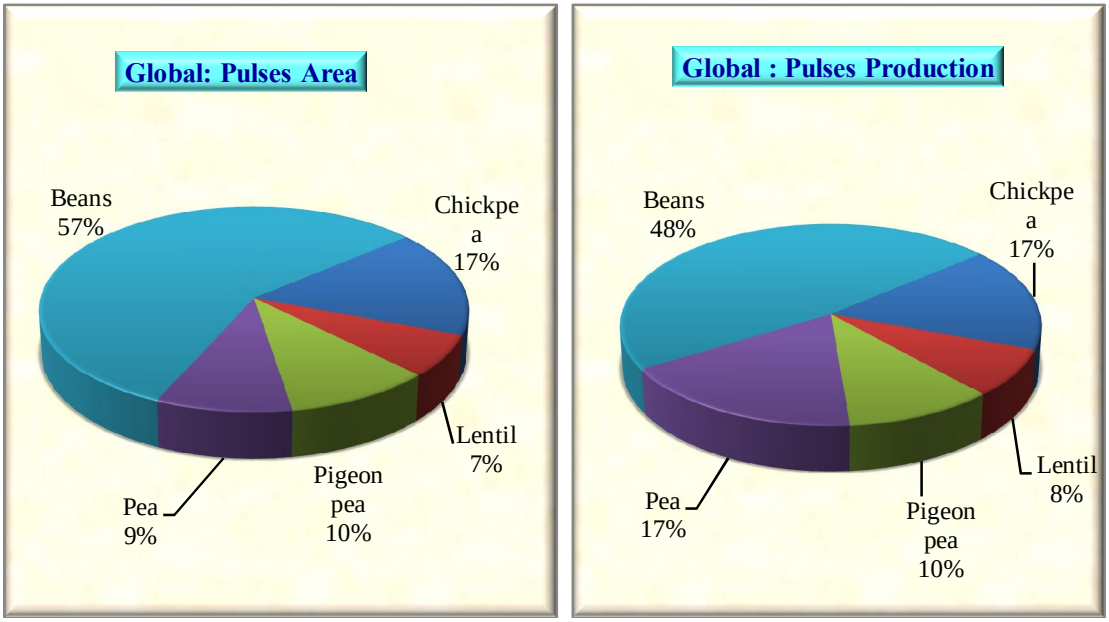


Fig.-3.1: Global Ranking: Crop-wise

3.2 Global Scenario: Total Pulses

The total world acreage under pulses as recorded during 2016 is about 823.82 lakh ha with production at 818.00 lakh tones and productivity 993 kg/ha.

It reveals that the India ranked first in area and production with 36% and 28% respectively of world area and production. However, in case of productively Canada stood first with 2029 kg/ha.Thus it is also evident that the countryôs productivity at 786 kg/ha is far below the world average productivity of 993 kg/ha (Table-3.2).

(Table–3.2): Global Ranking: Total Pulses

{Area- lakh ha, Production-Lakh Tones, Yield-kg/ha}

Country	Area	% Cont.	Country	Prod.	% Cont.	Country	Yield
India	294.47	35.74	India	231.31	28.28	Canada	2029
Niger	53.36	6.48	Canada	82.01	10.03	USA	1871
Myanmar	43.05	5.23	Myanmar	65.69	8.03	Ethiopia	1806
Canada	40.43	4.91	China	42.42	5.19	Russian Fed.	1750
Nigeria	36.97	4.49	Nigeria	30.93	3.78	China	1723
Brazil	26.02	3.16	Russian Fed.	29.43	3.60	Myanmar	1526
China	24.62	2.99	Ethiopia	27.33	3.34	Australia	1184
Australia	21.32	2.59	Brazil	26.23	3.21	Brazil	1008
Tanzania	21.05	2.56	Australia	25.24	3.09	Nigeria	837
Kenya	17.36	2.11	USA	24.41	2.98	India	786
Others	245.19	29.76	Others	232.99	28.48	Others	950
World	**823.82**		**World**	**818.00**		World	**993**

Source: *FAO Statistics 2016.*

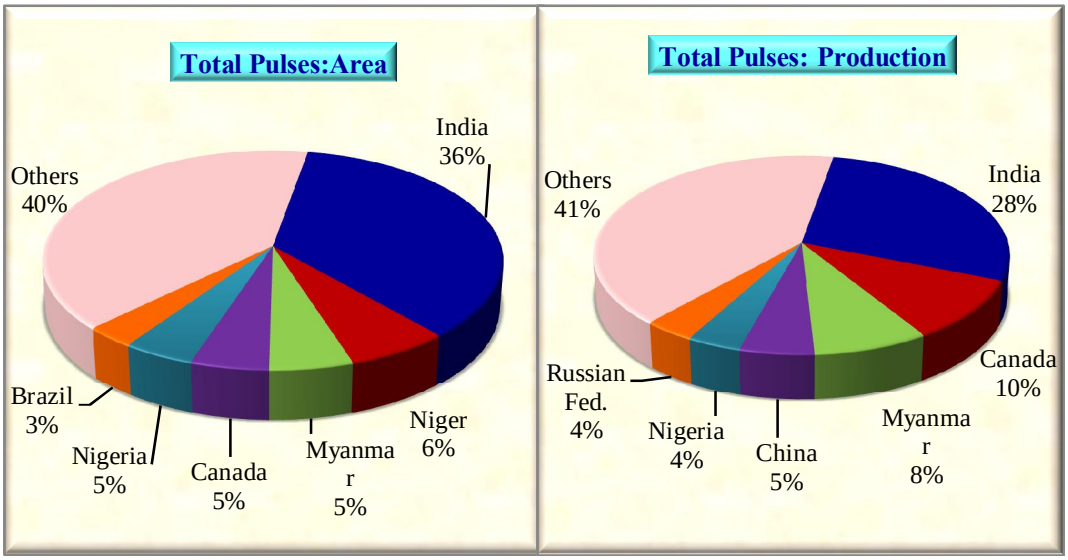


Fig.-3.2: Global Ranking: Total Pulses

3.3 Global Scenario: Chickpea

India ranks Ist in area and production in the world, followed by Australia, Myanmar and Pakistan. The highest productivity of 1969 kg/ha is observed in Ethiopia followed by Mexico, Mynmar and USA. Indiaגs productivity was 974 kg/ha.

(Table–3.3) : Global Ranking: Major Countries of Chickpea

{Area- Lakh ha, Production-Lakh Tonnes, Yield-kg/ha}

Country	Area	% Cont.	Country	Prod.	% Cont.	Country	Yield
India	96.26	69	India	93.78	69	Ethiopia	1969
Pakistan	10.05	7	Australia	8.75	6	Mexico	1833
Australia	6.77	5	Myanmar	5.59	4	Myanmar	1537
Iran	4.33	3	Pakistan	5.17	4	USA	1517
Myanmar	3.64	3	Turkey	4.55	3	Turkey	1294
Russian Fed.	3.58	3	Ethiopia	4.44	3	Australia	1291
Turkey	3.52	3	Russian Fed.	3.20	2	India	974
Others	10.68	8	Others	11.04	8	Others	1033
World	**138.84**		**World**	**136.52**		**World**	**983**

Source: *FAO, Statistics 2016*

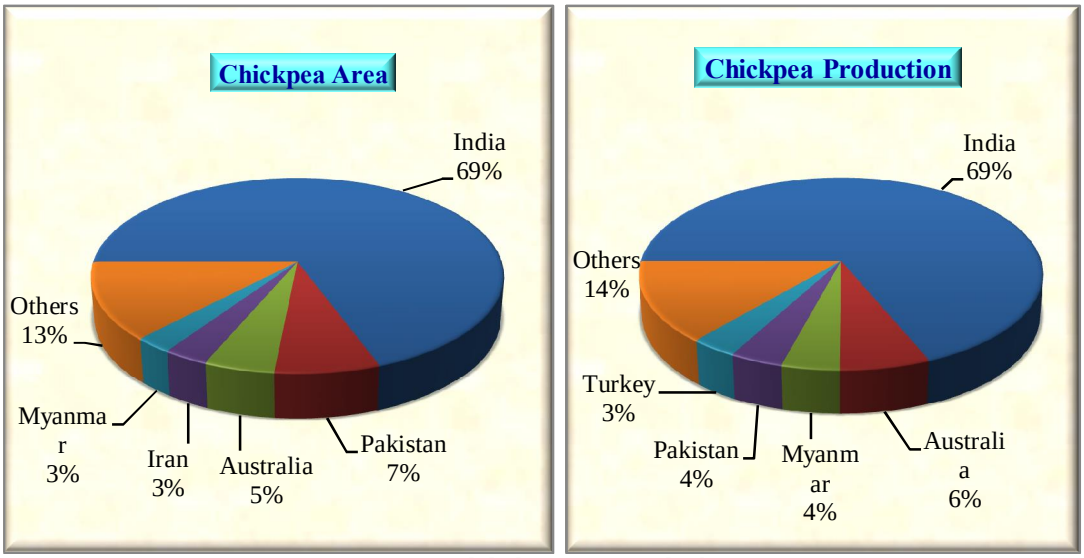


Fig.-3.3: Global Scenario : Chickpea

3.4 Global Scenario: Pigeonpea

India rank first in area (64%) and production (57%) at Global level. Mynmar stands second position in area (8.07%) followed by Tanzania (3.23%) respectively. Malawi occupy forth position in area (2.97%) and 3rd position in production (4.36%). In productivity, Kenya ranked first with 1612 kg/ha followed by Malawi (1506 kg/ha) and Burundi (1229 kg/ha). While, Indiaôs productivity is only 913 kg/ha.

(Table–3.4): Global Ranking: Major Counties of Pigeonpea

(Area-Lakh ha, Production-Lakh tonnes, Yield- kg/ha)

Country	Area	%Cont.	Country	Prod.	%Cont.	Country	Yield
India	53.38	64.45	India	48.73	57.29	Kenya	1612
Myanmar	6.68	8.07	Myanmar	6.28	7.38	Malawi	1506
Tanzania	2.68	3.23	Malawi	3.71	4.36	Burundi	1229
Malawi	2.46	2.97	Tanzania	2.72	3.20	Tanzania	1016
Haiti	1.33	1.61	Kenya	1.91	2.25	Nepal	965
Kenya	1.19	1.43	Haiti	1.14	1.34	Myanmar	939
Uganda	0.34	0.41	Nepal	0.16	0.19	**India**	**913**
Others	14.76	17.82	Others	20.41	23.99	Others	1383
World	**82.82**		**World**	**85.06**		**World**	**1027**

Source: *FAO, Statistics 2016*

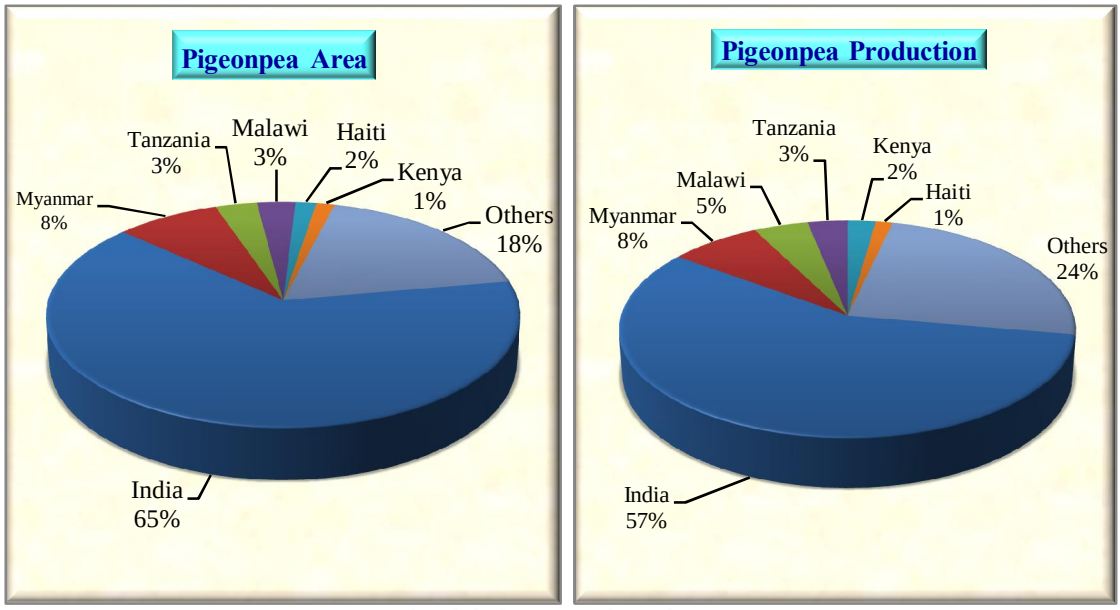


Fig.-3.4: Global Area and Production: Pigeonpea

3.5 Global Scenario: Lentil

Canada ranked first in the area (21.75 lakh ha) and production (32.34 lakh tonnes) with 40% and 51% of world area and production respectively. The highest productivity is recorded China (2374 kg/ha) followed by Canada (1487 kg/ha). Canada rank first in production (51%) due to very high level of productivity (1487kg/ha) as compared to India (838 kg/ha).

(Table–3.5): Global Ranking : Major Countries of Lentil

{Area- lakh ha, Production-Lakh Tones, Yield-kg/ha}

Country	Area	% Cont.	Country	Prod.	% Cont.	Country	Yield
Canada	21.75	39.69	Canada	32.34	51.20	China	2374
India	14.61	26.66	India	12.24	19.38	Canada	1487
Turkey	2.46	4.49	Turkey	3.65	5.78	Turkey	1482
Australia	2.25	4.10	USA	2.55	4.04	Ethiopia	1463
Nepal	2.06	3.76	Nepal	2.53	4.01	USA	1371
USA	1.86	3.39	Australia	1.82	2.88	Kazakhstan	1344
Bangladesh	1.55	2.82	Ethiopia	1.66	2.63	Nepal	1229
Syrian Arab Republic	1.30	2.38	Bangladesh	1.58	2.51	Bangladesh	1024
Iran	1.30	2.36	China	1.43	2.26	India	838
Others	5.67	10.35	Others	3.36	5.32	Others	592
World	**54.81**		**World**	**63.16**		**World**	**1152**

Source: *FAO, Statistics 2016*

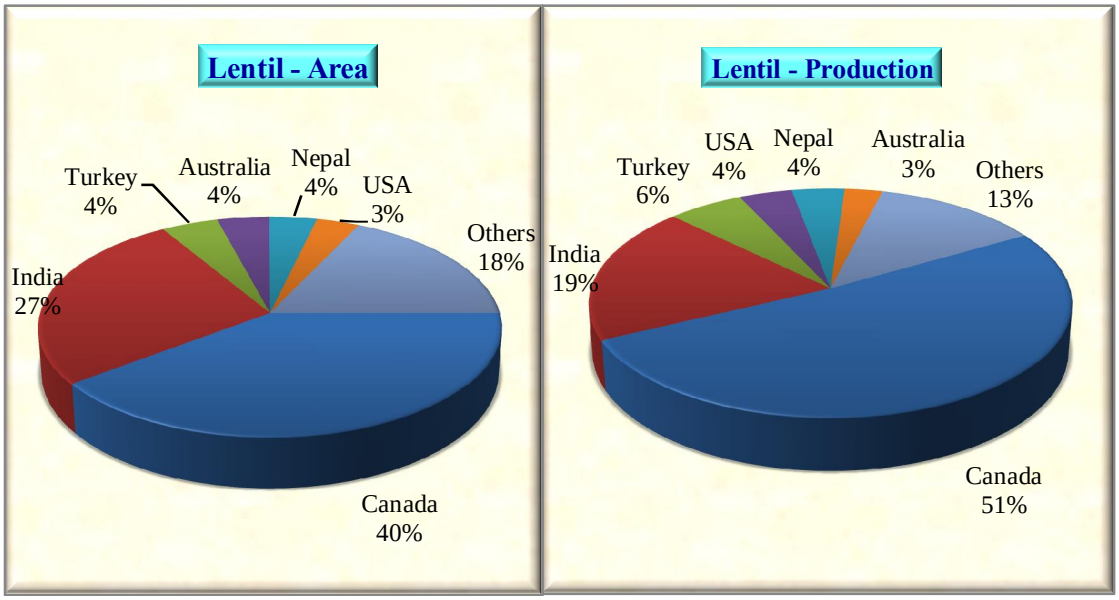


Fig.-3.5: Global Area and Production : Lentil

3.6 Global Scenario: Fieldpea

Canada rank first in area (22%) and production (32%) at Global level. India stands second position in area (13.89%) followed by Russian Fed. (13.64%) respectively. India occupy forth position in production (7.04%). Highest productivity is recorded in Ukrain (3126 kg/ha) followed by Canada (2717kg/ha), and Lithuania (2676 kg/ha). While, Indiaôs productivity is only 955 kg/ha.

(Table–3.6): Global Ranking : Major Countries of Fieldpea

{Area- lakh ha, Production-Lakh Tones, Yield-kg/ha}

Country	Area	%Cont.	Country	Prod.	%Cont.	Country	Yield
Canada	16.97	22.26	Canada	46.11	32.10	Ukraine	3126
India	10.59	13.89	Russian Fed.	21.99	15.31	Canada	2717
Russian Fed.	10.40	13.64	China	11.94	8.31	Lithuania	2676
China	8.34	10.93	India	10.11	7.04	France	2493
USA	4.02	5.28	USA	7.82	5.45	Russian Fed.	2115
Australia	2.72	3.56	Ukraine	7.46	5.20	USA	1944
Tanzania	2.55	3.35	France	5.39	3.75	Ethiopia	1638
Ukraine	2.39	3.13	Lithuania	4.01	2.79	China	1432
France	2.16	2.83	Ethiopia	3.48	2.42	Australia	1147
Ethiopia	2.13	2.79	Australia	3.12	2.17	India	955
Others	13.99	18.35	Others	22.19	15.45	Others	159
World	**76.26**		**World**	**143.63**		**World**	**188**

Source: *FAO, Statistics 2014*

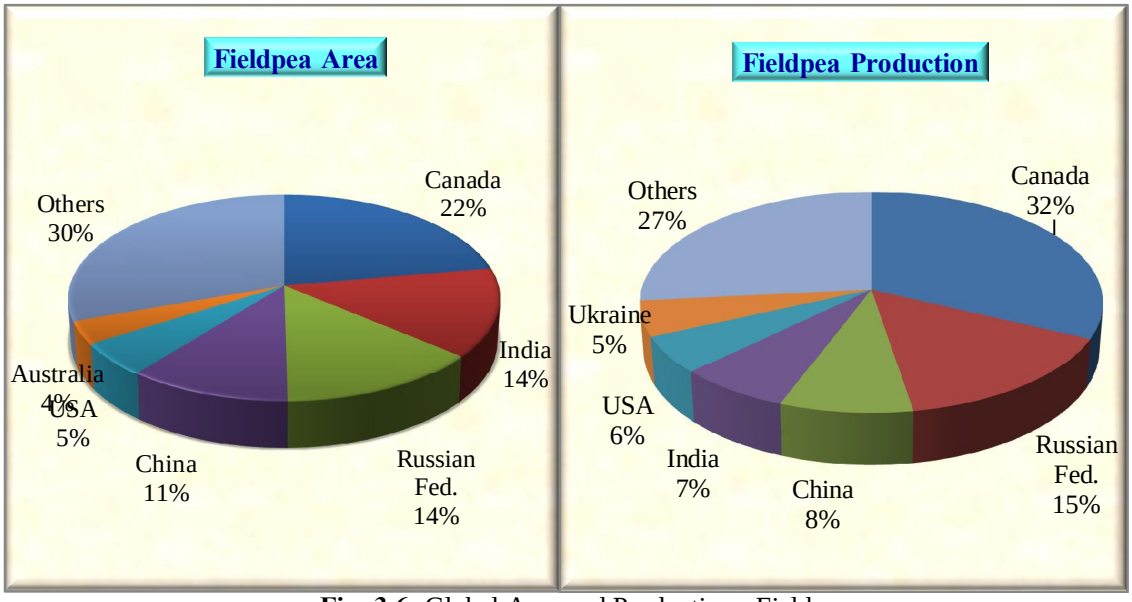


Fig.-3.6: Global Area and Production : Fieldpea

3.7 Plan-wise National Scenario : Total Pulses

A visit to different plan periods records a slight growth in total production and productivity from VIIIth Plan 1992-97 with 7% & 9% respectively. The area remained almost stagnant, stabilized up-till Xth plan. However, the XIIth plan analysis shows that the increasing per cent change trend under area (+ 5%) and production (+18%) of total pulses over previous plan periods (COPP) is given at (Table-3.7).

(Table – 3.7): Plan-Wise National Scenario- Total Pulses

(Area-Mha, Production-Mtonnes, Yield-kg/ha)

Plan	Area	%COPP	Prod.	% COPP	Yield	%COPP
First Plan (1951-56)	21.09		10.04		476	
Second Plan (1956-61)	23.71	12.42	11.75	17.03	496	4.10
Third Plan (1961-66)	23.86	0.63	11.14	-5.19	467	-5.79
Fourth Plan (1969-74)	22.21	-6.92	10.90	-2.15	491	5.11
Fifth Plan (1974-79)	23.32	5.00	11.71	7.43	502	2.32
Sixth Plan (1980-85)	23.08	-1.03	11.77	0.51	510	1.56
Seventh Plan (1985-90)	23.08	0.00	12.55	6.63	544	6.63
Eighth Plan (1992-97)	22.47	-2.64	13.34	6.29	594	9.18
Ninth Plan (1997-02)	21.97	-2.23	13.15	-1.42	599	0.82
Tenth Plan (2002-07)	22.44	2.14	13.35	1.52	595	-0.61
Eleventh Plan (2007-2012)	23.97	6.80	15.85	18.73	662	11.19
Twelfth Plan (2012-2017)	25.28	5.46	18.84	18.86	745	12.53

Source: *DES, MoA&FW (DAC&FW), Govt. of India; % COPP is percentage change over previous plan.*

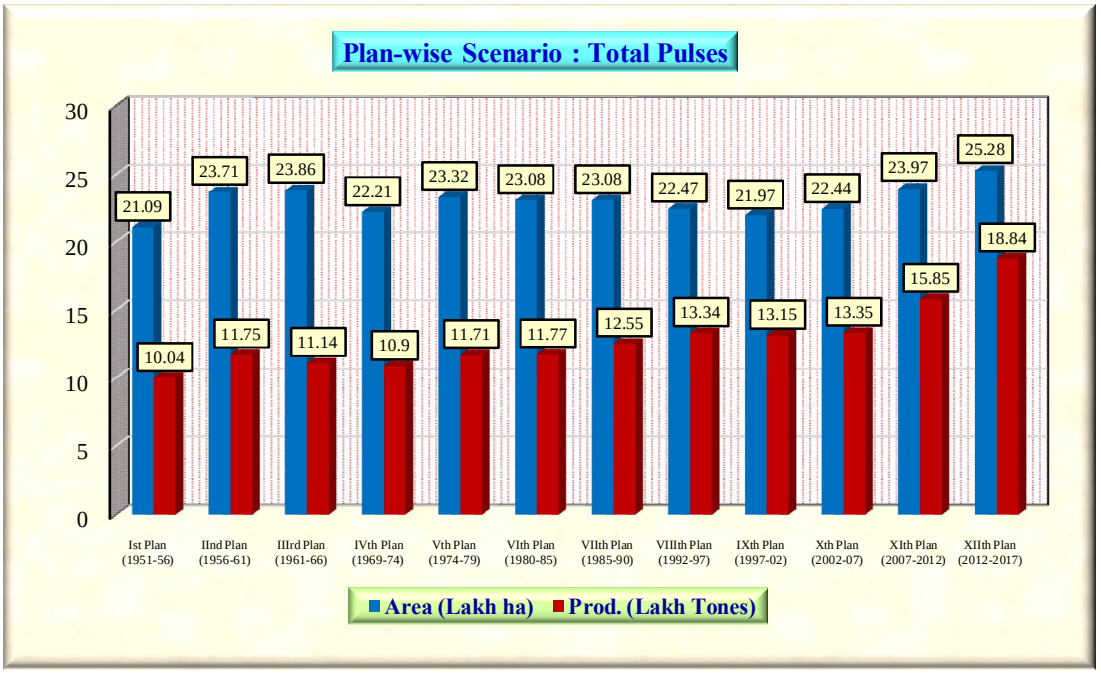


Fig.-3.7: Total Pulses: Plan-Wise National Scenario

(Table-3.8): Plan-Wise National Scenario ï Kharif Pulses

(Area-Million ha, Production-Million Tonnes, Yield-kg/ha)

Plan	Area	%COPP	Prod.	% COPP	Yield	%COPP
Sixth Plan (1980-85)	10.53		4.48		425	
Seventh Plan (1985-90)	16.32	54.99	6.63	47.99	406	-4.51
Eighth Plan (1992-97)	16.10	-1.35	7.10	7.09	441	8.55
Ninth Plan (1997-02)	10.41	-35.34	4.71	-33.66	452	2.60
Tenth Plan (2002-07)	10.86	4.32	4.94	4.88	455	0.54
Eleventh Plan (2007-2012)	11.08	2.03	5.69	15.18	514	12.90
Twelfth Plan (2012-2017)	11.19	0.99	6.55	15.11	585	13.81

Source: *DES, Twelfth Plan (2012-2017); % COPP is percentage Change over previous plan*

(Table-3.9): Plan-Wise National Scenario ï Rabi Pulses

(Area-Million ha, Production-Million Tonnes, Yield-kg/ha)

Plan	Area	%COPP	Prod.	% COPP	Yield	%COPP
Sixth Plan (1980-85)	12.62		7.33		581	
Seventh Plan (1985-90)	16.72	32.49	10.03	36.83	600	3.28
Eighth Plan (1992-97)	15.25	-8.79	10.32	2.89	677	12.81
Ninth Plan (1997-02)	11.55	-24.26	8.43	-18.31	730	7.85
Tenth Plan (2002-07)	11.58	0.26	8.39	-0.47	725	-0.73
Eleventh Plan (2007-2012)	12.88	11.23	10.15	20.98	788	8.77
Twelfth Plan (2012-2017)	14.08	9.31	12.29	21.08	872	10.66

Source: *DES, Twelfth Plan (2012-2017); % COPP is percentage Change over previous plan.*

(Table-3.10): Plan-Wise National Scenario ï Chickpea

(Area-Million ha, Production-Million Tonnes, Yield-kg/ha)

Plan	Area	%COPP	Prod.	% COPP	Yield	%COPP
Fourth Plan (1969-74)	7.65		4.89		639	
Fifth Plan (1974-79)	6.71	-12.29	5.52	12.88	823	28.70
Sixth Plan (1980-85)	7.18	7.00	4.71	-14.67	656	-20.26
Seventh Plan (1985-90)	6.73	-6.27	4.66	-1.06	692	5.55
Eighth Plan (1992-97)	6.86	1.93	5.28	13.30	770	11.16
Ninth Plan (1997-02)	6.76	-1.46	5.48	3.79	811	5.32
Tenth Plan (2002-07)	6.82	0.89	5.47	-0.18	802	-1.06
Eleventh Plan (2007-2012)	8.22	20.53	7.24	32.36	881	9.82
Twelfth Plan (2012-2017)	8.95	8.88	8.43	16.43	941	6.81

Source: *DES, Twelfth Plan (2012-2017); % COPP is percentage Change over previous plan*

(Table-3.11): Plan-Wise National Scenario ï Pigeonpea

(Area-Million ha, Production-Million Tonnes, Yield-kg/ha)

Plan	Area	%COPP	Prod.	% COPP	Yield	%COPP
Sixth Plan (1980-85)	3.03		2.27		749	
Seventh Plan (1985-90)	3.35	10.61	2.49	9.83	744	-0.71
Eighth Plan (1992-97)	3.48	3.75	2.43	-2.59	698	-6.12
Ninth Plan (1997-02)	3.44	-1.13	2.35	-3.12	684	-2.01
Tenth Plan (2002-07)	3.51	2.04	2.39	1.56	681	-0.47
Eleventh Plan (2007-2012)	3.79	8.03	2.66	11.56	703	3.26
Twelfth Plan (2012-2017)	4.19	10.5	3.29	23.6	785	11.6

Source: *DES, Twelfth Plan (2012-2017); % COPP is percentage Change over previous plan*

(Table-3.12): Plan-wise national scenario ï Mungbean

(Area-Mha, Production-Mtonnes, Yield-kg/ha)

Plan	Area	%COPP	Prod.	% COPP	Yield	%COPP
Sixth Plan (1980-85)	2.88		1.12		390	
Seventh Plan (1985-90)	3.13	8.77	1.24	10.42	396	1.51
Eighth Plan (1992-97)	2.92	-6.71	1.21	-2.71	413	4.28
Ninth Plan (1997-02)	3.01	3.19	1.06	-11.84	353	-14.57
Tenth Plan (2002-07)	3.24	7.53	1.14	6.89	351	-0.60
Eleventh Plan (2007-2012)	3.31	2.02	1.34	17.50	404	15.16
Twelfth Plan (2012-2017)	3.46	4.53	1.61	20.14	465	15.09

Source:*DES, Twelfth Plan (2012-2017); % COPP is percentage Changeover previous plan*

(Table–3.13): Plan-Wise National Scenario ï Urdbean

(Area-Mha, Production-Mtonnes, Yield-kg/ha)

Plan	Area	%COPP	Prod.	% COPP	Yield	%COPP
Sixth Plan (1980-85)	2.86		1.06		373	
Seventh Plan (1985-90)	3.21	12.26	1.39	30.80	434	16.51
Eighth Plan (1992-97)	2.94	-8.42	1.35	-3.09	459	5.82
Ninth Plan (1997-02)	3.05	3.76	1.37	1.60	450	-2.08
Tenth Plan (2002-07)	3.24	6.20	1.39	1.52	430	-4.40
Eleventh Plan (2007-2012)	3.06	-5.56	1.48	6.24	484	12.50
Twelfth Plan (2012-2017)	3.51	14.7	2.08	40.5	592	22.3

Source:*DES, Twelfth Plan (2012-2017); % COPP is percentage Changeover previous plan*

(Table–3.14): Plan-wise national scenario- Lentil

(Area-Mha, Production-Mtonnes, Yield-kg/ha)

Plan	Area	%COPP	Prod.	% COPP	Yield	%COPP
Sixth Plan (1980-85)	0.96		0.51		527	
Seventh Plan (1985-90)	1.08	12.69	0.68	35.20	632	19.97
Eighth Plan (1992-97)	1.23	13.98	0.80	16.83	648	2.50
Ninth Plan (1997-02)	1.42	14.85	0.94	17.81	665	2.58
Tenth Plan (2002-07)	1.44	1.95	0.95	1.16	660	-0.78
Eleventh Plan (2007-2012)	1.46	1.37	0.96	0.72	655	-0.64
#Twelfth Plan (2012-2017)	1.39	-4.79	1.08	12.5	773	18.01

Source: *DES, Twelfth Plan (2012-2017; % COPP ispercentagechange over previous plan.*

(Table–3.15): Plan-Wise National Scenario ï Fieldpea

(Area-Mha, Production-Mtonnes, Yield-kg/ha)

Plan	Area	%COPP	Prod.	% COPP	Yield	%COPP
Sixth Plan (1980-85)	0.44		0.32		740	
Seventh Plan (1985-90)	0.47	7.73	0.42	27.95	879	18.76
Eighth Plan (1992-97)	0.71	50.56	0.64	54.90	905	2.88
Ninth Plan (1997-02)	0.74	4.46	0.66	2.06	884	-2.30
Tenth Plan (2002-07)	0.74	0.22	0.69	5.30	929	5.06
Eleventh Plan (2007-2012)	0.72	-3.36	0.62	-9.80	867	-6.67
Twelfth Plan (2012-2017)	0.93	29.1	0.89	43.5	957	10.3

Source: *DES, Twelfth Plan (2012-2017); % COPP is percentage Change over previous plan*

3.8 States' Scenario *: Twelfth plan* Analysis

3.8.1 Total Pulses *:* In India, total pulse area and production irrespective of Twelfth Plan was 252.78 lakh hectares and 188.42 lakh tonnes respectively. Out of the total area, 57.52 lakh hectares is confined to Madhya Pradesh alone, earning a good pulse status and position contributing a remarkable 22.75% of the countryôs total area and a production of 52.46 lakh tonnes, thereby ranking first both in area and production followed by Rajasthan in area (39.89 lakh hectares, 15.78% of the total area). While Rajasthan ranked third in production with 12.28% of the total pulse production and Maharashtra which ranked second (25.68 lakh tonnes or 13.63% of the total production); Uttar Pradesh was hardly placed at the forth rank in production (17.63 lakh tonnes or 9.36% of the total production).While Karnataka is on the forth rank in respect of area (25.74 lakh ha or 10.18%).

The overall area, production and productivity increasing trend during the last three plan period.

(Table-3.16): Statesô Scenarioï Total Pulses

{Area-lakh ha, Production-lakh tonnes, Yield-kg/ha}

States	Area	% Contri.	Production	% Contri.	Yield
A.P	12.70	5.02	10.61	5.63	835
Bihar	5.16	2.04	4.88	2.59	945
Chhattisgarh	8.80	3.48	6.29	3.34	714
Gujarat	7.18	2.84	6.47	3.43	902
Haryana	1.16	0.46	0.91	0.48	781
Jharkhand	6.30	2.49	6.24	3.31	991
Karnataka	25.74	10.18	14.25	7.56	554
Madhya Pradesh	57.52	22.75	52.46	27.84	912
Maharashtra	37.08	14.67	25.68	13.63	693
Orissa	8.10	3.20	4.27	2.27	528
Punjab	0.48	0.19	0.42	0.22	872
Rajasthan	39.89	15.78	23.14	12.28	580
Tamil Nadu	7.74	3.06	5.12	2.72	661
U.P.	22.83	9.03	17.63	9.36	773
West Bengal	2.71	1.07	2.53	1.34	934
All India	**252.78**		**188.42**		**745**

Source: *DES, DAC&FW,ND (*Twelfth plan – Avg. 2012-13 to 2016-17)*

3.8.2 Chickpea: The total area and production of gram during twelfth Plan was 89.45 lakh hectares and 84.25 lakh tonnes respectively. Madhya Pradesh ranked first contributing an area of (34.39% and 40.32% of total area and production of country). Maharashtra is on the second rank for area 15.48 lakh ha (17.30%) and third for production 12.12 lakh tones (14.39%).Whereas, Rajasthan stood second in production (14.43%) and third in area (15.48%). The highest yield was recorded in the state of Telangana (1474 kg/ha) followed by Gujarat (1178 kg/ha) and West Bengal (1148 kg/ha). The lowest yield was recorded in Karnataka (619 kg/ha).

Chickpea is a major pulse in India which contributed about 35% of area & 45% of total pulse production.Overall trend of area, production and yield for the last three plan periods has shown a significant increase.

(Table-3.17): Statesô Scenario: Chickpea

{Area- Lakh ha, Production-Lakh Tonnes, Yield-kg/ha}

States	Area	% Contri.	Production	% Contri.	Yield
Andhra Pradesh	4.50	5.03	4.93	5.85	1096
Bihar	0.60	0.67	0.68	0.81	1124
Chhattisgarh	2.87	3.21	2.74	3.25	953
Gujarat	1.72	1.92	2.02	2.40	1178
Haryana	0.55	0.61	0.48	0.57	876
Karnataka	10.55	11.79	6.54	7.76	619
Madhya Pradesh	30.76	34.39	33.97	40.32	1104
Maharashtra	15.48	17.31	12.12	14.39	783
Odisha	0.43	0.48	0.33	0.39	770
Rajasthan	13.85	15.48	12.16	14.43	878
Tamilnadu	0.07	0.08	0.04	0.05	652
Telangana	0.91	1.02	1.35	1.60	1474
Uttar Pradesh	5.14	5.75	4.62	5.48	899
West Bengal	0.27	0.30	0.31	0.37	1148
All India	**89.45**		**84.25**		**942**

*Source: DES, DAC&FW, ND (*Twelfth plan – Avg. 2012-13 to 2016-17)*

3.8.3 Pigeonpea: The countryôs total area coverage and production of tur were 41.90 lakh hectares and 32.88 lakh tonnes respectively. The state-wise trend shows that Maharashtra ranked first both in respect of area and production (29.61% and 29.07%). Madhya Pradesh stood second position in production (15.82%) followed by Karnataka (15.68%). The third place occupied by Madhya Pradesh (13.29%) in area. The highest yield recorded by Bihar (1682 kg/ha) followed by Gujrat (1118 kg/ha) and Haryana (1040 kg/ha) and the lowest yield observed in the state of A.P. (489 kg/ha) followed by C.G. (581 kg/ha) and Karnataka (632 kg/ha).

The overall trend of area, production and yield shown increasing trend during the last three Plan Period.

(Table-3.18): Statesô Scenario: Pigeonpea

(Area-Lakh ha, Production-Lakh tonnes, Yield- kg/ha)

States	Area	% Contri.	Production	% Contri.	Yield
A.P	2.22	5.30	1.09	3.32	489
Bihar	0.22	0.53	0.37	1.13	1682
Chattisgarh	0.57	1.36	0.33	1.00	581
Gujarat	2.46	5.87	2.75	8.36	1118
Haryana	0.10	0.24	0.10	0.30	1040
Jharkhand	2.04	4.87	2.04	6.20	1000
Karnataka	8.17	19.50	5.16	15.69	632
Madhya Pradesh	12.41	29.62	9.56	29.08	770
Maharashtra	1.38	3.29	1.24	3.77	895
Odisha	0.03	0.07	0.03	0.09	895
Punjab	0.03	0.07	0.03	0.09	912
Rajasthan	0.15	0.36	0.12	0.36	805
Tamilnadu	0.57	1.36	0.51	1.55	894
Uttar Pradesh	3.00	7.16	2.63	8.00	876
All India	**41.90**		**32.88**		785

*Source: DES, DAC&FW, ND (*Twelfth plan – Avg. 2012-13 to 2016-17)*

3.8.4 Mungbean: The total area covered under moong in India was 34.55 lakh hectares with a total production of 16.11 lakh tonnes. The coverage of area and its production was maximum in Rajasthan (33.02% &30.95%) followed by Maharashtra (11.52 %& 10.34%) of the total area and production. Karnataka ranked third in area (8.83%) and Madhya Pradesh is on third position for production (9.17%). The highest yield was recorded by the state of Punjab (848 kg/ha) followed by Jharkhand (703 kg/ha) and Andhra Pradesh (699 kg/ha). The lowest yield observed in the state of Karnataka (226 kg/ha) followed by C.G. (326 kg/ha) and Odisha (347 kg/ha).

During the last three Plan Period area fluctuating, however, production and productivity showed increasing trend.

(Table-3.19): Statesô Scenario ï Mungbean

(Area- lakh ha, Production-Lakh Tones, Yield-kg/ha)

States	Area	% Contri.	Production	% Contri.	Yield
Andhra Pradesh	1.56	4.52	1.09	6.77	699
Bihar	1.64	4.75	1.04	6.46	632
Chhattisgarh	0.16	0.46	0.05	0.31	326
Gujarat	1.45	4.20	0.76	4.72	526
Haryana	0.44	1.27	0.27	1.68	611
Jharkhand	0.24	0.69	0.17	1.06	703
Karnataka	3.05	8.83	0.69	4.28	226
Madhya Prd.	2.89	8.36	1.48	9.19	510
Maharashtra	3.98	11.52	1.67	10.37	418
Odisha	2.89	8.36	1.00	6.21	347
Punjab	0.38	1.10	0.32	1.99	848
Rajasthan	11.41	33.02	4.99	30.97	437
Tamilnadu	1.90	5.50	1.09	6.77	577
Telangana	1.24	3.59	0.71	4.41	572
Uttar Pradesh	0.90	2.60	0.48	2.98	533
All India	**34.55**		**16.11**		**466**

*Source: DES, DAC&FW,ND (*Twelfth plan – Avg. 2012-13 to 2016-17)*

3.8.5 Urdbean: The total production was 20.82 lakh tonnes on an area of 35.13 lakh hectares. As regards the total contribution from states, Madhya Pradesh stand first in respect of area (24.32%) followed by U.P. (16.73%) and Andhra Pradesh (10.95%), whereas in production M.P. stands first (22.96%) followed by Andhra Pradesh (15.26%) and U.P (14.66%). The highest yield was recorded by the state of Bihar (889 kg/ha) followed by Jharkhand (875 kg/ha) and A.P. (826 kg/ha) the National yield average was (593 kg/ha). The lowest yield was recorded in the state of Odisha (358 kg/ha) followed by C.G. (309 kg/ha).

The overall trend during last three plan period was shown increasing trend in Production and Productivity front but, area is fluctuating in the same period.

(Table–3.20): Statesô Scenario ï Urdbean

{Area- lakh ha, Production-Lakh Tones, Yield-kg/ha}

States	Area	% Contri.	Production	% Contri.	Yield
A.P	3.85	10.96	3.18	15.27	826
Assam	0.53	1.51	0.33	1.59	624
Bihar	0.14	0.40	0.13	0.62	889
Chhattisgarh	1.00	2.85	0.31	1.49	309
Gujarat	1.03	2.93	0.63	3.03	615
Jharkhand	1.09	3.10	0.95	4.56	875
Karnataka	0.92	2.62	0.38	1.83	416
Madhya Pradesh	8.54	24.31	4.78	22.96	559
Maharashtra	3.19	9.08	1.51	7.25	473
Odisha	0.92	2.62	0.33	1.59	358
Rajasthan	2.78	7.91	1.46	7.01	523
Tamilnadu	3.54	10.08	2.59	12.44	731
U.P.	5.88	16.74	3.05	14.65	520
All India	**35.13**		**20.82**		**593**

*Source: DES, DAC&FW,ND (*Twelfth plan – Avg. 2012-13 to 2016-17)*

3.8.6 Lentil : The countryôs area under Lentil was 13.94 lakh hectares with a production of 10.77 lakh tonnes. Madhya Pradesh is on first ranked with respect to acerage 41.01% (5.58 lakh ha) followed by UP 31.65 % and Bihar 11.58% respectively. While in terms of production MP is on first ranked 35.79% (3.86 lakh tonnes) followed by Uttar Pradesh (29.65%) and Bihar (15.98%).The highest yield was recorded by the state of Bihar (1066 kg/ha) followed by Haryana (976 kg/ha) and W.B. (969 kg/ha). The National yield average was (773 kg/ha). The lowest yield was observed in the state of Maharashtra (385 kg/ha) followed by C.G. (389 kg/ha) and M.P. (691 kg/ha).

The overall trend of area, production and yield during the last three plan period shows increasing trend in production and productivity however, area decline during XII plan period is a major concern.

(Table–3.21): Statesô scenario ï Lentil

{Area- lakh ha, Production-Lakh Tones, Yield-kg/ha}

States	Area	% Contri.	Production	% Contri.	Yield
Assam	0.28	2.01	0.19	1.76	693
Bihar	1.61	11.55	1.72	15.97	1066
Chhattisgarh	0.16	1.15	0.06	0.56	389
Haryana	0.04	0.29	0.04	0.37	976
Madhya Pradesh	5.58	40.03	3.86	35.84	691
Maharashtra	0.01	0.07	0.01	0.09	385
Punjab	0.01	0.07	0.00	0.00	667
Rajasthan	0.51	3.66	0.48	4.46	937
Uttar Pradesh	4.41	31.64	3.19	29.62	724
Uttarakhand	0.11	0.79	0.09	0.84	784
West Bengal	0.75	5.38	0.73	6.78	969
All India	**13.94**		**10.77**		**773**

*Source: DES, DAC&FW,ND (*Twelfth plan – Avg. 2012-13 to 2016-17)*

3.8.7 Fieldpea: The countryôs area under Lentil was 9.34 lakh hectares with a production of 8.88 lakh tonnes. Madhya Pradesh is on first ranked with respect to acerage 39.81% (3.72 lakh ha) followed by UP 37.47% andJharkhand 4.07% respectively. While in terms of production UP is on first ranked 41.22% (3.86 lakh tonnes) followed by Madhya Pradesh (33.27%) and Jharkhand (5.16%).The highest yield was recorded by the state of Rajsthan (1858 kg/ha) followed by Punjab (1333 kg/ha) and W.B. (1169 kg/ha). The National yield average was (950 kg/ha). The lowest yield was observed in the state of Chhatisgarh (431 kg/ha) followed by Maharshtra (387 kg/ha) and C.G. (431 kg/ha).

The area, production and yield significantly increased during XIIth plan from previous plan.

(Table–3.22): Statesô Scenario ï Fieldpea

{Area- lakh ha, Production-Lakh Tones, Yield-kg/ha}

States	Area	% Contri.	Production	% Contri.	Yield
Assam	0.27	2.89	0.23	2.59	835
Bihar	0.18	1.93	0.18	2.03	989
Chhattisgarh	0.16	1.71	0.07	0.79	431
Haryana	0.00	0.00	0.00	0.00	1000
Jharkhand	0.38	4.07	0.46	5.18	1205
Madhya Pradesh	3.72	39.83	2.95	33.22	795
Maharashtra	0.11	1.18	0.04	0.45	387
Punjab	0.02	0.21	0.03	0.34	1333
Rajasthan	0.11	1.18	0.20	2.25	1858
Uttar Pradesh	3.50	37.47	3.66	41.22	1046
Uttrakhand	0.06	0.64	0.06	0.68	968
West Bengal	0.14	1.50	0.16	1.80	1169
All India	**9.34**		**8.88**		**950**

*Source: DES, DAC&FW,ND (*Twelfth plan – Avg. 2012-13 to 2016-17)*

Unit – IV
Seed Production

4.1 Importance

Seed is the key input in pulse crop cultivation and vital in speeding and sustaining the crop productivity. The quality of seed alone is known to 10-15% increase in the total production of any crop. In the absence of quality seed, the inputs like fertilizer, water, pesticides etc., do not pay the desirable return. Lack of quality seed continues to be one of the greatest hurdles in reducing the vast yield gap between improved practices (FLD), farmersô practice and statesô average yield. Concerted efforts and proper planning along with realistic execution the seed production programme are required to produce the quality seed of improved varieties insufficient quantities to phase out the old seed of absolete non-descript varieties.

4.2 Seed Requiremet

To achieve the targeted 36%, 44%, 52% & 60% Seed Replacement Rate, the requirement of breeder, foundation and certified seed by the end of 2030 is as under:

(Table-4.1): Seed Requirement

(Quantity in Qtl.)

Crop	Normal Area	Certified seed				Foundation seed				Breeder seed			
		2018-19 (36%)	2022-23 (44%)	2026-27 (52%)	2030-31 (60%)	2018-19	2022-23	2026-27	2030-31	2018-19	2022-23	2026-27	2030-31
Arhar	41.91	301.72	368.76	435.81	502.86	7.54	9.22	10.90	12.57	0.15	0.18	0.22	0.25
Urdbean	27.00	194.37	237.56	280.76	323.95	6.48	7.92	9.36	10.80	0.32	0.40	0.47	0.54
Mungbean	24.93	179.48	219.37	259.25	299.13	5.98	7.31	8.64	9.97	0.30	0.37	0.43	0.50
Other Kharif	18.10	130.33	159.30	188.26	217.22	4.34	5.31	6.28	7.24	0.22	0.27	0.31	0.36
Tot. Kharif	**111.93**	**805.90**	**984.99**	**1164.08**	**1343.17**	**24.35**	**29.76**	**35.17**	**40.58**	**0.99**	**1.21**	**1.43**	**1.65**
Gram	89.45	2576.19	3148.68	3721.16	4293.65	171.75	209.91	248.08	286.24	17.17	20.99	24.81	28.62
Lentil	13.94	125.47	153.35	181.23	209.12	4.18	5.11	6.04	6.97	0.21	0.26	0.30	0.35
Urdbean	8.13	58.56	71.58	84.59	97.61	1.95	2.39	2.82	3.25	0.10	0.12	0.14	0.16
Mungbean	9.62	69.29	84.68	100.08	115.48	2.31	2.82	3.34	3.85	0.12	0.14	0.17	0.19
Other Rabi	19.69	283.59	346.61	409.64	472.66	14.18	17.33	20.48	23.63	0.71	0.87	1.02	1.18
Total Rabi	**140.84**	**3113.10**	**3804.90**	**4496.70**	**5188.50**	**194.37**	**237.56**	**280.76**	**323.95**	**18.31**	**22.37**	**26.44**	**30.51**
Total Pulses	**252.77**	**3919.01**	**4789.90**	**5660.79**	**6531.68**	**218.72**	**267.32**	**315.93**	**364.53**	**19.30**	**23.59**	**27.87**	**32.16**

4.3 Breeder seed production under new varieties

- **Breeder Seed** : During 2014-15 Breeder seed production and indent was 10,910 qtls and 9702 qtls respectively. During 2016-17 both the production and indent increased by 40% and 37% (15242 qtls/13236 qtls) over the base year 2014-15. New varieties of pulses put to seed chain. The crop-wise production and indent of breeder seed is given as under (*Table-4.2)*.

(Table- 4.2): Breeder seed production and indent

(Quantity-qtls)

Crop	2014-15		2015-16		2016-17		2017-18	
	Indent	Prod.	Indent	Prod.	Indent	Prod.	Indent	Prod.
Pigeonpea	390	653	226	734	308	653	351	735
Chickpea	6742	7464	7184	7630	10119	11174		
Mungbean	932	857	702	686	811	890	970	912
Urdbean	424	485	424	296	454	513	457	364
Lentil	259	312	449	474	467	535		
Fieldpea	464	637	1215	759	611	777		
Horsegram	8	4	10	2	17	21	25	41
Mothbean	95	36	59	23	62	66	25	42
Rajmash	4	88	2	7	3	14		
Lathyrus	4	88	9	14	115	166		
Clusterbean	341	272	269	257	227	289	231	306
Cowpea	39	14	168	26	42	144	19	31
Total	**9702**	**10910**	**10717**	**10908**	**13236**	**15242**	**2078**	**2431**

Source: *ICAR-IIPR, Kanpur, U.P.*

The seed production subsidy was one of the major initiatives during 2016-17. The quality pulse seed produced by various public sector/central agencies has been about 2.65 lakh qtls during 2016-17 and >6.00 lakhqtls in 2017-18. The new/promising varieties were made available to the farmers. The agency-wise quality seed is given below (Table-4.3).

(Table-4.3): Certified seed production programme under NFSM-Pulses

(Quantity-qtls)

Agency	2016-17			2017-18			
	Kharif	Rabi	Total	Kharif	Rabi	Summer	Total
NSC	35413	196720	232133	65000	269000	47000	381000
HIL	2681	23016	25697	22000	69000	3000	94000
KRIBHCO		7140	7140	1650	6060		7710
NAFED				48400	58900		107300
IFFDC				3400	16600		20000
Total	**38095**	**226876**	**264971**	**140450**	**419560**	**50000**	**610010**

Source: *NFSM Cell, Min. of Agri. & FW (DAC&FW)*

- As a result during 2017-18, enhanced availability of > 35.00 lakh qtls certified seeds of improved varieties which is >6.75 lakh qtls (23%) higher the availability over the base year 2014-15.Certifiedseed availability in gram was >2.00 lakh qtls, over itôs requirement during 2017-18, followed by urd and mung.
- During 2018-19 the targeted certified seed production is 31.22 lakh quintals.

(Table-4.4): All India: Crop-wise requirement and availability of certified seed

(Quantity- lakh qtls.)

Crop	2014-15 (Base Year)		2015-16		2016-17		2017-18		Change Over (+/-) 2017-18
	R	A	R	A	R	A	R	A	
Gram	16.11	15.72	18.14	14.86	17.65	16.01	17.16	19.27	2.11
Lentil	1.79	1.38	1.30	1.06	1.47	1.15	1.37	1.36	-0.01
Peas	1.96	1.57	2.12	1.83	2.67	2.91	2.39	2.36	-0.03
Urd	2.68	3.31	2.62	2.71	2.67	2.9	2.74	3.74	1.00
Moong	2.79	3.31	2.87	3.23	2.68	3.27	2.41	3.14	0.73
Arhar	2.64	2.78	2.51	2.72	2.71	2.97	3.31	3.81	0.50
Others	0.92	0.81	0.92	0.84	1.81	2.07	1.88	1.96	0.08
Pulses Total	**28.88**	**28.87**	**30.49**	**27.24**	**31.66**	**31.28**	**31.26**	**35.64**	**4.38**

Source: *Seed Division, Min. of Agri. & FW (DAC&FW), R- Requirement, A – Availability*

4.4 New Initiatives under NFSM-Pulses

ñ*The Committee for Monitoring Actions/ Strategy for Increasing Pulses Production".* To enhance production of pulses in the country, availability of quality seeds SRR of latest/ promising varieties VRR and adoption of recommended technologies (TOT) has been viewed a major bottleneck. The committee under the Chairmanship of Dr. Ashok Dalwai, Additional Secretary, Govt. of India, following strategic interventions to address the seed sector during 2016-17 have neen initiated;

4.4.1 Enhancing Breeder Seed Production

As a major initiative to address SRR/VRR constraints with budgetary allocation of Rs. 20.39 crore EBSP programme has been started in projectile mode for a period of 03 years (2016-17 to 2018-19) in 08 states with 12 centers at Rajasthan (ARS, Kota/RARI-Durgapur), Bihar (BAU, Sabour), Maharashtra (ARS-Badnapur/MPKVV-Rahuri), Madhya Pradesh (JNKVV, Jabalapur/RVSKVV, Gwalior & IIPR-RS Phanda), Odisha (ARS, Berhampur), Uttar Pradesh (ICAR, IIPR, Kanpur), Andhra Pradesh (ARS-Lam), Karnataka (UAS, Dharwad).

Crop-wise/Centre-wise targets and achievement for quality seed production and infrastructure created at each location is given below *(Table 4.5 & 4.6).*

(Table-4.5): All India-crop-wise additional breeder seed production targ.& achiev.

(Qty.: qtl)

Crops	2016-17		2017-18		2018-19	Total		
	Target	Ach.	Target	Ach.	Target	Target	Ach.	% Ach.
Tur	425	978	157	548	168	750	1526	203
Urd	317	720	183	304	212	712	1024	144
Mung	490	790	195	374	244	929	1164	125
Gram	2140	2917	235	3241	277	2652	6158	232
Lentil	165	250	140	205	132	437	455	104
Pea	180	350	68	190	73	321	540	168
Total Pulses	**3717**	**6005**	**978**	**4862**	**1106**	**5801**	**10867**	**187**

Source: *ICAR-IIPR, Kanpur*

- **Infrastructure created under EBSP:** Breeder seed infrastructure strengthening comprises of several need based items at different centres such as works (threshing floors), Seed Processing Plants (SPP), Farm implements (tractors, sprinkler systems, power sprayers, Rotavator, BBF Planter, Ridge Planter, Storage godown, irrigation channel, fencing, bore-well, power thresher, seed-cum ferti-drill, pick-up van, irrigation pipes, hydraulic trolley, gravity separator, weighing machines, combine harvester).

(Table-4.6): Infrastructure: Strengthening of seed production farms

Allocation (Rs. Crore)

States	Institutes		Infrastructural Activities			
		Alloc.	CW	SPU	FI	Total
Madhya Pradesh	ICAR-IIPR, RS-Phanda, Bhopal	2.75	02	01	02	05
	JNKVV, Jabalpur	1.90	06	-	02	08
	RVSKVV, Gwalior	0.92	02	-	17	19
Bihar	Agril. University, Sabour (Bihar)	1.95	03	01	02	06
Rajasthan	ARS, Kota Agri. University, Kota	1.80	05	02	08	15
	RARI, Durgapur, Shri Karan Narendra Agri. University, Jobner	1.47	02	02	04	08
Maharashtra	Agril. Research Station, Badnapur, VNM Krishi vidyapeeth Parbhani	1.45	05	01	01	07
	MPKVV, Rahuri	1.58	04	-	05	09
Uttar Pradesh	ICAR-IIPR, Kanpur	1.65	04	01	-	05
Andhra Pradesh	Agril. Research Station, LAM, ANGRAU	1.75	03	02	-	04
Karnataka	UAS, Dharwad	1.77	-	-	03	03
Odisha	Agril. Research Station, Berhampur, OUAT, Krishi Bhubneshwar	1.40	03	01	01	05
Total- 08	**12**	**20.39**	**39**	**11**	**45**	**94**

SPU-Seed Processing Unit; FI-Farm Implements; CW-Civil Work; Alloc.-Allocation

4.4.2 Creation of Seed-Hubs

i) Creation of Seed-Hub

- To enhance the quality and quantity of pulses seed in the country, a project on creation of seed-hubs (2016-17 to 2018-19) has been initiated under (NFSM) with the mandated objectives and targeted seed production of latest varieties (150 locations in 24 states, at ICAR Institutes 07, ICAR-AICRPs centers -46, KVKs-97) across 24 states (Andhra Pradesh, Assam, Bihar, Chhatisgarh, Gujarat, Haryana, Himachal Pradesh, Jharkhand, J&K, Karnataka, Kerela, Manipur, Maharashtra, Madhya Pradesh, Nagaland, Odisha, Punjab, Rajasthan, Tamil Nadu, Telangana, Tripura, Uttar Pradesh, Uttarakhand and West Bengal) in the country. Each seed hub has to produce 1000 qtls of seed per year.

- With Budgetary allocation of Rs. 225.31 crores, each Seed-Hub has a financial assistance of Rs. 1.50 crore (infrastructure- Rs. 50 lakh for Storage of seeds/processing + Rs. 100 lakh revolving fund towards production, procurement, processing, of seeds during 2016-17 and 2017-18).Almost 90% of infrastructure has been completed and production has already started from 2016-17.

- Crop-wise/Centre-wise targets for quality seed production and state-wise permanent structure/Seed Processing Units (SPU) created are given below (Table-4.7)

(Table-4.7): All India-Crop-wise seed production target and achiev.under seed-hub

(Qty.: in qtl)

Crops	2016-17		2017-18		2018-19	Total		
	Target	Ach.	Target	Ach.	Target	Target	Ach.	% Ach.
Pigeonpea	15750	6865	25540	17927	31100	72390	24792	34
Urd	8675	4553	15850	15520	18600	43125	20073	47
Moong	16225	5857	28900	21050	34100	79225	26907	34
Chickpea	20510	11921	28700	39058	34150	83360	50979	61
Lentil	7325	4642	11550	9821	13700	32575	14463	44
Fieldpea	9550	1754	12530	4826	14500	36580	6580	18
Lathyrus	150	55	250	532	350	750	587	78
Rajmash	350		450	851	550	1350	851	63
Cowpea	900	222	2150	1316	2050	5100	1538	30
Mothbean	150	46	550	475	700	1400	521	37
Horsegram	400	64	600	425	650	1650	489	30
Total Pulses	**79985**	**35979**	**127070**	**111801**	**150450**	**357505**	**147780**	**41**

Source: ICAR-IIPR, Kanpur

4.4.3 Seed Village Programme

- To address critical input, the seed village programme has been operationalised to improve the quality and stock of farm saved seeds of pulses enhancing crop production/productivity. To upgrade the quality and varieties of farm-saved seeds which is about 80-85% of the total seed used, of cluster of 50 farmers @ 1 acre is provided with 60% financial assistance towards foundation/certified seed of pulses for production of certified/quality seeds. The farmers are also imparted training on seed production technology.

- During 2017-18 the seed production programme was conducted in >9 lakh ha area by distribution of 7 lakh qtls of seed. In all about 28 lakh farmers were benefitted in >1 lakh villages of the country. The state-wise detail is as under (Table-4.8).

(Table- 4.8): Seed distribution under Seed Village Programme (2017-18)

S. No.	State Agency name	Area (in ha)	F/C seed distribution (qtls.)	Qty. of Seeds Produced (qtl.)	No. of Seed Villages Organized	Total (M+F)
1	Tamilnadu		102771	228240	3258	450919
2	KOF,Karnatka	551.2	618	0	269	1378
3	ASC-Khrif	44400	16299	774600	1414	212100
4	ASC-Rabi	51450	7980	71100	1715	256290
5	ASC-Summer	19185	6171.6	369718	897	90526
6	ASSCA	6440	2576	80500	161	7793
7	Uttar Pradesh (K)	27350	8997	668189	15971	68376
8	Uttar Pradesh I	46564.8	46127	904794	25095	116412
9	IISS, Mau Uttar Pradesh	2699	2645	47678	317	6887
10	Chhattisgarh	173093	49805	1069901	4045	158841
11	Telangana	37650	26562	791495	3765	94125
12	Madhya Pradesh	196838	137612	1308655	7945	415506
13	Bihar (K-17)	18383	5430.1	425355	638	41294
14	Bihar(R-2017-18)	16325	15459	397720	719	52502
15	Uttarakhand K-17	4183	1274	19380	2850	15625
16	Uttarakhand R-17	9057	8467	132898	4256	23957
17	MSSC I	6772	88968	1514631	16697	286277
18	MSSC(K)		1768	23576	1433	5894
19	Andhra Pradesh	19370	12201	539040	1937	48425
20	RSSC-K	33167	8065	283548	1415	141456
21	RSSC-R	46581	42291	1319117	1165	116452
22	RSSC-zaid/ summer	2915	583	16300	72	7286
23	Himachal Pradesh	32664	32664	580721	1868	137647
24	Jammu & Kashmir K-17	28208	12491	727253	804	70913
25	Jammu & Kashmir R-18	45960	41112	0	938	124645
26	NSC		0	22022	189	3344
27	IARI, Karnal	52.8	6.6	2376	8	115
28	Odisha	9604	1921	104750	137	9604
29	Meghalya	32815	5913	237980	275	39625
30	Nagaland K-17			3246	27	1350
	Total	**912278**	**686777**	**12664783**	**100280**	**3005564**

Source: Seed Division, DAC&FW, N. Delhi

(Table-4.9): Crop-wise Seeds distributed and produced under SVP during 2017-18

(Quantity- 000 Qtls)

Crop	Production	Distribution	% Distributed
Lentil	19.94	1.37	6.89
Gram	925.40	83.33	9.01
Peas	6.78	1.07	15.74
Arhar	76.61	1.96	2.56
Moong	245.91	9.09	3.70
Urd	65.14	17.40	26.72
Moth	58.92	1.47	2.50
Rajmash	3.26	0.37	11.31
Lathyrus	0.84	0.06	7.61
Lobia	7.51	0.46	6.10
Total	**1410.32**	**116.59**	**8.27**

Unit – V
Production and Sustainability Constraints Identified

Based on the review of the planned agricultural development programmesunder NFSM-pulses/RKVY/BGREI etc., across the states, Mid-term evaluation, Impact evaluation of NFSM and studies /NLMT reports of Directorate of Pulses Development on reasons for low production, coverage and productivity in pulses, the policy initiatives/interventions were taken under four major constraints/categories viz., ***i) Production ii) Inputs iii) Marketing and iv) Technology dissemination.***

5.1 Constraints related to production

Production potential exhibited under different crops in analysis of yield gaps among major states, districts and within district; under the FLDs were considered as production constraints. Here complete package technology i.e. integration of all components viz. timely sowing, high yielding varieties, fertilizer management based on soil testing (including foliar nutrition), rhizobium inoculation, weed management, IPM etc., programme were felt necessary to be pursued vigorously for adaptation (*Table-5.1 and 5.2*).

(Table-5.1): Technological yield gap exhibiting the production related constraints- FLDs.

(Yield: kg/ha)

Crop	Yield (kg/ha)			Gap over FP		Gap over SAY	
	IP	FP	SAY	Actual	%	Actual	%
Pigeonpea	1394	1078	863	316	29	530	61
Chickpea	1502	1244	907	257	21	594	66
Rice fallow Chickpea	1275	960	976	315	33	299	31
Mungbean(Kh)	781	608	435	173	28	345	79
Mungbean (R)	1398	1228	704	170	14	694	99
Mungbean (RF)	960	723	532	237	33	428	80
Mungbean Summer/Spring	931	559	674	372	66	257	38
Urdbean (Kha.)	813	622	368	191	31	445	121
Urdbean ú	1203	986	774	217	22	429	55
Urdbean (RF)	1185	1002	774	183	18	411	53
Lentil	1289	966	777	323	33	512	66
Field pea	1225	933	904	292	31	321	36
Average (All Pulses)	**1163**	**909**	**724**	**254**	**30**	**439**	**65**

Source- Pulses in India : Reterospect and Prospects -2018, GoI, DPD, Bhopal
(Ave. 2013-14 to 2015-16); State Average Yield (SAY-E&S (Ave. 2011-12 to 2015-16)
IP: Improved Practice, FP:Farmers Practices.

(Table-5.2): Yield gap exhibiting the production related constraints among the states

(Yield-kg/ha)

Crop/Season	National Yield	Highest/ Lowest Yield	States > National Avg.	States < National Avg.
Total Pulses	835	HP (1338) /J&K (397)	AP, Bihar, Gujarat, HP, Jharkhand, kerela, MP, Punjab, Telengana, UP, Uttarakhand, WB	Assam, CG, Haryana, J&K, Karnataka, Maharashtra, Odisha, Rajasthan, Tamilnadu,
Total Kharif	654	Kerela (1499) / J&K (373	Assam, Bihar, Gujarat, Haryana, HP, Jharkhand, kerela, MP, Punjab, Tamil nadu, Telengana, UP, Uttarakhand, WB	AP, CG, J&K, Karnataka, Maharashtra, Odisha, Rajasthan
Total Rabi	994	HP (2198)/Odisha (516)	AP, Gujarat, Jharkhand, HP, Rajasthan, MP, Telangana, UP, WB	Assam, Bihar, CG, Haryana,J&K, Karnataka, Kerela, Maharashtra, Odisha, Punjab, Tamil nadu, Uttarakhand
Tur	937	MP (1297)/ HP (360)	Bihar, Gujarat, Haryana, Jharkhand, Kerela, MP, Rajasthan, TN, UP, Uttarakhand, WB	AP, Assam, CG, HP, Karnataka, Maharashtra, Odisha, Punjab
Mungbean (K)	429	WB(900)/ Karnataka (237)	AP, Assam, Bihar, MP, Gujarat, Karnataka, UP, Punjab, TN, Telangana, WB	CG, Odisha
Urdbean (K)	630	Jharkhand (918)/ CG (320)	AP, Bihar, Gujarat, Jharkhand, MP, TN, Telangana, Uttarakhand, WB	CG, Haryana, HP, Karnataka, Maharashtra, Odisha, Punjab, Rajasthan, UP
Gram	1055	Telangana (1456) / Karnataka (600)	AP, Gujarat, HP, Jharkhand, MP, Punjab, Telangana, Rajasthan, UP,WB	Assam, CG, Haryana, Karnataka, Maharashtra, 53rhar53, Tamilnadu, Uttarakhand
Urd (Rabi)	764	Madhya Pradesh (1400)/Chhattisgarh (264)	AP, MP, Telangana, WB	Assam, CG, Gujarat, Karnataka, 53rhar53, TN, UP
Mungbean (Rabi)	618	MP (1203)/ Chhattisgarh (234)	AP, Assam, Bihar, MP, Punjab, Telangana, UP, WB	Bihar, CG, Gujarat, Karnataka,Odisha, TN
Lentil	1008	Rajasthan (1408)/ CG (325)	MP, Rajasthan	Assam, Bihar, CG, HP, Jharkhand, Odisha, Punjab, Uttarakhand, WB

Source- *Pulses in India : Reterospect and Prospects -2018, GoI, DPD, Bhopal*

Based on the production related constraints, state-wise interventions were identified and States Annual Action Plan (AAPs) were approved accordingly *(Table-5.3).*

(Table-5.3): Identified production related constraints and their interventions

States	Production / constraints	Crop	Loss percentage	Measures adopted / interventions made
UP, MP, PB, Haryana	Mid-season cold waves and terminal heat during Rabi	Gram, Lentil Pigeonpea	10-40%	Tolerant Varieties, MIS Intercropping
MP, MS, Guj, AP, TN	Inundation of water in black cotton soils during heavy rains sub-optimal nutrient uptake	Pigeonpea, Urd,Mung	10-50%	Planting under BBF Planting under Furrow Irrigated Raised Bed (FIRB) Inter-cropping RCT provisions
All states	Micronutrient deficiency (Zn, Fe, B, and Mo) ï unbalanced use/seldom soil test; Quality issues	All Pulse crops	-	INM provided @ Rs.500/ha
MP, MS, Guj, AP ,Karnataka, UP	Sulphur deficiency ; inadequate availability of Gypsum or pyrites	All Pulse Crops	-	@ Rs.750 per/ha provision
UP, MP, Bihar, JH., Punjab, Haryana	Podfly and maruca	Pigeonpea	10-50%	IPM provision made
MP, UP, Bihar, Jharkhand	Fusarium wilt	Chickpea Tur & Lentil	20-25% 10-15%	IPM seed treatment
All States including MP	YMV & Powdery mildew	Urdbean&Mung bean	10-50%	Rest. Varieties method of planting ï IPM
UP, Bihar, MP, Jharkhand, RJ, CG, Haryana	Stray cattle/ Blue bull meanace	All Pulse Crops		Solar fencing under RKVY Local initiative
All states	Region specific technologies-Pigeonpea on bunds transplanting/ intercropping etc.	All Pulse Crops		Minikit provided, awareness and popularize these technologies through NFSM-Pulses

Source- *Pulses in India : Reterospect and Prospects -2018, GoI, DPD, Bhopal*

- **Cluster Frontline Demonstration: Pulses**

Government has initiated National Level Cluster Frontline Demonstrations on pulses, through Krishi Vigyan Kendra under 11 Agriculture Technology Application Research Institute (ATARIs) through 549 KVKs to demonstrate the production potential of new varieties and the related technologies; increasing production through area expansion and productivity enhancement in a sustainable manner in the identified districts of the country; restoring soil fertility and productivity at the individual farm level; and enhancing farm level economy (*i.e.* farm profits) to restore confidence amongst the farmers.

Cluster FLD on Pulses (minimum 10 ha each) by ATARI (*Rs. 26.11 Crore* for *2017-18*) is operational in 31366 ha area @ Rs. 7500/ha (Rs. 750 for monitoring + literature + field day) across the country.

The transfer of technology through CFLDs have increased yield levels shown upto 42% and 54% over local check and normal yield. Crop-wise details of CFLDs conducted, yield gaps and varieties demonstrated during 2016-17 is given below (Table-5.4 to 5.5).

(Table-5.4): All India CFLDs targets and achievement (2015-16 to 2018-19)

(Area: ha)

Year	Target	% Area Increase from 2015-16	Achievement
2015-16	15382		13528
2016-17	31000 (By 534 KVKs)	102	29008
2017-18	31366 (By 549 KVKs)	103	30366
2018-19*	34750 (By 578 KVKs)	126	-

Source: *ICAR-ATARI*

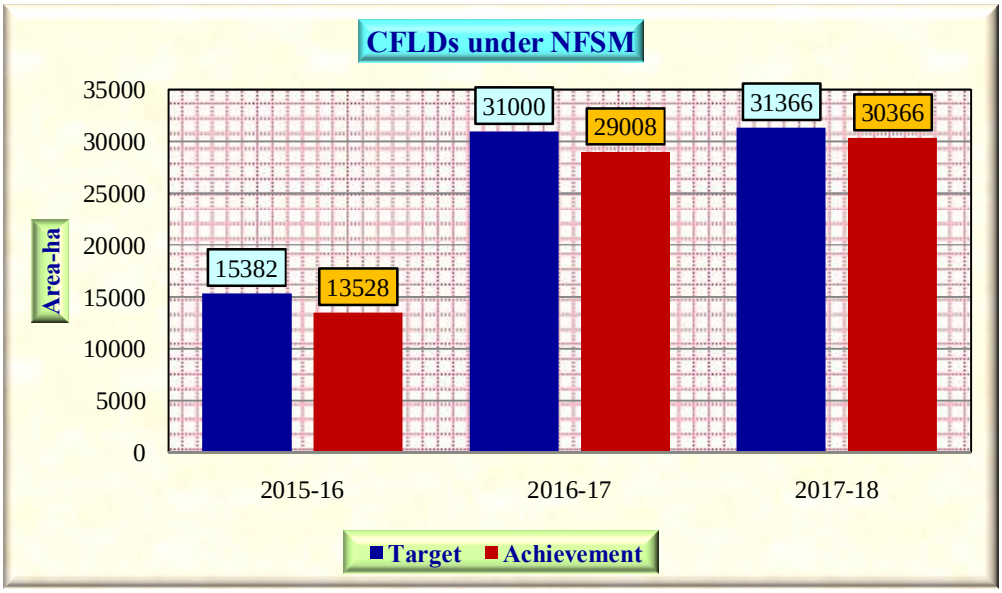


Fig.-5.1: All India CFLDs Targets and Achievement (2015-16 to 2018-19)

(Table-5.5): All India: Varieties Demonstrated under CFLDs

Crop	Variety
Pigeonpea	TJT-501, AL-201, Malviya Arhar-13, Asha, UPAS-120, NA-2, BSM3-736, GRG-811
Blackgram	Mash 114, UG 218, Shekhar, PU-31, AKU-15, IPU-94-1,Shekar,PU-19
Greengram	MH421, Pant Moong 5, IPM 2-3,Tripura Moong-1, MGG-347, Uttara,GM-4,KKM-3, SML-668, SML-832, HUM-16, Samrat
Horsegram	BirsaKulthi, Pavur-2, Indrakulthi
Rajmash	WazejRajmash, Tripura Rajmash Sel-1
Mothbean	RMO-257, CZM-2
Lentil	HUL 57, DPL 62, L 4594.
Field pea	Prakash, Rachna, Anupam, Shalimar pea
Chickpea	JG 16, HC1, GNG 1581, HC 1, HC 5, JAKI 9218, Vijay, Vishal, Digvijay, NBEG-3, BDNG-797,GG-2, GJG-3, GG-5, JGG-1, GG-5
Blackgram	LBG 752, LBG-787, GBG-1, PU-31
Greengram	LGG460, WGG-42, TM96-2, MGG-295,GG- 2, Co-4,CO-4, IPM-99-125

(Table -5.6): Cluster FLD on Pulses 2017-18

(KVK-Nos.; FLDs-Area in ha; Budget-Rs. In Lakhs)

Implementing Agency/Zone	NFSM-Pulses		
	KVK	FLDs	Budget
ATARI-I (Ludhina)	52	1522	125.46
ATARI-II (Jodhpur)	49	3520	296.31
ATARI-III (Kanpur)	68	4220	354.80
ATARI-IV (Patna)	62	4350	360.36
ATARI-V (Kolkata)	49	3080	255.81
ATARI-VI (Guwahati)	32	1510	127.26
ATARI-VII (Barapani)	16	880	78.81
ATARI-VIII (Pune)	67	3810	315.36
ATARI-IX (Jabalpur)	**63**	**4440**	**365.91**
ATARI-X (Hyderabad)	58	2750	222.66
ATARI-XI (Banglore)	33	1284	108.51
Total (2017-18)	**549**	**31366**	**2611.25**
Total (2016-17)			

5.2 Constraints related to inputs

- Quality and timely availability of critical inputs seeds, varieties, bio-fertilizers, micro-nutrient and critical irrigation were identified across the states and felt necessary to be addressed as one of the major strategies under this category.

- Non-availability of location specific/recommended high yielding varieties quality certified seeds at all levels as the production and distribution is usually for the very old and known varieties which are generally poor performers.

- Poor availability of quality/certified seed/poor varietal development/limited varietal choise during last 10 years & poor varietal diversification of pulses in India. Crop-wise gap of availability of quality certified seeds, varietal development & varietal choice last one decade & Poor varietal diversification are given table 5.7 to 5.10.

- Non-availability of quality inputs at village level (sometimes even at block levels); in-flow of spurious and sub-standard seeds, rhizobium culture/PSB, micro-nutrients, bio-intensive/bio-pesticides.

- Non-popularization/lack of demonstration and availability of implements like light seed drills, zero-till machine/rotavator/and ridge-maker (custom-hiring or community run-basis) in big areas of Bundelkhand region of U.P., and M.P.

- Pulses respond favorably to 1-2 critical irrigations for good yields, however, lack of power supply/low-voltage, non-opening of canal and less priority to the crop-group in addressing the water carrying/micro-irrigation related problems.

- Lack of domestic milling support and Post Harvest Technology (PHT)/value addition support.

(Table-5.7): Requirement and availability of certified seeds during 2016-17

Quantity : Thousand Tonnes

Crop	Requirement	Availability	Deficit/Surplus
Gram	181.43	148.55	**-32.87**
Moong	5.94	7.70	1.75
Urd	7.82	8.09	0.27
Arhar	0.13	0.62	0.49
Lentil	13.05	10.56	-2.49
Peas	21.17	18.28	-2.88
Cowpea	0.44	0.70	0.26
Horsegram	1.56	1.56	0.00
Indian Bean	0.13	0.13	0.00
Khesari	0.62	0.64	0.02
Rajma	0.62	0.56	-0.06
Total Pulses	**232.91**	**197.39**	**-35.51**

(Table-5.8): Poor Varietal Diversification (VRR)

State	Crop	Prevalent Varieties	Recommended Varieties (ICAR/SAUs)
Madhya Pradesh	Pigeonpea	TJT 501, ICPL 87119, Non-descript	TJT-501, ICPL 87119, ICPL 88039, JA 4
	Urdbean	T-9, HFP8909, IPU-94-1, Non-descript	KU-96-3, PU 30, MASH 338
	Moongbean	HUM-1, HUM-12, Non-descript	HUM 1 JM 721, TARM 1, HUM 6
	Chickpea	JG 11, JG 16, JG 130, JAKI 9218	JG-130, JG-322, JG 63
	Lentil	JL 1, Mallika, DPL 62, IPL 81	JL1, K-75, IPL 406
	Peas	Arkel, Azad-1	KPMR-400, IM 9101 (Subhra), Rachna

State	Crop	Prevalent Varieties	Recommended Varieties (ICAR/SAUs)
Maharashtra	Pigeonpea	ICPL-87119, ICPL-8863, BSMR-736, Vipula	ICPL-87119, ICPL-8863, BDN-708, BDN-711
	Urdbean	TAU-1	BDU-1, TPU-4, TAU-1
	Moongbean	Kopargaon-1, Utkarsha	BPMR-145, BM-4, 2002-01, Vaibav
	Chickpea	Chaffa, Agnirekha	BDN-9-3, PKV-2, 5, 4-1, JAKI-9218
Maharashtra	Other Kharif Pulses	-	Seena, Maan (Kulthi)
	Other Rabi Pulses	Ratna local(Khesari), Parvati (Cowpea)	Ratna (Khesari), Pusa Komal (Cowpea)
Rajasthan	Pigeonpea	ICPL-151, ICPL-87,Gwalior-3	ICPL-151, ICPL-87, Gwalior-3,
	Urdbean	T-9, Pant U 19	T-9, RBU 38, Pant U 19
	Moongbean	K-851, RMG-62, RMG-268	K-851, RMG-62, RMG-268
	Chickpea	Dahod Yellow, RSG 888	RSG 902, GNG 1581, Pratap Raj Chana, RSG 991,
Uttar Pradesh	Pigeonpea	Rajeev Lochan, PAU-881, VL Arhar-1, Pusa-992, Malviya Chamatkar (MAL-13)	NDA-2, Pusa-992, MAL-13, PAU-881, NDA-88-2, KA-32-1, K91-25
	Urdbean	Pant Urd-31 & 40, LAM-709, Azad Urd-3	NUL-7, Vallabh Urd-1, Azad urd-1, Uttra, Shekhar-2, 3
	Moongbean	IPM-02-3, Pant Mung-6, TM-96-2, Meha	KM-2195, MH-421, HUM-16, Pant Mung-4, Pusa-9531, Pusa Vishal
Uttar Pradesh	Chickpea	RVG-101, 210, PKV Kabuli-4,RSG-991, Pusa-1103, HK-94-124	GNG-1969, GNG-1958, WGG-3, HK-2, RSG-963, WCG-10, JGK-1, RSG-88
	Lentil	Pant Lentil-7, PL-02, HUL-57, VL-507	KLB-303, KLB-320, PL-8, HUL-57, IPL-406, Pant Lentil-4, DPL-15
	Peas	Sapna, VL Matar-47, VP-101	VP101, Pant P 13, IPF-5-19, SKNP 04-09
Andhra Pradesh	Pigeonpea	LRG-41, PRG-158 & ICPH-2740	LRG-41, PRG-158
	Urdbean	PU-31, LAM, TM-76-2	PU-31, LBG-752 & TM-76-2
	Moongbean	LGG-460, TM-96-2	LGG-460, TM-96-2
	Chickpea	JG-11, JAKI-9218 & PBH-4	JG-11, JAKI-9218 & PBH-4
Karnataka	Pigeonpea	BRG-1, BRG-2	ICP 8863 (Maruthi), ICPL 87119 (Asha), ICPL 87 (Pragathi)
	Urdbean	TAU-1, T-9	Kargane-3, T-9, LBG-625
	Moongbean		PS-16, Pusa baisaki
	Chickpea	Annigeri-1, JG-11	Annigeri-1, JG-11, KAK-2, Vishal
	Kulthi	Hebbal Local	KBH-1, PHG-9
Gujarat	Pigeonpea	Gujarat Tur-100, Gujarat Vegetable Tur-1	BDN-2
	Urdbean	TPU-4, Gujarat Urd-1	T-9
	Moongbean	Gujarat Mung-3, CO-4	GM-4, K-851
	Chickpea	GG-1, Chaffa, Dahod Yellow, ICCC-4, GJG-3	Gujarat Gram-4
Telangana	Pigeonpea	Asha, ICPL 87119, ICPL 85063, PRG 158, WRG 65, MRG 1004, LRG 41 & LRG 158	Asha, ICPL 85063, LRG 41 & PRG 158
	Urdbean	PU 31, LBG 752, LBG 787	PU 31, LBG 752, LBG 787
	Moongbean	LGG 460, MGG 295	LGG 460, MGG 295, MGG 347 & 348, MGG 42
	Chickpea	JG 11, JAKI 9218	JG 11, JAKI 9218

5.3 Constraints related to marketing

- Distress sale, poor minimum support prices compared to cost of cultivation, exim policy issues, non-accessibility to market, post harvest losses etc., were identified as major marketing related constraints, especially in major pulse producing state. The policies to provide remunerative prices to the farmers including the procurement facilities were felt vital by the government.

- Wide price-gap between the whole and processed/milled product in the chain of farmer/producer-buyer-consumers, vulnerability to stored grains due to lack of scientific storage facilities at domestic level, lack of support to small scale processing, packaging, value addition and non-linking of pulses to procurement policy commensurate to staple food grains like wheat and paddy, are the other major market related constraints.

5.4 Constraints related to extension and their interventions

- Lack on guidance for proper certified seed production/variety identification, insect-pest/diseases identification and management phases, importance and procedure of seed treatment/rhizobium inoculation, lack of information/knowledge on current advances in production, management technology, and also poor or no knowledge about organizing seed production and its protection for succeeding crop.
- Poor knowledge base on nutrient use efficiency (NUE), IPM, method of preparation of spray solutions and multiplicity of extension system on IPM, esp., pesticide dealers etc., identified as technology transfer or extension related constraints.
- Depleting public sector extension support, non-positioning of skilled/sound extension functionaries at the grass-root level (Block/villages) the technology dissemination/extension activities have adversely affected.
- The extension workers also lack advances in technological sector and there is a gap of HRD activities. Quality cluster demonstrations have been an observation across the board.
- Interface between State Department of Agriculture (SDA) and State Agricultural Universities (SAUs), ICAR (ATARI) and Department of Agriculture & Cooperation DAC and other allied state level/district level field functionaries also seems to be bleak and visible with the absolute communication gap in conduction/organization of FLDs, and cluster demonstrations, FFS, IPM, etc.

5.5 Suggestions

5.5.1 Input Related Interventions

Input related constraints are the major bottlenecks in increasing area and production of pulses in the country, following may, therefore, be suggested:

- A tie-up arrangement amongst state + ICAR (breeder seed producers), Seeds and NFSM Divisions, Government of India, Department of Agriculture, Cooperation & Farmers Welfare need to be more strengthened for advance indenting of breeder seeds. For production of foundation and certified seed, besides making cent-per cent utilization of

centrally sponsored schemes on pulses (NFSM). States need to enter in to MoU with the private seed producers, NGOs and FPOs/SHGs/Fos/FIGs etc.

- On going ***seed hub programme*** project under NFSM, operational since 2016-17, need serious implementation by KVKs and other associated agencies for their sustainability.
- To ensure the timeliness, availability of quality inputs at cost effective and approachable common panchait/village place, each potential district, its blocks should identify village-clusters, formulate Pulses Self-Help Groups (PSHG). Under the chairmanship of Rural Agriculture Extension Officer (RAEO) or ADO. A committee, comprising of representatives from PSHG, Cooperative society, local rural bank, pesticide dealer, block Electricity Board and panchayt representative may be constituted. The committee should prepare season-wise Strategic Pulses Production Plan (SPPP), delineating input requirement, much in advance. The SPPP should be fine-tuned by the ADO-further refined by the Deputy Director Agriculture for final appraisal/review/approval by Chief Executive Officer/District Magistrate, Chairman of DFSMEC/ATMA.
- Supply of electricity for critical irrigation at the critical period of crop growth, credit support and all such vital input aspects may be properly addressed in an institutionalized manner by the DFSMEC.

5.5.2 Production Related Interventions

- Based on the analysis of production and productivity on all India basis (crop-wise analysis), ten potential districts each for pigeonpea, chickpea, blackgram, greengram and lentil, 60rhar60ized60 as the major contributors (5-40 per cent of total all India production in the specific pulse crop), may be adopted by the respective SDAs/SAUs. These districts may be saturated with the entire pulse related development and research programme on cent per cent implementation basis. At least 20 number of each FLDs, FFS,IPM, infrastructural development and minikits demonstration need to be taken in each block/panchayat on cluster demonstration basis: Crop-wise ten potential districts are indicated below:

(Table–5.9): Crop-Wise Potential Districts With 20-30% Prod. Shareï All India

Crop	Districts
Gram	Kurnool, Vidisha, Sagar, Raisen, Ashok nagar, Dewas, Rajgarh, Dhar, Chhatarpur, Panna
Arhar	Prakasam, Kurnool, Betul, Fatehpur, Hamirpur, Seoni, Sonbhadra, Mirzapur, Jabalpur, Morena
Moong	Jagatsingpur, East Godavari,Nayagarh, Kedrapara, Puri, Bolangir, Vizianagarm, Thiruvarur, Mahoba, Jhansi
Urd	Krishna, Lalitpur, Guntur, Jhansi, Mahoba, Srikakulam, Unnao, Damoh, Sagar, Jabalpur
Lentil	Bahraich, Sagar, Vidisha, Panna, Hamirpur, Balrampur, Jhansi, Damoh, Chitrakut, Shivasti
Field Pea	Jalaun, Lalitpur, Jhansi, Mahoba, Panna, Sagar, Chhatarpur, Narsingpur, Seoni, Allahabad
Total Pulses	Raisen, Dewas, Rajgarh, Dhar,Vidisha,Guntur, Panna, Bahraich, Mahoba, Betul

To address the production related constraints amongst the pulse growers, usually with low socio-economic status (SES), poor resource base and least exposure to human resource development (HRD), followings may be suggested:

i) Strong Development ï Research interface need to be in place to intensify research efforts to evolve still high yielding varieties and management recommendations suited to dry farming/moisture-stress conditions/utera under rice-fallow areas and for different agro-ecological situations (AESs).

ii) There is need to evolve crop-management modules and low cost technology with best inter-cropping recommendations for various agro-climatic and agro eco-situations). These modules may be helpful to meet-out any contingent situation associated with such production constraints.

iii) State Agriculture University/Agriculture Colleges/Zonal Research Station (ZRSs)/Krishi Vigyan Kendres (KVKs), etc. in consultation with the State Department of Agriculture now need to develop season-wise nutrient-use efficiency (NUE) plan for each districts on AES basis. Instead of simple recommendations of fertilizers based on the nutrient management practices, there is need to group and plan the practices as:

- Match between nutrient supply from soils and demand by crop on the basis of soil testing and optimization of split fertilizer application and soil and plant nutrition factors (soil moisture, pH, temperature, physical properties etc.).
- Improving nutrient application methods such as broad-casting, band placement, split application).
- Improving physical properties of fertilizers and use of inhibitors to reduce losses.
- Improving soil conditions, crop and water management practices, tillage, regulating soil moisture regimes, crop-rotations, weed control, residue management, break and catch crop etc.

iv) To be more serious on the sustainability of cropping system and judicious use of natural resources in the rainfed regions, depleting ground water level and frequent drought, State Department of Agriculture may draw the successful experience/results from within the best districts.

v) State may put a system and policy frame for pulses cultivation. This strategy would not only benefit the small and marginal pulse growers but would prove a boon to statesô proposed crop-diversification programmes involving horticulture etc.

vi) Liberal credit policies and extending insurance cover under PMFBY with low premium offered by the Government of India also need to be 61rhar61ized6161 addressed by the states.

vii) State Department of Agriculture, in view of the stateôs potential in a particular/group of pulse crop, may constitute a 'Pulse Board' (similar to'Tur Boardô in the state of Karnataka) and procurement policy adopted by A.P. involving private sector, NGO etc, to seriously watch the interest of pulse producer.

viii) The óPulse Boardô could be a multi-disciplinary approach agency taking full care of marketing, domestic level processing, pricing, value addition, Import-Export, and consumption behaviour of states socio-economic-group of farmers.

5.5.3 Marketing Related Interventions

To motivate the pulse growers of different socio-economic-status (SES) in various agro-eco-situations (AES) of the state, following interventions may be suggested.

i) To minimize the price-gap in the chain of producer to consumers, it is important to assign active role and accountability to some institutional buyer like cooperatives, civil supplies, MARKFED etc. State Government may fix a procurement target of at least 20% of the total production in order to build an effective a purchase and price security environment.

ii) The SDAs should strongly put-forth its procurement share during the all India rabi and kharif procurement meetings organized at the behest of National Agricultural Marketing Federations Ltd. (NAFED), Govt. of India, New Delhi.

iii) The 62 rhar 62 iz pulses within the purview of Price support Scheme (PSS) are pigeonpea, gram, lentil, pea, mungbean and urdbean. In view of its major production share in the country, states need to strongly pursue its position to central nodal agency (DAC) for recommendation of more cash credit limit (CCL) to NAFED to be sanctioned by RBI through SBI (up to 75% of hypothecation of stock keeping a margin of 25% in accordance to banking norms).

iv) State Marketing Federations can also initiate a similar PSS system in the larger interest of pulse growers by way of provisioning a revolving fund commensurate to proposed procurement.

5.5.4 Extension Related Interventions

i) Monitoring of pre-TMOP and post-TMOP projects (NPDP/ISOPOM) including ongoing NFSM-Pulses by the Directorate of Pulses Development, Bhopal conclude that pulse growers are usually resource poor, small and marginal group of farmers. The socio- economic status (SES) of this group inhibits them to have an immediate access to technology in put. It is, therefore, in the interest of this group in particular and the enhancement of pulses production and nutritional security of the country in general, under mentioned are suggested:

ii) For strengthening technology dissemination and extension education, potential pulse producing districts/blocks should be identified. In each block, FPOs constituted during XIth and XIIth plan group of progressive farmers, FPOs, SHGs, Cooperatives, NGOs, KVKs, FIGs, Womenôs Group; Agri-business Companies and Input dealers etc should be organized, strengthened to function as local information kiosks or extension education points.

iii) The district agriculture officer (DDA) should facilitate these private sectors in terms of local news papers, departmental scheme details, technical literature, credit and insurance consultancy, TV/internet facilities etc through on-going central sector or

centrally sponsored, State Government run programmes, banks and input dealers in the field of fertilizers, seeds, pesticides, implements etc.

iv) DDA/SDO/ADA to facilitate the group in organizing the meetings at common panchait place, developing of Kharif, Rabi and Zaid **crop-cultivation seasonal action plan** clearly indicating the input requirements. The district administration should also provide all administrative/technical input and help in interactions with all other stake-holders or service providers.

v) A certain percentage (10-15%) of total allocated developmental programmes (central sector/centrally sponsored/state-run) should be assigned to these identified groups (agents). Block demonstration, IPM demonstrations, production of certified seed etc components may also be given to these agencies for more accountability and ownership feelings.

vi) Under the varietal diversification programme commonly known as seed 63rhar63i distribution under the ongoing NFSM programme, at least 10% of the minikits, alongwith the technology package, be given to these Fos/SHGs/FIGs/NGOs. The SDA may also start their own seed 63rhar63i programme.

vii) Each potential block is identified as processing centre and at least one small/domestic dal mill like IIPR dal chakki, CIAE Dal mill may be provided. The responsibility of running the mill is rest with the NGOs/Farmers Organization.

viii) Methodologies and package of practices for improving fertilizer use efficiency (FUE) under various soil conditions and different crops, as brought out by Indian Council of Agriculture Research (ICAR) be documented in vernacular language by the state Directorate of Agriculture under the funds on publicity provided through NFSM-pulses and made available to these groups by the district agriculture officer/farmers.

Unit –VI
Policy Interventions

6.1 Projects/programme on pulses development

With the unabated population increase in the Country, pulses production, the main source of protein/balanced diet particularly for the rural mass also thought to be paralleled in proportionate to population growth.Accordingly the Department of Agriculture, Cooperation & Farmers Welfare launched various development programmes on pulses during different Plan periods.

- **NFSM-Pulses (2007-08)**: From 2007-08 (Rabi), in pursuance of the resolution adopted in 53rd meeting of National Development Council, a Centrally Sponsored Scheme onò National Food Security Mission was launched. It was resolved to enhance the production of rice, wheat and pulses by 10, 8 and 2 million tonnes, respectively by the end of XII Plan. The implementation of the NFSM scheme is continued beyond the XII Plan*i.e.* 2017-18.

- The NFSM aimed at increasing production of rice, wheat and pulses through area expansion and productivity enhancement; restoring soil fertility and productivity; creating employment opportunities; and enhancing farm level economy to restore confidence of farmers of targeted districts. The basic strategies were implementation of interventions in a mission mode through active engagement of all the stake holders at various levels. These interventions includes promotion and extension of improved technologies i.e., Seed, Integrated Nutrient Management (micro-nutrient, soil amendments), IPM and resource conservation technologies along with capacity building of farmers. Flow of fund closely monitored to ensure that intervention reach the target beneficiaries on time, Interventions proposed were integrated with the district plan and target for each identified district was fixed. Constant monitoring and concurrent evaluation were done for assessing the impact of the interventions for a result oriented approach by the implementing agencies.

- **NFSM + Special initiatives (2010-11 to 2013-14)**: To accelerate the pulses production, a centrally sponsored Accelerated Pulses Production Programme (A3P) (2010-11 to 2013-14)-cluster demonstration approach from; Special initiatives for ñpulses and oilseeds in dry land areaò under RKVY during 2010-11; Integrated development of 60000 Pulses villages in Rainfed Areas under RKVY during 2011-12 and ñSpecial plan to achieve 19+ million tonnes of Pulses production during Kharif 2012-13ò were also been implemented.

- Strong Research and Development efforts during XI Plan had spectacular achievement 64rhar64ize more than 20% increase in the production of Pulses at the terminal year of XI Plan (2011-12).

- **NFSM-Pulses XII Plan**: During 2017-18, the Pulses development scheme under NFSM was under implementation in 29 states viz. Andhra Pradesh, Arunachal Pradesh,

Assam, Bihar, Chhattisgarh, Goa, Gujarat, Haryana, Himachal Praedsh, Jharkhand, J&K, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Manipur, Meghalaya, Mizoram, Nagaland, Odisha, Punjab, Rajasthan, Sikkim, Tamil Nadu, Telangana, Tripura, Uttar Pradesh, Uttarakhand and West Bengal with additional production target of 4 Million tonnes by the end of XII Plan (2016-17).

- During 12th Plan, the NFSM with the other four Missions, viz. NMAET, NMSA, NMOOP & MIDH is continued. The pattern of Central assistance under NFSM has been 60:40 per cent up-till 2016-17.

- The Twelfth Plan NFSM (2012-13 to 2016-17), revamped from 2014-15 and is under implementation with five components viz.i) NFSM- Rice, ii) NFSM-Wheat, iii) NFSM-Pulses, iv) NFSM-Coarse Cereals (millets) and v) NFSM-Commercial Crops (Jute, Cotton, Sugarcane).

- A target of an additional production of 25 million tonnes of food grains i.e. from 259.29 MT to 284.29 over the base year of XI Plan (i.e. 2011-12) comprising Rice-10 million tonnes, Wheat ï 08 million tonnes, Pulses ï 04 million tonnes & Coarse Cereals-03 million tonnes, is targeted to be achieved at the end of 12th Plan (2016-17).

- The existing Centrally Sponsored Scheme have also been rationalized and 03 schemes viz. (i) Krishi Unnati Yojana (ii) National Crop Insurance Programme (NCIP) and (iii) Pradhan Mantri Krishi Sinchai Yojana (PMKSY) are operational since 2015-16. NFSM-2015-16 is a part of KrishiUnnatiYojana (State Plan). From 2016-17, the revamped NFSM under State Plan Scheme ï Krishi Unnati Yojana (State Plan) with interim sharing pattern of 60:40 for plains and 90: 10 for hilly states between Centre and State is under implementation in 29 states. A Central Share of Rs. 1700 Crores has been approved during 2016-17.

➢ **The basic strategy of the Mission is to focus on low productivity high potential districts, promote and extend improved technology package, implementation of cropping system centric interventions on technological package, agro-climatic zone wise planning and cluster approach demonstrations,** Further 30% of total demonstrations would be Cropping System Based Demonstration (CSBD) with technical backstopping of ICAR/State Agricultural Universities (SAUs)/ on Rice, Wheat, Pulses; distribution of certified HYV seeds/Hybrid seeds, Resource Conservation Technology (RCT) tools, irrigation machineries/MIS, trainings and undertaking local initiatives to the tune of 9% of total budgetary allocation to improve productivity.

- Special emphasis has also to be given by targeting reclamation of problematic soils, water logging areas and mitigation of adverse effects of climate change for high productivity areas, value chain integration (FPOs), assistance to Custom Hiring Centre (CHCs). 30% of budgetary allocation has to be earmarked for women beneficiaries.

- To ensure equity, of the total budgetary allocation to a district proportionate expenditure under Special Component Plan (SCP) for SCs, Tribal Sub Plan (TSP) ï SMF and Women farmers at 16%, 8%, 33% and 30% respectively is mandatory.

- Assistance for various interventions like cluster demonstrations on improved package of practices, demonstrations on cropping system, cropping system based training of farmers, seed distribution of HYVs , manual sprayer, power sprayer, tractor mounted sprayer, chiseller (deep ploughing), water carrying pipes, mobile raingun, sprinkler set, pump set (up to 10 HP), seed drill, zero till seed drill, multi crop planter, zero till multi crop planter, ridge furrow planter, rotavator, multi crop thresher, laser land 66 rhar 66 i, plant protection chemical and bio pesticides, weedicides, gypsum/ 66 rhar 66 iz-gypsum, bio-fertilizers, micro nutrients, local initiatives are provided under NFSM-Pulses programme.

- Concerted efforts are being made for promotion of cultivation of pulses as inter-crop with cereals, oilseeds, commercial crops.At least 30% of the cluster demonstrations under NFSM and BGREI are being conducted by adopting cropping system approach to promote pulses as second crop in rice fallow areas.

- Formation of Farmer-Producer Organizations (FPOs) is also being promoted particularly to support the small and marginal farmers to offer collective strength for seed production, procurement and access to improved technologies. Besides, for primary processing of pulses, assistance is provided for establishment of mini *dal* mills under NFSM. State Agriculture Universities/ Indian Council of Agricultural Research Institutes/ International Research Organizations are also involved to address various researchable issues of pulses and demonstrations of latest technologies for better yield realization at farmersô field.

- Government of India has allocated Rs.2201.23 crores (CS-1395.00 Cr + SS-806.23 Cr) for NFSM for 2017-18, out of which an amount of Rs. 1371.11 (CS- 850.00 Cr + SS-521.11 Cr) crores is earmarked for pulses.

- **FLD on Pulses through ICAR**-IIPR: Rs. 0.97 crore.

- ***Establishment/Strenghtening of Biofertilizer and Bio-control Production Units (24 centres/Institutes)*** **:** *Rs. 29.61* crores.
- ***FPOs: (111)*** **:** Rs. 52.1084 crores.
- ***Seed Minikit*** **:** Total allocation Rs. 150 Crore

(Table-6.1): Plan-Wise Intervention (VIIIth to XII th Plan)

Sr. No.	Plan Period (VIIIth To XIIth Plan)	States Covered
	XIIth Plan (2012-13 to 2016-17)	
	2012-13 to 2013-14	
1.	National Food Security Mission (NFSM)ï Pulses	16
2.	Accelerated Pulses Production Programme (A3P)	16
3.	Special Plan to achieve 19+ million tonnes of Pulses prod. During *Kharif* 2012-13	08
	2014-15 to 2017-18	
1.	National Food Security Mission (NFSM)ï Pulses 2014-15	27
2.	National Food Security Mission (NFSM)ï Pulses 2015-16	27
3.	National Food Security Mission (NFSM)ï Pulses 2016-17	29
4.	National Food Security Mission (NFSM)ï Pulses 2017-18	29
5.	Seed Hub-ICAR	150
6.	Breeder Seed Production Programme ï ICAR	08
7.	Seed Minikit	NFSM States
8.	Cluster FLDs ï Pulses through 549 KVKs	31366 ha
9.	Establishment/strengthening of Bio-fertilizer and Bio-control Production Units	24 Nos.
10.	Farmer Producer Organization (FPOs)	111 Nos.

(Table-6.2): Recent policy initiatives/interventions taken (2015-16 to 2017-18)

S. No.	Road Map (Interventions/ Initiatives)	Year/ Inception	Allocation (Rs. In Cr)	Remark
1.	Enhanced allocation-NFSM Pulses	2015-16	640.16	> 50% of Total NFSM Allocation
2.	Additional Allocation (Spring/Summer Pulses)	2015-16 2016-17 2017-18	440.00 346.00 577.67	In addition to regular Rabi Programme
3.	Modification in BGREI- Pulses area expansion in Rice Fallows	2015-16	With BGREI allocation	To include cluster demonstration under Cropping System approach (CSBD) in Rice fallows involving pulses.
4.	CFLDs through ICAR/ATARI/KVK	2015-16 2016-17 2017-18	12.00 25.29 26.11	Promotion/adoption of new varieties ICAR-IIPR : 0.98 Cr. Since 2016-17
5.	MSP enhanced substantially	2015-16		(Gram, Lentil) ï Marketing season 2016-17

S. No.	Road Map (Interventions/ Initiatives)	Year/ Inception	Allocation (Rs. In Cr)	Remark
6.	**Seed availability (Strengthening of works/ SPU and farm implements)**			
a)	Enhancing Breeder Seed Production (EBSP) (8 states/ 12 locations)	2016-17 to 2018-19	20.39	To increase BSP from 10000 qtls. to 14000 qtls. (2016-17), 15000 qtls. (2017-18) and 16000 qtls. (2018-19)
b)	Seed Production Incentives (To increase SRR/ VRR)	2016-17 2017-18	200.00 111.50	@Rs. 2500 per qtls. on <10 yrs old varieties
c)	Pulse Seed Hubs (24 states/ 150 centres)	2016-17 to 2018-19	225.00	150 Nos. @ 1000 qtls. per seed hub annum seed production target.
d)	Pulse Seed Minikits distribution (To ensure varietal Replacement)	2016-17	100.00	For 0.4 ha demonstration (Urd, Mung, Arhar-@ 4 kg Gram -@ 16 kg; Lentil-@ 8 kg)
e)	Seed Village Programme	2017-18		(29 states, 638 districts) 60,000 village, 19.55 lakh farmers
7.	**Technology demonstration**			
a)	Increased Cluster demonstration (StatesôAAP)	2015-16 2016-17	Within NFSM Pulse AAP	2015-16 ï 5.10 lakh ha 2016-17 ï 5.50 lakh ha *(for bridging the yield gaps)*
b)	Promotion of minor pulses (Rajmash, Cowpea, Fieldpea, Horsegram etc.)	2016-17	From within EBSP/ Seed Hub and CFLDs	ICAR to Strengthen BSP and identification of varieties *(for exploiting minor pulses) (for bridging the yield gaps)*
c)	CDP (Tur on Rice bunds) (Target- 02 Lha)	2016-17	From within NFSM/ BGREI	Area Expansion
d)	CDP (demonstrations on Ridge and Furrow cultivation, summer mung, Tur transplanting & intercropping)	2016-17	From within NFSM/ BGREI	Popularization of Good Agricultural practices (GAP)
e)	Critical Irrigation (Provision of irrigation under PMKSY, 50% allocation reserved for pulses)	2016-17	Within total allocation of PMKSY	Sprinkler sets and water carrying pipes (to Improve Water use efficiency (WUE)
8.	**Remunerative Prices to pulse growers**			
a)	Loan against warehouse receipts (Pledge Loan)	2016-17	Within Interest Subvention Scheme	Interest free loans against warehouse receipts
b)	MSP and Procurement (Credit guarantee raised from Rs. 9000 Cr to Rs. 19000 Cr)	2016-17	NAFED, SFAC and FCI	45.57 Lakh MT Rs. 10.57 Cr

S. No.	Road Map (Interventions/ Initiatives)	Year/ Inception	Allocation (Rs. In Cr)	Remark
9.	**Extension**			
a)	Advisory on pulses (monthly)	2016-17		DPD, Bhopal ï IYOP 2016 celebrated with training pamphlets on all pulses in Hindi/English
b)	Creation of IT based information portal **(http// dpd.gov.in)**			IYOP 2016 round the year trainings/ workshops were organized. Pulse Bulletins/ pamphlets (bilingual) developed and distributed across the country.
	Effective monitoring	2015-16 onwards	Within NFSM	• Senior Officers Meeting (SOM) under the chairmanship of Secretary, DAC&FW- weekly. • Committee for monitoring actions of road map- under the chairmanship of CEO, NRAA, Govt. of India- fortnightly & monthly. • Video Conferencing by DAC&FW- weekly. • CDDs Review Meeting under the chairmanship of JS (Crops) ï bimonthly.
10.	Effective monitoring	2015-16 onwards	Within NFSM	• Monthly field visits by CDDs & consultants. • Field visits/ monitoring by Director, ATARI; DES (SAUs), Director, IIPR. • ICAR-AGM on pulses/ interface/ seminar/ workshop/ meetings by Directorate of Pulses Development, Bhopal. • Monitoring of seed minikits distribution and FLD/ CFLD by CDDs. • Monitoring of Seed Hubs, EBSP by CDDs.

S. No.	Road Map (Interventions/ Initiatives)	Year/ Inception	Allocation (Rs. In Cr)	Remark
11.	Soil test based promotion of INM/ IPM	2015-16	Within NFSM-Pulses	2015-16 - 29 Lha 2016-17 - 41 Lha
12.	Targeting Rice Fallow Area (TRFA) (Area Expansion)	2016-17	8.85 (2016-17) 203.64 (2017-18)	06 eastern states of Assam, Jharkhand, WB, CG, Bihar, Odisha
13.	FPOs ï Value Addition Chain Development (Marketing/ Value Addition)		52.10	11 States (119 FPOs on pulses)
14.	Enhanced MSP of Pulses	2015-16 to 2017-18	Kharif 2018-19 MSP Arhar-Rs.5675 Urd-Rs.5600 Mung-Rs.6975	The real term exponential growth rates >4% in all five pulses
15.	EXIM policy	2017-18	Import of pulses during 2017-18 declined by 03 MT resulting saving of foreign exchange of Rs. 7698 Cr.	Government has imposed import duties on pulses for the first time in this decade. All varieties of pulses, including organic pulses, have been made ófreeô for export.
16.	District Agriculture Contingency Plan (DACPs) involving pulses	2016-17	-	By CRIDA involving 46 SAUs and 8 ICAR institutions. 676 districts.

(Table-6.3): Interventions under NFSM-Pulses

Sr. No.	Head	Interventions
1.	Technology Demonstrations	• Cluster demonstrations • Cropping system based demonstrations • Front Line Demonstrations by ICAR/SAUs
2.	Seed	• Distribution of HYVs seed
3.	Integrated Nutrient Management (INM)	• Micro-nutrients • Lime/Gypsum/80% WG Sulphur • Lime • Bio-fertilizers
4.	Integrated Pest Management (IPM)	• Distribution of Plant Protection chemicals • Weedicides
5.	Resource Conservation Technologies/Tools	• Power Knap Sack Sprayers • Manual Sprayer • Zero Till Seed Drills • Multi Crop Planter • Seed Drills • Zero Till Multi Crop Planters • Ridge Furrow Planters

Sr. No.	Head	Interventions
5.	Resource Conservation Technologies/Tools	• Rotavators • Chiseller • Laser Land Levelers • Tractor mounted sprayer • Multicrop Thresher
6.	Efficient Water Application Tools	• Sprinkler Sets • Pump Sets • Pipe for carrying water from source to the field. • Mobile Rain guns
7.	Cropping System based trainings	• Four Sessions in a crop season (One before Kharif and Rabi Season & one each during Kharif and Rabi Crops).
8.	Miscellaneous Expenses (Project Management Support & Monitoring)	• Project Management Team & other miscellaneous expenses at District and state level
9.	Local Initiatives	• On project basis, up to 9% of the total allocation to the state
10.	Other	• Specialized projects for high productivity areas • Support to institute/organizations including NGOs in remote areas. • Value chain integration of small producers • Assistance to Custom Hiring Centres • Marketing support for pulses

(Table-6.4): Summary of research project funded under of NFSM-Pulses in year 2017-18

(Rs. in lakh)

S. No.	Project Title	Implementing Agency	Project Duration	Total Allocation	Allocation for 2017-18	Unspent balance/ Revalid .2016-17	1st Release	2nd Release	Location/ Varieties
1	Enhancing breeder seed production for increasing indigenous production of pulses in India (8 states/ 12 locations)	IIPR, Kanpur	2016-17 to 2018-19	2039.00			407.80 (20 % of allocation)		Rel-2016-17 Rs. 815.60
2	Creation of seed ï hubs for increasing indigenous production of pulses in India (24 states/150 centres)	IIPR, Kanpur	2016-17 to 2017-18	22531.08 (150 hubs)	11164.26	768.18	4895.50		
3	Generation advancement and development of new genotypes through pre-breeding in Lentil and Kabuli Chickpea"	ICARDA	2013-14 to 2016-17	320.196 (Revised)		4.89			

S. No.	Project Title	Implementing Agency	Project Duration	Total Allocation	Allocation for 2017-18	Unspent balance/ Revalid .2016-17	1st Release	2nd Release	Location/ Varieties
4	Enzymatic pre treatment in the processing of Pigeonpea	JAU,Junagarh (Gujarat)	2014-15 to 2016-17			0.21			Junagarh / Var. BDN-2
5	Enhancing productivity through introduction of new high yielding varieties, production technologies in chickpea, green gram, black gram & cowpea.	UAS, Dharwad , Karnataka	2016-17		11.02				
6	Enhancing mothbean and mungbean productivity through high yielding varieties, nutrient management and IPM practices in Western Rajasthan	SKRAU, Bikaner	2014-15 to 2016-17			1.83623			
7	Development of suitable technology for increasing the production of pulses in rice fallows	OUAT, Bhubaneswar	2014-15 to 2016-17	80.37		1.24532			Greengram, Blackgram and Gram
8	Scaling up and popularization of high yielding pigeonpea hybrids for enchancing productivity of small and marginal farmers of Maharashtra,Karnataka & Odisha States of India	ICRISAT, Hyderabad, Telangana	2016-17	77.965				19.49 (committed liability of 2016-17)	ICPH 2740
		ICRISAT, Hyderabad, Telangana	2018-19	649.685					Approved for 2018-19 ICPH 2740 & ICPH3762
9	Addressing phytophthora blight disease : An emerging threat of pigeonpea expansion and production	ICRISAT, Hyderabad	2013-14 to 2016-17	400.923 (Revised)		3.33 (committed expen. Of 2016-17)	80.0		
10	Identification of salt tolerant chickpea varieties for coastal regions of Gujarat.	NAU, Navsari (Dr. P.B. Patel)	2014-15 to 2016-17	32.123 (Revised)		2.11788			

6.2 Area Expansion

- During the first five year plan (1951-56), the average pulse acreage of 21 million hectares maintained an increasing trend till Third plan (1961-66) where an area of about 24 million ha was occupied. However, there was a slight drop in area coverage i.e. 22.21 million hectares during the Fourth plan (1969-74) despite the introduction of first centrally sponsored Pulses Development Scheme. It is also a fact that the normal average area of pulses enhanced to about three million ha during IInd five year plans, the periods when average per cent coverage under pulses was about 8-9 percent.

- It is observed that the role of plan funds had catalytic role especially in stabilization of area coverage under pulses as beyond the IIIrd five year plan, the normal five year plan area has been between 22-23million hectares, a visible two million hectares increase over the Ist plan period.
- Another most important observation is stability in pulse area from eighth plan(1992-97) period to tenth plan period (2002-07)and significantly increased eleventh to twelfth plan period (2007-12 to 2012-2016). The plan period had the critical intervention in pulses sector through the Technology Mission (TMOP) and National Food Security Mission (NFSM) with the increase in irrigation coverage, 16% and 19 % of total pulses 73rhar73ized in irrigated area.

6.2.1 Production Enhancement

- ***During Xth plan (2002-07),*** inspite of the consecutive droughts/flood in the major pulses growing states of Madhya Pradesh, Rajasthan, Uttar Pradesh, Bihar Andhra Pradesh and Maharashtra and stagnant area coverage, the country harnessed an average production of 13.35 lakh tonnes which may be attributed to TMOPs critical intervention and Central funding support under ***NPDP/ISOPOM*** making a dent on seeds/irrigation and other infrastructural support to farmers.
- During the course of implementation of ***NFSM XIIth plan (2013-14& 2016-17),*** the country witnessed a significant increase in production of pulses *i.e.* ***19.25 Million tons and 22.95 Million tons*** respectively, the maximum ever achieved during ***2016-17.***

6.2.2 Productivity

- Similarly, during the ***NFSM plan period***, XIthand XIIth plan, productivity was achieved ***662 kg/ha and 744 kg/ha*** respectively. Although this productivity is still below the worldôs average productivity of 909 kg/ha and as also what has been realized under the frontline demonstrations of ICAR. ***A productivity gap of 56% under total pulses between the FLDs and State average yield is the existing potential and a challenge for both the research and development agencies to harness.***

6.2.3 Irrigation

- During the NFSM plan period, irrigation increased upto ***19%,*** attributing the productivity enhancement from 594 kg/ha during Xth Plan (Before NFSM) to***745 kg/ha during XIIth Plan.***

6.3 Strategies Adopted

6.3.1 Area expansion

- Rabi pulses to bring additional production from additional area coverage in rice fallows, crop-wise strategies were adopted viz., Gram ï CG, West Bengal, Bihar, Jharkhand, Odisha, Assam, Andhra Pradesh, Tamil Nadu; Lentil ï Chhattisgarh, West Bengal, Bihar, Jharkhand, Assam and Mung/Urd in rice fallow costal region; Intercropping ï Gram with barley, Mustard and Linseed in Rajasthan, UP, Bihar, Vidarbha (Maharashtra); Intercropping ï Gram/Lentil with autumn planted ratoon sugarcane in UP, Maharashtra, Bihar.

- ***Kharif pulses*** – additional production from additional area coverage (diversion to other crops like cotton, oilseeds, coarse cereals), cultivation of kharif pulses as intercrop, planting of red gram on rice bunds, cultivation of minor pulses in niche areas.
- Spring/Summer pulses Punjab, Haryana, Madhya Pradesh, Uttar Pradesh, Bihar, West Bengal, Gujarat, Jharkhand, TN and AP were chosen.
- During 2017-18 total allocation under additional pulses production programme of Rs. 577.67 Crores (350 Crore GoI + 227.67 State Share) is operational in 17 states.

(Table-6.5): Area coverage under spring/summer pulses

(Area-Lakh ha)

States	2014	2015	2016	2017	2018
Tamil Nadu	1.83	1.73	2.38	2.31	2.39
Bihar	0.00	2.58	0.73	2.95	1.47
Uttar Pradesh	1.16	2.04	1.56	1.36	1.40
Andhra Pradesh	1.53	0.44	0.26	0.74	0.15
Gujarat	0.56	0.51	0.43	0.40	0.38
Haryana	0.44	0.17	0.06	0.06	0.06
Karnataka	0.13	0.15	0.19	0.09	0.09
Madhya Pradesh	2.24	1.69	1.67	1.51	0.92
Punjab	0.43	0.65	0.32	0.14	0.15
West Bengal	0.40	0.39	0.52	0.61	0.86
Others	0.16	0.32	0.21	2.35	1.08
Total	**8.88**	**10.67**	**8.33**	**12.52**	**8.95**

Source: WWWR Report, DPD, Bhopal

6.3.2 Targeted rice fallow area (TRFA)

- Under area expansion of rabi pulses in rice fallows, TRFA programme has been initiated since 2016-17 in 06 Eastern States of Assam, Bihar, Chhattisgarh, Jharkhand, Odisha and West Bengal. Against a target of 4.5 Mha rice fallow under pulses, an area of > 2.6 Mha has so far been achieved uptill 2017-18.
- During 2016-17 the TRFA was implemented in 15 districts of 6 states to cover 19.14 lakh ha (pulses-15.31 lakh ha + oilseed-3.83 lakh ha). During 2017-18 the scheme has been extended to 40 districts and 4000 villages with a view to cover 15.00 lakh ha (pulses-12.00 lakh ha + oilseeds-3.0 lakh ha) with support for cluster demonstrations, 74rhar74i distribution and training to the farmers etc. According to the report an area of 10.72 lakh ha were covered (pulses-9.13 lakh ha + oilseeds-1.60 lakh ha) in rice fallows covering 43 districts and 3739 villages. The additional area coverage resulted a production of 9.04 lakh tonnes of pulses and oilseeds as against the production target of 10.00 lakh tonnes. Most of the rice fallows were covered under pulses *viz.* pea, lentil, black gram, green gram, chickpea, 74rhar and lathyrus.
- The total allocation under TRFA-Pulses for the year 2017-18 was Rs. 98.27 crores which was fully released to the states. However the expenditure reported so far is Rs. 62.33 crores which is 63% of the release.
- During 2018-19 the total allocation 220.80 Crore out of this Rs. 148.28 Crores of Central share comprising 133.48 Crore for demo. & Rs. 14.80 Crore for Minikit.

(Table-6.6): Progress of TRFA

(Area- Lha, Allo Amount- Crores)

State	Area under Rice Fallow	Pulses Coverage No. of Districts/ Villages (2017-18)		2018-19 (Target)	Area Covered			Allocation (CS)		Interventions
					2017-18		2018-19 (Target)	2017-18	2018-19	
		Target	Ach.		Target	Ach.				
Assam	10.42	8/800	8/800	8/800	1.84	0.92	2.10	21.48	28.80	Cluster
Bihar	3.00	5/380	5/380	7/700	0.24	0.75	0.35	12.23	16.80	Demo.
Chhattisgarh	28.56	5/427	5/427	9/900	2.80	4.49	3.95	12.23	21.60	Minikit
Jharkhand	4.75	4/378	4/378	5/500	0.24	0.18	0.35	8.37	12.00	Distribution,
Odisha	29.61	9/854	9/854	11/1100	3.44	2.05	4.20	21.98	26.40	and Farmers
West Bengal	12.00	12/900	12/900	10/1000	3.44	0.75	3.85	21.96	24.00	Training
Total	**88.34**	**43/3739**	**43/3739**	**50/5000**	**12.00**	**9.14**	**14.80**	**98.25**	**129.60**	

(Table-6.7): State-wise production of pulses under TRFA during 2017-18

(Production in lakh tonnes and Yield kg/ha)

States	Area	Production	Yield
Assam	0.92	0.82	897
Bihar	0.75	0.71	940
Chhattisgarh	4.49	4.48	997
Jharkhand	0.18	0.19	1079
Odisha	2.05	1.07	524
West Bengal	0.75	0.65	867
Total	**9.14**	**7.92**	**867**

- Short duration high yielding rice varieties with its earlier planting as dry seeding/ DSR and early transplanting were introduced under NFSM to bring pulses under Rice fallow.
- Rice fallow covered under additional pulse programme by Relay sowing (uttera cropping) of lentil, khesari, small seeded chickpea and pea also solved the problem of late sowing.
- **Recommendations for improving pulses productivity under rice fallow**

Under mentioned recommendations and policy issues indicated in the NAAS Policy Paper (64) on *"improving productivity of rice fallows"*, is relevant to harness the potential of rice fallows, and may be the part of ongoing programmes of pulses development under *NFSM- Additional Pulse Programme and RKVY-TRFA.*

i) **Mechanization of field operations:** Residual soil moisture in surface layer at the time of planting *rabi* crops is the major constraint in rice fallows. Relay cropping in standing rice is often practiced but with use of combine for rice harvesting, the option is now shifting for direct seeding using zero-till drill or turbo type Happy Seed drill which need to be designed for different situations. For harvesting and threshing, appropriate machines need to be designed and developed.

ii) **Scaling-up crop management practices:** Tillage and plant population management, application of nutrients and weed management in *rabi* crops pose serious challenges in rice fallows. Early-maturing crop varieties, relay cropping, higher seed rate, seed priming, seed inoculation with *Rhizobium* culture, seed pelleting, mulching, foliar spray of nutrients etc. are recommended practices which need to be further refined and

standardized for different ecosystems. Work on development of short-duration, high-yielding varieties, appropriate seeding techniques, water harvesting and recycling, post-emergence herbicides, biotic and abiotic stresses etc. need to be strengthened.

iii) **Crop-specific information on area expansion:** Based on biophysical conditions, farm resources and market demand, likely coverage of area under each crop in different states/ region need to be estimated. This would facilitate area expansion in phased manner by arranging critical inputs.

iv) **Periodic GIS mapping:** In order to monitor impact of R&D efforts on area expansion in rice fallows under different crops, cropping systems and soil health, periodic monitoring through GIS is required.

v) **Creation of community water reservoirs:** Despite heavy rains during *kharif* season, soil moisture becomes the most critical limiting factor for raising second crop during winter as most of the runoff is wasted. It is, therefore, necessary to create farm pond and community water reservoirs in the area well supported by Government. This will serve as important source for life-saving and supplemental irrigation. Further, the loss of soil and plant nutrients from productive lands will be reduced.

vi) **Quality seeds:** Timely availability of quality seeds is often a major constraint for delayed planting and poor yields**.** Hence, community-based seed production programmes need to be launched with appropriate processing and storage facilities. The national and state seed Corporations should strengthen their activities in these areas.

vii) **Ensuring timely availability of other critical inputs:** Traditionally, the winter crops on residual soil moisture are grown using local varieties without application of plant nutrients, bio-fertilizers, fungicides and other agro-chemicals due to their non-availability. Since crop productivity is the driver for area expansion, which in turn is influenced by better crop management, emphasis needs to be placed on timely availability of all critical inputs.

viii) **Marketing infrastructure:** Marketing plays a key role in enthusing farmers for crop production. Well organized marketing and processing of farm produce need attention.

ix) **Protection from stray cattle:** Blue bull and other stray cattle cause heavy damage to pulses and thus discourage farmers to grow winter crops. Appropriate policies are needed to tackle this menace. To avoid crop damage by stray cattle, open grazing lands at panchayat level should be earmarked. These activities should be the part of state level planning.

- **Recommendations based on performance/experience**

Under NFSM-pulses, *additional area coverage programme of spring/summer season and RKVY-TRFA*, the development efforts on increasing productivity of pulses in rice fallow areas includes identification of suitable varieties, planting methods, foliar nutrition and plant protection, refining and packaging improved technologies etc are based on the past experience, to address different problems.

i) **Selection of crops and varieties:** should be decided on the basis of winter temperature, soil texture, soil moisture content etc. *(In lentil and gram, small seeded varieties due to better contact with soil, less rotting be selected).*

ii) **Seed priming and optimum seed rate:** Overnight soaking of seeds (seed priming), hastens seed germination and crop establishment under relay cropping. Adoption of 20-25% higher seed rate over the recommended rate is recommended ensures desired plant stand.

iii) **Foliar nutrition:** Since application of fertilizers under relay cropping is not feasible, seed pelleting and foliar application of nutrients should be practiced. Foliar application of 2% urea at flowering and pod formation significantly improves yields of chickpea under rainfed conditions by increasing leaf N content and making them photo synthetically more active. Seed pelleting with micronutrients like Zn and Mo is also recommended as a part of nutrient management strategy in rice fallows.

iv) **Planting strategy:** In rice fallows, planting is generally delayed. Under relay planting, seeds should be broadcast 2-5 days before harvest of rice. Zero-till seed-cum-fertilizer drill should be used wherever feasible when planting is done after harvest of rice. It is necessary to use short to medium maturing varieties of rice for timely planting of *rabi* crops.

v) **Plant protection:** Since post-emergence herbicides are not commercially available specially for crops like chickpea and lentil and inter-cultivation is difficult due to hard soil, hand pulling of weeds is the only option which should be done at an early stage. Post-emergence herbicide ***(Imazethapyr @ 50 g/ha***) has been found quite effective against seasonal grassy weeds in crops like groundnut, urdbean and mungbean. It should be applied at 3-4 leaf stage. Similarly, ***quizalofop*** can be used to check 77rhar77ize of rice stubbles which cause substantial moisture loss. Insect-pests and diseases should be promptly controlled. Seed dressing with fungicides like *carbendazim* should be done.

vi) Issues based major technological interventions and region specific varieties are summarized under *Table 6.8 (a) and (b).*

(Table – 6.8 – a): Major technological interventions

Issues	Interventions	Action
Lack of suitable cultivars	Development of high-yielding varieties with appropriate maturity duration	ICAR-IIPR
Poor crop stand and establishment	Tillage machines, sowing methods, seed priming, higher seed rate, timely planting, seed treatment with fungicides	SDA/SAUs
Diseases and pests	Development of IPM modules	SDA/SAUs/NCIPM
Weed menace	Post-emergence herbicides like *Quizalophop ethyl* and *Imazethapyr*	SDA/SAUs/DWR
Nutrient management	Foliar spray of urea/DAP to supplement N and P	SDA/SAUs
Micronutrient deficiencies	Mo, B, Zn as seed pallets	SDA/IISS
Terminal moisture/heat stress	Residue mulching	SDA/SAUs/CRIDA
Non-availability of quality seeds	Informal and formal seed production and supply systems	SDA/SSC/NSC
Lack of mechanization	Tillage machines, zero-till planter and harvester	SDA/SAUs/CIAE
Poor transfer of technology	Innovative farmerôs participatory approach	SDA/SAUs/KVKs

(Table –6.8- b) Performance based recommendation

Region Rec. Crops & Varieties	Eastern Plains	Central region	Coastal Region
Lentil	Rust- A major threat Small seeded lentil varieties having resistance to rust WBL-77, KLS-218, PL-8, NM-1, DPL-15	1. Chickpea var Pusa-372, PG-186, Udai 2. Small seeded chickpea var. JSC-55, JSC-56, JG-14, vijay, JG-315, JAKI-9516 3. Lathyrus- var- Ratan, Prateek, Mahateora	Powdery Mildew a major threat 1. Urdbean-var.- powdery mildew resistance var., LBG-17, LBG-602, LBG-623 Urdbean Normal planting var. (Mid Nov to Mid Dec) LBG-402, LBG-611, LBG-22, LBG-648, LBG-685, LBG-645, LBG-709, LBG-752 2. Late Planting Urdbean (IInd fortnight ofDec) var. LBG-22, LBG-645, LBG-709, LBG-752 3. Mungbean varieties (Normal Planting) LGG-460, LGG-410, LGG-450, LGG-407, IM- 96-3, Pusa 9072, NARM-1,2 and 18.

Source: *Policy Paper 64: Improving Productivity of Rice Fallows*

6.3.3 Productivity Enhancement

- **Promotion of Sulphur & Zinc**

  Wide spread deficiency of sulphur and zinc noticed in pulse growing regions constraints the productivity of pulses. In major pulse growing areas, 44 districts have shown 40-60% sulphur deficiency and 82 districts with 50-60% zinc deficiency. In view of encouraging response to application of S and Zn with cost benefit ratio of 10-21%, their application was vigorously pursued after 2014-15.

- **Promotion of Rhizobium & PSB**

  About 40% pulse growing regions have low to medium population of native Rhizobium. Seed inoculation with bio-fertilizer (Rhizobium and PSB); low cost inputs; are known to increase pulse productivity by 10-12%. Rhizobium + PSB provided under NFSM.

- **Technology demonstration conducted**

  The frontline demonstrations were conducted in different agro-climatic regions on important pulse crops with a view to demonstrate and assess the benefits of new varieties and technologies under diverse cropping systems have revealed the existing potential of productivity to be exploited through technological interventions.

- A package technology like improved cultivar, Rhizobium inoculation, use of Sulphur, INM, application of weedicide, foliar spray of urea, IPM etc were vigorously pursued.
- For good crop establishment, seed priming (soaking the seeds over night in water surface, drying and sowing next day), seed treatment with effective Rhizobium strain, sowing of seed into deeper moist soil (in case of chickpea), lime pelleting for acidic soil and gypsum in saline areas was encouraged under NFSM pulses/CFLDs.
- Government focused on key areas like seeds of improved varieties, irrigation tailored to pulses (especially micro-irrigation), bringing new niche areas under pulse cultivation, attractive minimum support price (MSP) and market that allow farmers to increase their profitability aligned to improved farmer welfare.

The Government of India released amount of Rs. 97.50 lakh for 1300 no. of demonstration during 2017-18 and Rs. 117.00 Lakh for same nos. of demonstration during 2018-19.

(Table – 6.9): Promotion of improved varieties

States	Crop	Leading varieties
Andhra Pradesh	Tur	LRG-41
	Gram	JG-11-KAK-2
	Mung	LGG-460, Urd ï PU-31, LBG-752
Bihar	Mung	HUM-16 , IPM-02-03, Panth Mung ï 5
	Kulthi	DV-7
Jharkhand	Tur	NDA-2, MAL-13, ICPH-2671,
	Gram	Kabulichana ï 2, JAKI-9218
	Mung	TM-99-21, HUM-12 (MalviyaJanchetna), HUM-16, HUM-668, IPM-02-03
	Urd	PU-31, Sujata, WBU-109, Sekhar-3,
	Kulthi	Birsa-Kulthi-1, Madhu,
	Lentil	WBL-77, HUL-57
Karnataka	Tur	BRG-2, TS-3R, BSMR-736
	Gram	JG-11, JAKI-9218
	Mung	BGS-9, SML-668
	Urd	T-9, TAU-1
Maharashtra	Tur	PKV-Tara,BDN-711,BDN-708, BSMR-853, ICPL-8863 (Maruti), ICPL-87119 (Asha), ICPL-87 (Pragati
	Gram	Akash, Digvijay, JAKI-9218, Virat, ICCC-37,KAK-2,Vishal, vijay
	Mung	BM-2002-1, PKV-AKM-4, BM-2003-2, Utkarsh, Kopargaon
	Urd	AKU-15, TAU-1
Odisha	Tur	Asha, Lakshmi, UPAS-120, LRG-41
	Mung	PDM-139 (Samrat), HUM-12 (MalviyaJanchetna), SML-668, IPM-02-3, IPM-2-14
	Urd	PU-30,31, Shekhar-2, IPU-02-43, Azad Urd
Rajasthan	Gram	RSG-44, GNG-1581 (Gangaur), GNG-1958 (Marudhar), CSJ-515, GNG-2144 (Teej), RSG-974
	Mung	SML-668, GM-4, MH-421, IPM-02-3,IPM 2-14, HUM-16, HUM-12 (Malviya Jan Chetna), PDM-139, MH-2-15 (Satya),
	Urd	PU-30,31, IPU-94-1, TAU-1,2, KU-300, KPU-07-08, KPU-405, K-96-3
	Moth	RMO-40,225,423, CAZRI-2, RMB-2
Tamil nadu	Arhar	LRG-41, CO (Rg)-7, BRG-1,2; Urd- VBN-5,6, ADT-3
	Mung	CO (GG) 912/CO-7, CO-8
	Kulthi	Paiyur-2
Telangana	Arhar	LRG-41, PRG-176, ICPL-87119 (Asha)
	Gram	JG-11, JAKI-9218
	Mung	LGG-460, MGG-295, IPM-2-14
	Urd	LBG-752, T-9, IPU-2-43, PU-31
Uttar Pradesh	Arhar	UPAS-120,PUSA-992,Narendra Arhar-1,PUSA-9,PDA-11,
	Gram	JAKI-9218, Shubhra, Ujjawala, DCP-92-3, Avrodhi, Uday
	Mung	IPM-2-3, Narendra Mung-1, MalviyaJyoti (HUM-1), MalviyaJanchetna (HUM-12), PDM-139 (Samrat).
	Urd	IPU 91-1 (Uttara), IPU-2-14, PU-31, PU-35, Shekhar-3, IPU-2-43, T-9
	Lentil	PL-4,5, DPL-62, Narendra Masoor-1, K-75, L-4076
Source: SDAs of Agriculture.		

6.3.4 Marketing Strategy

Enhanced procurement of pulses: (2014-15 to 2017-18)

NAFED has done record procurement of pulses jointly with SFAC and FCI during the year 2017-18 under Price Support Scheme (PSS) and Price Stabilization Funds (PSF), funded by Ministry of Agri. & FW. It procured more than 2008.52 thousand MT of Pulses (Gram 188.59 thousand MT, Masoor 27.07 thousand MT, Moong 407.74 thousand MT, Urd 290.62 thousand MT and Tur 1094.49 thousand MT).

- NAFED has been involved in creating buffer stocks and stabilizing the prices of Pulses. A substantial quantity from buffer stock has been proposed to be supplied to Para-military and Defense forces. Also the supplies will be made to state governments as per their requirements under PDS and other such schemes. Consequently, the procurement agency has positioned itself as the ôPulse Armôof the government.

- The total monetary investment towards procurement of total pulses during 2017-18 is Rs. 10.57 Cr by alone NAFED. Crop-wise and state-wise procurement of total pulses is given in (*Table 6.10 to 6.11*)

(Table-6.10): Crop-wise procurement of pulses enhanced

(Qty. in 000 MT, Rs. in Crore)

Crop	2014-15		2015-16		2016-17		2017-18	
	Qty.	Amt.	Qty.	Amt.	Qty.	Amt.	Qty.	Amt.
Arhar/Tur	6.30		92.85	0.40	1567.37	4.68	1094.49	5.79
Urd			33.07	0.05	183.19	0.56	290.62	1.56
Mung					430.41	1.08	407.74	2.23
Gram	775.13	1.12			287.67	0.36	188.59	0.88
Lentil					80.02	0.35	27.07	0.11
Total	**781.43**	**1.12**	**125.92**	**0.45**	**2548.66**	**7.03**	**2008.52**	**10.57**

(Table-6.11): State-wise procurement of pulses under MSP (PSS)

State	Qty. Procured (000 Million tonnes)		Value (Rs. Crore)	
	2001-02 to 2013-14	2014-15 to 2018-19	2001-02 to 2013-14	2014-15 to 2018-19
Andhra Pradesh	49.05	213.00	172.22	970.29
Gujarat	29.70	270.95	41.99	1385.71
Karnataka	28.77	791.15	68.48	4043.19
Madhya Pradesh	260.63	953.26	377.38	4322.05
Maharashtra	104.68	956.72	334.25	4962.82
Rajasthan	92.87	967.48	153.48	4648.05
Telangana	0.00	303.35	0.00	1549.79
Uttar Pradesh	71.49	55.10	148.06	294.13
West Bengal	7.66	6.79	16.94	36.67
All India	**5057.86**	**3236.57**	**1171.75**	**16360.42**

Source: NAFED, New Delhi

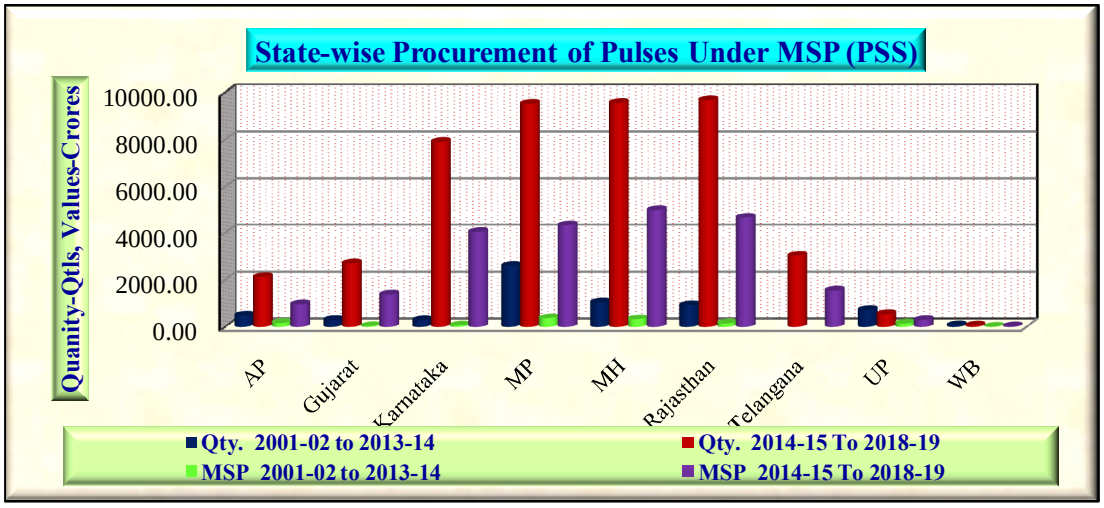


Fig.-6.1: State-wise Procurement of Pulses under MSP (PSS)

(Table-6.12): Crop-wise procurement of pulses under MSP (PSF)

(Quantity- 000 Million tonnes)

Crop	2015-16	2016-17	2017-18	Total
Arhar/Tur	45.53	1165.90	0.00	1211.43
Urd	4.89	88.49	0.00	93.38
Mung	0.00	209.93	0.00	209.93
Gram	0.00	0.00	60.25	60.25
Lentil	0.00	0.00	27.07	27.07
Total	**50.42**	**1464.33**	**87.33**	**1602.08**

Source: NFSM, Cell, Min. of Agri. & FW (DAC&FW), New Delhi.

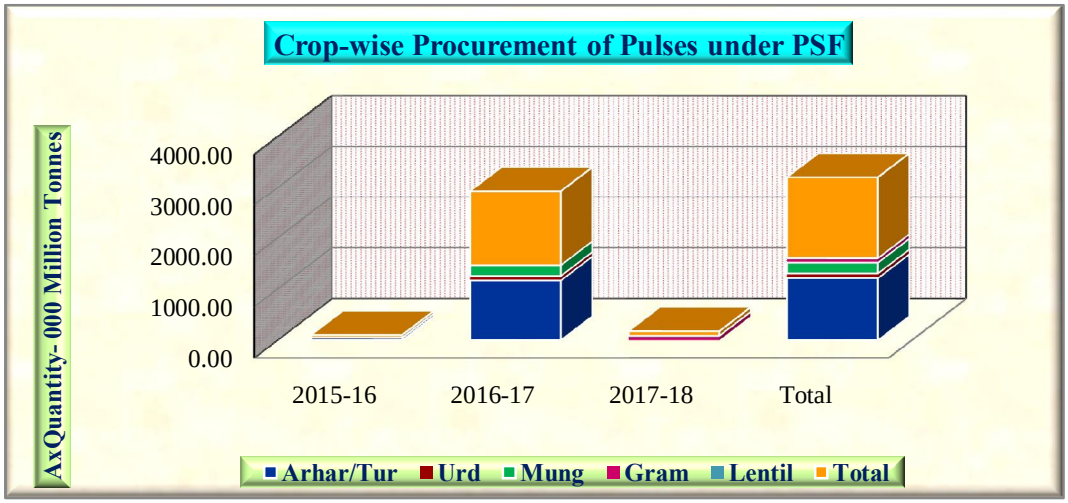


Fig.-6.2: Crop-wise procurement of pulses under MSP (PSF)

6.3.5 Farmer Producer Organization : Empowerment Through Group

In its resolve to provident to end to end solution to the various issues relating to pulse sector, the govt. has provisioned to formulate farmer interest groups (FIGs) and FPOs. As of now against the total 847 FPOs, 119 in major 07 pulse producing states (Gujarat, Karnataka, Madhya Pradesh, Maharashtra, Telangana, and Uttar Pradesh) are exclusively involved in the pulses sector. The total registered FPOs in India about 847. Out of 190 FPOs under taken activities of pulse, total targeted farmers are > 8.0 lakh. About 90% farmers are mobilized. The state-wise detail is as under:

(Table-6.13): State-wise progress of FPO promotion (As on 30.06.2018)

S. No.	State	No. of Farmers			No. of FPOs			No. of FPOs on Pulses
		Mobilized	Under Mobilization	Total Targeted Farmer	Registered	Under the Progress of registration	Total	
1	Andhra Pradesh	6792	208	7000	7	0	7	-
2	Arunachal Pradesh	1750	1000	2750	2	2	4	-
3	Assam	5647	1853	7500	12	3	15	-
4	Bihar	25685	8315	34000	24	11	35	-
5	Chhattisgarh	29135	0	29000	26	2	28	-
6	Delhi	3535	0	3500	4	0	4	-
7	Goa	1810	0	1750	2	0	2	-
8	Gujarat	19166	834	20000	20	1	21	**7**
9	Haryana	13240	510	13750	23	4	27	-
10	Himachal Pradesh	4887	0	4850	5	0	5	-
11	Jammu (Division)	3694	287	3981	1	2	3	-
	Srinagar (Division)	3120	960	4080	1	3	4	-
12	Jharkhand	10009	0	12000	8	2	10	-
13	Karnataka	118218	4282	122500	118	2	120	**14**
14	Madhya Pradesh	126584	18416	145000	135	9	144	**28**
15	Maharashtra	88348	13152	101500	85	17	102	**24**
16	Manipur	5671	1279	6950	4	4	8	-
17	Meghalaya	2990	760	3750	3	1	4	-
18	Mizorun	1700	1000	2700	1	2	3	-
19	Nagaland	1750	0	1750	2	0	2	-
20	Odisha	39463	0	38900	41	0	41	-
21	Punjab	6288	0	6000	7	0	7	-
22	Rajasthan	49617	883	50500	40	2	42	**16**
23	Sikkim	16279	0	15750	29	1	30	-
24	Tamilnadu	10945	55	11000	11	0	11	-
25	Telangana	24548	0	23998	20	0	20	**10**
26	Tripura	2874	0	2750	4	0	4	-
27	Uttarakhand	6004	0	6000	7	0	7	-
28	Uttar Pradesh	35746	0	49000	34	16	50	**20**
29	West Bengal	72266	0	88500	68	19	87	-
	Total	**737761**	**53794**	**820709**	**744**	**103**	**847**	**119**

Unit-VII

Market Scenario: 2016-17

7.1 Production Scenario- 2016-17: An Analysis

- Total Pulses- During, 2016-17 the production of pulses in India has been 229.54 Lakh tonnes (IvthAdv. Est.) which is ever highest production. This is 30% higher over the Normal and 40% higher than the last year.

- Arhar-During, 2016-17 the production of Pigeonpea has been 47.78 Lakh tonnes (IvthAdv. Est.) which is ever highest production. This is 68% higher over the Normal and 87% higher than the last year.

- Maharashtra, with about 30% of National production remains at Ist rank in the country. More than 90% of the production of this crop is contributed by 8 states viz., MS, Karnataka, MP, UP, Gujarat, Jharkhand, Telangana and AP.

- Urdbean-During 2016-17, the production of Blackgram has been at 28.05 lakh tonnes (kh-21.70 + rabi- 6.35 lakh tons), the ever highest production. This is 50% higher over the Normal and 44% higher than the last year.

- Madhya Pradesh, with >26 % of National Production during kharif and >18% of total production in a crop year (kh.+ rabi) ranks at Ist position at all India level. The rabi season, highest urd production is from AP which is >50 % of national production.

- More than 90% of urdbean production comes from MP, AP, UP, TN, MS, Rajasthan, Jharkhand, Gujarat, WB and Karnataka.

- Mungbean-During 2016-17, Greengram also recorded the ever highest production at 21.63 lakh tons (kh-16.15 + rabi- 5.48 lakh tons), which is 44% higher over the Normal and 36% higher than the last year.

- Rajasthan, with 48% of total all India production during kharif and >31 % collectively in a crop year, ranks Ist in the country. During, rabi, TN with 19 % of national production stands at Ist position.

- More than 90% of Mungbean production comes from 10 states, namely Rajasthan, Maharashtra, TN, AP, Bihar, MP, Odisha, Gujarat, Telangana and Karnataka.

- Gram-During 2016-17, Gram production at 93.26 lakh tons, which is 9% higher over the Normal and 32% higher than the last year. The ever highest production of gram was 95.30 lakh tonnes during 2013-14.
- Highest production of Gram is from MP with 41% of contribution to the National Production followed by Rajasthan (14%), Maharashtra (13%), Karnataka (>8%) and AP (>6 %).

- Lentil-Lentil and kulthi are considered under other pulses category by the DES, which provides the statistics of these pulses only at the final production estimates stage. During 2015-16, the production of lentil was at 9.76 lakh tons which was 7% less than the Normal production. UP with 33% of national production ranks at Ist followed by MP (32.75%), Bihar (16.96%) and WB (6%).During 2016-17, as per the WWWR coverage and the Normal yield, the tentative production of lentil is likely to be 12.74 lakh tonnes.

(Table-7.1): National production of pigeonpea, urd, mung & lentil

(Production: Lakh tonnes)

Crop/Year	Normal	2015-16	2016-17	Change Over	
1st July to 30th June	(Avg. 2011-12 to 2015-16)	Final Est.	4th Adv. Est.	Normal	2015-16
Pigeonpea	28.44	25.61	47.78	19.34 (68%)	22.17 (87%)
Urd	18.72	19.45	28.05	9.33 (50%)	8.60 (44%)
Mung	15.05	15.93	21.63	6.58 (44%)	5.70 (36%)
Gram	80.90	70.60	93.26	12.36 (15%)	22.66 (32%)
Lentil	10.44	9.76	12.74*	2.30 (22%)	2.98 (31%)
Total Pulses	**176.37**	**163.48**	**229.54**	**53.17(30%)**	**66.06 (40%)**

Source: *DES (DAC&FW);* Estimated by DPD on the basis of area coverage reported in WWWR & Avg. Yield*

(Table- I): State-wise area production of pigeonpea

{Area: lakh ha, Production –lakh tonnes}

State	Normal		2013-14		2015-16		2016-17*		Prod. % change over	
	Area	Prod.	Area	Prod.	Area	Prod.	Area	Prod.	Normal	2015-16
Maharashtra	12.00	8.31	11.41	10.34	10.39	4.66	15.33	13.89	20.11	63.96
Karnataka	7.27	4.05	8.24	5.88	6.48	2.63	12.14	8.66	52.80	125.20
M.P.	5.26	4.31	4.64	3.32	5.79	6.25	6.90	7.82	42.10	20.02
Gujarat	2.25	2.46	2.10	2.09	2.27	2.37	3.34	3.69	60.98	65.69
Uttar Pradesh	2.97	2.57	3.01	2.71	2.65	1.83	3.38	3.36	50.87	100.33
Telangana	2.61	1.19	2.64	1.40	2.48	1.04	3.87	2.15	151.83	198.78
Jharkhand	1.80	1.78	1.97	2.05	1.94	1.74	1.94	2.02	63.75	66.72
A.P.	1.88	0.93	1.85	1.04	2.20	1.29	3.48	1.31	151.46	78.72
Odisha	1.40	1.23	1.39	1.24	1.38	1.23	1.36	1.15	76.01	76.01
Chhattisgarh	0.55	0.30	0.51	0.31	0.64	0.30	0.69	0.46	511.11	511.11
Tamil Nadu	0.53	0.50	0.60	0.58	0.60	0.58	0.59	0.44	176.00	130.80
Bihar	0.22	0.37	0.22	0.37	0.22	0.32	0.22	0.34	248.36	332.03
Total Above	**38.74**	**27.99**	**38.58**	**31.33**	**37.04**	**24.24**	**53.24**	**45.29**	**5.78**	**7.71**
Others	0.50	0.45	0.46	0.41	0.42	0.34	0.63	0.70	345.68	605.54
All-India	**39.24**	**28.44**	**39.04**	**31.74**	**37.46**	**24.58**	**53.87**	**45.99**	**5.69**	**7.61**

Source: *Normal: DES, (Ave. of 2011-12 to -2015-16), *IIIrd Advance Estimates of Production 2016-17*

(Table-II): State-wise area production of *urdbean*

{Area: lakh ha, Production –lakh tonnes}

State	Normal		2013-14		2015-16		2016-17*		Prod. % change over	
	Area	Prod.	Area	Prod.	Area	Prod.	Area	Prod.	Normal	2015-16
Madhya Pradesh	7.25	3.45	6.02	2.26	9.35	5.17	11.68	7.71	123.64	49.17
Andhra Pradesh	3.78	3.17	2.65	2.30	4.56	4.11	5.20	3.84	21.15	-6.57
Uttar Pradesh	5.70	3.09	5.42	2.48	6.17	2.44	6.42	3.48	12.65	42.87
Tamil Nadu	3.30	2.40	3.65	3.11	3.95	2.64	4.49	3.72	54.85	40.80
Maharashtra	3.24	1.64	3.34	2.06	2.86	0.61	4.45	2.50	52.25	309.84
Rajasthan	2.34	1.11	1.96	0.71	2.99	1.15	3.90	2.50	125.48	118.17
Jharkhand	0.94	0.78	0.94	0.88	0.95	0.72	1.52	1.40	77.90	93.72
Gujarat	0.84	0.54	0.91	0.55	0.64	0.38	1.99	1.21	124.91	218.42
West Bengal	0.74	0.49	1.14	0.63	0.74	0.55	0.76	0.55	13.70	1.47
Karnataka	0.93	0.37	1.02	0.50	0.91	0.25	0.88	0.43	16.85	72.00
Chhattisgarh	1.02	0.31	1.08	0.32	1.01	0.30	0.99	0.32	2.26	4.28
Total above	**30.09**	**17.35**	**28.13**	**15.80**	**34.13**	**18.31**	**42.27**	**27.65**	**59.43**	**51.03**
Other	2.55	1.37	2.49	1.19	2.11	1.14	2.66	1.61	17.24	40.90
All India	**32.64**	**18.72**	**30.62**	**16.99**	**36.24**	**19.45**	**44.93**	**29.26**	**56.34**	**50.43**

Source: *Normal: DES, (Ave. of 2011-12 to -2015-16), *IIIrd Advance Estimates of Production 2016-17.*

(Table- III): State-wise area production of mungbean

{Area: lakh ha, Production –lakh tonnes}

State	Normal		2013-14		2015-16		2016-17*		Prod. % change over	
	Area	Prod.	Area	Prod.	Area	Prod.	Area	Prod.	Normal	2015-16
Rajasthan	10.70	4.68	10.20	3.91	13.64	5.97	15.83	7.52	60.76	25.98
Maharashtra	3.97	1.66	4.31	2.08	3.66	0.69	5.15	2.68	61.86	288.84
Tamil Nadu	1.89	1.15	1.95	1.51	2.39	1.25	1.63	1.16	1.06	-6.95
Andhra Pradesh	1.56	1.12	1.34	1.17	2.12	1.37	1.62	0.83	-25.84	-39.42
Bihar	1.61	0.98	1.55	1.05	1.69	0.94	1.64	1.00	1.11	5.45
Madhya Pradesh	2.10	0.93	3.16	1.46	2.95	1.31	2.94	1.39	49.37	5.81
Odisha	2.66	0.86	2.52	0.89	2.90	0.85	2.66	0.85	-0.37	0.06
Gujarat	1.62	0.83	1.83	1.06	1.29	0.67	1.80	0.86	3.01	28.36
Telangana	1.24	0.69	1.26	0.53	1.11	0.56	1.48	0.88	27.76	57.14
Karnataka	2.80	0.61	3.20	0.81	3.48	0.44	4.14	1.15	89.83	161.96
Uttar Pradesh	0.86	0.47	0.79	0.39	1.11	0.51	1.09	0.59	26.61	15.69
Total above	**31.00**	**13.97**	**32.12**	**14.87**	**36.34**	**14.57**	**39.98**	**18.91**	**35.37**	**29.83**
Other	1.66	1.07	1.71	1.19	1.94	1.36	3.07	1.78	66.27	30.92
All India	**32.67**	**15.04**	**33.83**	**16.05**	**38.28**	**15.93**	**43.05**	**20.70**	**37.57**	**29.93**

Source: *Normal: DES, (Ave. of 2011-12 to -2015-16), *IIIrd Advance Estimates of Production 2016-17.*

(Table-IV): State-wise area production of gram

{Area: lakh ha, Production –lakh tonnes}

State	Normal		2013-14		2015-16		2016-17*		Prod. % change over	
	Area	Prod.	Area	Prod.	Area	Prod.	Area	Prod.	Normal	2015-16
M.P.	30.60	32.11	31.60	32.99	30.17	32.65	32.22	35.49	10.53	8.70
Maharashtra	13.71	11.36	18.20	16.22	14.41	7.31	18.95	16.48	45.07	125.44
Rajasthan	15.30	12.98	19.24	16.40	9.42	8.03	14.86	13.82	6.47	72.10
Karnataka	9.23	6.22	9.46	7.16	13.72	8.97	10.25	3.90	-37.30	-56.52
Andhra Pradesh	4.68	5.21	4.72	5.97	4.71	5.00	3.92	4.34	-16.70	-13.20
Chhattisgarh	2.64	2.54	2.77	2.13	3.03	2.19	2.93	3.01	18.50	37.44
Uttar Pradesh	5.77	5.47	5.77	4.75	2.68	2.16	5.62	6.32	15.54	192.59
Jharkhand	1.30	1.48	1.56	1.82	1.64	1.73	1.86	2.19	47.97	26.59
Gujarat	1.99	2.30	2.47	3.09	1.15	1.53	1.70	2.10	-8.70	37.25
Telangana	0.96	1.42	1.14	2.46	0.70	0.49	1.01	1.24	-12.68	153.06
Bihar	0.59	0.70	0.61	0.70	0.61	0.60	0.60	0.59	-15.71	-1.67
West Bengal	0.24	0.28	0.25	0.29	0.31	0.37	0.30	0.33	17.86	-10.81
Total of above	**87.01**	**82.07**	**97.79**	**93.98**	**82.55**	**71.03**	**94.22**	**89.81**	9.43	26.44
All-India	**88.37**	**83.23**	**99.27**	**95.26**	**83.49**	**71.69**	**95.39**	**90.75**	**9.04**	**26.59**

Source: *Normal: DES, (Ave. of 2011-12 to -2015-16), *IIIrd Advance Estimates of Production 2016-17.*

(Table-V): State-wise area production of lentil

{Area: lakh ha, Production –lakh tonnes}

State	Normal		2013-14		2015-16		2016-17*		Prod. % change over	
	Area	Prod.	Area	Prod.	Area	Prod.	Area	Prod.	Normal	2015-16
UP	5.08	3.8	4.49	3.10	3.35	2.38	**6.63**	**5.01**	31.84	110.50
MP	5.85	2.99	5.30	3.38	5.46	3.92	5.86	3.48	16.39	-11.31
Bihar	1.83	1.92	1.54	1.96	1.51	1.40	2.13	2.28	18.75	62.35
WB	0.62	0.56	0.65	0.63	0.95	0.94	1.13	1.04	85.71	10.64
Jharkhand	0.39	0.36	0.44	0.37	0.15	0.12				
Rajasthan	0.36	0.35	0.34	0.29	0.74	0.64				
Assam	0.27	0.17	0.30	0.22	0.28	0.20	0.33	0.22	29.41	11.99
Total above	**14.40**	**10.15**	**13.07**	**9.95**	**12.45**	**9.60**	**16.08**	**12.03**	**18.52**	**25.31**
Others	0.39	0.23	0.34	0.22	0.31	0.16	0.57	0.25	8.70	57.13
All India	**14.79**	**10.38**	**13.41**	**10.17**	**12.76**	**9.76**	**16.65**	**12.28**	**18.30**	**25.83**

Source: *Normal: DES, (Ave. of 2011-12 to -2015-16), *IIIrd Advance Estimates of Production 2016-17*

7.2 Market Prices/Rates and Arrivals

- Crop-wise market prices and arrivals of Pigeonpea, Urdbean, Mungbean, Gram and Lentil, worked out relative change over the period in terms of *arrivals* annually and *prices/rates,* monthly during 2015-16 and 2016-17 and, are summarized.
- It is evident from table that the arrivals of pulses has increased by 72% in tur, 58% in urd and 29% in mung and 6% in lentil over the previous crop year 2015-16. It is also observed that the prices/rates are decreased over the period during the month of July by 53% in tur 48% in urd, 23% in mung and 34% in lentil.

(Table-I): State-wise market rates and arrivals of pigeonpea

(Rate in Rs./Qtls; Arrivals-000 Tonnes)

State	Market Rate		% Change over	Market Arrivals		% Change over
	July, 2016	July, 2017		2016-17	2015-16	
Maharashtra	8644	3689	-57.32	799.71	535.40	49.37
Karnataka	9392	4174	-55.56	416.41	197.23	111.14
Madhya Pradesh	6938	3924	-43.44	321.31	174.53	84.10
Gujarat	7835	3262	-58.37	103.99	38.99	166.73
Telangana	8357	3722	-55.46	102.38	5.79	1668.56
Uttar Pradesh	8849	3999	-54.81	80.29	87.41	-8.14
Rajasthan	7588	4063	-46.45	24.21	14.74	64.23
West Bengal	12199	8342	-31.62	15.71	18.73	-16.16
Chattisgarh	7802	3944	-49.45	9.87	8.77	12.52
Assam	12381	6792	-45.14	7.82	10.96	-28.60
Andhra Pradesh	7799	3810	-51.15	6.26	1.02	512.32
Jharkhand	12901	6072	-52.93	4.68	3.86	21.18
Uttrakhand				2.69	1.11	142.34
Kerala	12919	7601	-41.16	1.42	0.60	134.93
Manipur	16361			1.29	1.37	-6.05
Punjab		2560		0.92	4.41	-79.12
NCT of Delhi	6267	2487	-60.32	0.90	0.81	11.91
Haryana				0.17	0.13	34.11
Tamil Nadu				0.08	1.16	-93.56
Orissa				0.00	0.20	-98.01
Average/Total	**9749**	**4563**	**-53.20**	**1900.13**	**1107.23**	**71.61**

(Table-II): State-wise market rates and arrivals of urdbean

(Rate in Rs./Qtls; Arrivals-000 Tonnes)

State	Market Rate		% Change over	Market Arrivals		% Change over
	July, 2016	July, 2017		2016-17	2015-16	
Madhya Pradesh	8798	4109	-53.30	349.82	284.01	23.17
Maharashtra	14190	3912	-72.43	123.54	36.16	241.65
Rajasthan	9943	3686	-62.93	113.68	79.98	42.15
Uttar Pradesh	10312	4977	-51.74	93.66	58.23	60.85
Gujarat	10500	3954	-62.34	82.00	18.16	351.53
Assam				77.39	29.90	158.81
Tamil Nadu	9206	5422	-41.10	43.38	22.08	96.51
Karnataka	12512	7660	-38.78	36.38	23.61	54.05
West Bengal	12841	7040	-45.18	23.11	35.71	-35.30
Andhra Pradesh	9246	5127	-44.55	5.00	5.20	-3.73
Kerala	15327	9196	-40.00	2.72	2.47	10.15
Pondicherry	7316	4088	-44.12	1.98	1.95	1.23
Telangana	7046	4050	-42.52	1.91	0.96	99.69
Chattisgarh	9935	4413	-55.58	1.74	2.37	-26.38
Orissa	8024	7515	-6.34	1.54	4.56	-66.15
Manipur	15391		-100.00	1.35	1.40	-3.51
Uttrakhand	7800	5916	-24.15	0.67	0.75	-10.47
Haryana				0.21	0.27	-21.48
Jharkhand		6272		0.12	0.00	5700.00
Punjab	9362		-100.00	0.02	0.05	-68.75
Average/Total	**10456**	**5459**	**-47.79**	**960.22**	**607.81**	**57.98**

***Source**: GOI, MoA &FW, DMI, Agmarknet*

(Table-III): State-wise market rates and arrivals of mungbean

(Rate in Rs./Qtls; Arrivals-000 Tonnes)

State	Market Rate		% Change over	Market Arrivals		% Change over
	July, 2016	July, 2017		2016-17	2015-16	
Rajasthan	5457	4347	-20.34	320.41	268.93	19.14
M P	5058	5142	1.66	244.12	165.53	47.47
Karnataka	6263	5179	-17.31	127.37	71.27	78.70
Maharashtra	6242	4574	-26.72	39.34	22.22	77.02
Uttar Pradesh	5938	3872	-34.79	33.46	39.03	-14.28
Assam	8758	6774	-22.65	22.19	25.08	-11.55
Gujarat	5717	4592	-19.68	20.19	30.25	-33.24
Telangana	5015	3899	-22.25	18.35	9.93	84.69
West Bengal	10288	8386	-18.49	16.61	20.19	-17.72
Haryana	3800	5000	31.58	5.95	0.08	7245.68
Kerala	9011	7479	-17.00	2.57	2.69	-4.42
Manipur	13348			1.19	1.29	-7.30
Orissa	6242	5427	-13.06	1.11	3.32	-66.69
A P	5210	5564	6.79	0.90	1.69	-46.71
Tamil Nadu	5070	4029	-20.53	0.86	1.56	-45.13
Pondicherry	5267	4214	-19.99	0.49	0.54	-10.85
Uttrakhand	5200	5644	8.54	0.44	0.91	-51.38
Jharkhand	9315	6341	-31.93	0.27	0.07	300.00
Punjab	5659		-100.00	0.10	0.08	27.85
Chattisgarh	10065	4200	-58.27	0.05	0.03	64.29
NCT of Delhi	4441	3214	-27.63	0.01	0.05	-79.63
A&N Island				0.01	0.01	-16.67
Mizoram				0.00	0.01	-87.50
Average/Total	**6732**	**5151**	**-23.47**	**855.96**	**664.77**	**28.76**

(Table-IV): State-wise market rates and arrivals of lentil

(Rate in Rs./Qtls; Arrivals-000 Tonnes)

State	Market Rate		% Change over	Market Arrivals		% Change over
	July, 2016	July, 2017		2016-17	2015-16	
Madhya Pradesh	5688	3310	-41.80	279145.64	297636.97	-6.21
Uttar Pradesh	6674	4122	-38.24	122626.96	68523.86	78.96
Assam	8882	6164	-30.59	40626.30	36813.40	10.36
West Bengal	9620	7675	-20.22	28538.25	40004.41	-28.66
Rajasthan	6180	3329	-46.13	10122.80	9242.90	9.52
Maharashtra	7138	5336	-25.24	2295.00	2616.00	-12.27
Jharkhand	7877	5908	-25.00	2236.58	845.60	164.50
Chattisgarh	5159	3155	-38.84	2218.73	2495.60	-11.09
Manipur	11412			1350.19	1373.40	-1.69
Uttrakhand				796.20	811.80	-1.92
Gujarat				36.40	5.10	613.73
Haryana				8.50	6.60	28.79
Telangana				7.40		
Kerala	10433	7749	-25.73	3.70	1.21	205.79
Bihar					52.10	
Orissa					16.00	
Punjab					19.45	
Average/Total	**7906**	**5194**	**-34.30**	**490012.65**	**460464.40**	**6.42**

***Source**: GOI, MoA &FW, DMI, Agmarknet*

(Table-V): State-wise market arrivals of gram

(Unit- Arrivals in Lakh Tonnes)

State	July 01, 2015 to May 31, 2016	July 01,2016 To May 31,2017	% Change over 2015-16
Andhra Pradesh	0.200	0.040	-79.86
Assam	0.136	0.131	-3.33
Chattisgarh	0.268	0.156	-41.84
Gujarat	0.339	0.520	53.30
Haryana	0.028	0.009	-68.79
Jharkhand	0.009	0.001	-94.26
Karnataka	0.872	0.847	-2.93
Kerala	0.042	0.023	-44.66
Madhya Pradesh	7.050	8.082	14.64
Maharashtra	3.173	3.635	14.57
Manipur	0.013	0.012	-5.58
NCT of Delhi	0.001	0.001	59.19
Orissa	0.000	0.000	-91.71
Punjab	0.030	0.000	-99.90
Rajasthan	1.117	2.381	113.23
Tamil Nadu	0.002	0.000	-91.91
Telangana	0.002	0.015	779.98
Tripura	0.000	0.003	-
Uttar Pradesh	1.838	1.957	6.46
Uttrakhand	0.016	0.006	-60.14
West Bengal	0.063	0.074	17.11
Total	**15.199**	**17.893**	**17.72**

***Source:** AGMARKNET*

***Note:** During 2015-16 the AGMARKNET data for Gram was captured under two heads i.e. Bengal Gram and Big Gram and the same was merged and reported in a single commodity name: Bengalgram (Gram) w.e.f 11.03.2016.*

(Table-VI): State-wise market arrivals and prices of gram

(Rate in Rs./Qtls; Arrivals-lakh Tonnes)

State	Market Rates				Market Arrivals			
	2014	2015	2016	2017	2014	2015	2016	2017
MSP	**3100**	**3175**	**3425**	**4000**				
M.P.	2673	4241	5623	5370	0.967	0.379	1.558	1.942
Maharashtra	2519	4287	5587	5420	0.459	0.311	0.342	0.559
Rajasthan	2710	4201	5566	5229	1.190	0.322	0.252	0.671
Karnataka	2661	4674	5687	6367	0.132	0.068	0.065	0.091
Andhra Pradesh	2824	3712	5061	5954	0.005	0.012	0.000	0.007
Chhattisgarh	2661	4417	5510	5451	0.013	0.011	0.050	0.028
Uttar Pradesh	3350	4218	5735	5793	0.241	0.211	0.232	0.262
Jharkhand	3580	5528	6208		0.017	0.004	0.000	0.000
Gujarat	2698	4412	5719	5352	0.067	0.038	0.041	0.069
Telangana	2474	4229	4390	5756	0.000	0.000	0.000	0.001
Bihar					0.000		0.000	0.000
West Bengal			11250	9100	0.000		0.016	0.008
All-India	**3312**	**4471**	**6135**	**6468**	**3.104**	**1.386**	**2.588**	**3.664**

Source: *AGMARKNET*

- The all India market arrival of gram during May, 2016 was 2.59 lakh tons which was about 3.61% of the total gram production during 2015-16 whereas during May, 2017 it is 3.66 lakh tons which is about 4.04 % of total gram production during 2016-17 which is only 0.43 % higher than the last year.

- The market arrival during May, 2014 was 3.10 lakh tons which is only 3.26% of the total gram production during 2013-14, the ever highest gram production year with 95.25 lakh tons of production of Chana. It reveals that the arrivals percentage of gram during the current year (May 1st-31st, 2017) is higher by 0.78 % than the ever highest gram production year of 2013-14 during corresponding period (May 01st-31st, 2014).

- The trend of monthly wholesale prices of gram during last five years exhibit that the market rates are directly related with the production, the decreasing trend of prices observed during the 2014 and current year 2017 due to record production of gram during 2013-14 & 2016-17. The increasing price trend observed during 2015 and 2016 in view of less production during 2014-15 & 2015-16. During the current year wholesale price of gram during the month of January to May, 2017 show decreasing trend due to increasing trend of market arrivals with 17.72% higher than the last year in the same period.

7.3 Factors attributing to lower market prices (Below MSP)

- During 2016-17, as a result of significant increase in the area coverage and productivity of all major Pulses, total production of pulses is estimated at 22.95 million tonnes which is higher by 3.70 million tonnes (>19 %) than the earlier record production of 19.25 million tonnes achieved during 2013-14.

- The production of total pulses during the year under report is also higher by 4.77 million tonnes (>27%) than its Five yearsô average, as also higher by 6.60 million tonnes (>40%) over the last year i.e. 16.35 million tonnes.

- The availability status of the pulses during the current year, both under total pulses and individual crop category, has increased considerably. Once the availability is sufficient, the prices are bound to be comparatively low.

- The market arrival status of the pulses during the current year under individual crop category has increased significantly. Once the supply increased over its demand, prices/rates are declined.

- It is evident from the table depicting the increasing trend of availability of individual pulses as well as total pulses, the increased availability, may be a major factor for low ruling prices during the current month/year.

- Currency demonetization and implementation of GST may likely to impact the rotation of money under trading, resultantly poor holding of stocks in relation to the capacity of the traders/ processors.

- Imposing of 5% GST on *branded dals* and relaxing *non-branded dals* i.e., 0% GST, may also be attributed to comparatively poor procurement by the traders /processors/millers, fearing the assured profit-margin over the investment.

- Except, the big processors/traders, the other small scale entrepreneurs may be reluctant and unwilling to put the *brands*. During the course of interactions/ discussions with the millers, it is given to understand that the traders lobby anticipates the policy decision of the Government to open the export of this commodity.

- It is relevant to mention that the Lentil is exported to Myanmar (>35 %), USA (> 25 %), Kuwait (> 7 %) and Bhutan and Singapore (approx. 6 %). Similarly, tur is exported to Nepal (> 78 %), Canada (> 19 %) and Israel (approx 2%). Mung/Urd is also exported to USA (> 49 % of total export of this commodity) followed by Sri lanka and Canada (> 7 %).

- It should also be noted that the MSP procurement under PSF/PSS are for FAQ Grade, fetching MSP rates. Whereas, the lower prevailing rates of these pulses in the market are for ungraded/below FAQ grade of pulses.

- It is pertinent to record that for a stable remunerative price support under pulses, the stateôs own initiatives on procurement always pays dividends. In Karnataka, > 80000 qtls of tur dal have been procured during 2016-17 here the open market rates have been comparatively much better than the other states having no such provision.

- As per Agmarknet portal, the mandi arrivals of Bengal Gram (Chana) for all the states from 01.07.2016 to 31.05.2017 are 17.72% higher as compared to the corresponding period of last year (2015-16).

- The arrivals during the current year/month are higher than the corresponding year/month of the last year 2016. The probable reasons of higher arrival and prevailing market prices may be attributed to the followings:

- The higher MSP regime in pulses (Gram) is paying dividends to pulse growers in fetching remunerative prices of their produce. Currently price is above the MSP and is sustaining above MSP, because of procurement by the Government in major gram producing states.

- There is no carry forward stock (31st March, 2017) with the farmers, millers, 92rhar92ize, traders and also the public sector agencies like NAFED and the produce being sold both at organized and non-organized trading routes.

- Holding of stocks by the farmers with access to information network, enhanced holding capacities anticipating further better prices correlating the previous year price regime.

- Farmersô enhanced access to get finance through sale proceeds of wheat crop and the KCCs and generally not constrained to distress sale.

- The price trends have been decreasing from March/April onwards during the current year as compared to the corresponding period of last year. It is an indicative that production is more. The status market arrivals during the current year is better than the last year due to excess production of gram during the current year.

- Generally, of the total production/ quantity of the gram commodity i.e., 42-43 percent of the, Total availability (Total production + Import ï Export-Change in stock over year-NSSO based consumption) is retained as stock and the remaining 56-58 percent of the total available quantity remains under trading.

Unit-VIII
State Profile and Scenario: Madhya Pradesh and Chhatisgarh

Particulars		Status		
Population (Crore)		7.27 (Male- 3.77, Female-3.51)		
Population Growth (%)		20.35 ï 2011		
Revenue Districts (Nos.)		51		
Block/Janpad Panchayat (Nos.)		313 (89 Tribal Blocks)		
Village Panchayat (Nos.)		23006		
Tehsil (Nos.)		364		
Total Village (Nos.)		54903		
Krishi Upaj Mandi (Nos.)		520		
Annual Rainfall (Ave.)		1200 mm		
Land Use Pattern (Area : lakh ha)			**Agricultural land use (Area –lakh ha)**	
Geographical Area		**307.56**	Net sown area	154.55
Cultivable area		158.72 (51.60%)	Double Cropped Area	83.62
Forest area		85.88 (27.92%)	Gross cropped area	238.17
Land under non-agricultural use		19.92 (6.48%)	Kharif Area	152.52
Permanent pastures		13.48 (4.38%)	Rabi Area	85.65
Cultivable wasteland		8.67 (2.82%)	Cropping Intensity	156 %
Barren and uncultivable land		14.06 (4.57%)		
Current fallows		7.69 (2.50%)		
Particulars		**Status**		
Operational Land Holding (Area : Lakh ha, Number-Lakh)				
Average Size of Social Groups		**Average Size (ha)**	**Numbers (%)**	**Area (%)**
Marginal	(< 1 ha)	0.49	38.91 (43.85)	19.15 (12.09)
Small	(1 to 02 ha)	1.42	24.49 (27.60)	34.66 (21.89)
Semi Medium	(02 to 04 ha)	2.73	16.55 (18.65)	45.10 (28.48)
Medium	(04 to 10 ha)	5.76	7.89 (8.90)	45.45 (28.70)
Large	(10 ha & Above)	15.73	0.89 (1.00)	14.00 (8.84)
Total		**1.78**	**88.73**	**158.36**
Irrigation (lakh ha)			**Sources of Irrigation (Area : lakh ha)**	
Net irrigated area		85.50 (64%)	Canals	10.91 (17 %)
Gross irrigated area		89.65	Tanks	1.49 (2.34 %)
Rainfed area		60%	Open wells	24.03 (37.75%)
			Bore wells/Tube Wells	17.93 (28.17%)
			Other Sources	14.25 %
			Total Irrigated Area	**63.65**
Major Soils (Area – lakh ha)				
1. Alluvial Soil		33.5 (11%)	2.Deep Medium black soils	162.1 (53%)
3. Shallow & Medium Black Soil		30.6 (10%)	4. Mixed Red & Black Soil	81.1 (26%)
Major Crops				
% Share to TKA*	Soybean (42%), Paddy (16%), Urd (9%), Maize (9%), Tur (6%),			
% Share to TRA*	Wheat (55%),Gram (28%),Mustard(7%),Lentil (5%),Pea (2%),Linseed (1%).			
Ranking & % Share to TPI*	1st ï Pulses (27%), Oilseeds (27%), Soybean (50%), Gram (39%), Niger (35%) 2nd ï Lentil (33%), Pea (27%), Mustard (11%); 3rd ï Arhar (17%), Wheat (18%)			
Development Programme under implementation				
NFSM	NFSM-Paddy (8) ; Wheat (16) ; Pulses (51); Coarse Cereals (16); Cotton (10); Sugarcane (8) PMT District-51 Mini Mission I- (Oilseeds), Mini Mission III- (TBOs)			

**Source- ENVIS, Centre of M.P. State. TKA-Total Kharif Area; TRA* - Total Rabi Area; TPI* Total Production inIndia*

(Table-8.1): Kharif ï 2017: Target/Achievement

(A-lakh ha, P-lakh tons, Y-kg/ha)

S.No	CROPS	Target			Achievement			% Increase/Decrease over Target		
		Area	Prod.	Yield	Area	Prod.	Yield	Area	Prod	Yield
1	Rice	21.42	68.41	3194	20.23	69.89	3455	-6	2	8
2	Sorghum	2.42	5.40	2231	2.70	7.06	2615	12	31	17
3	Bajra	2.42	5.41	2236	3.10	9.02	2910	28	67	30
4	Maize	12.21	33.48	2742	13.17	49.10	3728	8	47	36
5	Arhar	8.22	9.44	1148	6.47	9.74	1505	-21	3	31
6	Urdbean	11.28	6.75	598	17.89	17.71	990	59	162	65
7	Mungbean	2.79	1.59	570	2.28	1.63	715	-18	3	25
8	Soybean	55.49	69.00	1243	50.10	69.39	1385	-10	1	11
9	Groundnut	2.55	4.59	1800	2.18	3.46	1587	-15	-25	-12
10	Cotton	5.79	12.81	2212	6.03	11.03	1829	4	-14	-17
11	Others	7.87	4.61	586	6.61	3.15	477	-16	-32	-19
	Total Cereals	**38.47**	**112.70**	**2930**	**39.20**	**135.07**	**3446**	**2**	**20**	**18**
	Total Pulses	**22.29**	**17.78**	**798**	**26.64**	**29.08**	**1092**	**20**	**64**	**37**
	Total Foodgrain	**68.63**	**135.09**	**1968**	**72.45**	**167.30**	**2309**	**6**	**24**	**17**
	Total Oilseeds	**58.04**	**73.59**	**1268**	**52.28**	**72.85**	**1393**	**-10**	**-1**	**10**
	Total All Crops	**132.46**	**221.49**	**1672**	**130.76**	**251.18**	**1921**	**-1**	**13**	**15**

Source- *State Department of Agriculture*

(Table-8.2): Rabi: Crop-Wise Area and Targets

Area (lakh ha)

S.No	Crops	Normal		2016-17	Target 2017-18
		AI	MP		
1	Wheat	304.43	54.96	64.22	55.96
2	Others	100.93	0.88	1.4	1.62
3	Gram	86.81	30.41	32.22	36.02
4	Lentil	14.16	5.76	5.74	7.56
5	Peas	9.93	3.32	5.05	6.09
6	Other Pulses	28.62	1.6	0.37	0.24
7	Rapeseed/Mustard	63.2	7.32	7.08	8.35
8	Linseed	3.11	1.22	1.21	1.52
9	Others	15.15	0	0.32	0
10	Sugarcane	49.96	0.83	0.92	0.95
A	**Total Cereals**	**405.36**	**55.84**	**65.62**	**57.58**
B	**Total Pulses**	**139.52**	**41.09**	**43.38**	**49.91**
C	**Total Foodgrain**	**544.88**	**96.93**	**109**	**107.49**
D	**Total Oilseeds**	**81.46**	**8.54**	**8.61**	**9.87**
E	**Total Crops***	**676.3**	**106.3**	**118.53**	**118.31**

(N- DES Ave. 2011-12 to 2015-16)

(Table-8.3): Total Crops ï 2017-18 : Targets & % Contri. At National Level

(A-lakh ha, P-lakh tons, Y-kg/ha)

Sr. No.	State/ All India / Crop	Target – 2017-18						% Contribution of MP	
		MP			All India				
		A	P	Y	NA*	P	Y	A	P
1	Paddy	21.42	68.41	3194	395.94	945.00	2387	5	7
2	Rabi/S. Paddy	-	-	-	41.07	140.00	3409	0	0
3	Wheat	55.96	208.45	3725	304.43	975.00	3203	18	21
4	Barley	1.62	1.42	877	6.62	16.50	2492	24	9
5	Jowar	2.42	5.40	2231	60.98	57.50	943	4	9
6	Bajra	2.42	5.41	2236	76.66	95.00	1239	3	6
7	Maize	12.21	33.48	2742	73.30	260.00	3547	17	13
8	Tur	8.22	9.44	1148	39.24	42.50	1083	21	22
9	Mung	2.79	1.59	570	32.67	23.00	704	9	7
10	Urd	11.28	6.75	598	32.64	26.10	800	35	26
11	Gram	36.02	55.16	1531	86.80	97.50	1123	41	57
12	Peas	6.09	6.55	1076	9.93	8.90	897	61	74
13	Lentil	7.56	8.11	1073	14.14	10.44	738	53	78
14	Soybean	55.49	69.00	1243	112.68	146.99	1304	49	47
15	Groundnut	2.55	4.59	1800	48.98	90.00	1838	5	5
16	R&M	8.35	11.33	1357	61.38	81.00	1320	14	14
17	Linseed	1.51	0.61	404	2.84	2.00	703	53	31
18	Sugarcane	0.75	3.82	5093	49.97	3550.00	71049	2	0
19	Cotton	5.79	12.81	2212	122.45	355.00	2899	5	4
20	Other Kharif Crops	7.87	4.61	586	-	-	-	-	-
21	Other Rabi Crops	0.45	0.41	911	-	-	-	-	-
	Total Cereals	**96.05**	**322.57**	**3358**	**959.01**	**2489.00**	**2595**	**10**	**13**
	Total Pulses	**71.96**	**87.60**	**1217**	**215.42**	**208.44**	**968**	**33**	**42**
	Total Foodgrains	**176.33**	**415.19**	**2355**	**1174.42**	**2697.44**	**2297**	**15**	**15**
	Total Oilseeds	**67.90**	**85.53**	**1260**	**225.89**	**319.99**	**1417**	**30**	**27**
	Total Crops	**250.77**	**517.35**	**2063**	**1572.73**	**6922.43**	**4402**	**16**	**7**

Source- *MP – State Department of Agriculture; All India – DES, GoI, Min. of Agri. ND*

NA Normal Area (Ave. 2011-12 to 2015-16), DES,*

(Table-8.4): NFSM/Other CSS ï 2017-18: Allocation/ Expenditure

(Rs. In Crore)

Scheme	Allocation		Total	Release (CS)	Revali	Total Avail. Funds	Expenditure			% Utili. (CS)	
	Central	State					Central	State	Total	Allo	Aval.
NFSM											
Pulses	232.00	154.67	386.66		152.99	152.99	17.32	11.55	28.86	12	19
Additional	103.80	69.20	173.00	103.80		103.80	0.00	0.00	0.00	0	0
Sub Total	**335.80**	**223.87**	**559.66**	**103.80**	**152.99**	**256.79**	**17.32**	**11.55**	**28.86**	**9**	**11**
Paddy	10.76	7.17	17.93		6.60	6.60	0.88	0.59	1.46	14	22
Wheat	21.39	14.26	35.66		8.83	8.83	0.17	0.12	0.29	1	3
Coarse Cereals	8.53	5.69	14.22		4.19	4.19	1.24	0.83	2.07	24	49
Cotton	0.60	0.40	1.00				0.01	0.01	0.02	3	
Sugarcane	0.20	0.13	0.33				0.03	0.02	0.05	24	
NFSM Total	**377.28**	**251.52**	**628.81**	**103.80**	**172.60**	**276.40**	**19.65**	**13.10**	**32.75**	**9**	**12**

NMOOP											
(MM-I)	60.03	40.02	100.05	8.28	23.60	31.88	6.48	4.32	10.81	18	34
(MM-IIII)	0.22	0.15	0.37	0.06	0.01	0.06	0.00	0.00	0.00	0	0
RKVY	226.46	150.97	377.43	188.50	121.15	309.65	65.94	43.96	109.90	49	35
NMSA(RAD)	4.00	2.67	6.67	0.00	6.69	6.69	0.50	0.33	0.83	21	12
SAME-ATMA	48.62	32.41	81.03	40.52	4.90	45.42	9.20	6.14	15.34	32	34
SMSP-NMAET	12.00	8.00	20.00	7.57	22.67	30.25	0.30	0.20	0.49	4	2
Total Above	**728.61**	**485.74**	**1214.36**	**348.72**	**351.63**	**700.35**	**102.07**	**68.05**	**170.12**	**23**	**24**

Source : *NFSM Allocation and Release CA-V; Outlay 2017-18 Rs. 628.81 Cr. (CS- Rs. 377.28 + and SS- Rs. 251.52) . Release (Oct. 30th 2017) Rs. 103.80 Cr. CS towards Additional Area Coverage; Rs. 172.60 Crore, unspent balance of April 01st 2017 revalidated. Thus the Total Available Fund 2017-18 Rs. 276.40 Crore. (As on 07.11.2017).*

8.1 Madhya Pradesh Crop Scenario: Plan Analysis (XIth- XIIth Plan)

A. Kharif Crops

Kharif Impact Analysis: The comparative analysis of crop performance during the XIth Plan period and XIIth Plan period reveal that the NFSM interventions since 11th Plan has paid dividends in the production and yield of Paddy which is 104% and 59% higher during XIIth Plan over its previous five year Plan and also seen under Bajra (33%, 73% and 30%) and Maize (22%, 92% and 57%) with an increase in area, production and yield respectively. The other pulses & oilseeds crops also replaced through diversification by Arhar, Urd Mung, Groundnut and Til in kharif season are Jowar (> 48%), Small Millets (> 35%), Kulthi (> 28%), Niger (> 37%) and Cotton (> 7%) of concerned here. The production trend for kharif crops has shown an increasing trend in Paddy, Bajra, Maize, Arhar, Urd, Mung, G.Nut and Til. As regards the per hectare yield, quantum jump has been recorded under Cotton, Niger, Paddy, Maize, Urd and Arhar at > 104, 67, 59, 57, 56 and 48 % respectively

(A-Lakh ha, P-Lakh tonnes, Y-kg/ha)

S. N.	Crops	State/ AI	XI Plan			XII Plan			% Share in XII Plan			Increase/decrease over XI Plan		
			A	P	Y	A	P	Y	A	P	YI	A	P	Y
A	**Cereals**													
1	Paddy	MP	15.90	16.56	1041	20.50	33.90	1654	4.71	3.19	68	28.90	104.67	59
		AI	**436.53**	**972.49**	**2228**	**434.84**	**1061.85**	**2442**				**-0.39**	**9.19**	**10**
2	Jowar	MP	4.57	5.93	1297	2.37	4.38	1848	4.03	8.66	215	-48.18	-26.17	42
		AI	**73.42**	**69.71**	**949**	**58.75**	**50.49**	**859**				**-19.98**	**-27.56**	**-9**
3	Bajra	MP	1.72	2.79	1616	2.30	4.84	2103	3.11	5.37	173	33.60	73.86	30
		AI	**91.24**	**92.03**	**1009**	**74.05**	**90.20**	**1218**				**-18.84**	**-1.99**	**21**
4	Maize	MP	8.49	11.32	1333	10.41	21.75	2088	11.45	9.11	80	22.60	92.04	57
		AI	**85.46**	**203.65**	**2383**	**90.97**	**238.79**	**2625**				**6.45**	**17.26**	**10**
5	Small millet	MP	2.80	0.84	300	1.80	0.87	481	27.53	20.81	76	-35.79	2.93	60
		AI	**8.80**	**4.57**	**519**	**6.53**	**4.16**	**637**				**-25.83**	**-8.97**	**23**
6	*Kha. Coarse Cereals	MP	17.59	20.88	1187	16.93	31.85	1882	7.00	7.94	113	-3.76	52.59	59
		AI	**272.20**	**390.73**	**1435**	**241.74**	**401.38**	**1660**				**-11.19**	**2.73**	**16**
7	Total Cereals	MP	33.49	37.44	1118	37.43	65.76	1757	5.53	4.49	81	11.75	75.63	57
		AI	**708.73**	**1363.22**	**1923**	**676.58**	**1463.23**	**2163**				**-4.54**	**7.34**	**12**

****Kharif Coarse Cereals incl. (Jawar, Bajra, Maize, Ragi, Small Millets)***

B	Pulses													
1	Arhar	MP	4.06	2.57	632	5.57	5.20	934	13.26	16.09	121	37.13	102.74	48
		AI	**37.90**	**26.66**	**703**	**42.00**	**32.33**	**770**				**10.84**	**21.28**	**9**
2	Urd	MP	5.15	1.83	354	8.38	4.64	553	31.03	31.57	102	62.59	153.85	56
		AI	**23.24**	**11.09**	**477**	**27.01**	**14.69**	**544**				**16.20**	**32.45**	**14**
3	Moong	MP	0.83	0.27	328	1.49	0.67	448	5.99	6.50	109	79.94	145.48	36
		AI	**26.41**	**10.50**	**397**	**24.90**	**10.27**	**413**				**-5.71**	**-2.12**	**4**
4	Kulthi	MP	0.23	0.07	301	0.17	0.06	385	6.97	5.82	84	-28.26	-8.24	28
		AI	**3.29**	**1.43**	**433**	**2.39**	**1.10**	**461**				**-27.54**	**-22.87**	**6**
5	*Other Pulses	MP	0.05	0.01	310	0.05	0.03	553	0.33	0.46	139	12.80	100.87	78
		AI	**20.69**	**7.70**	**372**	**15.58**	**6.19**	**397**				**-24.69**	**-19.69**	**7**
6	Total Pulses	MP	10.32	4.75	460	15.66	10.60	677	14.00	16.41	117	51.71	123.21	47
		AI	**111.53**	**57.37**	**514**	**111.88**	**64.57**	**577**				**0.31**	**12.56**	**12**
Other Pulses incl.(Mothbean, Other & Other Pulses)														
C.	**Oilseeds**													
1	Soybean	MP	53.45	61.37	1148	58.45	62.70	1073	51.74	52.69	102	9.35	2.16	-7
		AI	**95.70**	**111.60**	**1166**	**112.96**	**119.00**	**1053**				**18.03**	**6.63**	**-10**
2	G.Nut	MP	2.00	2.56	1277	2.27	3.58	1577	4.72	5.14	109	13.38	40.01	23
		AI	**58.15**	**74.06**	**1274**	**48.13**	**69.69**	**1448**				**-17.23**	**-5.90**	**14**
3	Sesamum/Til	MP	2.46	1.12	456	3.37	1.80	534	19.17	23.08	120	37.13	60.77	17
		AI	**19.07**	**7.38**	**387**	**17.58**	**7.80**	**444**				**-7.81**	**5.72**	**15**
4	Niger/ Ramtil	MP	1.15	0.24	212	0.72	0.25	352	26.64	29.07	109	-37.44	4.21	67
		AI	**3.87**	**1.08**	**280**	**2.69**	**0.87**	**323**				**-30.47**	**-19.69**	**16**
5	Total Oilseeds	MP	59.06	65.29	1106	64.81	68.33	1054	35.73	31.28	88	9.73	4.66	-5
		AI	**176.79**	**194.13**	**1098**	**181.36**	**218.44**	**1204**				**2.58**	**12.52**	**10**
D	Cotton*	MP	6.44	13.15	347	5.99	25.19	715	5.55	7.73	139	-7.05	91.52	106
		AI	**105.05**	**283.82**	**459**	**108.00**	**325.76**	**513**				**2.81**	**14.78**	**12**
*** Thousand bales of 170 kgs each.**														

Source: *DES, M/A, GoI (XIIth Plan* : Average of 2012-13 to 2016-17)***.**

B. Rabi Pulses

(A-Lakh ha, P-Lakh tonnes, Y-kg/ha)

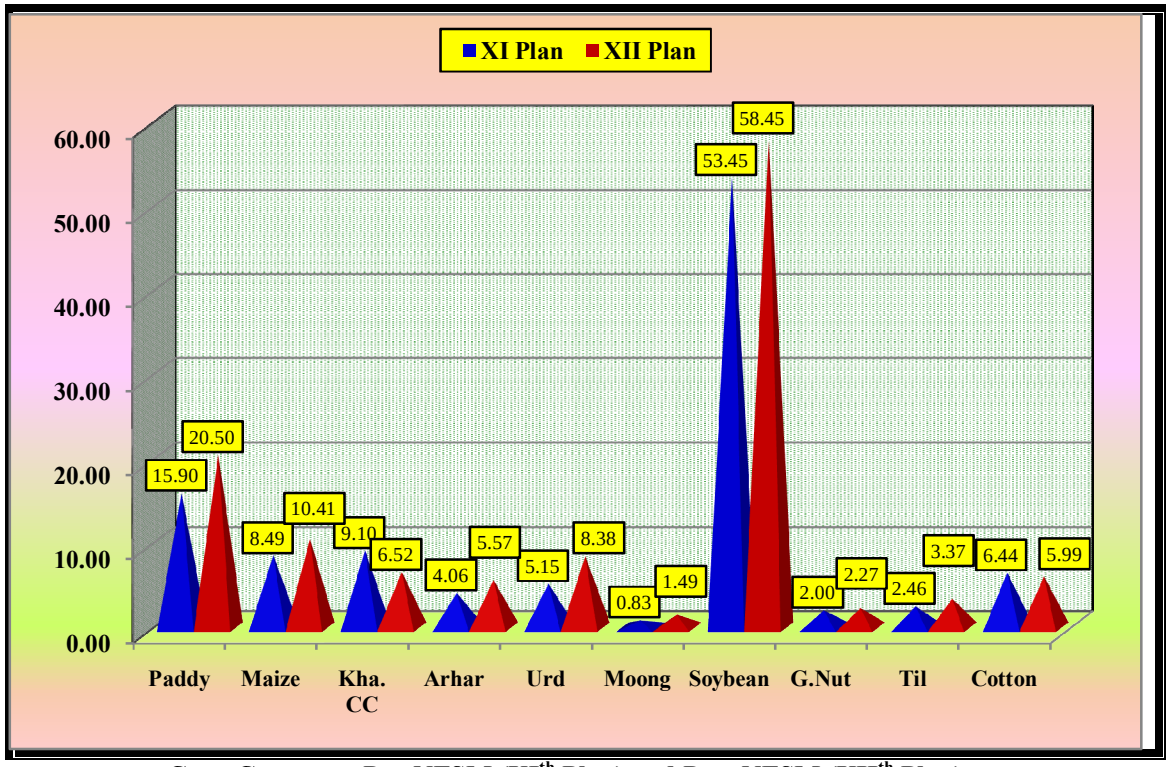
S. No.	Crops	State/ AI	XI Plan			XII Plan*			% Share in XII Plan			Increase/decrease over XI Plan		
			A	P	Y	A	P	Y	A	P	YI	A	P	Y
A.	**Cereals**													
1	Wheat	MP	42.07	80.26	1908	57.07	157.28	2756	18.64	16.89	91	35.65	95.97	44
		AI	**286.38**	**843.65**	**2946**	**306.13**	**931.21**	**3042**				**6.90**	**10.38**	**3**
2	Barley	MP	0.75	1.02	1363	0.94	1.67	1775	14.04	9.94	71	26.30	64.42	30
		AI	**6.58**	**15.06**	**2289**	**6.72**	**16.84**	**2508**				**2.13**	**11.86**	**10**
3	Total Cereals	MP	42.81	81.28	1898	58.01	158.96	2740	18.54	16.77	90	35.49	95.57	44
		AI	**292.95**	**858.71**	**2931**	**312.85**	**948.06**	**3030**				**6.79**	**10.41**	**3**
B.	**Pulses**													
1	Urd	MP	0.07	0.02	348	0.10	0.05	500	1.23	0.79	65	46.20	110.08	44
		AI	**7.63**	**3.99**	**523**	**8.15**	**6.31**	**775**				**6.79**	**58.22**	**48**
2	Moong	MP	0.03	0.01	239	1.01	0.49	487	10.57	8.76	83	3174	6582	104
		AI	**7.54**	**3.34**	**443**	**9.60**	**5.64**	**588**				**27.40**	**68.85**	**33**
3	Kulthi	MP	0.00	0.00	296	0.002	0.001	333	0.07	0.04	65	-62.65	-57.91	13
		AI	**2.11**	**1.08**	**512**	**2.25**	**1.15**	**513**				**6.54**	**6.66**	**0**
4	Gram	MP	29.04	27.61	951	30.76	34.67	1127	34.46	41.06	119	5.92	25.59	19
		AI	**82.18**	**72.42**	**881**	**89.28**	**84.43**	**946**				**8.63**	**16.58**	**7**
5	Lentil	MP	5.50	2.33	424	5.65	3.70	655	41.03	35.56	87	2.68	58.59	54
		AI	**14.64**	**9.60**	**655**	**13.77**	**10.41**	**756**				**-5.94**	**8.42**	**15**
6	Lathyrus	MP	0.47	0.31	654	0.43	0.36	827	9.26	9.54	103	-7.64	16.79	26
		AI	**5.16**	**3.42**	**662**	**4.69**	**3.76**	**803**				**-9.19**	**10.14**	**21**
7	Peas	MP	2.34	0.96	412	3.48	2.80	804	38.65	33.00	85	49.07	191.15	95
		AI	**7.16**	**6.22**	**869**	**9.01**	**8.49**	**942**				**25.95**	**36.48**	**8**
8	*Total Pulses	MP	37.49	31.25	834	41.37	41.42	1001	29.44	33.83	115	10.35	32.55	20
		AI	**133.57**	**104.52**	**783**	**140.55**	**122.42**	**871**				**5.23**	**17.13**	**11**

*Total Pulses incl. (Other Pulses)														
C.	**Oilseeds**													
2	Rapeseed /Mustard	MP	7.22	7.69	1065	7.17	8.11	1131	11.64	10.96	94	-0.76	5.41	6
		AI	**61.01**	**68.85**	**1128**	**61.59**	**73.97**	**1201**				**0.95**	**7.44**	**6**
3	Linseed	MP	1.19	0.46	390	1.14	0.57	504	38.78	39.50	102	-4.17	23.82	29
		AI	**3.80**	**1.57**	**413**	**2.93**	**1.45**	**495**				**-22.94**	**-7.71**	**20**
4	Total Oilseeds*	MP	8.43	8.16	968	8.45	8.70	1030	10.88	9.27	85	0.21	6.54	6
		AI	**90.95**	**95.36**	**1048**	**77.65**	**93.86**	**1209**				**-14.63**	**-1.57**	**15**
D	Sugarcane	MP	0.68	28.07	41023	0.88	41.23	46999	1.79	1.21	67	28.21	46.88	15
		AI	**47.14**	**3258.3**	**69119**	**48.98**	**3420.3**	**69834**				**3.90**	**4.97**	**1**
*** Total Oilseeds include: Safflower, Sunflower & Castor), ** Thousand Bales of 180 kgs each.**														

Rabi Impact Analysis: The comparative analysis of crop performance during the XIth Plan period and XIIth plan reveal that the NFSM interventions since 11th Plan has paid dividends in the production and yield of Wheat which is 95% and 44% higher during XIIth plan over its previous five year Plan and also seen under Sugarcane, Urd, Mung, Gram, Lentil and Peas crop with an increase in area at >28%, 73%, 3174%, 5%, 2%, and 49% whereas, increasing trend in production at 46%, 110%, 6582%, 25%, 58% and 191% respectively. The crops replaced through this diversification in rabi season are Kulthi (> 62%) Lathyrus (> 7%) and Linseed (> 4%) of concern here.

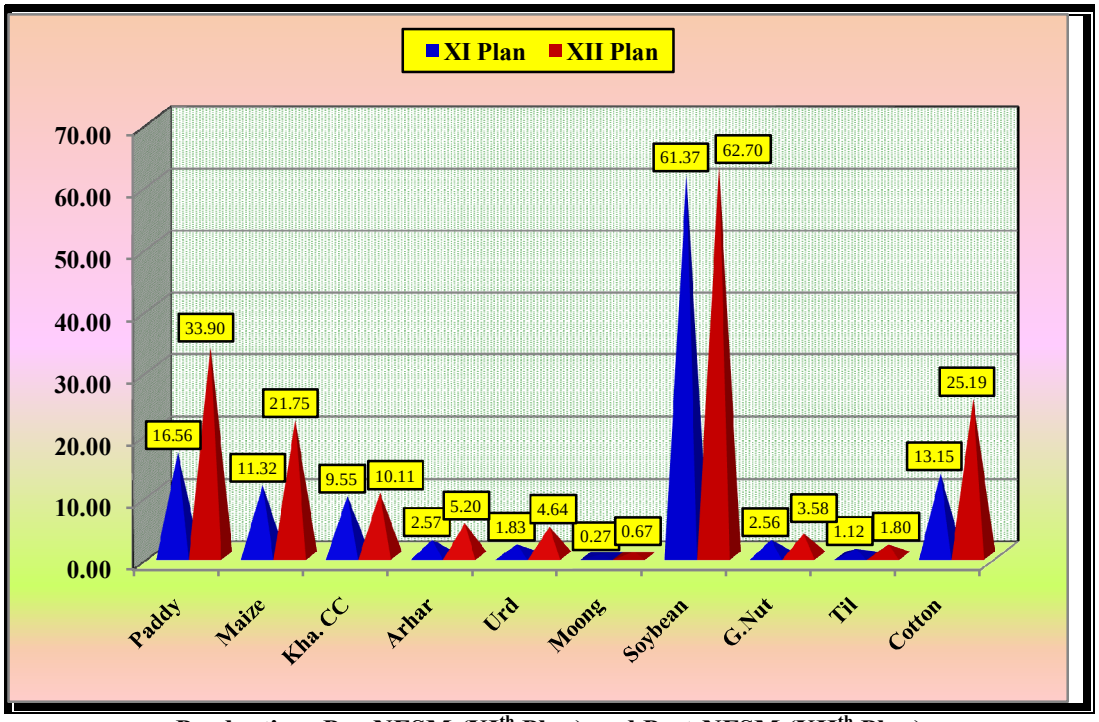
Kharif Crop Scenario: XIth & XII th Plan – Madhya Pradesh

Area



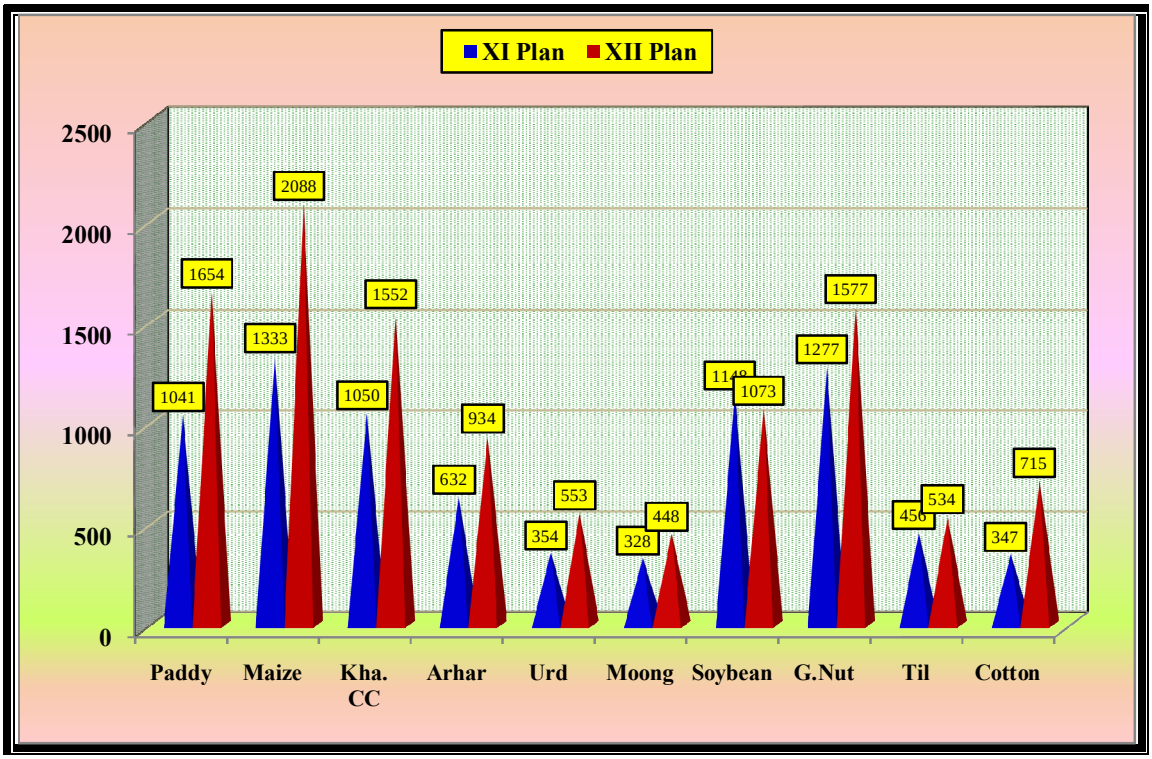
Crop Coverage: Pre-NFSM (XIth Plan) and Post-NFSM (XIIth Plan)

Production



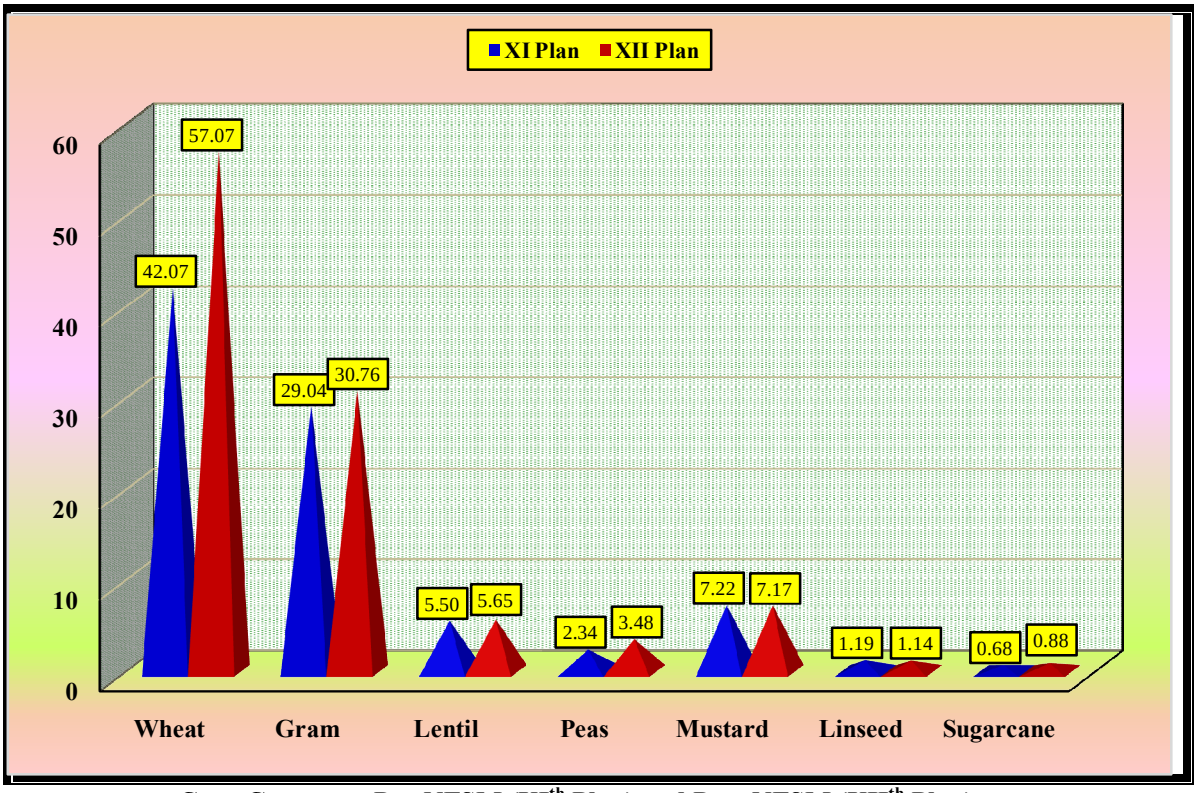
Production: Pre-NFSM (XIth Plan) and Post-NFSM (XIIth Plan)

Yield



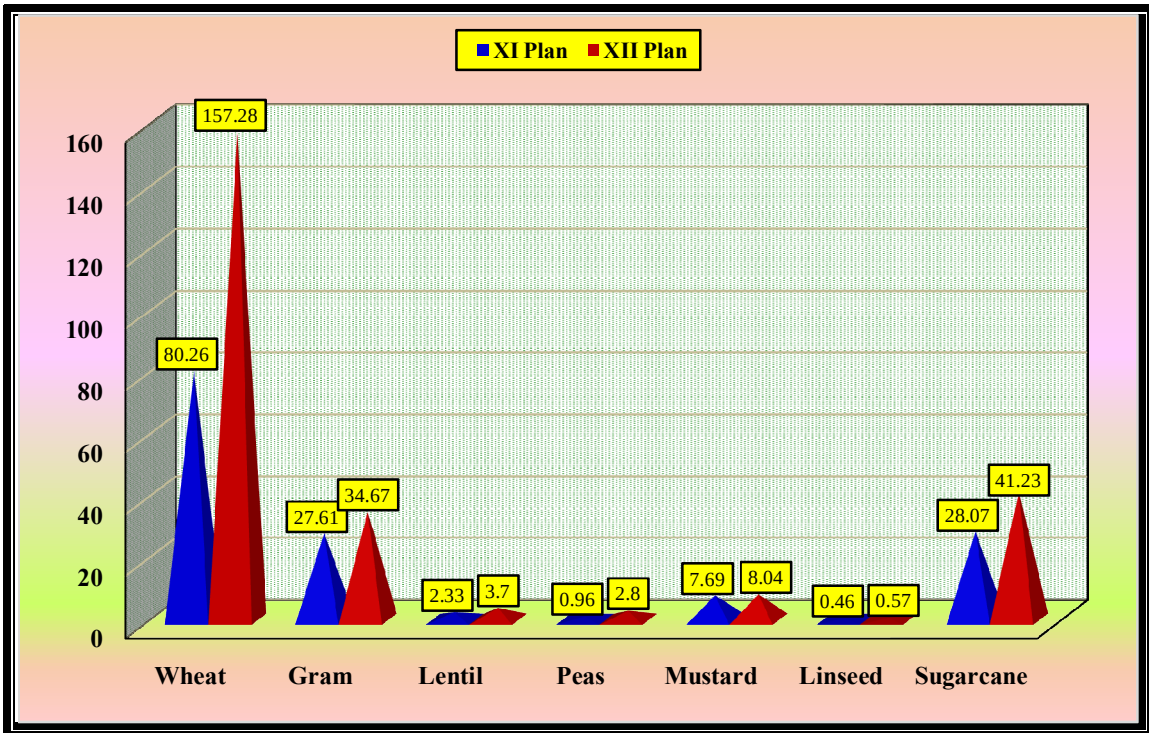
Yield: Pre-NFSM (XIth Plan) and Post-NFSM (XIIth Plan)

Rabi Crop Scenario: XIth & XII th Plan – Madhya Pradesh



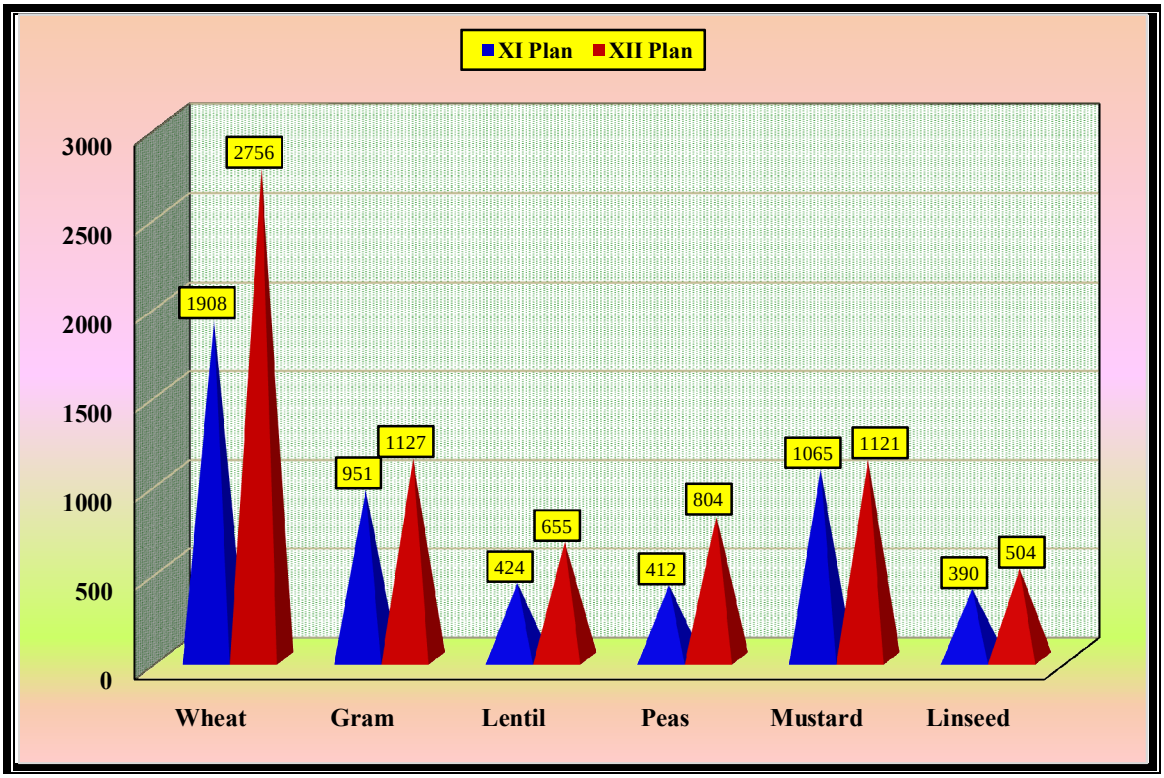
Crop Coverage: Pre-NFSM (XIth Plan) and Post-NFSM (XIIth Plan)

Production



Production: Pre-NFSM (XIth Plan) and Post-NFSM (XIIth Plan)

Yield



Yield: Pre-NFSM (XIth Plan) and Post-NFSM (XIIth Plan)

STATE PROFILE: CG

Particulars	STATUS		
Population(crore)	2.56 (Male- 1.29, Female-1.28)		
Population Growth (%)	22.61 ï 2011		
Forest Village	74		
Revenue Districts(Nos.)	27		
Block/ Janpad Panchayat (Nos.)	146		
Village Panchayat (Nos.)	10971		
Tehsil (Nos.)	150		
Total Village (Nos.)	20273		
KrishiUpajMandi(Nos.)	73		
Annual Rainfall (Ave.)	1296 mm		
Land Use Pattern (Area : lakh ha)		**Agricultural land use (Area –lakh ha)**	
Geographical Area	138.00	Net sown area	47.75
Cultivable area	57.28 (41.53%)	Double Cropped Area	10.47
Forest area	63.15 (45.80%)	Gross cropped area	65.25
Land under non-agricultural use	10.30 (7.46%)	*Kharif* Area	47.75
Permanent pastures	5.25 (3.80%)	*Rabi* Area	17.50
Cultivable wasteland	3.51(2.55%)	Cropping Intensity	137%
Barren and uncultivable land	8.88 (6.43%)		
Current fallows	2.67 (1.93%)		
Irrigation (Area: lakh ha)		**Source of Irrigation**	**(Area : lakh ha)**
Net irrigated area	14.68	Canals	9.03 (61.55%)
Gross irrigated area	17.87	Tanks	0.43 (2.93%)
Rainfed area (to Cultivable Area)	39.41 (69%)	Open wells	0.20 (1.37%)
		Bore wells/ Tube Wells	4.28 (29.17%)
		Other Sources	0.73 (4.98%)
		Total Irrigated Area	**14.67**
Soil Type (Area – lakh ha)			
Alluvial Soil (Kachhar)	1.38 (2.7%)	Inceptisols (Matasi)	13.54 (26.9%)
Entisols (Bhata)	10.02 (20%)	Vertisols (Kanhar)	11.43 (22.8%)
Alfisols (Dorsa)	13.82 (27 %)	**Land Classif. Total**	**50.19**
Major Agricultural crops			
Kharif	Paddy, Pigeonpea. Soyabean, Maize,Mung, Urd, Kulthi		
Rabi	Wheat, Gram, Mustard, Safflower, Lathyrus, Field Pea, Lentil, Linseed, Groundnut		
Development Programme CSS / CS			
NFSM	NFSM-Paddy (13) ; Pulses (27); Coarse Cereals (08); Nutri-Cereals (10)PMT District- 27		
	Mini Mission I- (Oilseeds) Mini Mission III- (TBOs)		
TRFA	Districts(09)- Gariyaband,Raigarh, Rajnandgaon, Kanker, Kondagaon, Sarguja, Bilaspur, Baloda Bazar, Jagdalpur		
RKVY	Districts (27)		
(*Source- ENVIS, Centre of CG State)			

Note: Farm Families-37.46 lakh (80% small & Marginal farmers);> 57 % soil is medium to light Soil (i.e. Entisols, Alfisols & Inceptisols).

(Table-8.5): Kharif 2017 1st Advance Estimate : 2017

(A-Lakh ha, P-Lakh tonnes, Y-kg/ha)

Crops	Area	Production	Yield
Rice	36.88	67.53	1831
Maize	2.25	4.25	1889
Minor Millets	0.61	0.24	393
Total Cereals	**39.74**	**72.02**	**1812**
Arhar	1.40	0.91	650
Urd+ Moong	1.80	0.82	456
Kulthi (Horse Gram)	0.45	0.20	444
Total Pulses	**3.65**	**1.93**	**529**
Soybean	1.35	1.74	1289
Niger	0.80	0.25	313
Other Oilseeds	0.96	1.00	1042
Total Oilseeds	3.11	2.99	961
Vegetable & Other Crops	1.40		
Grand Total	**47.90**	**76.94**	**3302**

(Table-8.6): Rabi Target: 2017-18

(A-lakh ha, P-lakh tonnes)

Crop	Chhattisgarh		
	TA	TP	TY
Wheat	1.85	2.87	1551
Summer Paddy	1.60	4.72	2950
Other Cereals	0.90	2.00	2222
Total Cereals	**4.35**	**9.59**	**2205**
Gram	3.90	4.39	1126
Pea	0.60	0.27	450
Lathyrus	3.50	2.36	674
Other Pulses	**1.10**	**0.38**	**345**
Total Pulses	**9.10**	**7.40**	**813**
Rape-seed /Mustard	1.60	0.89	556
Linseed	0.60	0.26	433
Other Oilseeds	0.51	0.52	1020
Total Oilseeds	**2.71**	**1.67**	**616**
Sugarcane	0.37	1.20	3243
Other crops	1.90	0.00	0
Total Rabi Crops	**18.43**	**19.86**	**1078**

Source: *SDA, CG*

(Table-8.7): Allocation & Expenditure Kharif (2017-18)

Rs. In Lakh

S.No	Name of Crop/ Scheme	Revalidate	Allocation	Release	Fund Available	Expenditure	Unspent Balance as on 01.08.2017
1	Paddy	2048.29	5375.77	613.13	2661.42	154.88	2506.54
2	Pulses	571.29	5266.83	621.83	1193.12	234.29	958.83
3	Additional Pulse	118.27	0.00		118.27		118.27
4	Coarse Cereals	114.42	287.75	86.32	200.74	24.03	176.71
	Total	**3144.77**	**10930.35**	**1321.28**	**4466.05**	**413.2**	**4052.85**

9.2 Chhattishgarh Crop Scenario: Plan Analysis (XI-XII Plan)

A. Kharif Crops

Kharif Impact Analysis: The comparative analysis of crop performance during the XIth Plan period and XIIth Plan period reveal that the NFSM interventions since 11th Plan has paid dividends in the production and yield of Paddy which is 28% and 25% higher during XIIth Plan over its previous five year Plan and also seen under maize crop with an increase in area, production and yield at 11 %, 38% and 24% respectively. The crops replaced through diversification by maize and soybean in kharif season are Small Millets (> 32%), Urd (> 11%), Kulthi (> 4%), Til (> 9%) and Niger ((>8%) of concerned here. Reduction in area under Urd and Kulthi is a major cause of concern. The production trend for kharif crops has shown an increasing trend in Maize, Mung, Paddyand Tur. As regards the per hectare yield, quantum jump has been recorded under Mung, Paddy, Maize and Arhar at > 34, 25, 24 and 20 % respectively.

(A-Lakh ha, P-Lakh tonnes, Y-kg/ha)

S. N.	Crops	State / AI	XI Plan			XII Plan			% Share in XII Plan			Increase/decrease over XI Plan		
			A	P	Y	A	P	Y	A	P	YI	A	P	Y
A	**Cereals**													
1	Paddy	CG	37.27	52.23	1402	38.08	66.97	1759	8.76	6.31	72	2.19	28.22	25
		AI	**436.53**	**972.49**	**2228**	**434.84**	**1061.85**	**2442**				**-0.39**	**9.19**	**10**
2	Jowar	CG	0.05	0.06	1180	0.05	0.04	763	0.09	0.08	89	-3.07	-37.34	-35
		AI	**73.42**	**69.71**	**949**	**58.75**	**50.49**	**859**				**-19.98**	**-27.56**	**-9**
3	Bajra	CG	0.00	0.00	1000	0.001	0.001	1000	0.001	0.001	82	0.00	0.00	0
		AI	**91.24**	**92.03**	**1009**	**74.05**	**90.20**	**1218**				**-18.84**	**-1.99**	**21**
4	Maize	CG	1.03	1.61	1567	1.15	2.24	1949	1.26	0.94	74	11.63	38.84	24
		AI	**85.46**	**203.65**	**2383**	**90.97**	**238.79**	**2625**				**6.45**	**17.26**	**10**
5	Small millet	CG	1.65	0.35	212	1.11	0.25	222	17.04	5.94	35	-32.60	-29.58	4
		AI	**8.80**	**4.57**	**519**	**6.53**	**4.16**	**637**				**-25.83**	**-8.97**	**23**
6	*Kha. CC	CG	2.82	2.05	727	2.38	2.54	1068	0.99	0.63	64	-15.48	24.11	47
		AI	**272.20**	**390.73**	**1435**	**241.74**	**401.38**	**1660**				**-11.19**	**2.73**	**16**
7	Total Cereals	CG	40.09	54.28	1354	40.47	69.51	1718	5.98	4.75	79	0.95	28.06	27
		AI	**708.73**	**1363.22**	**1923**	**676.58**	**1463.23**	**2163**				**-4.54**	**7.34**	**12**
Kharif Coarse Cereals incl. (Jawar, Bajra, Maize, Ragi, Small Millets)														

B	Pulses													
1	Arhar	CG	0.55	0.27	497	0.58	0.35	597	1.38	1.07	78	4.78	25.81	20
		AI	**37.90**	**26.66**	**703**	**42.00**	**32.33**	**770**				**10.84**	**21.28**	**9**
2	Urd	CG	1.05	0.31	292	0.93	0.29	315	3.45	2.00	58	-11.05	-4.12	8
		AI	**23.24**	**11.09**	**477**	**27.01**	**14.69**	**544**				**16.20**	**32.45**	**14**
3	Moong	CG	0.09	0.02	270	0.09	0.03	361	0.37	0.33	88	2.19	36.91	34
		AI	**26.41**	**10.50**	**397**	**24.90**	**10.27**	**413**				**-5.71**	**-2.12**	**4**
4	Kulthi	CG	0.48	0.14	298	0.46	0.15	321	19.07	13.28	70	-4.49	2.68	8
		AI	**3.29**	**1.43**	**433**	**2.39**	**1.10**	**461**				**-27.54**	**-22.87**	**6**
5	*Other Pulses	CG	0.05	0.02	317	0.02	0.01	590	0.13	0.20	149	-60.78	-27.04	86
		AI	**20.69**	**7.70**	**372**	**15.58**	**6.19**	**397**				**-24.69**	**-19.69**	**7**
6	Total Pulses	CG	2.22	0.76	344	2.08	0.83	399	1.86	1.29	69	-6.34	8.72	16
		AI	**111.53**	**57.37**	**514**	**111.88**	**64.57**	**577**				**0.31**	**12.56**	**12**
***Other Pulses incl.(Mothbean, Other & Other Pulses)**														
C.	**Oilseeds**													
1	Soybean	CG	0.93	0.92	995	1.09	0.89	817	0.96	0.64	66	17.63	-3.49	-18
		AI	**95.70**	**111.60**	**1166**	**112.96**	**140.08**	**1240**				**18.03**	**25.52**	**6**
2	G.Nut	CG	0.29	0.38	1349	0.26	0.36	1385	0.54	0.52	96	-8.77	-6.40	3
		AI	**58.15**	**74.06**	**1274**	**48.13**	**69.69**	**1448**				**-17.23**	**-5.90**	**14**
3	Sesamum /Til	CG	0.21	0.07	354	0.19	0.07	352	1.06	0.84	79	-9.62	-10.16	-1
		AI	**19.07**	**7.38**	**387**	**17.58**	**7.80**	**444**				**-7.81**	**5.72**	**15**
4	Niger/ Ramtil	CG	0.70	0.12	173	0.64	0.11	177	23.81	13.03	55	-8.69	-6.60	2
		AI	**3.87**	**1.08**	**280**	**2.69**	**0.87**	**323**				**-30.47**	**-19.69**	**16**
5	Total Oilseeds	CG	2.12	1.50	**708**	2.18	1.43	656	1.20	0.65	54	2.72	-4.81	-7
		AI	**176.79**	**194.13**	**1098**	**181.36**	**218.44**	**1204**				**2.58**	**12.52**	**10**
*** Thousand bales of 170 kgs each.**														

Source: *DES, M/A, GoI (XIIth Plan* : Average of 2012-13 to 2016-17)*

Rabi Impact Analysis: The comparative analysis of crop performance during the XIth Plan period and XIIth plan reveal that the NFSM interventions since 11th Plan has paid dividends in the production and yield of Wheat which is 22% and 20% higher during XIIth plan over its previous five year Plan and also seen under Sugarcane, Urd, Kulthi and Gram crop with an increase in area at >74, 57, 37and 16 whereas, increasing trend in production at 81% 50% & 40% and 19%respectively.The crops replaced through this diversification in rabi season are Barley (>20%) Peas (> 2%), Mustard (>11%) and Linseed (>35%) of concern here. The production trend for kharif crops has shown an increasing trend in Sugarcane, Kulthi, Urd, Lathyrus, Wheat, Lentil etc. As regards the per hectare yield, quantum jump has been recorded under Mustard, Peas, Lathyrus, Wheat, & Mung/Lentil at >31, 24, 23 and 21% respectively.

B. RABI PULSES

(A-Lakh ha, P-Lakh tonnes, Y-kg/ha)

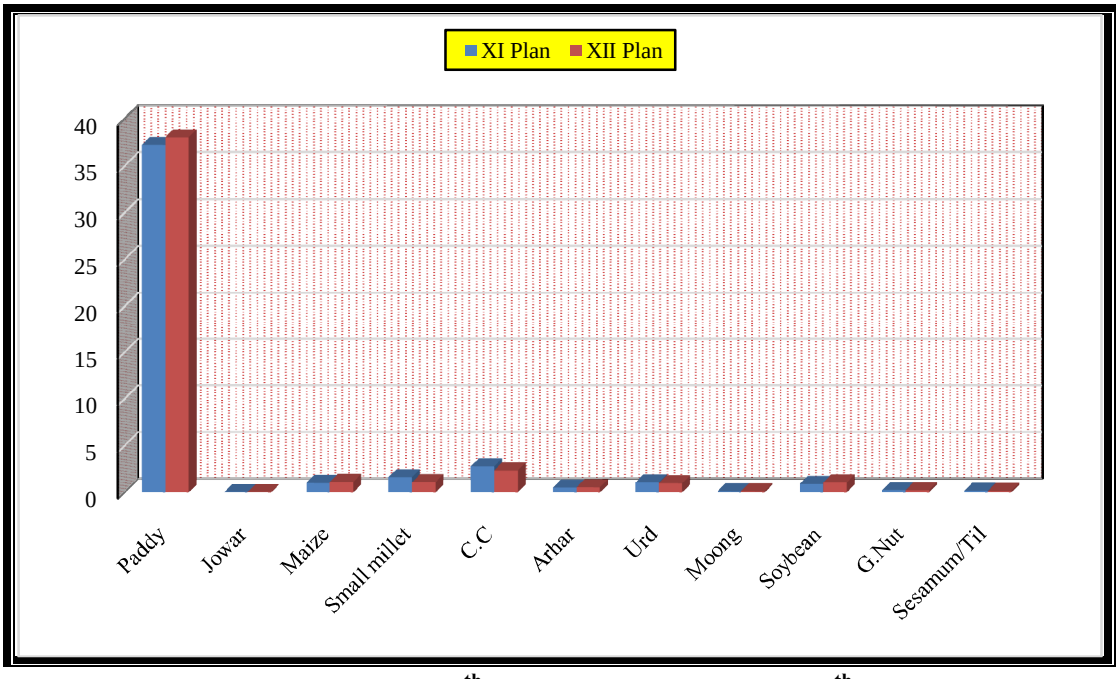
S. No.	Crops	State / AI	XI Plan			XII Plan*			% Share in XII Plan			Increase/decrease over XI Plan		
			A	P	Y	A	P	Y	A	P	YI	A	P	Y
A.	**Cereals**													
1	Wheat	CG	1.03	1.15	1116	1.05	1.40	1338	0.34	0.15	44	1.97	22.25	20
		AI	**286.38**	**843.65**	**2946**	**306.13**	**931.21**	**3042**				**6.90**	**10.38**	**3**
2	Barley	CG	0.03	0.03	833	0.02	0.02	863	0.37	0.13	34	-20.51	-17.69	4
		AI	**6.58**	**15.06**	**2289**	**6.72**	**16.84**	**2508**				**2.13**	**11.86**	**10**
3	Total Cereals	CG	1.06	1.17	1107	1.07	1.42	1327	0.34	0.15	44	1.30	21.36	20
		AI	**292.95**	**858.71**	**2931**	**312.85**	**948.06**	**3030**				**6.79**	**10.41**	**3**

B.	Pulses													
1	Urd	CG	0.04	0.01	255	0.07	0.02	243	0.84	0.26	31	57.87	50.91	-4
		AI	**7.84**	**4.11**	**524**	**8.15**	**6.31**	**775**				**3.89**	**53.53**	**48**
2	Moong	CG	0.07	0.02	229	0.07	0.02	277	0.72	0.34	47	-1.98	18.52	21
		AI	**7.54**	**3.34**	**443**	**9.60**	**5.64**	**588**				**27.40**	**68.85**	**33**
3	Kulthi	CG	0.03	0.01	295	0.04	0.01	300	1.83	1.07	58	37.90	40.02	2
		AI	**2.11**	**1.08**	**512**	**2.25**	**1.15**	**513**				**6.54**	**6.66**	**0**
4	Gram	CG	2.44	2.22	908	2.84	2.66	935	3.18	3.15	99	16.31	19.78	3
		AI	**82.18**	**72.42**	**881**	**89.28**	**84.43**	**946**				**8.63**	**16.58**	**7**
5	Lentil	CG	0.16	0.05	322	0.16	0.06	389	1.13	0.58	51	0.55	21.41	21
		AI	**14.64**	**9.60**	**655**	**13.77**	**10.41**	**756**				**-5.94**	**8.42**	**15**
6	Lathyrus	CG	3.39	1.99	589	3.41	2.46	723	72.75	65.47	90	0.65	23.53	23
		AI	**5.16**	**3.42**	**662**	**4.69**	**3.76**	**803**				**-9.19**	**10.14**	**21**
7	Peas	CG	0.16	0.06	352	0.15	0.07	437	1.71	0.79	46	-2.70	20.77	24
		AI	**7.16**	**6.22**	**869**	**9.01**	**8.49**	**942**				**25.95**	**36.48**	**8**
8	*Total Pulses	CG	6.31	4.36	691	6.64	5.15	774	4.73	4.20	89	5.31	17.98	12
		AI	**133.57**	**104.52**	**783**	**140.55**	**122.42**	**871**				**5.23**	**17.13**	**11**
***Total Pulses incl. (Other Pulses)**														
C.	**Oilseeds**													
1	Rapeseed /Mustard	CG	0.53	0.22	409	0.47	0.25	535	0.77	0.34	45	-11.23	16.22	31
		AI	**61.01**	**68.85**	**1128**	**61.59**	**73.97**	**1201**				**0.95**	**7.44**	**6**
2	Linseed	CG	0.45	0.14	301	0.29	0.10	355	9.95	7.13	72	-35.37	-23.97	18
		AI	**3.80**	**1.57**	**413**	**2.93**	**1.45**	**495**				**-22.94**	**-7.71**	**20**
3	Total Oilseeds*	CG	1.28	0.47	365	0.77	0.36	465	0.99	0.38	38	-39.77	-23.41	27
		AI	**90.95**	**95.36**	**1048**	**77.65**	**93.86**	**1209**				**-14.63**	**-1.57**	**15**
D	Sugarcane	CG	0.10	0.26	2491	0.18	0.47	2583	0.37	0.01	4	74.76	81.22	4
		AI	**47.14**	**3258.3**	**69119**	**49.03**	**3427.73**	**69911**				**4.01**	**5.20**	**1**
	Jute & Mesta**	CG	0.01	0.03	355	0.01	0.02	333	0.15	0.02	14	-16.67	-21.83	-6
		AI	**9.09**	**110.86**	**2195**	**8.08**	**109.08**	**2430**				**-11.12**	**-1.60**	**11**
***Total Oilseeds include: Safflower, Sunflower & Castor), ** Thousand Bales of 180 kgs each.**														

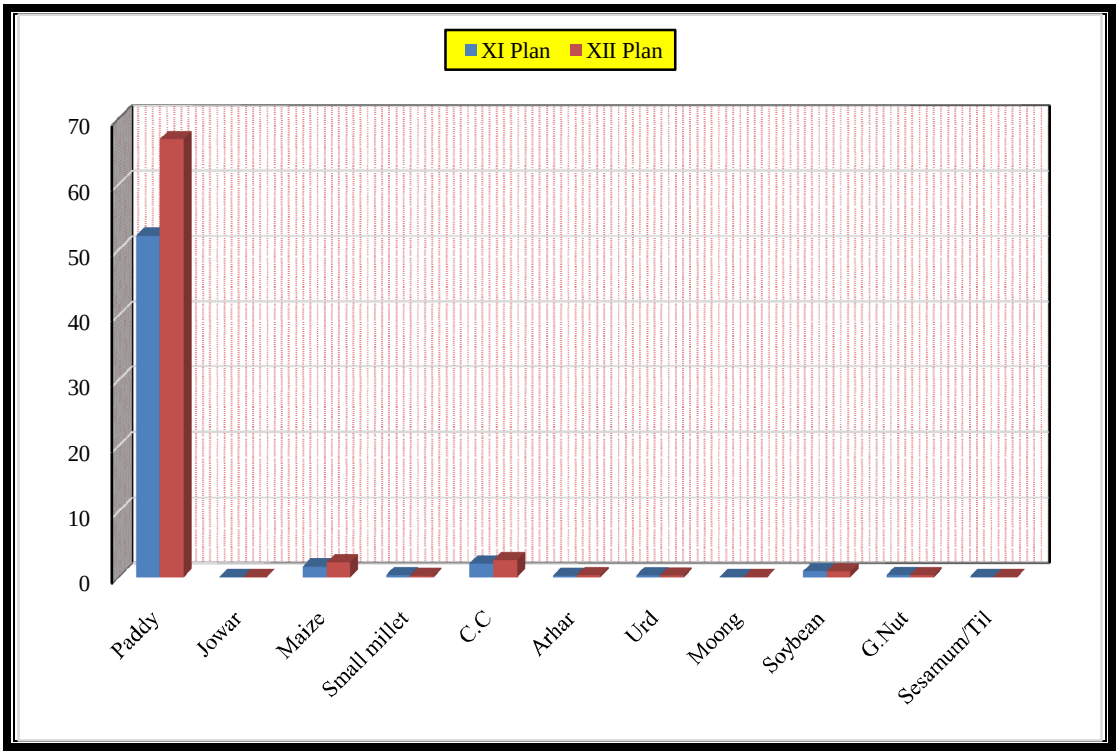
Source: *DES, M/A, GoI (XIIth Plan* : Average of 2012-13 to 2016-17)*

CROP SCENARIO: XIth & XIIth PLAN – CHHATTISGARH

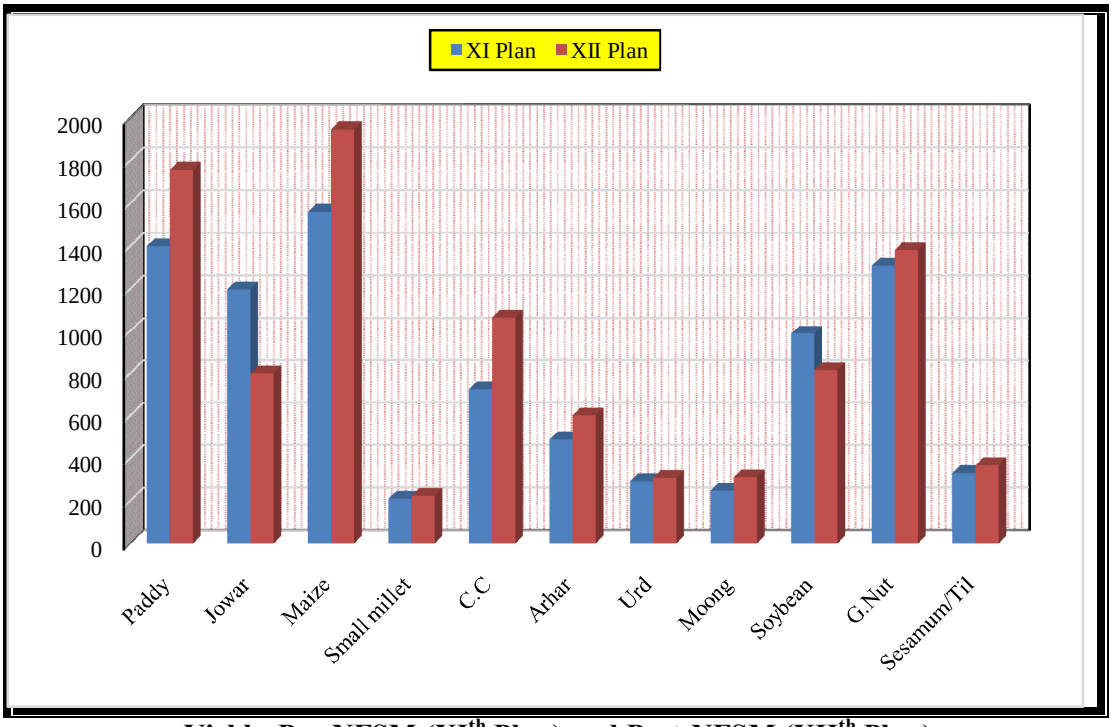
KHARIF CROPS SCENARIO



Crop Coverage: Pre-NFSM (XIth Plan) and Post-NFSM (XIIth Plan)

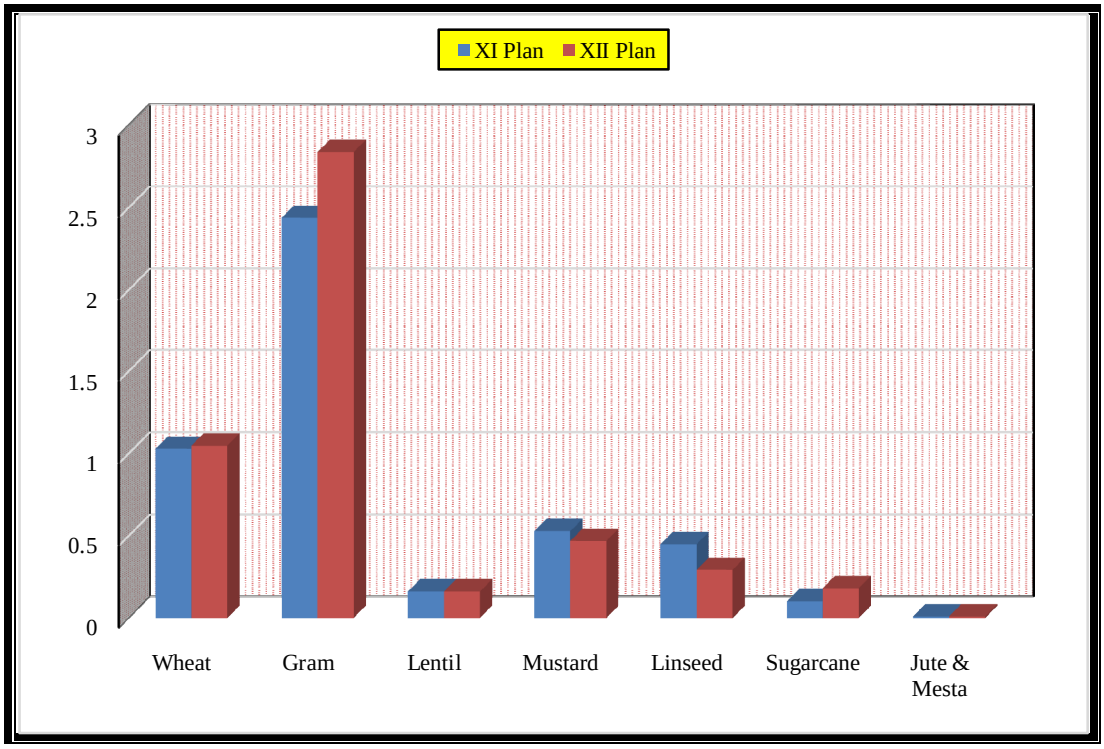


Production: Pre-NFSM (XIth Plan) and Post-NFSM (XIIth Plan)

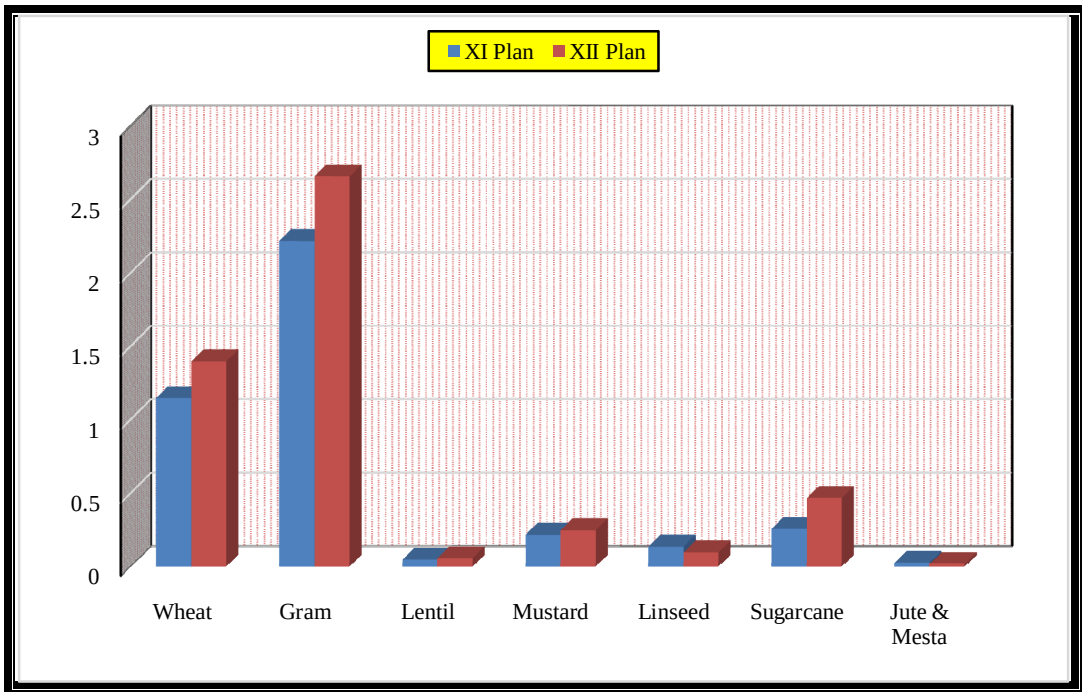


.Yield : Pre-NFSM (XIth Plan) and Post-NFSM (XIIth Plan)

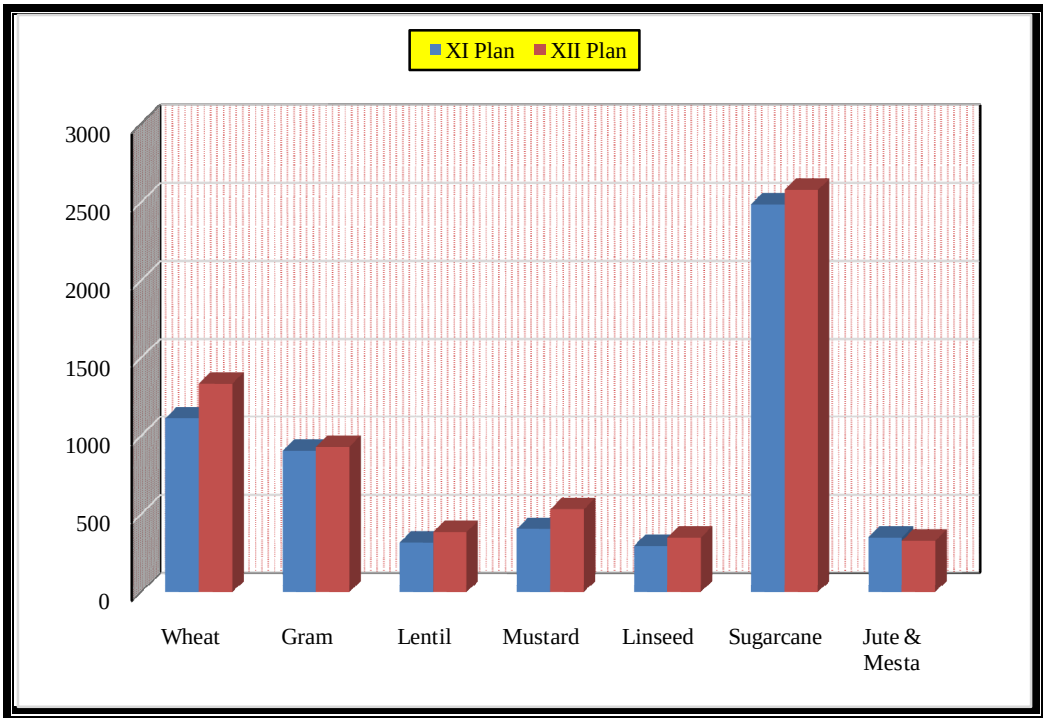
RABI CROPS SCENARIO



Crop Coverage: Pre-NFSM (XIth Plan) and Post-NFSM (XIIth Plan)



Production: Pre-NFSM (XIth Plan) and Post-NFSM (XIIth Plan)



Yield : Pre-NFSM (XIth Plan) and Post-NFSM (XIIth Plan)

8.3 NLMT 2017-18 : MP (Kharif and Rabi)

8.3.1 NFSM: BACKGROUND

- The existing Centrally Sponsored Scheme have also been rationalized and 03 schemes viz. (i) Krishi Unnati Yojana (ii) National Crop Insurance Programme (NCIP) and (iii) Pradhan Mantri Krishi Sinchai Yojana (PMKSY) are operational since 2015-16. NFSM-2015-16 is a part of Krishi Unnati Yojana (State Plan). From 2016-17, the revamped NFSM under State Plan Scheme ï Krishi Unnati Yojana (State Plan) with interim sharing pattern of 60:40 between Central and State is under implementation in 29 states. All India a total allocation of Rs. 3097.39 Crores with a central share- Rs. 1947.23 and state share-Rs. 1150.16 crores was approved during 2017-18, comprises for Pulses Rs. 1638.06 crores (central-1016.10 + state-621.96 crores); Addional Pulses 491.99 crores (central-298.49 crores + state -193.49 crores); Rice Rs. 497.86 crores (central- 328.37+ state-169.50 crores); Wheat Rs. 196.47 crores (central- 123.87+ state- 72.60) crores; Coarse cereals 236.44 crores (central- 156.77+ state- 79.68 crores) and Commercial crops 36.57 crores (central-23.64 + state-12.93 crores).

- A target of an additional production of 25 million tonnes of food grains i.e. from 259.29 MT to 284.29 MT over XI Plan comprising Rice-10 million tonnes, Wheat- 08 million tonnes, Pulses- 04 million tonnes & Coarse Cereals-03 million tonnes, is targeted to be achieved at the end of 12th Plan (2016-17). The IInd advanced estimate of 2017-18 records a total foodgrains production of 277.49 MT comprising wheat (97.11 MT) Rice (111.01 MT), Pulses (23.95 MT) and Coarse Cereals (45.42 MT). An Additional increase of 2.23, 5.71, 6.86 and 3.41 million tonnes under wheat, rice, pulses and coarse-cereals respectively was recorded. A comparatively less than the targeted production in wheat and rice may be attributed to poor/erratic rainfall and dry spell in major producing states.

- The Mission has a basic strategy to focus on low productivity high potential districts, promote and extend improved technology package, implementation of cropping system centric interventions on technological package, agro-climatic zone wise planning and cluster approach demonstrations. Further 30% of total demonstrations are necessary for Cropping System Based Demonstrations (CSBD) with technical backstopping of ICAR/ (SAUs)/ on Rice, Wheat, Pulses; distribution of certified HYV seeds/Hybrid seeds, Resource Conservation Technology (RCT) tools, irrigation machineries/MIS, trainings and undertaking Local Initiatives to the tune of 9% of total budgetary allocation to improve productivity.

- To ensure equity, of the total budgetary allocation to a district, proportionate expenditure under Special Component Plan (SCP) for SCs, Tribal Sub-Plan (TSP) ï SMF and Women farmers at 16%, 8%, 33% and 30% respectively is mandatory.

National Level Monitoring Team (NLMTs)/Inter Ministrial Central Teams (IMCTs)

Name	Organization/ Institute	Duration	NLMTs
Dr. A. K Tiwari (Director)	Bilaspur & Surguja	Aug. 21th-26th, 2017	CG Kharif NLMT- BGERI Kharif-2017
	Kanker/Kondagaon/ Jagdalpur/ Dantewada	Sept. 04th-07th, 2017	CG NLMT- NFSM ï Kharif -2017
	Narsinghpur/ Chhindwara/Seoni/ Betul	Oct, 09th - 14th, 2016	MP-NLMT-NFSM ï Kharif 2017
	Katni/Umaria/ Shahdol/ Anuppur	Feb. 19th-24th, 2018	MP-NLMT-NFSMï Rabi 2017-18
Dr. A. K Shivhare (Assistant Director)	Bemetara/Kawardha/ Bilaspur	Feb. 19th-24th, 2018	CG-NLMT-NFSMï Rabi 2017-18

8.3.2 Major Observation and Suggestion

A. NLMT-Kharif : 2017

i) Programme Implementation/Constraints

- The report, inter alia, incorporates the observations on the NFSM funded projects/programmes to Indian Council of Agricultural Research (ICAR-IIPR), Agriculture Technology Application Research Institute (ICAR-ATARI), Krishi Vigyan Kendra (KVKs), State Agricultural Universities (SAUs) such as *Seed Hubs, Additional Breeder Seed Production (ABSP)*, Cluster Frontline Demonstrations (CFLDs) etc.

- The observations have also been drawn on the existing status of *extension administration* at the field level, level of awareness amongst the extension functionaries, their perception about the programme, needed policy initiatives, equity criteria, adherence to the input

cafeteria norms, innovative components, documentation of records/events and quality of demonstrations/follow up etc.

- It is observed that farmers are using the pesticides abruptly as per the advice of pesticide dealers not as per the recommendations of the extension personnel. This results use of hazardous molecules in a non-scientific way, with no or poor performance resultantly built up of pest immunity and pesticide residues in the grain/fodder along with increase in cost of cultivation.

- Good work on organic production and certification under PKVY in 60 villages in district Seoni. ATMA functionaries BTM/ATM are doing very good work. The Agriculture extension personnelôs provides all the technical support for registration, production and marketing of organic produce. This needs to be popularize in other tribal districts like Mandla, Dindori, Shahdol and Umaria districts of MP.

- Poor utilization of funds/achievement under seed components *i.e. production of foundation/certified seeds and distribution of seeds* during kharif may be attributed to non-involvement of Cooperative Seed Societies under Beej Maha Sangh. The issue was discussed with the Principal Secretary/Director. Consequently the Govt. of MP has issued the clarification for *kharif 2017* vide letter No. B-15 /01/2016/14-2 of MP Shasan, FW and AD, dated 30th Oct, 2016.

- Similarly, the Seeds of varieties within 15 years of release period were also not available in sufficient quantities. During the field visit in the districts it was reported that the needed varieties for current Rabi *viz.* wheat-(JW 3288, JW 3211, JW 3336, JW- 3382, MP-1203), gram- (JG-16, JG-130, JG-74), linseed- (JLS-66, JLS-73, PKDL-41, JLS-67, JL-527), lentil- (JL-3, JL-53), pea- (JM-6, JP-885, PSM-3 and P-4), are not available/stored in sufficient quantities in the visited districts.

- Poor progress under *cluster demonstrations* (30% of total budget) have been reported primarily due to implementation of the DBT scheme for inputs, non-availability of seeds / varieties within 10 years, large number of vacancies (especially at grass root level), involvement of the extension functionaries in the assignments of the duties of other departments, delayed fixation of rates of inputs by MARKFED/MP-Agro including non-billing (TIN-bills) by the dealers owing to pending TIN numbers etc.

- The demonstrations are not based on soil health card status. Also use of Sulphur and need based micronutrients like Zn, molybdenum, boron etc, as part of input cafeteria, not ensured in demonstrations owing to DBT.

- As per the DBT Mission/directives vide letter no. Z-11018/34/2016-IT, DAC&FW dated July 28th, 2016, the Direct Benefit Transfer Scheme which was under partial implementation w.e.f Kharif 2016 for ***03 CSSs of NFSM, NMOOP & ATMA is being ensured for cent per cent compliance in NFSM.*** The inputs of crop cafeteria, except seed, have been directed to be purchased by beneficiaries themselves to be reimbursed through

Aadhar Seeded DBT account. The state has issued directives to all the districts to ensure 100 % DBT under NFSM.

ii) Policy Issues/Constraints

- The Stake Holders (Seed Corporation, State Seed Certification Agency and Seed Growers, MPHDC, MARKFED) meeting in KVK Chhindwara has revealed that the KVK is doing very good work in Integrated Farming. The Seed Growers/Societies have raised the issue of non-availability of breeder seeds of newly released varieties and requested to consider them on priority basis.

- Action plan/document depicting total category-wise beneficiaries details on mandatory implementation of NFSM under Special Component Plan (SCP) for Scheduled Castes (16%), Tribal Sub-Plan (TSP) for Scheduled Tribes (8%); SMF 33% and 30% of total allocation of funds to Women beneficiaries etc., was lacking/not provided to the NLMT.

  Thus the equity criteria for identification of areas and beneficiaries in programme implementation could not be adjudged holistically, in general. ***However, the State HQ has directed the districts to achieve enhanced targets of 20%, 15% and 33% under SCP, TSP and women beneficiaries respectively.***

- Throughout the course of monitoring of NFSM/NMOOP programme for last 08-09 years, it is observed that several *Growth promoters and Plant tonics* are being used abruptly as a part of input cafeteria and applied in combination with pesticides, need appropriate check/directives at HQ level.

iii) Agricultural Mechanization

- The RCT/tools component for all agricultural and irrigation machineries is being implemented through the Directorate of Engineering, the nodal agency. The beneficiaries apply online over e-krishi yantra anudaan portal. It was observed/reported that the benefits of this component under the existing system is availed only by resourceful/big farmers having direct links with the dealers or vice-versa. Barring SMF and illiterate resource poor/SC/ST farmers having no access/links with the dealers.

- ***The team visited an irrigation pipe beneficiary. It was reported that the pipe (Kisan Co.), registered with the department, fetches higher cost, and the quality is inferior as compared to the product of other companies in the open market.***

Suggestions/Recommendation

i) Demonstrations : Cluster Demonstrations

- The input cafeteria under cluster demonstrations is being implemented @ Rs. 5,700/ ha instead of Rs. 7,500/ha (Sole Demo.) the prescribed norms. During 2015-16, the Light trap (@ Rs. 1800 per unit) was one of the components of input under crop cafeteria. These trap were distributed across the state. This was not proved as fruitful due to connectivity of electric maintenance. After 2016-17 these are not being distributed now. However, the amount of Rs. 1800 is still kept reserved by almost all the districts as no such guidelines have been issued by the State HQ. The districts need a clear directives to utilize Rs. 1800/-, reserved for the trap, towards the other input.

- The seed societies request for individual subsidy on gravity separators (approx. cost Rs. 2.00 lakh) and financial assistance/soft loan for 1 year to facilitate purchase of seed from the members/seed growers, may fund place in some of the CSS/State run programme.
- Availability of graders at societies/village level shall help farmers in grading their produce at par with the FAQ to facilitate sale of their produce on MSP/Model rates.
- The available machineries/implements are straw reaper (charges-@ Rs. 1200/trolly i.e. 6.5 qtls straw);Raised Bed Planter (charges-@Rs. 800/acre);Rotavator (charges-@ Rs. 750/ha);Reversible plough (charges-@ Rs. 650/ha).

ii) Other Recommends for Organic Farming

- The ATMA scheme can be used extensively for organic farmers of the state to get extension support to the organic farmers training of agriculture extension staff especially those working with organic production and value chain development zone; Digitization of the organic farms, as per the APEDA system for tracking progress; Subsidized rate for farm machinery, inputs, water saving devises especially those working with organic production (back ended subsidy after certification; Setting trade facilitation centre to enabling processors/retailers to procure organic produce; Creating consumer connect through branding.
- In view of the prevalence of Dry Root Rot (DRR) and fusarium wilt a major issue in Betul district, use of Pseudomonas and Vitavax and the gram varieties JG-11, JG-14, JG-63, JG-130 having sufficient resistance to wilt are highly recommended.
- In view of high potential of Niger crop in MP, the NLMT, recommends to promote/adopt/line sowing under intercropping with linseed and sesamum. The state may target bee-keeping as one of the additional activity with Niger. The NFSM/NMOOP has provision of beekeeping.

- **Seed/Sector:** The team also interacted with the members or Farmers Seed Societies in Narsinghpur, Seoni, Chindwara and Betul districts. The problem of non-lifting of produced by the societies may be ensured at the DDA level with advance indenting MoU for the varieties / quantities decided by DDA.
- The seed of latest varieties, after the NSP indent for breeder seed also need to allocated registered seed societies under Beej Maha Sangh, MP, Bhopal to strengthen the seed sector, this will increase the availability of seed as well.
- For better utilization of funds under seed component (30% total NFSM allocation), implementation of Seed Component (purchase of breeder seed, production of foundation/certified seed and distribution), the role of DDAs should shift from settlement of reimbursement/claims to their accountability in identification of crop variety for Breeder Seed, and also for production of foundation & certified seeds. The DDAs should give their indent/choice as they are the district implementing authority for NFSM & NMOOP. The ATR on district-wise, list of suitable and best performing recently released old varieties I local cultivar (non-descript) of different pulses/oilseeds/cereals/sugarcane/cotton and other

dominating crops for realistic seed assessment still await. This will also help in formulation of district plan/contingent plan.

- Self sustaining seed chain system for seed production is required to ensure availability of seed at village level, as seed has also been observed as a major bottleneck. The district-wise 05 years seed rolling plan is also recommended.

- Promotion of early maturing rice varieties and hybrids developed by JNKVV Jabalpur for establishing chickpea/lentil/linseed as second crops in rice fallow area of MP through demonstrations has been suggested.

iii) Cluster Front Line Dedmonstration

- Under the existing per ha CFLD cost norms (@ Rs. 7500/- Rice, Wheat & Pulses; @ Rs. 5000/- Coarse cereals, the whole expenditure is basically towards the seed cost, thereby limiting the scope of validation for other needed technologies. The NLMT, recommends that to create the scope of research/validation of the total FLDs, 50% of the demonstrations may be earmarked for other interventions to be decided by the AICRPs/KVKs Scientist. The other interventions may include the thematic areas as well as to validate/study efficacy of a particular input by AICRPs/KVKs scientist.

- Under full package demonstration, less than 10 year old varieties + Use of Micronutrient (Soil Testing Based) + Bio-fertilizers should be mandatory. Otherwise it has no difference between CFLDs/FLDs or Cluster demonstration by SDAs.

- To test the efficacy of weedicides/herbicides/pesticides, the different available molecules should also be demonstrated by KVKs/AICRPs to bring out recommendations.

- In view of the stringent monitoring, the varieties demonstrated should be within 10 years of release and the source of seed should strictly be the KVKs/SAUs/AICRP. Seed from NSC or SSC should not be taken especially for the FLD.

- The social aspects/equitable distribution of FLD should also be ensured by the centers as per SCP/TSP/Women empowerment.

➢ **SEED HUB**

- To streamline the efficiency of seed hub component the suggestion of KVKs to allow testing of the graded seed for Seed GOT in the seed testing labs of the SAUs, not the state certification. This will help the KVKs in real time settlement of payment to seed hub growers.

- Lifting of produced seed for assured the DDAs and KVKs/AICRP centres may enter into MOU in advance.

- Seed hub implementation agencies may be advised to compulsorily produce the varieties within 10 years of release, preferably recommended for that district/zone. Also the pulse crop of the district and season should be given the preference.

- Higher grade seed (BS/FS) from National Seed Plan (NSP) should also be allotted to KVKs to take seed production under seed hub programme.

- For better marketing of seeds produced under Seed-hub and Seed Village Schemes, in addition to MoU with the State Agriculture Department KVKs may contact the Minikit supplying agencies viz., NAFED, HIL, KRIBHCO, IFFDC, NSC.

- **Production Policy:** The individual grower or the registered grower society under seed hub should be financially assisted towards purchase of Breeder/foundation seed. The nodal agency the KVK/AICRPs, should act as facilitator in whole process of registration/processing/procurement etc.

- **Procurement policy:** The seed procurement prices should be fixed in advance may be decided by SAUs, to motivate the farmers with assured remunerative prices or the previous year per quintal rates fixed as per ñseed rate fixation criteria adopted by NSC/SSCò.

iv) Policy Issues/Constraints

- During the course of monitoring/field visit by the NLMT (Oct. 9th to 14th, 2017) in the sample districts of Narsinghpur, Seoni, Chhindwara and Betul, followings may be attributed to poor utilization of Crop Development funds under NFSM /NMOOP etc. As on Sept. 30th, 2017, a tentative expenditure under NFSM is approx. 20 per cent.

- Expenditure towards cluster demo. has been extremely poor owing to DBT mode of subsidy benefit. The input cafeteria could be made available/delivered to the location of the cluster through the MPAIDC/DDA with the help of registered dealers/societies, only once at the time of sowing.

- The expenditure on Seed Production subsidy is hampered due to indirect involvement of the DDAs in the implementation of this component. Their role is basically to facilitate the reimbursement. The reputed registered seed societies (M.P State Beej Utpadak Evam Vipnan Sangh) may be considered subject to the production of seeds of varieties < 10 Years and DBT with direct accountability to DDAs.

- The team also recommends that for equity of transferring benefits to resource poor and remote areas under SCP, TSP and Women, every RAEO circle should be given separate targets under tools and machineries (RCT component).

- For effective implementation of seed components, also the cluster demonstrations, it is suggested that the seeds of oilseeds, pulses and cereals of the varieties within 10 years/15 years should be made available in the districts through the advanced seed planning and the quantities be stored with PACS by 15th Sep, positively for Rabi and by 15th March for kharif.

- Inputs like bio-fertilizers (liquid/carrier based) and micronutrients products supplied by various agencies/company needs to be tested for their quality to ensure supply of good quality material for yielding good crops and developing faith and confidence of farmers for use of these materials as per recommendations. Bio fertilizers of Co-operatives like KRIBHCO/IFFCO/NFL/MPAGRO/NAFEDetc. And other standard institution/company should only be promoted after ensuring their quality testing. Bio fertilizers (liquid/carrier

based) and bio-pesticides prescribed under input cafeteria of the cluster demonstration should preferably be procured with the State Agriculture Universities. This will help the farmers getting quality product as well as will support the SAUs in sustaining the production of bio fertilizer unit.

- Growth promoters and Tonics are being used abruptly and applied in combination with pesticides and these need to be checked.

v) Agricultural Mechanization

- The (e-Krishi yantra anudaan portal), operational with the Directorate of Engineering for all agricultural and irrigation machineries/tools, should have a provision for sharing the ID No. and password at DDA and SADO level for physical verification accountability and after sale compliance. The online registration process for Sprinkler sets, Water carrying pipes and Power drawn implements need to be relaxed for Tribal districts, requiring continuation for whole year and on the principals of ñFirst Come First Serveò basis.

- For effective implementation of RCT component, the details of registered dealers and the rates of all machineries /tools should be displayed at DDA level/ SADO level and panchayat levels to maintain more transparency and scope of selection/rate negotiation at the level of the farmers. Under RCT component the farm equipments which demonstrated their utility like Zero-till-Multi crop Planter, Happy Seed Drill, Power Weeder, Reaper, etc. should be given priority.

- The monitoring team suggests that there should be subsidy provisions for establishing custom hiring centers exclusively for seed processing (seed pre-cleaner, seed grader, gravity separator, indent cylinder etc) and farm equipments etc. This needs, to be established at block level the seed growers/seed societies request to finance them on this count may be considered. This will also help the farmers in grading/processing of their grains for MSP sale with PSS/PSF.

B. NLMT-Rabi : 2017-18

- The concurrent as well as NLMT field visits have revealed an overall satisfactory crop situation, especially the pulses gram, except unseasonal rains/ hailstorm in some pockets of the state (18 districts/ 77 tehsils/ 1386 villages/ 30650 farmers in an area of 47512 ha/) between Feb. 11-13, 2018 and also after April 6th to 13th . In view of the potentials, the districts have been advised to increase the area under pulses, specially lentil and fieldpea. The state headquarter is also being recommended to allocate sizeable cluster demonstrations and seed distribution targets to all the potential districts including Katni.

- In Datia and Gwalior also the Beej Gram Yojna is partially implemented, 50% of the cost of the seed is provided to the seed suppliers (PACS, NSC/SSC etc) directly under DBT mode, the remaining 50% being farmers share, is collected by the RAEO/ADO/SADOs in cash to be further deposited in the accounts of seed suppliers. It is observed that this amount is between Rs 5-10 lakhs depending on the coverage of the scheme in a block/district. The field functionaries have appraised the constraints in depositing of the cash with the bank.As the personal PAN numbers of the officials is being asked by the

banks. Similarly, the funds towards training components of this scheme is also being forwarded in the individual accounts of the block level officers.

- **Status of district/block level extension administration:** It is realized that very poor staff strength (In district Umaria alone, 61% posts of the RAEO, 86% of ADOs, 100% of SADOs, NFSM-PMT-DC, ATMA-ATM/ BTM/ DPD and PD are vacant), stagnated promotional prospects and heavy involvement of the field extension functionaries in the revenue/other district/block level activities, not related to agriculture and non-availability of mobility etc., is culminating into a discouraging extension environment, 117rhar117ized117117 the district/block level agricultural officials. *It is to record that the district administrations even do not spare the DDA to accompany the National Level Monitoring Team visiting to their district eg- district Shahdol.* It is felt that this may lead to the collapse of the technology transfer system/ objectively implementation of crop development programmes etc.

- *It is suggested that the state may take a suitable remedial action to revitalize the extension system at the grass root level.*

i) **RKVY-VANGRAM (FRA) Yojana:** The progress under this component has been NIL. Although this programme aimed at to benefit the tribals of Vangram. However, due to lack of clarity, the benefits of this scheme could not reach to targeted groups. For success of this scheme, it is suggested that under this project, the targets should be specified for both the crop seasons with the demonstrations on intercropping only. The input rates (other than seed) for cafeteria should also be fixed either by state HQ or the DDAs should be 117rhar117ized to take decision.

ii) **NMSA:** Under National Mission on Sustainable Agriculture, very poor progress, especially in tribal districts like Umaria is attributed to poor SES of the tribal farmers. Under value addition and resource conservation, post harvest storage, tube-well, water distribution, *in-situ* moisture conservation and water lifting devices have a provision of 50% subsidy, while the other schemes have a subsidy provision of 75%. With poor SES, the tribal farmers are unable to provide their share, hence, the subsidy amount may be enhanced for the tribal districts, with certain top-up provision.

iii) **PMFBY:** The Team interacted with a good number of farmers to take a feedback on PMFBY. Incorrect toll-free number/non-response, apathy/unavailability of PMFBY agency/representatives in the districts, lacking farmer-wise/ field-wise survey in the event of insect-pest infestation etc., have been considered as the major bottle necks/constraints to take benefits of PMFBY by the farmers.

- Further, Many farmers did not receive the benefits of PMFBY since 2016, hence farmers, especially the non-loany, are showing reluctance to take crop insurance. Farmers have a general complaint that the Primary Agriculture Cooperative Societies (PACS) are deducting the PMFBY premium without any authentic survey of the crop grown.

- Non-availability of Zinc with the local dealers is a major issue, the farmers have requested to ensure the availability of Zinc to the department**.**

iv) **Prampragat Krishi Vikas Yojna:** In Umariya, 15 PKVY clusters are being implemented. A total of Rs. 44.72 lakh (allocation Rs. 105.955 lakh) was the expenditure. During 2016-17, the expenditure was Rs. 10.96 lakh. During interactions, it is 118rhar118iz that the training component for cluster farmers, training on PGS certification, training of trainers etc. are hampered in the absence of trained resources persons/facilities. Similar situation was observed in the PKVY programmes in Mandla district.

a) **Cluster Demonstrations:** It is major programme of NFSM with a lion share of 30% of total allocation under this component. Generally, owing to the poor socio-economic status of farmers of the state, including the tribal dominated divisions, the recommended inputs (input cafeteria) as per the package of practices are not being used in laying out the cluster demonstrations. Regular field visits have revealed that quality demonstrations are seriously hampered to achieve the mandated objectives of transfer of technology. All the earlier NLMT Reports have given this observation in the past, as well. *Cluster Demo./CSBD:* Incomplete recommended input cafeteria resulting into poor quality of demonstrations.

b) **Status of Mechanization/Custom Hiring Centre:** The progress of the implementation of resources conservation tools/ machineries have been highly disappointing during 2017-18 due to lack of synergy between the main district level agricultural functionary i.e. DDA and the poorly strengthened Dte. of Engg. Reprentatives in the districts/blocks (even their absence in certain districts eg. Harda). Since 2016-17, the accountability clause under this component is fully compromised; the progress is not being reported/ maintained at the level of DDA, while there is no representative of engineering deptt. to explain the fact.

c) **Seed Distribution:** Seed distribution component has a 15% share in total allocation of NFSM funds to a state. The monitoring across the state has observed that this component also had a setback, especially with DBT mode of implementation since 2017-18.

Suggestions

- In view of large number of SMF with poor Socio-economic status in the OBC and General Category, many farmers have requested to extend the ñstate plan micro/minor (Nalkoop) irrigation planò to the OBC/ General category with poor SES/ SMF farmers in the state. It is suggested that alternatively this plan may also be funded for SMF OBC/General category under RKVY in the projectile mode to achieve the target of doubling farmers income by 2022.

- For effective outcome of the Beej Gram Yojna, first of all, the district functionaries need an orientation training. State-wise plan should be prepared for identification of crop/ varieties. The beej gram beneficiaries should be in cluster. Method of planting/time of planting/seed treatment/thinning/rouging etc., should be followed. The beneficiaries may be registered with the State Seed Certification; proper seed production trainings and their documentation on the aspects of seed production should be followed. Necessary directives in this regard may be issued at the level state headquarter.
- District Shahdol is having approximately 70% light sandy-soils with low WHC and productivity. To improve the productivity of the soil, NADEP, Vermi-Pit and Bio-gas

plants may be allocated in sizeable numbers. Further, the irrigated area is only 20%. In view of potential irrigation area, minor irrigation projects under PMKSY need maximum targets with the involvement of soil conservation staff of the department owing to their expertise in soil and water conservation sector. It is suggested that the ñMed-Bandhan (Bunding) ò under MGNREGA should be separately dealt.

- For surface water management in the predominantly sloppy land in the district, the field functionaries have advised to increase the subsidy amount under Balram-Talab Yojna for SMF category upto 80-90% of the total cost, it is suggested that a proper cost-assessment should be done.

- It is realized that ***soil and water conservation work*** in convergence with PKSY need to be initiated on priority basis. The district Irrigation Plan (DIP) prepared by the soil conservation section of the DDA, has the provision of rain water harvesting structures, as well. The qualified (degree in Engineering/Agriculture)/competent and experienced staff (ASCO/SCO/Soil Conservation Survey Officers etc.) which have been doing very good work on infrastructure development work/water harvesting structures (Khet-Talab, Balram Talab, stop dam, check dam, rapta-cum-stop dam, cause way-cum-stop dam, irrigation tank etc.) under the water shed development projects/erstwhile NWDPRA etc., is under utilized/ without work. It is suggested that the proposed activities under DIP, RKVY-Holistic Agriculture Development etc. may be implemented through this existing set-up of FW& Agriculture Development Deptt., Govt. of MP.

- ***State Micro Irrigation Mission*** has a subsidy of Rs. 12000/ha., having no provision for top-up subsidy. Whereas, under the CSS, the drip/sprinler (MIS) has the provision of Top-up. This has resulted in poor/no utilization of this component (State Micro Irrigation Mission). It is, therefore, suggested that either there should be an uniform subsidy norms (including top-up) are else State Micro Irrigation scheme should be allocated to the non-tribal districts like Malwa and Nimaad divisions, where SES of the famers is comparatively much better.

- ***Mukhyamantri Solar Pump Scheme*** is gaining popularity in the state. However, slow pace of execution of work is a major feedback. In Shahdol, against 198 applications, 63 were registered, but the solar pump could be installed only for 17 beneficiaries. In Umaria, out of 459 accepted cases, 151 solar pumps with 2, 3 and 5 HP have been executed. It is, therefore, recommended that ***Madhya Pradesh Rajya Urja Vikas Nigam*** may be instructed to execute the pendency on priority basis.

- The NLMT has advised to the visiting districts/recommends to State Mission Director to conduct ***'Impact evaluation study'*** of the agricultural implements/RCT distributed (under NFSM/other CSS) during the last >9 years. The evaluation should be done with KVK to know the ***reduction in cost of cultivation, increase in cropping intensity and employment/ income generation*** through 119rhar119ized119119s and hiring of the RCT/ Machineries.

- To contain Wild animal menace, especially the wild boar, the farmers may be advised to use ITK/traditional method by using castor oil or (a product in the name of Nelbo, *i.e* Ricinoleic acid) dipped Jute rope fencing (1.5 feet height jute rope fencing for boar and 3 feet height rope for blue bull) as practiced in Karnataka and Tamilnadu.

- The Jabalpur, Shahdol, Narmadapuram divisions and other divisions/districts adjacent to forest are facing considerable economic losses due to wild animals. Recently on Janauary 13th, 2018, the PCCF Karnataka has permitted killing of crop raiding wild boars in the Ramnagara district through a notification which says that ñ***in exercise of the powers conferred by section 11 of the Wild Life (Protection) Act, 1972, the state government hereby declares wild pig (Sus scrofa) to be 'vermin' for a period of one year***ò. Declaring the wild boar as *'vermin'* is easy, compared to other wild animals as itôs not an endangered species/PCCF, Govt. of MP may also be requested to review the situation for farmers living in the periphery of forests.

- The team is of considered opinion that ***for effective implementation of PKVY*** and proper capacity building of the cluster farmers, the District Agriculture Officersô role should be retained upto the level of facilitating trainings, helping the cluster in the availability of market, ensuring the availability of quality bio-organic manures and building the capacity of the group to prepare the bio-intensive pesticides/ bio-fertilizers/ manures etc. It is observed that in some places (Mandla in Jabalpur division), the District Agriculture Officers are involved in the marketing of the produce while, the PKVY cluster/ group is not having their publicity and stake.

- ***Complete Input Cafeteria:*** In general the input cafeteria for sole demo. (@ Rs. 7500/ha) incorporates ***Light Trap*** (@Rs. 1800/unit/ha), should be done away with as farmers disagree with the practical performance of Light trap (individual area of pulses being much less than the 01 ha, installation/electric supply/AMC difficult).

- *For effective 120rhar120ized120120 of quality cluster demonstrations from 2018-19 onwards with the enhanced per hectare cost norms (sole demonstrations @ Rs. 9000/- per ha; CSBD @ Rs. 15000/- per ha), it is advised that the input cafeteria may be provided in the form of a kit by the district level dealers directly to the field level extension workers under DBT mode and the farmer's share and subsidy amount may be credited to the dealers account under stringent quality monitoring/ inspection by SADO.*

- *For more equitable technology demonstration benefits, the field functionaries' feedback on 120rhar120ized the general demonstration/ cluster demonstration area, to reach to maximum number of SMF beneficiaries, may be considered at the level of State Food Security Mission Executive Committee/ District Food Security Mission Executive Committee.*
- **RKVY-Holistic Agriculture Development:** It is a very good programme. However, the programme has a provision to release the subsidy after completion/ execution of all the sub-components of the plan. The field functionaries/ beneficiaries request to release the execution linked componential subsidy, may be considered at the state level based on the performance evaluation report at the district level. This provision will help the beneficiary to proceed for another activity and timely execution of the project.

- Viability of the Custom Hiring Centres established since 11th plan (2007-08 onwards) need to be studied by the Directorate of Engineering. In district Shahdol, there are 11 CHCs with the PACs and all of them are non-functional. This scenario is also seen in other districts of the state and need an immediate intervention at the level of State Mission Director (NFSM)/ Director Agriculture.

- It is suggested that the CHCs may be auctioned to NGOs/ farmer producer 121rhar121ized121121s (FPOs)/ farmer producer companies (FPCs)/ private institutions in the interest of the small and marginal farmers/ tribal communities of the state and vivality of the infrastructure created and utilization of public money.

- **Extending benefits of CSS/PMFBY to Van Grams/FRA farmers:** It is suggested that the benefit of the PMFBY, presently not reaching to the tribal farmers, cultivating lands under FRA (Pattadhari Kisan) owing to non availability of khasra, may be extended to the Vangrams. This issue may be resolved in consultation with the State Dept. of Agriculture and Govt. of India DAC& FW.

- RCT component has also not been implemented as the farmers do not have access to online submission of request. *In Van Grams, it is therefore suggested that 0.4 ha sprinkler set may jointly be given to 2-3 farmers who may share their contribution and take the benefit of the scheme.*

- **PMFBY:** The Team interacted with a good number of farmers to take a feedback on PMFBY. Incorrect toll-free number/non-response, apathy/unavailability of PMFBY agency/representatives in the districts, lacking farmer-wise/ field-wise survey in the event of insect-pest infestation etc., have been considered as the major bottle necks/constraints to take benefits of PMFBY by the farmers.

- **Local initiative/ flexi funds to benefit Baiga Tribes:** *In Jabalpur and Shahdol divisions, based on the feedback of Baiga tribes, it is suggested that the traditional/ non-descript pigeonpea germplasm, known as baigaani 121rhar, need to be conserved/propagated under PKVY. The 121rhar121i demonstrations, solar fencing and solar tubewell under Mukhyamantri Solar Pump Yojana and also in projectile mode under RKVY or a composite funds/ saving under Local Initiative component of NFSM may be converged with the ongoing tribal development projects to support the Baiga farmers. Every village should be given atleast two solar tubewells and ten minikits demonstrations to motivate the Baiga farmers and upgrade their livelihood and income generation.*

- The Govt. of MP should use Local Initiative (Flexi fund) which have not been used since 2013-14. Local initiatives of Govt. of UP and their efforts may be replicated in MP. The UP state has used Local initiative funds by including Mini Dal Mill (@ Rs. 80,000/unit with 40% subsidy); **community storage for inputs** (48 X 12 X 4 Meters) @ Rs. 94.77 lakh/unit with 100% subsidy; **construction of community threshing floor** (each of 20 X 10 M rectangular) Rs. 1.7 lakh/floor with 100 % subsidy and **tarpaulin for grain protection** (i) 7 X 7 M with single joint (Rs. 2650/- each with 50 % subsidy i.e. Rs. 1325/- per unit) (ii) 3.5 X 3.5 M without joint (@ Rs. 700/- each with 50% subsidy i.e. Rs. 350/unit).

- **Convergence of flexi funds with RKVY/other CSS:** *The wild animal- men conflict is a major issue in all the tribal and Forested districts of Jabalpur, Shahdol and Narmadapuram divisions.*
- *The migration is taking place due to heavy crop damage by wild animals, resultantly unemployment of the tribals of Baiga, Bhariya etc.*

- *During 2013-14, under RKVY, the solar fencing (@ Rs. 1.65 lakh per km, at a total cost of Rs. 4.20 crore) was provided in forest adjoining belt of Mandla and Balaghat districts. The fencing has proved very useful.*
- *It is suggested that the tribal villages already covered with the solar fencing (water table is 25-30 feet) may be supported with solar tube well with 100 per cent subsidy in a projectile mode under RKVY. Here, the PMKSY may also be converged. The bee keeping component under NFSM/ NMOOP may also be implemented in these villages. The tribals are hard working and receptive to new agricultural practices and look forward for employment. The objective of Doubling Farmer's income by 2020-22 could be achieved for tribals as well, subject to availability of irrigation water (solar tube well) and protection from wild animals (solar fencing).*
- *For effective monitoring and implementation of the programme, appointment of the DC under the PMT may be ensured and appropriate steps may be taken to enhance the utilization of crop development funds under NFSM.*
- *State plan Surajdhara/ Annapurna Yojna: Many a places, this scheme of seed distribution is doing very well, however, the benefits are only limited to small and marginal farmers of SC/ST categories. Based on the feedback of field functionaries/ farmers, this scheme may be extended to all the small and marginal farmers irrespective of their category.*
- *Uniform seed rates under seed subsidy: The differential seed rates prevailing under different seed companies/ agencies having a subsidy component need to be uniform to avoid confusion/ mis-trust about the field functionary and to facilitate a better extension environment. The state government may remove such anomaly by fixing the rates or by bridging the gap through top-up subsidy under state plan or by way of convergence with some other schemes.*
- *Status of training/capacity building: The concurrent as well as the monitoring at the level of national team has revealed that the district and block level extension functionaries, including the contractual arrangement under ATMA and NFSM-PMT, need more facilities/ resources for their capacity building and exposure to the Good Agricultural Practices (GAP). The field functionaries involving implementation of Prampragat Krishi Vikas Yojna (PKVY), Beej Gram Yojna, cropping systems based trainings (CSBD-trainings), cluster demonstrations, Soil Health Card, RKVY-Holistic Agricultural Development and areas of IPM etc should be deputed for orientation training programmes.*
- *The area under oilseed, being very less, it is very difficult to utilize the allotted funds under seed distribution, block demonstration and other 50% intervention etc. The expenditure is therefore negligible. The state nodal officer NMOOP may be advised to allocate the targets to the districts on the criteria of the potentiality of the particular crop.*
- *Inclusion of KRIBHCO/ other Central Seed Producing Agencies under PACs scheme: The Co-operative deptt. of the State Government is implementing the short-term input subsidy scheme since 2015-16 for fertilizers and seeds through the PACs. The scheme has a provision of 10% subsidy, limited to Rs. 10000/- per farmer per year under Mukhyamantri Krishak Sehkari Rin Sahayta Yojna*
- *The field visit across the state has revealed that the quality seed of pulses was not available to many farmers, however, the seeds/ varieties remained unlifted with the KRIBHCO (Dewas Plant)/ NSC. As a policy decision, the state government should include the KRIBHCO/ HIL/ NAFED/ etc. (any other reputed seed producing agencies) to be*

considered for Mukhyamantri Krishak Sehkari Rin Sahayta Yojna. It is noted that these central agencies are also taking the seed production programme with the funding support of the Govt. of India under NFSM-Pulses.

- *Status of implementation of training component: The training component under NFSM/ NMOOP/ Beej Gram Yojna (SMSP) could not be implemented owing to non-release of funds to Block level. The modus operandi for release of funds towards this component is direct release of funds to SADOs/ RAEOs in their personal accounts.*
- *It is suggested that the state Govt. may allow SADOs/SDOs to open institutional accounts so that PFMS mode of fund transfer could be 123rhar123ized123 in public interest.*
- *In such institutional accounts of the farmers' share towards Beej Gram Yojna (SMSP) or training funds could be kept.*
- *DBT compliance- All schemes viz. NFSM, NMOOP and PMKSY are under implementation in DBT compliant. However, due to DBT, expenditure under various interventions (with 50% subsidy) has reduced to negligible due to non-availability of bills from the beneficiaries. It is also realized that the demonstrations are not being organized as full package with quality.*

8.4 NLMT 2017-18 : CG (Kharif and Rabi)

A. NLMT CG – Kharif 2017

- In Jagdalpur, the most appreciable effort of district agriculture department (DDA) is opening of the Sale Counter for organic produce, in association with the district administration in Jagdalpur city. The Bastar Agricultural Producer company is formed with the financial assistance of NABARD which is imparting training and developing entrepreneurship skills amongst the tribal farmers, especially the women.

- District level officials of CG State Beej Evam Krishi Vikas Nigam and Agro need orientation/ training for quick documentation/ preparation of bills/accurate billing for onward submission to DDAs to facilitate timely reimbursement through PFMS. The procedural fault of CGSBKV has been attributed to poor expenditure at district level.

- The quality of inputs, including machineries and equipments supplied by CG State Beej Evam Krishi Vikas Nigam need an introspection in terms of reputation of the company/manufacturer /brand and also the prevailing per unit cost in the open market. To meet quality standards and the cost and AMC issues, the DDAs may be authorized to implement/ execute the component with the PFMS/DBT mode of disbursement of subsidy. This will also ensure the accountability of DDAs at district level.

  Proceedings of the briefing meeting dated Sept., 4th, 2017 organized by the National Level Monitoring Team (NFSM) in the Directorate of Agriculture, Raipur, CG.

- A state level briefing meeting of NLMT members with different Stake holders associated in the implementation of NFSM/Crop developmental activities in the state was held on 04.09.2017 at the SAMETI, Raipur. Representatives from SDA, SAU, CGRBKVN Ltd., Director-Extension Services, Director-Research Services, Chhattisgarh Agriculture-Mechanization & Micro-irrigation Monitoring Process System (CHAMPS) (Shri A. B. Asna, P. C. Baghal, C.B. Londhakar, S. S. Rao, B.K. Mishra, K. L. Nandeha, V. K. Nagtore, Kamlesh Diwan, Satish Awasthi, S. K. Sori, Rajendra Swarnkar, P.V. Rabde,

P.B. Kesven, S. K. Singh, N. Khare, R. N. Sharma, Sanjay Sharma, M.P. Singh and Bhupendra Pandey) participated.

- Dr. A.K. Tiwari, Director-DPD, Govt. of India/Team Leader-NLMT shared his experience/impression on the implementation status of the BGREI during his visit (August 20th -25th, 2017) to Bilaspur, Janjgir-Champa, Sarguja/Ambikapur, Surajpur, Balrampur.

- Non-availability of quality seeds of newly released varieties/hybrids, especially under paddy was observed as a major issue. The representative of CGRBKVN Ltd. requested for an advance indent/target to be provided by the State NFSM-Cell.

- On poor utilization of funds towards RCT/MIS/Asset building, the CHAMPS representative attributed the delays owing to implementation of GST and also non-availability of category-wise targets under this heads.

- Dr. A.K. Tiwari, Director-DPD, Govt. of India/Team Leader-NLMT requested the State representatives on expeditious utilization of central crop development funds, entering into MoU between KVK and DDA for lifting of seeds under Seed-hub, hand holding of KVKs by State Seed Certification Agency/DDA in implementation of seed production programme under Seed-hub, adoption of decentralized mechanism for deciding the input cafeteria and also procurement of quality inputs (through branded/reputed companies) and to passed on the subsidy benefit under DBT.

- Another meeting was organized on 06.09.2017 at the Dantewada district headquarter with the staff of agriculture department and NGOôs Bhumgadi & Niram involved in promotion and marketing of organic produce. The socio-economic condition of farmers of this area is different from other part of the state; therefore increase in subsidy from 50% to 70% would be helpful in availing the benefits of different developmental schemes. In remote area the materials made available to the tribal farmers are not up to the mark. The efforts were made to register one scented rice ñLokti Machhiò under PFVRI as geographical indication. The district is marked for organic farming, chemical fertilizer and pesticide selling is banned in this district.

Recommendations

- The contents and compositions of nutrients in organic manures/humus etc., being supplied under NFSM, PKVY etc., should be written over the packaging of organic manures/mixture so that application could be done as per the requirement of crops.

- In remote area the internet connectivity is poor, adversely affecting the communication between district/block and division, especially in south Bastar districts. Strong communication network is recommended to provide quick services to the farmers in the event of their registration under PMFBY etc.

- In view of lack of co-ordination between the line department like Revenue, Animal Husbandry, Fisheries and Horticulture, it is recommended that the issue may be resolved at the level of DFSMEC Chairman/District Collector.

- For better extension/awareness the uniformity in preparation of display board, with detailed information on interventions, across the state, is required. Display board should be installed permanently in case of large scale programme/demonstration.

- The agronomic modules on crop production such as inter-cropping, relay cropping etc., developed by IGKVV, Raipur need to be followed while, implementing the NFSM programme in the State.

- In view of paucity of seeds of improved varieties/hybrids, the seed production component of NFSM need to be dove-tailed with seed production trainings to the farmers. Here, the seed certification agency also actively participate in the programme.
- Advance release of targets to the districts, timely release of funds, decentralized mechanism of finalization/procurement of input cafeteria at the district level, with DBT/PFMS mode of subsidy is the need of state.

- The LWE/Tribal districts farmers, belonging to poor SES (Socio-Economic Status), need higher proportion of subsidy over and above prescribed under the NFSM, BGREI etc. The state may provide the top-up subsidy from the state plan or some support through RD/TDP/District Mining Fund (eg. Bastar) may be provided by way of convergence of schemes.

- The Small Farmers Agri. Business consortium (SFAC) may be advised to support the Farmer Producer Organization (FPOs) in the PKVY/Jaivik districts like Dantewada.

- The FYM/Compost being supplied should have a display of various nutrients available in the package.

- More targets of Pulse Minikits for Bastar, filling up of vacant positions of RAEOs in Dantewada/Bijapur (Bastar division) and access to internet connectivity etc., need to be streamlined at the level of State HQ.

- The Local Initiatives component need to expand its selves of activities/work. Presently only the godown are being constructed under the Local Initiatives. It is recommended that fencing provision in bastar, dhal mills, locally made popular implements for weeding etc., may be incorporated under this head.

- For effective implementation of NMSA (RADP) programme, the AHD/Fisheries/Horticulture deptt. of the district should also be made accountable.

B. NLMT CG : Rabi 2017-18

- This year, about 50,000 ha summer rice area has been diverted to pulses due to less rainfall and non-release of water from dams (Gangrel or Madamsilli, Dudhawa, Sondur, Gariyaband).

- The work done on development of irrigation under various schemes such as: State plan Kisan Samridhi Yojna ï (Tube-well + Motor Pump), Shakambhari Yojna ï (Dug-well + Electric/Diesel Pump), RKVYï (Shallow Tube-well -75 feet + Electric/Diesel Pump),

NFSM ï (Diesel/Electric Pump); Ground Water Recharge, Laghuttam Sinchai (Pond), Sprinkler ï Central/State Sponsored MIS etc., has increased the irrigation potential and cropping intensity of the area.

- Pulses Seed Minikits under NFSM Gram, Urdbean and Mungbean, totaling to 31875nos. (Minikit size: Gram @ 16 kg, Urd & Mung @ 4 kg each) were demonstrated. Similarly Oilseed Minikit under NMOOP were also made available to the State during rabi- summer 2017-18. A total of 92500 nos. minikits were demonstrated.

- In RKVY ï TARFA Pulses Seed Minikits Gram, and Lentil, totaling to 19783nos. (Minikit size: Gram @ 16 kg, & Lentil @ 8 kg each) were demonstrated. Similarly under TARFA ï Oilseed Minikit Mustard & Groundnut (Minikit size: Mustard @ 2kg, & Groundnut @ 20 kg each) were also made available to the State during rabi- summer 2017-18. A total of 7000 nos. minikits were demonstrated.

- The reservation policy for seed production programme is 50 % for general, 38 % for ST & 12% for SC. The problem of seed production jurisdiction and implementation of reservation policy in seed production programme.

- In Bemetra, the most appreciable efforts of District Agriculture Department to benefit farmers under PMFBY during Kharif 2016, paid compensation of Rs 62.39 crores to 41603 farmers. During Kharif, 2017, estimated claim Rs. 111.22 crores for paddy to 47931 farmers.

- NFSM-Seed-hub programme (2016-17 to 2018-19) is being implemented at Kawardha. The production programme of chickpea and lathyrus visited at KVK onfarm as well as farmerôs field.

- In kawardha, the work relating to seed processing unit established and storage infrastructure has been completed about 60 %.

- Pulses seed minikits under Gram (Minikit size: @ 16 kg) were demonstrated. Seed treatment material available in 126rhar126i, however, literature related to variety is not available.

- Sufficient quantities of biofertilizer as per the requirement of the state can be made available under the NFSM, NMOOP and BGREI programme subject to advance MoU with the Directorate of Agriculture, CG with the Agiculture University.

- The farmers of Kawardh district are growing sugarcane in a large area. The increasing number of Tube well had deflated the water table in the district. The conventional paddy field is also being used for sugarcane cultivation in the district. The surplus production beyond the Sugar factory demand has compelled the farmers to sell their excess produce to Jaggery producers at Rs. 130/-per quintal loss (the support price of sugarcane is 255/- + 55/- bonus = 310/ qtls). The unsold sugarcane is being purchased @ Rs. 180-190 / qtls by 126rhar126i units.

- Some farmers grown Coriander as intercrop with chickpea. Crop damage by monkeys and rats has also been emphasized by the farmers.

- Chickpea was grown under rice and soybean based cropping system. Farmers pointed out the problem of failure of previous crop soybean due to drought and damage in some chickpea demonstrations due to hailstorm this year.

- Farmers have pointed out the problem of wilting in chickpea which was examined and found as complex of Collar rot and Dry Root Rot diseases and suggested for seed treatment and deep summer ploughing.

- Visited Market Showroom of Durga Maa Women Farmers Group established under ATMA scheme supported by District Mining Fund (DMF), wherein, they are preparing and selling Ice-cream of custard apple and Charotaôs coffee.

Recommendations

- The varieties distributed under minikits should be monitored (at least 10% of total minikits in a block/district) on the parameters of yield, tolerance/resistance to insect pest and disease, adaptability, duration and suitability in the cropping system in the region/ district. Further, the best performing variety should be dove-tailed with the indenting of the breeder seed for organization of the seed production programme of pulses & oilseeds for the next season.

- The districts (DDAs) may enter into MoU with the designated NFSM-Seed-hub Centres namely ICAR/AICRPs, KVKs for the lifting of the quantities of the certified seeds produced under NFSM. It is important both for sustainability of the seed-hubs and ensuring the availability of the quality seeds/varieties to achieve the targeted cluster demonstrations for effective technology transfer/sustainable production and improvement of SRR/VRR.

- Cluster demonstrations area may be reduced to a maximum of 5 to 10 hectares from existing 100 hectares thereby increasing technology transfer to large representative areas with quality demonstration. The field extension staff has appraised that such a big cluster is not practical for pulse crops of Mung, Urd, Lentil and Tur except the major crops of region like Soybean, Gram, Wheat.

- The RCT beneficiaries with > 10,000/- per unit financial assistance under NFSM during 10 years of the NFSM programme (2007-08 to 2016-17) may be documented for wider publicity, dove-tailing with the CHCs to enable the farmers avail the custom hiring services of implements. This will mutually benefit the owner as well as the other farmers (income generation and increase in mechanization).

- The district may be advised to constitute Machineriesô User Group (MUG) for each RCT with a financial assistance of > Rs. 10,000/- such as Multi-crop Planter, Power Tiller, Seed Drill, Power Weeder, Zero-till-Multi crop Planter, Rotavator, Reaper etc.

- The district-wise Local Initiatives should be ascertained with 9% of the total budgetary allocation under NFSM as a whole. The Local Initiatives may include Augmentation of water resources, Convergence of pulses in PMKSY area, godowns for safe storage of critical inputs post harvest/processing facilities like grader, dehusking machine, Mini dall mills, promotion of local germplasm.

- The Bio-fertilizers and Bio-agents play an important role in the production and productivity of all crops especially the pulses. The State government may enter into the MoU with IGKVV, Raipur for supply of these materials under the demonstration component of the Centrally Sponsored Programme. This will not only improve the supply of quality critical input but will also financially help the States University and itôs Laboratory for making a sustainable production and economic viable.

- To increase the production of the pulse and cereal crops, irrigation facilities should be increased through Farm Ponds, Sprinkler sets and drip irrigation systems. Promotion of 128rhar128ized farming such as ridge and furrow, BBF etc.

- In rural area, construction of godown for storage, value addition facilities like cleaning/grading. Dal mills, processing plants etc. need special promotion to fetch good prices, economic benefits & increasing the living standard.

- Farmerôs perception of use of more seed/fertilizer to get the bumper crop yield ,need to be changed by advocating /demonstrating optimum seed rate and balanced fertilizer on the basis of soil testing report and demonstrating use of the green manure crop i.e. Dhaincha (Susbenia aculata and rostata) for sustained the soil life.

- Single box seed drills should be replaced by double box seed drill (Seed-cum-fertilizer drill). Mixing of seed and fertilizer together in one box is common practice and not recommended as it may damage to seeds due to hygroscopic nature of fertilizers.

- For wider publicity and long lasting impact of demonstrated activities (cluster/implements, variety) display of flexi boards both at village panchayat buildings and demonstration site, is highly recommended.

- The earlier popular Rice-lathyrus cropping system is now diverting to rice-gram system. Lathyus is non-resilient to climate, the rains, therefore, vitiate the standing crop whereas gram is comparatively more reliable to the present climatic scenario subject to management practices to control Helicoverpa armigera and recommended dose of fertilizers to harness (15-20 q/ha) yield potential in rice- gram sequence.

- The team suggested diversified cropping and integrated farming system should be adopted in the visited districts as well as in the state so that risk minimizing in agriculture and more employment generate in this sector.
- For better extension/awareness the uniformity in preparation of display board, with detailed information on interventions, across the state, is required. Display board should be installed Line sowing is still need to be insisted and popularized for overall crop management. It has been noticed that even in the cluster demonstrations; judicious method of planting i.e. line sowing has been compromised.
- Input supply to the district is a regularly delayed phenomenon. Even the sowings and critical physiological stage of crops are over, resultantly later on the un-utilized inputs remain lying with the districts or else delivered to the farmers in vain. This defeat the sole purpose of the full package cluster demonstration and simply benefits the supplying agencies.

- The Local Initiatives component need to expand its selves of activities/work. Presently only the godown are being constructed under the Local Initiatives. It is recommended that fencing provision, dhal mills, locally made popular implements etc., may be incorporated under this head.

C. Bringing Green Revolution to Eastern India (BGREI): Kharif 2017

Background

- The program of ñBringing Green Revolution to Eastern India (BGREI)ò- a lateral to Rashtriya Krishi Vikas Yojana (RKVY), is operational since 2010-11 in 07 eastern Indian states of Assam, Bihar, Chhattisgarh, Jharkhand, Odisha, Eastern Uttar Pradesh (Purvanchal) and West Bengal. The programme aims at reasonably enhancing the productivity and sustainability in rice based cropping system.
- During 2010-11 most of the activities taken were short term strategies of Chhattisgarh, some of the States namely; Chhattisgarh, Jharkhand & West Bengal planned medium and long term strategies related to water & soil conservation such as construction of check dams, minor irrigation tanks (MITs), lift irrigation points, re-excavation of old ponds etc.
- This program was conceptualized adopting focused approach on the medium & long term strategies for asset building activities relating to water conservation and utilization in combination with the short term activities pertaining to Transfer of Technology(ToT) of the major cereals, preferably in Non-NFSM districts.
- The program consisted a bouquet of three broad categories of interventions, viz; (i) Block demonstrations of rice and wheat-short term strategy; (ii) Asset building activities consisting water conservation & utilization-medium term strategies and (iii) Site specific activities-both short term & medium term strategies for facilitating the petty works such as construction/ renovation of irrigation channels/electric power supply for agriculture purposes.

- From 2015-16 the funding pattern between GOI & State has been 60:40. The inter-allocation of funds amongst 07 major interventions is nearly 40% of the total funds for block/ cluster demonstrations, Seed distribution- 10% (HYV/Hybrids), Seed production (HYV/ Hybrids)-5% , Need based Inputs-10% (i) Micro nutrients and soil ameliorants- 5% ii) PP chemicals- 4% iii) Cropping System based training-1%,) asset building (farm machines & implements, irrigation devices)-20 %, site specific activities-10% and Marketing support (including Post-harvest Management)-5% . Monitoring at national level-1%. Of the total block/cluster demonstrations,30% funds have been earmarked for cropping system based demonstrations (CSBD) to be organized on stress tolerance rice varieties.
- During 2017-18 the All India total BGREI allocation is Rs. 707.29 crores. For Chhattisgarh, the allocation is 118.30 crore (GoI-Rs. 70.98 + State ï Rs. 47.32). Allocation towards rice is Rs.crore ; wheat Rs. 7.25 crore.

Observations

- More or less the scenario under BGREI plots in respect of crop growth and establishment is satisfactory. Predominant rice varieties taken under the programme are Swarna Sub- 1, Samleshwari, Indira Barani dhan 1, Vishnu Bhog, Sahbhagi dhan, CO-4, Arize 6444 Gold, US 312 and Sayadri-4, etc. cv- Swarna Sub-1 is preferred under SRI.

- District level officials of CG State Beej Evam Krishi Vikas Nigam and Agro need orientation/ training for quick documentation/ preparation of bills/accurate billing for onward submission to DDAs to facilitate timely reimbursement through PFMS. The procedural fault of CGSBKV has been attributed to poor expenditure at district level.
- The quality of inputs, including machineries and equipments supplied by CG State Beej Evam Krishi Vikas Nigam need an introspection in terms of reputation of the company/manufacturer /brand and also the prevailing per unit cost in the open market. To meet quality standards and the cost and AMC issues, the DDAs may be authorized to implement/ execute the component with the PFMS/DBT mode of disbursement of subsidy. This will also ensure the accountability of DDAs at district level.
- The NLMT has recommends that all check dams/stop dams/ MITs so developed under asset building component of BGREI should be converged with other schemes/ relevant components such as machineries, implements, pipelines, irrigation pumps, seeds and fertilizers so as to ensure round the year crop production programme/ AHD/Horticulture and other activities to generate income/ livelihood to the farmers.
- Under District Mineral Fund (DMF). The district, has proposed to develop food zone. The Tau (Buckwheat) processing plant, tomato ketchup, potato chips, Jackfruit pickle and Custard apple processing plant has been proposed.
- Upland paddy which 32 % area in the district, 80 % of this area has been diverted to maize and 130rhar. This year Rs. 10 cr. Has been proposed under the RKVY- Maize. The maize minikits have contributed a lot in this diversion.
- Tau (Buckwheat) has not been explored under revenue record. This is one of the major observation and recommendation of the NLMT for the SDA/Revenue Department to incorporate this crop in their land records.

Recommendations/Suggestions

- Under BGREI, the state has done a good work. However, the NLMT recommends that all the watershed structures (Check dam/Stop dam/MIT) should be surveyed jointly by Soil and Water Conservation Unit and ADO/RAEO in order to prepare a perspective plan for the site (such as, crops to be taken, other allied activities, organizing demonstrations under NFSM/BGREI/ other programmes/ Beej Gram Yojana etc.
- It is strongly recommended that the RAEO of the circle should be associated from the beginning of the asset building activities, especially the watershed development.
- The non-availability of minor millet seeds is a major issue. The district may be permitted to procure local germplasm to demonstrate the targets. This is highly important for millets. The DDAs may be empowered to go for local purchase.
- On 25th Aug, 2017, a review meeting was scheduled vide circular from Joint Director, Bilaspur for all five districts of Bilaspur Division. The proposed agenda was to review i) Utilization Status under NFSM/NMOOP/Other CSS ii) Progress of DBT iii) The innovative/success stories emanated from the Crop Development Programmes iv) Role of KVKs in technology back stopping v) Status of Cooperation of MARKFED, Bank, CG State Beej and KrishiVikas Nigam. Except DDA Janjgir-Champa, the other four districts did not ensure the participation/provided the information. The state Nodal officer BGREI/NFSM may review the status and submit the information to the Directorate of Pulses Development, Bhopal and NRRI, Cuttack.

UNIT-IX

Rainfall Situation in India and Assigned States

9.1 Seasonal & annual rainfall statistics for the country & broad regions

The country received annual normal rainfall which is 112.7 cm and during SW Monsoon season, 95% of its normal rainfall which is 84.6 cm. The region-wise and the countryôs seasonal and annual actual observed rainfall are given at Table 9.2, and the percentage departure from normal rainfall are given at Table-9.3. It may be observed that Central India, North West India as well as the country as a whole received negative % departure of rainfall during all the seasons and also annually. Also, South Peninsula also received negative % departure of rainfall during all the seasons except SW Monsoon which zero % departure. E & NE India during Pre-Monsoon, Post-Monsoon and annually received positive % of departure of rainfall where as winter and sw-mosoon received negative % departure of rainfall. Annually, all the regions and country as whole remained with normal rainfall category. The country was at maximum deficiency in rainfall of 12% during Post-Monsoon season which was normal category range. Regionally, lowest negative departure (82%) observed over Central India region during winter season where as highest positive departure of 33% was observed in North West India region during winter season. During SW Monsoon season lowest rainfall deficiency observed over North West India, where as maximum zero % departure observed over south peninsula region.

(Table 9.1): The list of categories, their corresponding ranges

Category	Departure from Normals
Large Excess (LE)	60% or more
Excess ú	20% to 59%
Normal (N)	-19% to +19%
Deficient (D)	-20% to -59%
Large Deficient (LD)	-60% to -99%
No Rain	-100%
No Data	Data Not Available

(Table 9.2): Region-wise seasonal and annual rainfall (mm) ï Year 2017

Regions	Winter	Pre-Monsoon	SW Monsoon	Post-Monsoon	Annual
Country As A Whole	39.4	129.5	845.9	112.4	1127
North West India	103.2	102.8	554.1	27.7	788
Central India	2.9	23.7	919.5	72.3	1018.5
South Peninsula	12.9	112.1	718.8	242.4	1086.3
East & North East India	25.9	425.6	1409.0	199.7	2061.2

(Table 9.3): % Departure of region-wise seasonal and annual rainfall ï Year 2017

Regions	Winter	Pre-Monsoon	SW Monsoon	Post-Monsoon	Annual
Country as a Whole	-5%	-2%	-5%	-12%	-5%
North West India	33%	-8%	-10%	-56%	-9%
Central India	-82%	-41%	-6%	-9%	-8%
South Peninsula	-15%	-9%	0%	-11%	-4%
East & North East India	-54%	14%	-2%	17%	1%

9.2 Salient Features of Rainfall: 2017

1. The country received actual annual rainfall of 1127 mm which was 95% of its long period average (LPA) rainfall.
2. The country received actual SW Monsoon season (June to September) rainfall of 845.9 mm which was also 95% of its long period average (LPA) rainfall.
3. The rainfall for the country as whole during Pre-monsoon, Post-monsoon and Winter season was 129.5 mm, 112.4 mm & 39.4 mm which was 98%, 88% & 95% of LPA respectively.
4. The seasonal rainfall for the country as a whole was less than the normal value in all the four seasons.
5. Rainfall distribution during SW Monsoon season:

a. Region Wise: North West India, Central India, South Peninsula, East & North East India received actual rainfall of 554.1 mm, 919.5 mm, 718.8 mm, 1409.0 mm which was 90%, 94%, 100%, 98% of LPA respectively.

b. Month Wise: The actual rainfall for the country as a whole during June, July, August & September was 172.5 mm, 290.5 mm, 229.6 mm, 153.3 mm which was 95%, 100%, 88% and 88% of LPA respectively.

c. Met Sub Division Wise:

i. Out of 36 met sub divisions, 5 met sub divisions received Excess rainfall, 25 met sub divisions received Normal rainfall and 6 met sub divisions received Deficient rainfall.

ii. Based on met sub division wise rainfall, 18% area received Excess rainfall, 65% area received Normal rainfall and 17% area received deficient rainfall.

d. District Wise: Out of 631 districts for which rainfall statistics was prepared, 25 districts received Large Excess rainfall, 78 districts received Excess rainfall, 319 districts received Normal category of rainfall, 202 districts received Deficient rainfall, 7 districts received Large Deficient rainfall.

6. The rainfall deficiency for the country as a whole was maximum (12%) during Post-Monsoon season.
7. Annual and seasonal rainfall was less than the normal value for all the four homogeneous region and country as a whole except North West India in Winter season, East & North East India in Pre-Monsoon & Post-Monsoon season and south Peninsula in SW Monsoon season, in which rainfall was equal to or greater than the normal value.
8. In the four meteorological homogeneous regions, highest positive departure of 33% was experienced in North West India during winter season, whereas highest negative departure of 82% was observed in Central India during winter season.
9. Month wise, maximum positive departure of 107% was recorded in North West India in the month of January, whereas the maximum negative departure of 98% was recorded in the month of October in NW India.
10. Met sub-division-wise Annual and Seasonal rainfall distribution:
    a. Annual: Konkan & Goa received highest rainfall of 3443.4 mm and West Rajasthan received lowest annual rainfall of 408.3 mm.
    b. SW Monsoon season:

i. Konkan & Goa received highest rainfall of 3213.8 mm and Haryana, Chandigarh & Delhi received lowest rainfall of 359.4 mm.
ii. West Uttar Pradesh recorded highest deficiency of 30% whereas highest positive departure of 39% was recorded in West Rajasthan.

11. Annually, the District of East Khasi Hills in Meghalaya received the highest rainfall of 7679.8 mm whereas the District Ferozepur in Punjab received the lowest rainfall of 94.2 mm.

9.3 District-Wise Seasonal & Annual Rainfall Statistics (Assigned States)

The rainfall statistics for 27 district of Chhattisgarh and 51 districts of Madhya Pradesh of India was prepared during the year 2017. The average annual railfall of C.G. State was 1120 mm and in MP 792 mm. The district-wise observed seasonal and annual rainfall with percent departure of observed rainfall from their normals for the districts whose data are received throughout the year is given in Table 9.4 and 9.5.

(Table 9.4): District-wise seasonal and annual Rainfall (mm) of CG ï Year 2017

Districts	Winter	Pre-Monsoon	SW-monsoon	Post- Monsoon	Annual
Chhattisgarh					
Balod	0.0	35.9	1366.5	22.6	1425.0
Baloda Bazar	0.0	4.3	660.0	26.6	690.9
Balrampur	1.0	1.0	927.4	20.0	949.4
Bastar	0.0	93.9	1352.8	136.4	1583.1
Bemetara	1.0	5.0	1112.9	43.8	1162.7
Bijapur	0.0	23.0	1118.5	99.7	1241.2
Bilaspur	11.7	18.9	881.0	33.2	944.6
Dantewada	0.0	40.0	1193.3	81.8	1315.1
Dhamtari	0.2	43.4	1070.4	67.8	1181.8
Durg	1.8	29.6	747.2	66.4	845.0
Gariaband	0.0	13.6	911.2	92.3	1017.1
Janjgir	0.0	7.0	941.1	37.8	985.9
Jashpur	1.0	23.5	1197.3	28.8	1250.6
Kabirdham	0.0	62.6	1338.0	47.6	1448.2
Kanker	0.0	0.0	1035.8	109.1	1144.9
Kondagaon	0.0	38.2	1073.0	176.8	1288.0
Korba	5.3	13.3	1153.7	31.3	1203.6
Koriya	2.9	2.3	726.0	21.2	752.5
Mahasamund	0.0	0.0	905.5	45.5	951.0
Mungeli	7.4	2.2	781.1	0.0	790.7
Narayanpur	0.0	30.8	956.0	61.9	1048.7
Raigarh	0.0	4.5	968.6	47.5	1020.6
Raipur	3.9	11.8	789.2	62.6	867.5
Rajnandgaon	0.0	27.4	724.5	47.6	799.4
Sukma	0.0	0.0	1596.2	183.5	1779.7
Surajpur	0.0	1.0	1098.3	9.0	1108.3
Surguja	9.7	3.9	1396.3	43.7	1453.6
Average	**1.7**	**19.9**	**1037.8**	**60.9**	**1120.3**

Winter-Jan –Feb; Pre-Monsoon:March-May; SW-monsoon: June-Sept.; Post- Monsoon –Oct-Dec.

(Table 9.5): District-wise seasonal and annual Rainfall (mm) of MP - Year 2017

Districts	Winter	Pre-Monsoon	SW-monsoon	Post- Monsoon	Annual
Agar-Malwa	0.3	0.1	814.6	0.5	815.5
Anuppur	13.7	4.1	892.8	24.2	934.8
Ashoknagar	1.8	40.8	806.8	0.0	849.3
Balaghat	10.5	8.2	847.3	49.4	915.4
Barwani	0.0	0.0	622.0	23.9	645.9
Betul	7.1	0.6	728.7	71.6	808.0
Bhind	27.9	11.2	445.9	7.8	492.8
Bhopal	6.2	18.6	781.0	0.2	806.0
Burhanpur	4.7	0.0	850.9	55.8	911.5
Chhatarpur	1.7	5.7	669.5	0.0	677.0
Chhindwara	14.6	23.0	770.3	75.1	883.0
Damoh	9.0	8.5	708.3	1.0	726.8
Datia	26.8	28.2	529.8	1.0	585.8
Dewas	0.7	6.0	797.8	5.7	810.2
Dhar	0.1	3.6	741.5	16.5	761.7
Dindori	12.0	0.0	847.2	55.6	914.8
Guna	13.7	14.7	778.5	1.5	808.3
Gwalior	30.1	24.0	572.1	5.5	631.6
Harda	6.0	0.0	659.9	9.9	675.8
Hoshangabad	10.4	9.1	1011.2	13.1	1043.8
Indore	0.0	1.7	773.6	1.6	776.8
Jabalpur	28.4	25.7	838.2	10.2	902.5
Jhabua	0.0	0.5	838.1	7.1	845.6
Katni	9.0	14.3	1090.5	2.0	1115.8
Khandwa	0.0	1.7	942.8	33.3	977.8
Khargone	0.0	0.2	720.1	55.2	775.5
Mandla	9.8	13.3	905.3	15.7	944.1
Mandsaur	0.5	5.3	662.5	0.5	668.7
Morena	20.3	17.4	445.9	9.0	492.5
Narsinghpur	14.2	14.4	728.2	20.2	777.0
Neemuch	1.3	0.7	797.3	1.7	801.0
Panna	4.8	10.6	842.0	0.0	857.3
Raisen	12.8	12.3	882.4	19.9	927.5
Rajgarh	0.4	7.2	827.0	6.0	840.6
Ratlam	0.0	2.4	971.8	3.7	978.0
Rewa	8.8	3.1	879.7	0.0	891.6
Sagar	12.4	12.2	848.3	11.3	884.2
Satna	5.6	4.7	729.1	3.9	743.3
Sehore	3.3	5.1	892.5	4.6	905.5
Seoni	15.9	19.5	847.2	24.5	907.1
Shahdol	13.0	7.0	698.5	25.0	743.5
Shajapur	0.0	3.2	649.0	11.0	663.2
Sheopur	5.8	19.1	404.6	6.5	436.0
Shivpuri	19.5	4.5	497.4	1.8	523.1
Sidhi	10.2	9.8	722.4	5.6	748.0
Singrauli	13.3	31.5	810.5	11.6	866.9
Tikamgarh	4.5	10.0	584.5	0.0	599.0
Ujjain	0.0	30.2	774.5	9.4	814.1
Umaria	20.7	45.8	657.1	5.0	728.6
Vidisha	4.1	8.4	792.2	7.2	811.8
Average	**8.5**	**10.7**	**758.6**	**14.9**	**792.8**

Winter-Jan –Feb; Pre-Monsoon:March-May; SW-monsoon: June-Sept.; Post- Monsoon –Oct-Dec.

Unit –X
Major Inteface /Coordination /Extension Activities

1. Workshop/Conference/ Trainings/Meetings/Participation

Name	Organization/ Institute	Duration	Purpose
Dr. A. K. Tiwari (Director)	KB, New Delhi	April, 25-26, 2017	National Conference on Kharif Campaign
	MP, Tikamgarh	May, 06th-07th , 2017	Bundelkhand Srajan-2017, a National Expo & Seminar on Agriculture & Allied Sectorò
	KB, New Delhi	May, 29th, 2017	Review Meeting with CDDs
	KB, New Delhi	July, 28th, 2017	Review Meeting with CDDs
	ISTM, New Delhi	July, 28th-31st, 2017	Training Course on Stress Management
	IGKV, Raipur	Sept, 08th-09th, 2017	AGM-AICRP-Rabi MULLaRP
	MP, Bhopal	Sept, 26th	Interaction Meeting on Rabi Contingency Planning
	MP, Bhopal	Nov. 07th, 2017	State-level workshop on Hands of Pulses Production Technologies to Agril. Finance Officers
	MP, Bhopal	Nov. 08th, 2017	Special Outreach Programme on Awareness of Agril. Schemes by DAC&FW
	MP, Bhopal	Nov.11th , 2017	State level Trainers workshop for blocks level Krishi Sanghosthies.
	MP, Bhopal	Nov.09th -10th , 2017	National Agri-Business Summit-2017
	IISR, Indore	Dec, 11th, 2017	Krishi Mela on Soybean
	KVK, Jhabua	Jan. 18th-20th, 2018	Zonal Workshop on CFLD-Pulses/Oilseeds
	KB, New Delhi	Feb, 08th, 2018	Review Meeting with CDDs
Dr. A.K. Shivhare (AD)	*MP, Tikamgarh*	*May, 06-07, 2017*	*Bundelkhand Srajan-2017, a National Expo & Seminar on Agriculture & Allied Sector"*
	NASC, New Delhi	June, 06th, 2017	Workshop on ñAgriculture Nutritional Linkegesò
	CIAE, Bhopal	Aug.28th-30th, 2017	AGM-AICRP-Chickpea

Name	Organization/ Institute	Duration	Purpose
Dr. A.K. Shivhare (AD)	IGKV, Raipur	Sept, 08th-09th, 201	AGM-AICRP-Rabi MULLaRP
	MP, Bhopal	Sept, 26th	Interaction Meeting on Rabi Contingency Planning
	KB, New Delhi	Oct, 03rd, 2017	Review Meeting with CDDs
	MP, Bhopal	Nov. 08th, 2017	Special Outreach Programme on Awareness of Agril. Schemes by DAC&FW
	MP, Bhopal	Nov.11th , 2017	State level Trainers workshop for blocks level Krishi Sanghosthies.
	KB, New Delhi	Nov, 24th, 2017	Review Meeting with CDDs
	IARI, New Delhi	Dec.05th-18th, 2017	Training programme on Good Agricultural Practices (GAPs) for Enhancing Resource Use Efficiancy and Farm Productivity
Shri Vipin Kumar (AD)	RPCAU, Samastipur (BR)	May, 19th-21st	AICRP-AGM-Pigeonpea
	New Delhi	July, 27th, 2017	Buyer & Seller Training on GeM
Shri. Sarju Pallewar (SI)	MP, Tikamgarh	May, 06-07, 2017	Bundelkhand Srajan-2017, a National Expo & Seminar on Agriculture & Allied Sectorò
	CIAE, Bhopal	Aug.28th-30th, 2017	AGM-AICRP-Chickpea
	KB, New Delhi	Oct, 03rd, 2017	Review Meeting with CDDs
	KB, New Delhi	Nov, 24th, 2017	Review Meeting with CDDs
Dr. Sandip Silawat Sahare (STA)	INGAF, New Delhi	Aug. 27th-29th, 2017	Traing programme on Implemention of EAT Module of PFMS under NFSM.
	CG, Bilaspur	Nov. 15th-16th, 2017	Workshop on Awareness Programme on Agriculture Development Schemes
	IARI, New Delhi	March, 17th-18th, 2018	To attand the *Krishi Unnati Mela*
Dr. Divya Sahare (STA)	MP, Tikamgarh	May, 06-07, 2017	Bundelkhand Srajan-2017, a National Expo & Seminar on Agriculture & Allied Sectorò
	IIPR, Kanpur	Nov. 13th-20th, 2017	MTC-Improved Technologies on Pulses Prodn.
Smt Ashwini Bhoware	MP, Tikamgarh	May, 06-07, 2017	Bundelkhand Srajan-2017, a National Expo & Seminar on Agriculture & Allied Sectorò
Shri. Sateesh Dwivedi (TA)	MP, Tikamgarh	May, 06-07, 2017	Bundelkhand Srajan-2017, a National Expo & Seminar on Agriculture & Allied Sectorò
	IIPR, Kanpur	Nov. 13th-20th, 2017	MTC-Improved Technologies on Pulses Prodn.

2. National Level Monitoring Team (NLMTs)/Inter Ministrial Central Teams

Name	Organization/ Institute	Duration	NLMTs
Dr. A. K Tiwari (Director)	Bilaspur & Surguja	Aug. 21th-26th, 2017	CG Kharif NLMT- BGERI Kharif-2017
	Kanker/Kondagaon/ Jagdalpur/ Dantewada	Sept. 04th-07th, 2017	CG NLMT- NFSM - Kharif - 2017
	Narsinghpur/ Chhindwara/Seoni/ Betul	Oct, 09th -14th, 2016	MP-NLMT-NFSM -Kharif 2017
	Katni/Umaria/ Shahdol/ Anuppur	Feb. 19th-24th, 2018	MP-NLMT-NFSMï Rabi 2017-18
Dr. A. K Shivhare (AD)	Bemetara/Kawardha/Bilaspur	Feb. 19th-24th, 2018	CG-NLMT-NFSMï Rabi 2017-18
Dr. A. K Shivhare (AD)	MP	Nov. 13th-16th	Inter-Ministrial Central Team-Drought Assessment during Kharif -2017
	CG	Nov. 20th -24th	Inter-Ministrial Central Team-Drought Assessment during Kharif -2017

3. Monitoring of Crop Develop. Schemes/Field visit by Officer/Officials of DPD. Dr. A.K. Tiwari (Director)

State	Visited District/KVKs	Date/Duration	Purpose
MP	Hoshangabad	April, 03rd, 2017	To represent Inspection Team on Breeder to Foundation seed plots of Turmeric & Ginger
MP	Harda & Sehore	June, 07th-12th, 2017	Visit of NFSM/Additional Area Rabi/Summer/NMOOP and other CSS
MP	Vidisha & Raisen	June, 29th-30th, 2017	Visit of NFSM/Additional Area Rabi/Summer/NMOOP and other CSS
MP	Indore/Ujjain/Dewas	Aug. 16-18, 2017	Monitoring NFSM Projects on Seed-hub/ABSP and Cluster FLDs NFSM-Pulses and NMOOP-Oilseeds implemented by KVKs
MP	Harda	Sept. 16-17, 2017	Field visit/Monitoring of NFSM/Additional Area Rabi/Summer/NMOOP and other CSS/Block level Krishak Sanghosthi

State	Visited District/KVKs	Date/Duration	Purpose
MP	Vidisha	Nov, 14th , 2017	Field visit/Monitoring of NFSM/Additional Area Rabi/Summer/NMOOP and other CSS
M.P.	Jabalpur/Mandla/ Dindori/Balaghat	Dec. 17th -21st , 2017	Field visit/Monitoring of CSS on NFSM/ /NMOOP etc. /Review of NFSM viz. Seed-hub/ABSP/CFLDs on Pulses and Oilseeds with JNKVV, Jabalpur/ATARI-Zone-IX.
M.P.	Datia	Dec. 29th-31st, 2017	Monitoring of CSS viz NFSM/NMOOP etc/Monitoring NFSM-Seed-hub/ABSP/CFLDs on Pulses and Oilseeds-re
CG	Raipur/Jagdalpur	Jan. 09th-14th , 2018	Monitoring of CSS viz NFSM/NMOOP etc. in LWE affected dsitt.
UP	Hardoi & Kanpur, Lucknow/Kanpur	Feb. 11th-15th, 2018	Monitoring of NFSM -Pulses /Review of NFSM projects viz. seed-hubs/cluster FLDs-Pulses etc.

Assistant Director (Dr. A.K.Shivhare)

State	Visited Districts/KVKs	Date/Duration	Purpose
MP	Hoshangabad	April, 03rd, 2017	To represent Inspection Team on Breeder to Foundation seed plots of Turmeric & Ginger
MP	Harda, Hoshangabad, Narsinghpur, Jabalpur	May, 19th-24th,2017	Review of CSS (NFSM/RKVY/NMOOP etc.)/status of current Kharif-2017
CG	Rajnandgaon, Durg, Dhamtari, Kanker, Raipur, Bhatapara	Sept. 04th-09th, 2017	Monitoring of NFSM-Pulses project on Seed-hub and Cluster FLDs on NFSM-Pulses/NMOOP-Oilseeds in KVKs of Chhattisgarh
MP	Hoshangabad	Jan. 23rd-24th, 2018	Represent as the Central Team Member to review the status of Soil Health Card Scheme (SHC).
MP	Raisen	March, 24th-25th,2018	Monitoring of Cluster FLDs on NFSM-Pulses/NMOOP-Oilseeds

Assistant Director (Shri Vipin Kumar)

State	Visited Districts/KVKs	Date/Duration	Purpose
MP	Harda, Betul, Narsinghpur, Jabalpur	Aug. 28th-Sept. 01st , 2017	Monitoring of NFSM-Pulses project on Seed-hub and cluster CFLDs on NFSM-Pulses/NMOOP-Oilseeds in KVKs of MP
CG	Durg	Oct. 12th-13th, 2017	Review of CSS (NFSM/RKVY/NMOOP etc.)/status of current Kharif-2017
MP	Burhanpur	Nov. 13th-14th,2017	Review of CSS (NFSM/RKVY/NMOOP etc.)/status of current Rabi-2017-18
MP	Tikamgarh	Jan. 06th, 2018	Review/Monitoring of NFSM-Pulses project on Seed-hub
MP	Indore, Ratlam, Mandsaur, Neemuch	Feb. 20th-24th, 2018	Monitoring of NFSM-FLD on Wheat

Statstical Investigator (Sh. Sarju Pallewar)

State	Visited Districts/KVKs	Date/Duration	Purpose
MP	Balaghat & Chhindwara	May, 19th-20th, 2017	Review of CSS (NFSM/RKVY/NMOOP etc.)/Additional Rabi/ Summer-Pulses/ Cluster CFLDs on Pulses/Oilseeds
CG	Bemetara	Nov. 27th-28th, 2017	Review of CSS (NFSM/RKVY/NMOOP etc.)/ Additional Rabi/Summer-Pulses

Senior Technical Assistant (Dr. Sandip Silawat)

State	Visited Districts/KVKs	Date/Duration	Purpose
MP	Sagar & Damoh	May, 15th-16th, 2017	Review of CSS (NFSM/RKVY/NMOOP etc.)/Additional Rabi/Summer-Pulses/Cluster FLDs on Pulses/Oilseeds
MP	Asoknagar & Guna	May, 22nd -23rd, 2017	Review of CSS (NFSM/RKVY/NMOOP etc.)/status of current Kharif-2017/ Cluster CFLDs on Pulses/Oilseeds
MP	Agar malwa	Nov. 10th-11th, 2017	Review of CSS (NFSM/RKVY/NMOOP etc.)/status of current Rabi-2017-18

Senior Technical Assistant (Dr. Divya Sahare)

State	Visited Districts/KVKs	Date/Duration	Purpose
CG	Rajnandgaon & Durg	June, 22nd-23rd, 2017	Review of CSS (NFSM/RKVY/NMOOP etc.)/status of current Kharif-2017/ Cluster CFLDs on Pulses/Oilseeds
CG	Raipur/Baloda bazar	Nov. 08th-09th, 2017	Review of CSS (NFSM/RKVY/NMOOP etc.)/status of current Kharif-2017/ Cluster CFLDs on Pulses/Oilseeds
CG	Rajnandgaon, Ambikapur & Bhatapara	Jan. 22nd-25th, 2018	Review of CSS (NFSM/RKVY/NMOOP etc.) including NFSM seed-hub/Cluster FLDs on Pulses/Oilseeds at KVKs.
CG	Dhamtari	March, 19th, 2018	Review of CSS (NFSM/RKVY/NMOOP etc.)

Technical Assistant (Smt Ashwini Bhoware)

State	Visited Districts/KVKs	Date/Duration	Purpose
MP	Indore & Dewas	May, 25th,-26th, 2017	Monitoring/Implementation of CSS schemes
MP	Sehore	June, 27th -28th, 2017	Monitoring/Implementation of CSS schemes/NFSM Seed-hub/ABSP
MP	Sehore, Dewas & Shajapur	July, 18th -21st, 2017	Monitoring/Implementation of CSS schemes/NFSM Seed-hub/ABSP/CFLDs
MP	Datia	Nov. 20th-21st, 2017	Monitoring/Implementation of CSS schemes/NFSM Seed-hub/ABSP/CFLDs

Technical Assistant (Shri Sateesh Dwivedi)

State	Visited Districts/KVKs	Duration	Purpose
MP	Dhar & Khargone	May, 21st-23rd, 2017	Monitoring/Implementation of CSS schemes/Additional Rabi/Summer
MP	Katni, Umaria, Shahdol & Anuppur	Feb. 19th-24th, 2018	Monitoring/Implementation of CSS schemes/Accompyning with NLMT Rabi-2017-18
MP	Dhar & Khargone	March, 14th-16th, 2018	Monitoring/Implementation of CSS schemes/NFSM Seed-hub/ABSP/CFLDs

4. Notes/Technical Reports

Technical Report	Report Submitted
Fixation of National Pulse Production Targets -2017-18	29th March,
Inspection report of Fact Finding Team for Turmeric & Ginger seed production/ Seed Certification	04th April,
Monitoring -Seed-Hubs/FLDs	06th April,
Technical Note on Gram Production /Market Arrivals/Procurement &Price Trends for MP, Raj. & MS.	28th April,
A National Expo & Seminar on Agriculture & Allied Sectors in Bundelkhand Srajan, 2017- *Proceeding* of Participation	11th May,
Crop Advisories for the month of May and June,2017	11th May,
Status Note on the Production of gram, market arrivals & prices in major producting states in country during last five years.	26th May,
Gram - Status: State-wise production estimates, Market Arrivals / Prices, Import & export (2013-14 to 2016-17)	02nd June,
Arhar-Technical Note - Prevailing Lower Market Prices	13th June,
Crop Advisory-Kharif Crops -Assigned States	13th June,
Monitoring/Field visit report of CSS/NFSM Project-MP	16th June,
Minutes of the Workshop -ñAgriculture Nutritional Linkagesõõ	20th June,
Crop Advisory Kharif Pulses- All India	21st June,
Note on all India Kharif Pulses: Scenario Kharif -2017	28th June,
Detail Crop Specific PPT-Pulses Commodity	04th July,
Status Note Market arrival, Price, Export, Import Pigeonpea, Blackgram, Greengram and Lentil	03rd Aug.
Status Note < Price regime(July 2017) Pigeonpea, Blackgram, Greengram and Lentil	07th Aug,
Technical Note Less coverage Kharif Pulse/other crops	17th Aug,
Draft document Doubling Farmers Income by 2022-Productivity gains for enhancing output (Pulses)	21st Aug,
Report on Crop damage Deficit rains/flood/drought assigned states	24th Aug,
Report on Monitoring CSS/Seed-hub/ABSP/CFLDs	30th Aug,
Show-casing vibrant multi -layered agri. Scenario Organization of photo competition	31st Aug,

Technical Report	Report Submitted
Status Note on crop situation Deficit/Erratic rainfall in CG	04th Sept.
Crop Specific Advisories Assigned states	07th Sept.
Participation Report AGM-Chickpea/MULLaRP-MP/CG	15th Sept.
Technical Note Potential export/import between India & Canada	27th July,
Researchable Issues Pulses-DAC-ICAR Interface Rabi Campaign 2017-18	03rd Aug.
Field Visit Report Harda MP	19th Sept.
Annual Progress Report-NFSM-2016-17	26th Sept.
NLMT-BGREI-Kharif-2017 CG state	26th Sept.
NLMT-NFSM-Kharif-2017 CG state	26th Sept.
Field Visit Reports Seed-hub, ABSP & CFLDs MP/CG	28th Sept.
Report on Crop Weather Watch Group Drought parameters in MP/CG	11th Oct,
Crop Specific Advisories Assigned states	12th Oct,
Review of Technical Reports Assigned states (Ist FTR, Oct.)	13th Oct,
Photographs-World Food India 2017 Organized during Nov 03-05, 2017	26th Oct,
Review of Technical Reports Assigned states (IInd FTR, Oct.)	30th Oct,
NLMT-NFSM-Kharif-2017 MP state	13th Nov.
Review of Technical Reports Assigned states (Ist FTR Nov.)	15th Nov.
Technical Reports (MTR) Assigned states	06th Dec,
Assessment Ockhi cyclone	06th Dec,
Advisories assigned states	08th Dec.
Gram Projections and Arrival Market Trends Suggestive policy interventions to curtail price crash	04th Jan.
Technical Reports (MTR) assigned states	5th Jan.
Summary observations/ suggestions to enhance utilization of Budget and effective implementation to Govt. of MP	8th Jan
Status Paper on Pulses - Pulses in India- ñRetrospect's and Prospectsò	10th Jan.
National Advisory (Jan. , Feb. & March 2018)	11th Jan.
Researchable issues: DAC - ICAR Kharif Interface (2018)	15th Jan.
Diversification Note: Pulses	22th Jan.
Pigeonpea: Technical Note on Prevailing lower Market Prices during 2017-18	23rd Jan.

Technical Report	Report Submitted
LWE Report	Feb 02nd
Technical Reports (MTR) Assigned states	Feb 05th
Advisories- Assigned States	Feb. 08th
Hailstorm- Prelim. damage report	Feb. 16th
Crop Calendar- Nodal Crop /All crop of Assigned States	Feb. 21st
Monitoring Report of Crop Development Schemes	Mar.05th
Advisories- Assigned States	Mar.06th
Field visit Report/Follow-up NFSM-Pulses- UP	Mar.08th
Monitoring report- FLD-Wheat & Barley	Mar.09th
Technical Reports (MTR)- Assigned states	Mar.09th

5. O&M Activites

S. No.		Date/Duration
1	Observabnce of Swachata Pakhwada	16.05.2017 to 31.05.2017 05.09.2017 to 02.10.2017
2	Observance of Anti Terrorism Day	21.05.2017
3	Hindi Workshop (Quarterly)	21.06.2017, 14.09.2017, 15.12.2017, 15.03.2018
	Hindi Meeting (Quarterly)	21.06.2017, 14.09.2017, 15.12.2017, 16.03.2018
4	Celebration of International Yoga Day	21.06.2017
5	Observance of Sadbhavna Diwas	20.08.2017
6	Observance of Vigilance Awarness Week	30.10.2017 to 04.11.2017
7.	Observance of Unity Day	31.10.2017

6. Budget /Office Expenses

(Amount in Rs.)

Head	2015-16		2016-17		2017-18	
	Allocation	Expend.	Allocation	Expend.	Allocation	Expend.
Honorarium and other Allowances	48,42000	47,40879	69,95000	69,94800	81,98000	81,47351
Official Expenses	9,48000	9,48000	9,35000	9,35000	10,00000	9,29863
Overtime Allowances	10,000	6,787	14,000	7,079	15,000	3,680
Tour Allowance	400000	3,41683	4,94000	3,44416	5,34000	5,34000
Medical	100000	10,107	1,50000	31,313	2,24000	37,048
Total	**63,00000**	**60,47456**	**85,88000**	**83,12608**	**99,71000**	**96,51942**

7. Technical Assistant Budget/Expenses

Head	U.B. as on 01.04.16	Fund released by DAC 2016-17	Total available fund (2016-17)	Fund Utilized 2016-17	U.B. as 01.04.17	Gross requirement 2017-18	Net Requirement 2017-18
1	2	3	4=(2+3)	5	6=(4-5)	7	8=(7-6)$
Honorarium	1667	598333	600000	588710	11290	600000**	588710
Conveyance Allowance	100	35900	36000	35321	679	36000	35321
Domestic Travel expenses	23168	26832	50000	19815	30185	50000	19815

** Gross requirement 2017-18 (for 12 month ï April 2017 to March, 2018).

$ Net requirement is equal to gross requirement. (*i.e.* total fund requirement for salary component of TAs) minus Unspent Balance of 2016-17 i.e. column 8=(7-6).

8. Staff Position

Name & Designation with contact details

Sl. No.	Name & Designation	Contact No.	E-mail
1.	Dr. Ashok Kumar Tiwari, Director	Ph.No 0755-2550353 Tele Fax 0755-2571678	dpd.mp@nic.in, tiwariagri@gmail.com
2.	Dr. Arjun Kumar Shivhare Assistant Director	Ph.No 0755-2572313	dpd.mp@nic.in shivhare.arjun@yahoo.com
3.	Shri Vipin Kumar Assistant Director	Ph.No 0755-2572313	dpd.mp@nic.in vpnkmr192@gmail.com
4.	Shri Rajesh Pawar Administrative Officer	Ph.No 0755-2572313	dpd.mp@nic.in rajesh.pawar71@gmail.com
5.	Shri Sarju Pallewar Statistical Investigator	Ph.No 0755-2550353	dpd.mp@nic.in spllewar@gmail.com
6.	Dr. Sandip Silawat Sr. Technical Assistant	Ph.No 0755-2572313	dpd.mp@nic.in sandipagro@gmail.com
7.	Ms. Divya Sahare Sr. Technical Assistant	Ph.No 0755-2572313	dpd.mp@nic.in divya.sahare@gmail.com
8.	Shweta Kumari Sr. Technical Assistant	Ph.No 0755-2572313	kumarishweta169@gmail.com
9.	Shri Harendra K. Choudhary Accountant	Ph.No 0755-2572313	dpd.mp@nic.in hkchoudhary74@yahoo.com
10.	Shri Ajay Kumar Lower Division Clerk	Ph.No 0755-2572313	dpd.mp@nic.in ajaymohan2793@gmail.com
11.	Shri Suchit Kumar	Ph.No 0755-2572313	dpd.mp@nic.in suchitkumarmahto1990@gmail.com

Sl. No.	Name & Designation	Contact No.	E-mail
12.	Shri Amol Singh Staff Car Driver	Ph.No 0755-2572313	dpd.mp@nic.in
13.	Shri Sanjay Kumar Pandey M.T.S.	Ph.No 0755-2550353	dpd.mp@nic.in spandey78kumar@yahoo.co.in
14.	Ms. Priyanaka Vishwakarma M.T.S.	Ph.No 0755-2550353	dpd.mp@nic.in piyavish108@gmail.com

Name & Designation of Contractual Staff under NFSM

Sl. No.	Name & Designation	Contact No.	E-mail
1.	Ms. Ashwini Tikle Technical Assistant	Ph.No 0755-2550353 M.No. 8319742846	tikleashwin@gmail.com
2.	Shri Satish Dwivedi Technical Assistant	Ph.No 0755-2550353 M.No. 9589246229	satishdpd@gmail.com

9. Directory of Assigned States (MP & CG)

State- Madhya Pradesh

Name & Designation	Designation	Contact No.	Email
Shri B.P. Singh, IAS	Chief Secretary,	0755-2441848(O) 2441370	cs@nic.in
Shri Prem Chand Meena, IAS	ACS/APC (Agri.)	0755-2441348(O) 2570122, 2573931 (F)	apc@mp.gov.in
Dr. Rajesh Rajora, IAS	Principal Secretary (Agri.)	0755-2559542(O) 2572468(F),	psagriculture@mp.gov.in
Directorate Farmer welfare and Agriculture Development, Bhopal			
Shri Mohal Lal	Director Agriculture/ Mission Director (NFSM)	0755-2551336(O) 2551261 94250-36356	diragri@mp.gov.in
Shri G.S. Chauhan, (OSD)	Deputy Director,(NFSM)	0755-2551273(O) 94251-35912	
Joint Director Agriculture (Divisional)			
Bhopal Division			
Shri B.L. Bilaiya	Joint Director	0755-2540890 (O) 9424386019	zmagribho@mp.gov.in
Narmadapuram (Hosangabad) Division			
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Indore Division			
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Annexure-I

All India: Crop Coverage Kharif Pulses 2017

1. ARHAR

(Area : Lakh ha)

S. No	States	Normal Area	Area Covered 2017	Change over (+-) 2016	2016	2015
1	Andhra Pradesh	1.884	2.630	3.230	-0.600	0.710
2	Arunachal Pradesh	0.006			0.000	0.000
3	Assam	0.060	0.050	0.060	-0.010	0.050
4	Bihar	0.219	0.680	0.640	0.040	0.130
5	Chhattisgarh	0.549	1.377	1.369	0.008	0.126
6	Gujarat	2.250	2.722	3.450	-0.728	0.412
7	Haryana	0.107			0.000	0.000
8	Himachal Pradesh	0.000			0.000	0.000
9	Jammu & Kashmir	0.000			0.000	0.000
10	Jharkhand	1.799			0.000	0.000
11	Karnataka	7.272	8.840	12.350	-3.510	1.530
12	Kerala	0.010			0.000	0.000
13	Madhya Pradesh	5.259	6.510	6.900	-0.390	0.720
14	Maharashtra	12.002	12.738	15.337	-2.599	2.347
15	Manipur	0.000			0.000	0.000
16	Meghalaya	0.010	0.013	0.012	0.001	0.013
17	Mizoram	0.005			0.000	-0.026
18	Nagaland	0.029			0.000	-0.025
19	Odisha	1.396	1.379	1.347	0.032	-0.010
20	Punjab	0.028	0.070	0.060	0.010	0.020
21	Rajasthan	0.152	0.121	0.174	-0.053	-0.059
22	Sikkim	0.000			0.000	0.000
23	Tamil Nadu	0.533	0.432	0.500	-0.068	0.024
24	Telangana	2.612	2.510	4.310	-1.800	0.260
25	Tripura	0.027	0.053	0.048	0.005	0.053
26	Uttar Pradesh	2.968	3.360	3.521	-0.161	-0.390
27	Uttarakhand	0.033	0.050	0.050	0.000	0.000
28	West Bengal	0.018	0.050	0.045	0.005	0.050
29	Others	0.019			0.000	0.000
	TOTAL	**39.247**	**43.585**	**53.403**	**-9.818**	**5.935**

(Normal Area- DES Ave. :2011-2012 to 2015-2016)

2. URDBEAN

(Area : Lakh ha)

S. No	States	Normal Area	Area Covered 2017	Change over (+-) 2016	2016	2015
1	Andhra Pradesh	0.228	0.400	0.580	-0.180	0.270
2	Arunachal Pradesh	0.022			0.000	0.000
3	Assam	0.000			0.000	0.000
4	Bihar	0.145	0.150	0.150	0.000	0.020
5	Chhattisgarh	0.952	1.617	1.449	0.167	0.067
6	Gujarat	0.814	1.301	2.010	-0.709	0.625
7	Haryana	0.029			0.000	0.000
8	Himachal Pradesh	0.087			0.000	0.000
9	Jammu & Kashmir	0.066			0.000	0.000
10	Jharkhand	0.941			0.000	0.000
11	Karnataka	0.854	1.300	0.830	0.470	0.490
12	Kerala	0.001			0.000	0.000
13	Madhya Pradesh	7.146	17.890	11.680	6.210	8.570
14	Maharashtra	3.242	4.833	4.551	0.282	2.030
15	Manipur	0.000			0.000	0.000
16	Meghalaya	0.000			0.000	0.000
17	Mizoram	0.000			0.000	0.000
18	Nagaland	0.060			0.000	-0.003
19	Odisha	0.881	2.502	2.918	-0.416	-0.105
20	Punjab	0.023			0.000	0.000
21	Rajasthan	2.339	5.404	3.895	1.509	3.125
22	Sikkim	0.032			0.000	0.000
23	Tamil Nadu	0.573	0.594	0.624	-0.030	0.243
24	Telangana	0.320	0.300	0.460	-0.160	0.030
25	Tripura	0.013	0.018	0.014	0.004	0.018
26	Uttar Pradesh	5.234	5.960	6.010	-0.050	-0.590
27	Uttarakhand	0.142	0.280	0.270	0.010	0.000
28	West Bengal	0.642	0.530	0.550	-0.020	-0.020
29	Others	0.013			0.000	0.000
	TOTAL	**24.799**	**43.078**	**35.990**	**7.088**	**14.769**

(Normal Area- DES Ave. :2011-2012 to 2015-2016)

3. MUNGBEAN

(Area : Lakh ha)

S. No	States	Normal Area	Area Covered 2017	Change over (+-) 2016	2016	2015
1	Andhra Pradesh	0.231	0.170	0.330	-0.160	-0.140
2	Arunachal Pradesh	0.011			0.000	0.000
3	Assam	0.000			0.000	0.000
4	Bihar	0.098	0.120	0.120	0.000	0.010
5	Chhattisgarh	0.094	0.235	0.248	-0.012	-0.085
6	Gujarat	1.214	1.294	1.470	-0.176	0.256
7	Haryana	0.096			0.000	0.000
8	Himachal Pradesh	0.003			0.000	0.000
9	Jammu & Kashmir	0.012			0.000	0.000
10	Jharkhand	0.205			0.000	0.000
11	Karnataka	2.728	3.670	4.230	-0.560	0.500
12	Kerala	0.000			0.000	0.000
13	Madhya Pradesh	1.212	2.280	2.250	0.030	0.350
14	Maharashtra	3.952	4.526	5.121	-0.595	0.669
15	Manipur	0.000			0.000	0.000
16	Meghalaya	0.000			0.000	0.000
17	Mizoram	0.000			0.000	0.000
18	Nagaland	0.000			0.000	0.000
19	Odisha	1.025	2.067	1.946	0.121	0.011
20	Punjab	0.054	0.110	0.070	0.040	0.020
21	Rajasthan	10.681	15.702	15.342	0.360	4.849
22	Sikkim	0.000			0.000	0.000
23	Tamil Nadu	0.281	0.279	0.350	-0.071	-0.017
24	Telangana	1.095	0.890	2.600	-1.710	-0.180
25	Tripura	0.009	0.015	0.010	0.004	0.015
26	Uttar Pradesh	0.398	0.450	0.490	-0.040	-0.070
27	Uttarakhand	0.000			0.000	0.000
28	West Bengal	0.012	0.010	0.011	-0.001	0.000
29	Others	0.002			0.000	0.000
	TOTAL	**23.413**	**31.818**	**34.588**	**-2.770**	**6.188**

(Normal Area- DES Ave. :2011-2012 to 2015-2016)

4. KULTHI

(Area : Lakh ha)

S. No	States	Normal Area	Area Covered 2017	Change over (+-) 2016	2016	2015
1	Andhra Pradesh	0.128	0.210	0.010	0.200	0.110
2	Arunachal Pradesh	0.000			0.000	0.000
3	Assam	0.000			0.000	0.000
4	Bihar	0.082			0.000	0.000
5	Chhattisgarh	0.460	0.210	0.1223	0.087	0.140
6	Gujarat	0.000			0.000	0.000
7	Haryana	0.005			0.000	0.000
8	Himachal Pradesh	0.019			0.000	0.000
9	Jammu & Kashmir	0.014			0.000	0.000
10	Jharkhand	0.224			0.000	0.000
11	Karnataka	0.604	0.630	0.240	0.390	0.260
12	Kerala	0.000			0.000	0.000
13	Madhya Pradesh	0.173	0.160	0.340	-0.180	0.020
14	Maharashtra	0.000			0.000	0.000
15	Manipur	0.000			0.000	0.000
16	Meghalaya	0.000			0.000	0.000
17	Mizoram	0.000			0.000	0.000
18	Nagaland	0.000			0.000	0.000
19	Odisha	0.412			0.000	0.000
20	Punjab	0.000			0.000	0.000
21	Rajasthan	0.000			0.000	0.000
22	Sikkim	0.000			0.000	0.000
23	Tamil Nadu	0.150	0.049	0.009	0.040	0.042
24	Telangana	0.007			0.000	0.000
25	Tripura	0.000			0.000	0.000
26	Uttar Pradesh	0.000			0.000	0.000
27	Uttarakhand	0.134			0.000	0.000
28	West Bengal	0.000			0.000	0.000
29	Others	0.000			0.000	0.000
	TOTAL	**2.412**	**1.259**	**0.721**	**0.537**	**0.572**

(Normal Area- DES Ave. :2011-2012 to 2015-2016)

5. OTHER KHARIF PULSES

(Area : Lakh ha)

S. No	States	Normal Area	Area Covered 2017	Change over (+-) 2016	2016	2015
1	Andhra Pradesh	0.084	0.070	0.080	-0.010	0.010
2	Arunachal Pradesh	0.010	0.068	0.064	0.004	0.068
3	Assam	0.000			0.000	0.000
4	Bihar	0.026	0.160	0.200	-0.040	0.040
5	Chhattisgarh	0.041			0.000	0.000
6	Gujarat	0.390	0.343	0.399	-0.056	0.103
7	Haryana	0.013	0.280	0.800	-0.520	0.060
8	Himachal Pradesh	0.071	0.230	0.230	0.000	0.020
9	Jammu & Kashmir	0.118	0.190	0.165	0.025	0.024
10	Jharkhand	0.071	4.616	4.370	0.246	1.996
11	Karnataka	1.232	1.530	1.210	0.320	0.150
12	Kerala	0.001			0.000	0.000
13	Madhya Pradesh	0.027			0.000	0.000
14	Maharashtra	0.906	0.812	0.860	-0.048	-0.371
15	Manipur	0.044	0.020		0.020	-0.005
16	Meghalaya	0.001			0.000	0.000
17	Mizoram	0.018			0.000	0.000
18	Nagaland	0.083			0.000	-0.136
19	Odisha	0.732	1.039	0.858	0.181	0.177
20	Punjab	0.000			0.000	0.000
21	Rajasthan	10.862	12.620	12.982	-0.362	0.234
22	Sikkim	0.030			0.000	0.000
23	Tamil Nadu	0.760	0.566	0.614	-0.048	-0.031
24	Telangana	0.022	0.010	0.010	0.000	0.000
25	Tripura	0.023	0.040	0.034	0.006	-0.020
26	Uttar Pradesh	0.000			0.000	0.000
27	Uttarakhand	0.133	0.320	0.330	-0.010	0.045
28	West Bengal	0.009	0.047	0.045	0.002	0.039
29	Others	0.000			0.000	0.000
	TOTAL	**15.707**	**22.961**	**23.251**	**-0.291**	**2.403**

(Normal Area- DES Ave. :2011-2012 to 2015-2016)

6. TOTAL KHARIF PULSES

(Area : Lakh ha)

S. No	States	Normal Area	Area Covered 2017	Change over (+-) 2016	2016	2015
1	Andhra Pradesh	2.555	3.480	4.230	-0.750	0.960
2	Arunachal Pradesh	0.049	0.068	0.064	0.004	0.068
3	Assam	0.060	0.050	0.060	-0.010	0.050
4	Bihar	0.570	1.110	1.110	0.000	0.200
5	Chhattisgarh	2.096	3.439	3.189	0.250	0.248
6	Gujarat	4.668	5.660	7.329	-1.669	1.396
7	Haryana	0.250	0.280	0.800	-0.520	0.060
8	Himachal Pradesh	0.180	0.230	0.230	0.000	0.020
9	Jammu & Kashmir	0.210	0.190	0.165	0.025	0.024
10	Jharkhand	3.240	4.616	4.370	0.246	1.996
11	Karnataka	12.690	15.970	18.860	-2.890	2.930
12	Kerala	0.012	0.000	0.000	0.000	0.000
13	Madhya Pradesh	13.817	26.840	21.170	5.670	9.660
14	Maharashtra	20.102	22.909	25.868	-2.959	4.675
15	Manipur	0.044	0.020	0.000	0.020	-0.005
16	Meghalaya	0.011	0.013	0.012	0.001	0.013
17	Mizoram	0.023	0.000	0.000	0.000	-0.026
18	Nagaland	0.172	0.000	0.000	0.000	-0.164
19	Odisha	4.446	6.987	7.070	-0.082	0.073
20	Punjab	0.105	0.180	0.130	0.050	0.040
21	Rajasthan	24.034	33.847	32.393	1.454	8.149
22	Sikkim	0.062	0.000	0.000	0.000	0.000
23	Tamil Nadu	2.297	1.920	2.097	-0.177	0.261
24	Telangana	4.056	3.710	7.380	-3.670	0.110
25	Tripura	0.072	0.125	0.106	0.019	0.065
26	Uttar Pradesh	8.600	9.770	10.021	-0.251	-1.050
27	Uttarakhand	0.442	0.650	0.650	0.000	0.045
28	West Bengal	0.681	0.637	0.651	-0.014	0.069
29	Others	0.034	0.000	0.000	0.000	0.000
	TOTAL	**105.578**	**142.700**	**147.954**	**-5.254**	**29.866**

(Normal Area- DES Ave. :2011-2012 to 2015-2016)

7. SUMMARY ALL INDIA : KHARIF PULSES

(Area : Lakh ha)

S.No	Crops	Normal Area	Normal Area of Corr. Week (2012-16)	2017	Change over (+-)		
					2016	2016	2015
1	Arhar (Tur)	39.247	40.726	43.585	53.403	-9.818	5.935
2	Urdbean	24.799	28.496	43.078	35.990	7.088	14.769
3	Moongbean	23.413	25.994	31.818	34.588	-2.770	6.188
4	Kulthi	2.412	0.961	1.259	0.721	0.537	0.572
5	Other Kharif Pulses	15.707	20.900	22.961	23.251	-0.291	2.403
	TOTAL	**105.578**	**117.077**	**142.700**	**147.954**	**-5.254**	**29.866**

Kharif Pulses: Brief Observations (WWWR: Week Ending 11.10.2017)

1. Overall crop scenario

Total Kharif

- The normal kharif pulse area (2011-12 to 2015-16) is 105.58 lakh ha. The more than 90% area covered by 10 states. The highest kharif pulse producing state is Rajasthan with 23% of area contributed followed by Maharashtra (19%), Madhya Pradesh (13%), Karnataka (12%), UP (8%), Gujarat and Odisha (4% each), Telangana and Jharkhand (3% each) and Tamil Nadu (2%).
- The current Kharif Seasonôs Pulses coverage is 142.70 lakh ha which is 37.12 L ha (35.16%) more than the normal area of 105.58 lakh ha.
- The total pulse coverage is 5.25 Lha (3.54%) less than the previous year kharif-2016.
- Total Kharif Pulses coverage reported less than to last year in Telangana, Maharashtra, Karnataka, Gujarat and Andhra Pradesh may be attributed to weak S-W Monsoon and uneven rainfall in major parts of these states.
- Area under total pulses exceeded the normal in the states of Rajasthan, Madhya Pradesh, Karnataka, Maharashtra, Odisha, Gujarat & Telangana.

Arhar

- Arhar is major kharif pulse which grown on an about 39.25 Lha which is >37 % of kharif pulse area.
- The more than 90% area covered by 09 states. The highest Arhar producing state is Maharashtra with 31% of area contributed followed by Karnataka (19%), Madhya Pradesh (13%), UP (8%), Telangana (7%) Gujarat, Jharkhand and AP (5% each) and Odisha (4%).

- The current year Arhar coverage is 43.59 lakh ha which is 4.34 L ha (11%) more than the normal area of 39.25 lakh ha. However, less than the 9.82 Lha against the previous year.
- The major shortfall in the state of Karnataka 3.51 Lha followed by Maharashtra 2.6 Lha Telangana 1.80 Lha, Gujarat 0.73 Lha and Andhra Pradesh 0.60 Lha may be attributed to weak S-W Monsoon and uneven rainfall in major parts of these states and price regime of previous year. The arhar area diverted to cotton, maize and urd in these states.
- The crop is in normal condition having vegetative to flowering stage. No above ETL is reported.

Urdbean

- Urdbean is next to arhar among kharif pulse which grown on an about 24.80 Lha which is >23 % of kharif pulse area.
- The more than 90% area covered by 10 states. The highest urdbean producing state is Madhya Pradesh with 28% of area contributed followed by UP (21%), Maharashtra (13%), Rajasthan (9%), Odisha (5%), Jharkhand (4%), Gujarat, Karnataka and West Bengal (3% each) and Tamil Nadu (2%).
- The current year urdbean coverage is 43.10 lakh ha which is 18.28 L ha (74%) more than the normal area of 24.80 lakh ha and also more than the previous five yearôs coverage. The major contribution of MP is exceeded >10 Lha of normal and 6 Lha of previous year. The area diverted from soybean and arhar.
- Area under Urdbean exceeded the normal in all the states as well as last year, however, coverage reported less than to last year in Gujarat, Odisha, Tamil Nadu, Telangana, UP, Andhra Pradesh and West Bengal.
- Crop is at harvesting stage and being harvested and threshing is going on.

Mungbean

- Mungbean is third important kharif pulse crop which is grown on an about 23.41 Lha which is >22% of kharif pulse area.
- More than 90% area covered by 07 states. The highest mungbean producing state is Rajasthan with 46% of area contributed followed by Maharashtra (17%), Karnataka (12%), Gujarat, Madhya Pradesh and Telangana (5% each) and Odisha (4%) .

- The current year mungbean coverage is 31.82 lakh ha which is 8.41 L ha (36%) more than the normal area of 23.41 lakh ha. However, less than the 2.77 Lha against the previous year.
- The major shortfall in the state of Telangan 1.71 Lha followed by Maharashtra 0.60 Lha, Karnataka 0.56 Lha, Gujarat 0.18 Lha and Andhra Pradesh 0.16 Lha may be attributed to weak S-W Monsoon and uneven rainfall in major parts of these states.
- Crop is at harvesting stage and being harvested and threshing is going on.

Kulthi

- Kulthi is also important kharif pulse which grown on an about 2.41 Lha which is >2 % of kharif pulse area.
- The crop grown mainly in 10 states i.e. Karnataka (27%), Odisha & CG (19% each), Jharkhand (8%), MS & MP (7% each) Tamil Nadu (6%), Uttarakhand (5%), Bihar & AP (3% each).
- The current year Kulthi coverage is 1.26 lakh ha which is 1.15 L ha (48%) less than the normal area of 2.41 lakh ha. However, more than the previous five yearôs coverage.
- Crop is at vegetative stage.

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Annexure-II

All India: Crop Coverage Rabi Pulses 2017-18

1. Gram

(Area : Lakh ha)

Sl.No	States	Normal Area (DES)	Area Covered 2017-18	Change over (+/-)		
				2016-17	2016-17	2015-16
1	Andhra Pradesh	4.668	5.190	3.940	1.250	0.490
2	Arunachal Pradesh	0.000		0.000	0.000	0.000
3	Assam	0.020	0.020	0.020	0.000	0.020
4	Bihar	0.603	1.060	1.040	0.020	0.000
5	Chhattisgarh	2.737	3.551	3.661	-0.110	0.038
6	Gujarat	1.870	2.956	1.702	1.254	1.783
7	Haryana	0.632	0.530	0.580	-0.050	-0.080
8	Himachal Pradesh	0.005	0.004	0.043	-0.039	-0.036
9	Jammu & Kashmir	0.001		0.000	0.000	0.000
10	Jharkhand	1.493	2.327	2.107	0.220	2.327
11	Karnataka	10.154	13.800	10.810	2.990	-1.650
12	Kerala	0.013		0.000	0.000	0.000
13	Madhya Pradesh	30.405	35.900	32.520	3.380	5.730
14	Maharashtra	13.720	19.884	18.739	1.145	5.483
15	Manipur	0.010	0.008	0.008	0.000	0.006
16	Meghalaya	0.013	0.010	0.008	0.002	-0.008
17	Mizoram	0.000		0.000	0.000	0.000
18	Nagaland	0.008	0.005	0.004	0.001	0.002
19	Odisha	0.428	0.309	0.381	-0.072	-0.042
20	Punjab	0.019	0.030	0.030	0.000	-0.010
21	Rajasthan	13.617	15.069	15.796	-0.727	2.689
22	Sikkim	0.000		0.000	0.000	0.000
23	Tamil Nadu	0.072	0.051	0.053	-0.002	0.008
24	Telangana	0.880	1.020	1.390	-0.370	-0.150
25	Tripura	0.002		0.000	0.000	0.000
26	Uttar Pradesh	5.168	5.607	6.428	-0.821	1.607
27	Uttarakhand	0.007	0.010	0.010	0.000	0.000
28	West Bengal	0.261	0.287	0.266	0.021	-0.043
29	Others	0.002		0.000	0.000	0.000
	TOTAL	**86.808**	**107.628**	**99.536**	**8.092**	**18.164**

(Normal Area- DES Ave. :2011-2012 to 2015-2016)

2. Lentil

(Area : Lakh ha)

Sl.No	States	Normal Area (DES)	Area Covered 2017-18	Change over (+/-)		
				2016-17	2016-17	2015-16
1	Andhra Pradesh	0.000		0.000	0.000	0.000
2	Arunachal Pradesh	0.000		0.000	0.000	0.000
3	Assam	0.279	0.370	0.330	0.040	0.130
4	Bihar	1.659	2.160	2.130	0.030	0.000
5	Chhattisgarh	0.155	0.285	0.256	0.029	0.053
6	Gujarat	0.000		0.000	0.000	0.000
7	Haryana	0.044		0.000	0.000	0.000
8	Himachal Pradesh	0.006		0.000	0.000	0.000
9	Jammu & Kashmir	0.003		0.000	0.000	0.000
10	Jharkhand	0.382	0.694	0.621	0.073	0.694
11	Karnataka	0.000		0.000	0.000	0.000
12	Kerala	0.000		0.000	0.000	0.000
13	Madhya Pradesh	5.762	5.960	5.860	0.100	0.220
14	Maharashtra	0.033		0.000	0.000	0.000
15	Manipur	0.000	0.007	0.007	0.000	0.004
16	Meghalaya	0.000	0.008	0.006	0.002	-0.004
17	Mizoram	0.000		0.000	0.000	0.000
18	Nagaland	0.000	0.015	0.013	0.002	0.004
19	Odisha	0.000	0.107	0.108	-0.001	0.033
20	Punjab	0.009	0.040	0.020	0.020	0.010
21	Rajasthan	0.422		0.000	0.000	0.000
22	Sikkim	0.000		0.000	0.000	0.000
23	Tamil Nadu	0.000		0.000	0.000	0.000
24	Telangana	0.000		0.000	0.000	0.000
25	Tripura	0.013	0.019	0.026	-0.008	0.019
26	Uttar Pradesh	4.580	5.965	6.628	-0.663	1.435
27	Uttarakhand	0.115	0.150	0.160	-0.010	-0.020
28	West Bengal	0.700	1.578	1.133	0.445	0.728
29	**TOTAL**	**14.162**	**17.358**	**17.298**	**0.059**	**3.306**

(Normal Area- DES Ave. :2011-2012 to 2015-2016)

3. Fieldpea

(Area : Lakh ha)

Sl.No	States	Normal Area (DES)	Area Covered 2017-18	Change over (+/-)		
				2016-17	2016-17	2015-16
1	Andhra Pradesh	0.000		0.000	0.000	0.000
2	Arunachal Pradesh	0.000		0.000	0.000	0.000
3	Assam	0.259	0.400	0.340	0.060	0.140
4	Bihar	0.187	0.320	0.320	0.000	-0.010
5	Chhattisgarh	0.154	0.547	0.535	0.012	0.081
6	Gujarat	0.000		0.000	0.000	0.000
7	Haryana	0.008		0.000	0.000	0.000
8	Himachal Pradesh	0.112		0.000	0.000	0.000
9	Jammu & Kashmir	0.012		0.000	0.000	0.000
10	Jharkhand	0.352	0.592	0.530	0.062	0.592
11	Karnataka	0.000		0.000	0.000	0.000
12	Kerala	0.011		0.000	0.000	0.000
13	Madhya Pradesh	3.315	5.060	4.840	0.220	0.480
14	Maharashtra	0.271		0.000	0.000	0.000
15	Manipur	0.176	0.183	0.183	0.000	0.159
16	Meghalaya	0.000	0.012	0.009	0.003	-0.011
17	Mizoram	0.000	0.008	0.007	0.001	-0.005
18	Nagaland	0.000	0.068	0.061	0.007	0.018
19	Odisha	1.353	0.299	0.330	-0.031	0.047
20	Punjab	0.024		0.000	0.000	0.000
21	Rajasthan	0.111		0.000	0.000	0.000
22	Sikkim	0.000		0.000	0.000	0.000
23	Tamil Nadu	0.000		0.000	0.000	0.000
24	Telangana	0.000		0.000	0.000	0.000
25	Tripura	0.014	0.018	0.013	0.006	0.018
26	Uttar Pradesh	3.378	4.169	4.617	-0.448	0.739
27	Uttarakhand	0.056	0.070	0.050	0.020	0.020
28	West Bengal	0.133	0.173	0.140	0.033	0.023
29	**TOTAL**	**9.926**	**11.919**	**11.975**	**-0.055**	**2.291**

(Normal Area- DES Ave. :2011-2012 to 2015-2016)

4. Kulthi

(Area : Lakh ha)

Sl.No	States	Normal Area (DES)	Area Covered 2017-18	Change over (+/-)		
				2016-17	2016-17	2015-16
1	Andhra Pradesh	0.226	0.260	0.110	0.150	0.060
2	Arunachal Pradesh	0.000		0.000	0.000	0.000
3	Assam	0.000		0.000	0.000	0.000
4	Bihar	0.000		0.000	0.000	0.000
5	Chhattisgarh	0.037	0.259	0.222	0.037	-1.431
6	Gujarat	0.000		0.000	0.000	0.000
7	Haryana	0.000		0.000	0.000	0.000
8	Himachal Pradesh	0.000		0.000	0.000	0.000
9	Jammu & Kashmir	0.000		0.000	0.000	0.000
10	Jharkhand	0.000		0.000	0.000	0.000
11	Karnataka	1.188	1.150	0.900	0.250	0.060
12	Kerala	0.000		0.000	0.000	0.000
13	Madhya Pradesh	0.002		0.000	0.000	0.000
14	Maharashtra	0.123		0.000	0.000	0.000
15	Manipur	0.000		0.000	0.000	0.000
16	Meghalaya	0.000		0.000	0.000	0.000
17	Mizoram	0.000		0.000	0.000	0.000
18	Nagaland	0.000		0.000	0.000	0.000
19	Odisha	0.001	2.000	2.110	-0.110	0.080
20	Punjab	0.000		0.000	0.000	0.000
21	Rajasthan	0.000		0.000	0.000	0.000
22	Sikkim	0.000		0.000	0.000	0.000
23	Tamil Nadu	0.626	0.577	0.417	0.160	-0.171
24	Telangana	0.022	0.010	0.010	0.000	0.000
25	Tripura	0.000		0.000	0.000	0.000
26	Uttar Pradesh	0.000		0.000	0.000	0.000
27	Uttarakhand	0.000		0.000	0.000	0.000
28	West Bengal	0.029	0.011	0.012	-0.001	-0.010
29	**TOTAL**	**2.254**	**4.267**	**3.781**	**0.486**	**-1.412**

(Normal Area- DES Ave. :2011-2012 to 2015-2016)

5. Urdbean

(Area : Lakh ha)

Sl.No	States	Normal Area (DES)	Area Covered 2017-18	Change over (+/-)		
				2016-17	2016-17	2015-16
1	Andhra Pradesh	3.556	3.280	4.080	-0.800	-0.670
2	Arunachal Pradesh	0.013		0.000	0.000	0.000
3	Assam	0.503		0.000	0.000	-0.350
4	Bihar	0.000		0.000	0.000	0.000
5	Chhattisgarh	0.064	0.109	0.131	-0.022	0.014
6	Gujarat	0.026		0.000	0.000	0.000
7	Haryana	0.000		0.000	0.000	0.000
8	Himachal Pradesh	0.000		0.000	0.000	0.000
9	Jammu & Kashmir	0.000		0.000	0.000	0.000
10	Jharkhand	0.000		0.000	0.000	0.000
11	Karnataka	0.078	0.040	0.040	0.000	-0.040
12	Kerala	0.000		0.000	0.000	0.000
13	Madhya Pradesh	0.107		0.000	0.000	0.000
14	Maharashtra	0.000		0.000	0.000	0.000
15	Manipur	0.014		0.000	0.000	0.000
16	Meghalaya	0.000		0.000	0.000	0.000
17	Mizoram	0.000		0.000	0.000	0.000
18	Nagaland	0.008	0.008	0.006	0.002	0.002
19	Odisha	0.049	2.400	2.306	0.094	0.551
20	Punjab	0.000		0.000	0.000	0.000
21	Rajasthan	0.000		0.000	0.000	0.000
22	Sikkim	0.000		0.000	0.000	0.000
23	Tamil Nadu	2.728	3.433	3.087	0.346	1.522
24	Telangana	0.146	0.080	0.180	-0.100	0.000
25	Tripura	0.006	0.013	0.010	0.002	0.013
26	Uttar Pradesh	0.464		0.000	0.000	0.000
27	Uttarakhand	0.000		0.000	0.000	0.000
28	West Bengal	0.120	0.075	0.088	-0.013	-0.825
29	Others	0.013		0.000	0.000	0.000
	TOTAL	**7.895**	**9.438**	**9.928**	**-0.491**	**0.217**

(Normal Area- DES Ave. :2011-2012 to 2015-2016)

6. Moongbean

(Area : Lakh ha)

Sl.No	States	Normal Area (DES)	Area Covered 2017-18	Change over (+/-)		
				2016-17	2016-17	2015-16
1	Andhra Pradesh	1.332	0.950	0.830	0.120	-0.550
2	Arunachal Pradesh	0.000		0.000	0.000	0.000
3	Assam	0.103		0.000	0.000	0.000
4	Bihar	1.509		0.000	0.000	0.000
5	Chhattisgarh	0.065	0.213	0.213	0.000	-0.016
6	Gujarat	0.406		0.000	0.000	0.000
7	Haryana	0.525		0.000	0.000	0.000
8	Himachal Pradesh	0.000		0.000	0.000	0.000
9	Jammu & Kashmir	0.000		0.000	0.000	0.000
10	Jharkhand	0.000		0.000	0.000	0.000
11	Karnataka	0.070	0.020	0.030	-0.010	-0.020
12	Kerala	0.000		0.000	0.000	0.000
13	Madhya Pradesh	0.885		0.000	0.000	0.000
14	Maharashtra	0.033		0.000	0.000	0.000
15	Manipur	0.005		0.000	0.000	0.000
16	Meghalaya	0.000		0.000	0.000	0.000
17	Mizoram	0.000		0.000	0.000	0.000
18	Nagaland	0.000		0.000	0.000	0.000
19	Odisha	1.639	5.857	5.172	0.685	2.507
20	Punjab	0.364		0.000	0.000	0.000
21	Rajasthan	0.090		0.000	0.000	0.000
22	Sikkim	0.000		0.000	0.000	0.000
23	Tamil Nadu	1.611	1.172	0.880	0.292	0.289
24	Telangana	0.148	0.070	0.180	-0.110	-0.100
25	Tripura	0.005	0.012	0.009	0.003	0.012
26	Uttar Pradesh	0.460		0.000	0.000	0.000
27	Uttarakhand	0.000		0.000	0.000	0.000
28	West Bengal	0.276	0.018	0.023	-0.005	-0.002
29	Others	0.015		0.000	0.000	0.000
	TOTAL	**9.541**	**8.312**	**7.337**	**0.975**	**2.120**

(Normal Area- DES Ave. :2011-2012 to 2015-2016)

7. Lathyrus

(Area : Lakh ha)

Sl.No	States	Normal Area (DES)	Area Covered 2017-18	Change over (+/-)		
				2016-17	2016-17	2015-16
1	Andhra Pradesh	0.000		0.000	0.000	0.000
2	Arunachal Pradesh	0.000		0.000	0.000	0.000
3	Assam	0.000		0.000	0.000	0.000
4	Bihar	0.685		0.000	0.000	0.000
5	Chhattisgarh	3.343	2.995	3.367	-0.372	-0.096
6	Gujarat	0.000		0.000	0.000	0.000
7	Haryana	0.000		0.000	0.000	0.000
8	Himachal Pradesh	0.000		0.000	0.000	0.000
9	Jammu & Kashmir	0.000		0.000	0.000	0.000
10	Jharkhand	0.000		0.000	0.000	0.000
11	Karnataka	0.000		0.000	0.000	0.000
12	Kerala	0.000		0.000	0.000	0.000
13	Madhya Pradesh	0.469		0.000	0.000	0.000
14	Maharashtra	0.197		0.000	0.000	0.000
15	Manipur	0.000		0.000	0.000	0.000
16	Meghalaya	0.000		0.000	0.000	0.000
17	Mizoram	0.000		0.000	0.000	0.000
18	Nagaland	0.000		0.000	0.000	0.000
19	Odisha	0.000		0.000	0.000	0.000
20	Punjab	0.000		0.000	0.000	0.000
21	Rajasthan	0.000		0.000	0.000	0.000
22	Sikkim	0.000		0.000	0.000	0.000
23	Tamil Nadu	0.000		0.000	0.000	0.000
24	Tenlangana	0.000		0.000	0.000	0.000
25	Tripura	0.000		0.000	0.000	0.000
26	Uttar Pradesh	0.000		0.000	0.000	0.000
27	Uttarakhand	0.000		0.000	0.000	0.000
28	West Bengal	0.367	0.910	0.850	0.060	0.090
29	**TOTAL**	**5.061**	**3.905**	**4.217**	**-0.312**	**-0.006**

(Normal Area- DES Ave. :2011-2012 to 2015-2016)

8. Other Rabi Pulses

(Area : Lakh ha)

Sl.No	States	Normal Area (DES)	Area Covered 2017-18	Change over (+/-)		
				2016-17	2016-17	2015-16
1	Andhra Pradesh	0.166	0.220	0.190	0.030	-0.010
2	Arunachal Pradesh	0.049	0.060	0.056	0.004	0.010
3	Assam	0.178	0.190	0.220	-0.030	0.190
4	Bihar	0.013	1.160	1.120	0.040	-0.070
5	Chhattisgarh	0.012	0.016	0.019	-0.003	-0.043
6	Gujarat	0.240	0.262	0.269	-0.007	0.016
7	Haryana	0.000	0.060	0.080	-0.020	-0.050
8	Himachal Pradesh	0.000	0.130	0.140	-0.010	0.004
9	Jammu & Kashmir	0.012	0.120	0.109	0.011	-0.030
10	Jharkhand	0.151	0.206	0.122	0.084	-0.461
11	Karnataka	0.232	0.210	0.100	0.110	-0.140
12	Kerala	0.000		0.000	0.000	0.000
13	Madhya Pradesh	0.140	0.620	0.740	-0.120	-0.050
14	Maharashtra	0.697	1.018	1.220	-0.202	0.134
15	Manipur	0.068	0.064	0.064	0.000	0.031
16	Meghalaya	0.037	0.007	0.008	-0.001	-0.009
17	Mizoram	0.015	0.009	0.008	0.001	0.009
18	Nagaland	0.184	0.100	0.100	0.000	-0.002
19	Odisha	1.224	0.857	0.852	0.005	0.281
20	Punjab	0.000	0.050	0.040	0.010	0.010
21	Rajasthan	0.058	0.387	0.536	-0.149	-0.114
22	Sikkim	0.000		0.000	0.000	0.000
23	Tamil Nadu	0.176	0.425	0.409	0.016	-0.114
24	Telangana	0.094	0.040	0.060	-0.020	-0.040
25	Tripura	0.011	0.002	0.001	0.001	0.002
26	Uttar Pradesh	0.000		0.000	0.000	0.000
27	Uttarakhand	0.001		0.000	0.000	-0.070
28	West Bengal	0.005	0.063	0.066	-0.003	0.022
29	Others	0.105		0.000	0.000	0.000
	TOTAL	**3.868**	**6.276**	**6.529**	**-0.253**	**-0.493**

(Normal Area- DES Ave. :2011-2012 to 2015-2016)

9. Total Rabi Pulses

(Area : Lakh ha)

Sl.No	States	Normal Area (DES)	Area Covered 2017-18	Change over (+/-)		
				2016-17	2016-17	2015-16
1	Andhra Pradesh	9.948	9.900	9.150	0.750	-0.680
2	Arunachal Pradesh	0.062	0.060	0.056	0.004	0.010
3	Assam	1.342	0.980	0.910	0.070	0.130
4	Bihar	4.656	4.700	4.610	0.090	-0.080
5	Chhattisgarh	6.567	7.975	8.404	-0.429	-1.400
6	Gujarat	2.542	3.218	1.971	1.247	1.799
7	Haryana	1.209	0.590	0.660	-0.070	-0.130
8	Himachal Pradesh	0.123	0.134	0.183	-0.049	-0.032
9	Jammu & Kashmir	0.028	0.120	0.109	0.011	-0.030
10	Jharkhand	2.378	3.819	3.380	0.439	3.152
11	Karnataka	11.722	15.220	11.880	3.340	-1.790
12	Kerala	0.024	0.000	0.000	0.000	0.000
13	Madhya Pradesh	41.085	47.540	43.960	3.580	6.380
14	Maharashtra	15.074	20.902	19.959	0.943	5.617
15	Manipur	0.273	0.262	0.262	0.000	0.200
16	Meghalaya	0.050	0.037	0.031	0.006	-0.032
17	Mizoram	0.015	0.017	0.015	0.002	0.004
18	Nagaland	0.200	0.196	0.184	0.012	0.024
19	Odisha	4.694	11.829	11.259	0.570	3.457
20	Punjab	0.416	0.120	0.090	0.030	0.010
21	Rajasthan	14.298	15.456	16.332	-0.876	2.575
22	Sikkim	0.000	0.000	0.000	0.000	0.000
23	Tamil Nadu	5.213	5.658	4.846	0.812	1.534
24	Telangana	1.290	1.220	1.820	-0.600	-0.290
25	Tripura	0.051	0.064	0.060	0.004	0.064
26	Uttar Pradesh	14.050	15.741	17.673	-1.932	3.781
27	Uttarakhand	0.179	0.230	0.220	0.010	-0.070
28	West Bengal	1.891	3.115	2.578	0.537	-0.017
29	Others	0.135	0.000	0.000	0.000	0.000
	TOTAL	**139.515**	**169.103**	**160.601**	**8.501**	**24.187**

(Normal Area- DES Ave. :2011-2012 to 2015-2016)

10. Summary All India : Rabi Pulses

(Area : Lakh ha)

Sl. No	Crops	Normal Area	Area Covered 2017-18	Change over (+/-)		
				2016-17	2016-17	2015-16
1	Gram	86.808	107.628	99.536	8.092	18.164
2	Lentil	14.162	17.358	17.298	0.059	3.306
3	Fieldpea	9.926	11.919	11.975	-0.055	2.291
4	Kulthi	2.254	4.267	3.781	0.486	-1.412
5	Urdbean	7.895	9.438	9.928	-0.491	0.217
6	Moongbean	9.541	8.312	7.337	0.975	2.120
7	Lathyrus	5.061	3.905	4.217	-0.312	-0.006
8	Other Rabi Pulses	3.868	6.276	6.529	-0.253	-0.493
TOTAL		**139.515**	**169.103**	**160.601**	**8.501**	**24.187**

(Normal Area- DES Ave. :2011-2012 to 2015-2016)

Rabi Pulses: Brief Observations **(WWWR: Week Ending 07.02.2018)**

Overall crop scenario

Total Rabi

- The current Rabi Seasonôs Pulses coverage is 169.10 L ha which is about 29.58L ha (21.20 %) more than the normal (139.52 lakh ha.) and 8.50 Lha (5.29 %) higher than the previous year (Rabi-2016-17).
- Total coverage is less than the last year in 04 states (Chhattisgarh, Rajasthan, Telangana and Uttar Pradesh).
- Total coverage, however, exceeded the normal in the states of Chhattisgarh, Gujarat, Jharkhand, Madhya Pradesh, Karnataka, Maharashtra, Odisha, Uttar Pradesh and West Bengal.
- Overall crop condition is otherwise normal.

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Annexure-III

ALL INDIA: CROP COVERAGE SPRING/SUMMER PULSES: 2017

1. Moong

(Area : Lakh ha)

Sl.No	States	Target-2017	Area Covered 2016-17	Change over (+/-)		
				2015-16	2015-16	2014-15
1	Andhra Pradesh	0.75	0.25	0.10	0.15	0.19
2	Arunachal Pradesh				0.00	0.00
3	Assam				0.00	0.00
4	Bihar	6.35	2.95	1.57	1.38	1.38
5	Chhattisgarh	0.10	0.10	0.01	0.09	0.02
6	Gujarat		0.31	0.34	-0.03	-0.13
7	Haryana				0.00	0.00
8	Himachal Pradesh				0.00	0.00
9	Jammu & Kashmir				0.00	0.00
10	Jharkhand	0.05	0.04	0.03	0.01	0.01
11	Karnataka	0.03	0.01	0.04	-0.02	0.00
12	Kerala				0.00	0.00
13	Madhya Pradesh	3.10	1.19	0.70	0.49	1.19
14	Maharashtra				0.00	0.00
15	Manipur				0.00	0.00
16	Meghalaya				0.00	0.00
17	Mizoram				0.00	0.00
18	Nagaland				0.00	0.00
19	Odisha	1.00	1.57	1.48	0.09	1.57
20	Punjab	0.50	0.14	0.28	-0.14	0.14
21	Rajasthan		0.04		0.04	0.04
22	Sikkim				0.00	0.00
23	Tamil Nadu	0.97	0.67	1.29	-0.62	-0.14
24	Telangana				0.00	0.00
25	Tripura				0.00	0.00
26	Uttar Pradesh	0.84	0.76	0.72	0.04	0.76
27	Uttarakhand				0.00	0.00
28	West Bengal	0.78	0.59	0.54	0.05	0.59
	TOTAL	**14.48**	**8.63**	**7.10**	**1.53**	**5.61**

Normal Area- DES Ave. : 2011-2012 to 2015-2016)

2. Urd

(Area : Lakh ha)

Sl.No	States	Target-2017	Area Covered 2016-17	Change over (+/-)		
				2015-16	2015-16	2014-15
1	Andhra Pradesh	1.25	0.38	0.21	0.17	0.31
2	Arunachal Pradesh				0.00	0.00
3	Assam				0.00	0.00
4	Bihar				0.00	0.00
5	Chhattisgarh	0.05	0.08	0.06	0.03	0.03
6	Gujarat		0.08	0.09	-0.01	0.06
7	Haryana				0.00	0.00
8	Himachal Pradesh				0.00	0.00
9	Jammu & Kashmir				0.00	0.00
10	Jharkhand				0.00	0.00
11	Karnataka	0.03	0.01	0.04	-0.03	0.00
12	Kerala				0.00	0.00
13	Madhya Pradesh	0.41	0.32	0.20	0.12	0.32
14	Maharashtra				0.00	0.00
15	Manipur				0.00	0.00
16	Meghalaya				0.00	0.00
17	Mizoram				0.00	0.00
18	Nagaland				0.00	0.00
19	Odisha	0.50	0.47	0.42	0.04	0.47
20	Punjab				0.00	0.00
21	Rajasthan				0.00	0.00
22	Sikkim				0.00	0.00
23	Tamil Nadu	1.62	1.64	1.85	-0.21	0.48
24	Telangana				0.00	0.00
25	Tripura				0.00	0.00
26	Uttar Pradesh	0.66	0.59	0.43	0.16	0.59
27	Uttarakhand				0.00	0.00
28	West Bengal	0.03	0.03	0.02	0.00	0.03
	TOTAL	**4.54**	**3.61**	**3.32**	**0.29**	**2.28**

Normal Area- DES Ave. : 2011-2012 to 2015-2016)

3. Other Pulses

(Area : Lakh ha)

Sl.No	States	Target-2017	Area Covered	Change over (+/-)		
			2016-17	2015-16	2015-16	2014-15
1	Andhra Pradesh		0.11	0.05	0.06	0.11
2	Arunachal Pradesh				0.00	0.00
3	Assam				0.00	0.00
4	Bihar				0.00	0.00
5	Chhattisgarh				0.00	0.00
6	Gujarat				0.00	0.00
7	Haryana				0.00	0.00
8	Himachal Pradesh				0.00	0.00
9	Jammu & Kashmir				0.00	0.00
10	Jharkhand				0.00	0.00
11	Karnataka	0.15	0.06	0.11	-0.05	-0.05
12	Kerala				0.00	0.00
13	Madhya Pradesh				0.00	0.00
14	Maharashtra	0.04	0.02	0.02	-0.01	-0.02
15	Manipur				0.00	0.00
16	Meghalaya				0.00	0.00
17	Mizoram				0.00	0.00
18	Nagaland				0.00	0.00
19	Odisha	0.16	0.10	0.05	0.05	0.10
20	Punjab				0.00	0.00
21	Rajasthan				0.00	0.00
22	Sikkim				0.00	0.00
23	Tamil Nadu	0.08	0.00	0.05	-0.05	-0.15
24	Telangana			0.03	-0.03	-0.01
25	Tripura				0.00	0.00
26	Uttar Pradesh				0.00	0.00
27	Uttarakhand				0.00	0.00
28	West Bengal				0.00	0.00
	TOTAL	**0.43**	**0.29**	**0.32**	**-0.03**	**-0.02**

Normal Area- DES Ave. : 2011-2012 to 2015-2016)

4. Total Spring/Summer Pulses

(Area : Lakh ha)

Sl.No	States	Target-2017	Area Covered	Change over (+/-)		
			2016-17	2015-16	2015-16	2014-15
1	Andhra Pradesh	2.00	0.74	0.36	0.38	0.61
2	Arunachal Pradesh				0.00	0.00
3	Assam				0.00	0.00
4	Bihar	6.35	2.95	1.57	1.38	1.38
5	Chhattisgarh	0.15	0.18	0.07	0.11	0.05
6	Gujarat	0.00	0.40	0.43	-0.03	-0.07
7	Haryana				0.00	0.00
8	Himachal Pradesh				0.00	0.00
9	Jammu & Kashmir				0.00	0.00
10	Jharkhand	0.05	0.04	0.03	0.01	0.01
11	Karnataka	0.21	0.09	0.19	-0.10	-0.05
12	Kerala				0.00	0.00
13	Madhya Pradesh	3.51	1.51	0.90	0.61	1.51
14	Maharashtra	0.04	0.02	0.02	-0.01	-0.02
15	Manipur				0.00	0.00
16	Meghalaya				0.00	0.00
17	Mizoram				0.00	0.00
18	Nagaland				0.00	0.00
19	Odisha	1.66	2.14	1.96	0.18	2.14
20	Punjab	0.50	0.14	0.28	-0.14	0.14
21	Rajasthan		0.04		0.04	0.04
22	Sikkim				0.00	0.00
23	Tamil Nadu	2.66	2.31	3.20	-0.88	0.18
24	Telangana			0.03	-0.03	-0.01
25	Tripura				0.00	0.00
26	Uttar Pradesh	1.50	1.36	1.15	0.21	1.36
27	Uttarakhand				0.00	0.00
28	West Bengal	0.81	0.61	0.56	0.05	0.61
	TOTAL	**19.45**	**12.52**	**10.75**	**1.78**	**7.88**

Normal Area- DES Ave. : 2011-2012 to 2015-2016)

Annexure-IV

Madhya Pradesh: Crop-Wise Coverage (Kharif 2017)

S.No.	Crop	Target-2017 (SDA)	Normal Area	Area Covered (SDA)		Difference over		% coverage over	
				2017	2016	2016	2015	Normal	Target
1	Rice	21.42	19.303	20.230	22.600	-2.37	-0.01	105	94
2	Sorghum	2.42	2.720	2.700	2.200	0.50	0.65	99	112
3	Bajra	2.42	2.101	3.100	2.800	0.30	0.43	148	128
4	Small Milletes	2.09	2.025	1.440	1.850	-0.41	-0.47	71	69
5	Maize	12.21	9.612	13.170	12.630	0.54	2.19	137	108
Total Cereals		**40.56**	**35.761**	**40.640**	**42.080**	**-1.44**	**2.79**	**114**	**100**
6	Red Gram	8.22	5.259	6.510	6.900	-0.39	0.72	124	79
7	Black Gram	11.28	7.146	17.890	11.680	6.21	8.57	250	159
8	Green Gram	2.79	1.212	2.280	2.250	0.03	0.35	188	82
9	Other Kharif Pulses	0.52	0.200	0.160	0.340	-0.18	0.02	80	31
Total Pulses		**22.81**	**13.817**	**26.840**	**21.170**	**5.67**	**9.66**	**194**	**118**
10	Groundnut	2.55	2.185	2.180	2.550	-0.37	-0.18	100	86
11	Soybean	55.49	58.987	50.100	54.010	-3.91	-8.96	85	90
12	Sunflower	0.00	0.002			0.00	0.00	0	0
13	Sesame	4.31	3.201	4.240	3.800	0.44	0.59	132	98
14	Other Kharif Oilseeds	0.96	0.829	0.790	0.750	0.04	-0.01	95	82
Total Oilseed		**63.30**	**65.204**	**57.310**	**61.110**	**-3.80**	**-8.56**	**88**	**91**
15	Sugarcane	0.00	0.832			0.00	0.00	0	0
16	Cotton	**5.79**	5.876	6.030	5.990	0.04	0.56	103	104
17	Jute & Mesta	0.00	0.053			0.00	0.00	0	0
Total Kharif Crops		**132.46**	**121.54**	**130.820**	**130.350**	**0.47**	**4.45**	**108**	**99**

Normal Area- DES Ave. : 2011-2012 to 2015-2016)

(WWWR-Kharif Crops 11.10.2017)

Madhya Pradesh

- The sowing of Kharif crops is likely completed. As on date, the total Kharif sowing is 130.82 lakh ha which is exceeded the normal area of 121.54 lakh ha (108%) while achieved 99% of state target.
- The current year sowing more than the last year sowing is 0.47 Lha during the same period. However, the shortfall observed in soybean 3.91 lakh ha, followed by paddy 2.37 lakh ha and arhar 0.39 lakh ha in comparison to last year owing to diversion of area in to urd and maize crop and deficient rainfall.
- Soybean, urd and maize are being harvested and threshing is going on.
- In some parts, heavy rains affected the soybean, urd and mung in the fourth week of Sept.
- The state Govt. declared 13 drought affected districts.

Annexure-V

Madhya Pradesh: Crop-Wise Coverage (Rabi 2017-18)

Sl No.	Crop	Normal Area (DES)	Target Area 2017-18 (SDA)	Area Covered		Change over (+-)	
				2017-18	2016-17	2016-17	2015-16
1	Wheat	54.960	55.960	53.160	61.800	-8.64	1.32
2	Others	0.880	1.620	1.340	1.470	-0.13	0.30
Total Cereals		**55.840**	**57.580**	**54.500**	**63.270**	**-8.77**	**1.62**
3	Gram	30.405	36.020	35.900	32.520	3.38	5.73
4	Lentil	5.76	7.56	5.96	5.86	0.10	0.22
5	Pea	3.315	6.090	5.060	4.840	0.22	0.48
6	Others	1.604	0.240	0.620	0.740	-0.12	-0.05
Total pulses		**41.086**	**49.910**	**47.540**	**43.960**	**3.58**	**6.38**
Total foodgrains		**96.926**	**107.490**	**102.040**	**107.230**	**-5.19**	**8.00**
7	Rapeseed/ Mustard	7.320	8.350	7.580	7.160	0.42	1.29
8	Linseed/ Others	1.217	1.520	1.620	1.720	-0.10	0.44
Total oilseeds		**8.537**	**9.870**	**9.200**	**8.880**	**0.32**	**1.73**
9	Sugarcane	0.832	0.950	0.980	0.980	0.00	-0.08
Total Rabi Area		**106.295**	**118.310**	**112.220**	**117.090**	**-4.87**	**9.65**

(WWWR-Rabi Crops 07.02.2018)

Madhya Pradesh

- The total Rabi sowings are reported at 112.22 lakh ha which is 106% of the normal area of 106.30 lakh ha and 95% of stateôs target of 118.31 Lha. The reported sowing is 4.87 Lha less than the corresponding period of last year.
- Total crop-wise sowing is exceeded with the corresponding period of last year in all crops except wheat (<8.64 Lha) and Linseed (<0.10 Lha). Higher coverage with the corresponding period reported in the gram (3.38 Lha), Rapeseed-mustard (0.42 Lha), pea (0.22 Lha) and Lentil (0.10 Lha).
- The crops are at flowering/pod formation stage, overall crop condition is normal**.**

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Annexure-VI

Chhattisgarh: Crop-Wise Coverage (Kharif 2017)

S.No.	Crop	Target-2017 (SDA)	Normal Area	Area Covered (SDA)		Difference over		% coverage over	
				2017	2016	2016	2015	Normal	Target
1	Rice	36.50	37.97	36.872	36.915	-0.04	-0.21	97	101
2	Sorghum	0.00	0.05			0.00	0.00		
3	Bajra	0.00	0.00			0.00	0.00		
4	Small Milletes	0.85	1.23	0.779	0.739	0.04	0.33	63	92
5	Maize	2.25	1.12	2.264	2.228	0.04	0.18	203	101
Total Cereals		**39.60**	**40.37**	**39.915**	**39.882**	**0.03**	**0.30**	**99**	**101**
6	Red Gram	1.50	0.55	1.377	1.369	0.01	0.12	251	92
7	Black Gram	1.60	0.95	1.617	1.449	0.17	0.07	170	101
8	Green Gram	0.30	0.09	0.235	0.248	-0.01	-0.08	250	78
9	Other Kharif Pulses	0.43	0.50	0.210	0.122	0.09	0.14	42	49
Total Kharif Pulses		**3.83**	**2.10**	**3.439**	**3.189**	**0.25**	**0.24**	**164**	90
10	Groundnut	0.62	0.27	0.583	0.577	0.01	0.01	220	94
11	Soybean	1.40	1.08	1.315	1.336	-0.02	-0.09	122	94
12	Sunflower	0.00	0.01			0.00	-0.01	0	0
13	Sesame	0.38	0.19	0.327	0.345	-0.02	-0.05	176	86
14	Other Kharif Oilseeds	0.72	0.65	0.328	0.243	0.09	0.13	51	46
Total Oilseed		**3.12**	**2.18**	**2.553**	**2.500**	**0.05**	**-0.02**	**117**	82
15	Sugarcane		0.13			0.00	0.00	0	
16	Cotton		0.00			0.00	0.00	0	
17	Jute & Mesta		0.01			0.00	0.00	0	
18	Others	**1.45**	0.00	1.323	1.399	**-0.08**	**-0.06**		91
	Total	**48.00**	**44.80**	**47.231**	**46.970**	**0.26**	**0.47**	**105**	**98**

(WWWR-Kharif Crops 11.10.2017)

Chhattisgarh

- The sowing of Kharif crops is completed. The total Kharif sowing is 47.23 lakh ha which is 105% of normal and 98% of state targets. The total Kharif sowing is quite high (0.18 L ha) during the corresponding period of last year.
- Paddy crop is at flowering to maturity stage. Early sown paddy is being harvested.

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Annexure-VII

Chhattisgarh: Crop-Wise Coverage (Rabi 2017-18)

Sl No.	Crop	Normal Area (DES)	Target Area 2017-18 (SDA)	Area Covered		Change over (+-)	
				2017-18	2016-17	2016-17	2015-16
1	Wheat	1.036	1.970	1.804	1.760	0.04	0.26
2	Paddy	0.000	0.655	0.302	0.900	-0.60	-0.33
3	Maize	0.000	0.950	0.679	0.581	0.10	0.02
4	Jowar & Others	0.026	0.075	0.062	0.063	0.00	0.02
Total Cereals		**1.062**	**3.650**	**2.847**	**3.304**	**-0.46**	**-0.03**
5	Gram	2.737	3.900	3.551	3.661	-0.11	0.04
6	Lentil	0.155	0.300	0.285	0.256	0.03	0.05
7	Peas	0.154	0.600	0.547	0.535	0.01	0.08
8	Kulthi	0.037	0.260	0.259	0.222	0.04	0.00
9	Urd	0.064	0.200	0.109	0.131	-0.02	0.01
10	Moong	0.065	0.340	0.213	0.213	0.00	-0.02
11	Lathyrus	3.343	3.640	2.995	3.367	-0.37	-0.10
12	Others	0.012	0.023	0.016	0.019	0.00	-0.04
Total Pulses		**6.567**	**9.263**	**7.975**	**8.404**	**-0.43**	**0.03**
Total foodgrains		**7.629**	**12.913**	**10.821**	**11.708**	**-0.89**	**0.00**
13	Rapeseed/Mustard	0.472	1.760	1.576	1.461	0.12	0.32
14	Linseed	0.309	0.755	0.512	0.545	-0.03	0.02
15	Sesamum	0.000	0.036	0.014	0.030	-0.02	-0.01
16	Sunflower	0.000	0.110	0.069	0.012	0.06	0.01
17	Groundnut	0.000	0.330	0.227	0.185	0.04	-0.01
18	Safflower	0.000	0.090	0.059	0.040	0.02	0.00
19	Others	0.007	0.063	0.035	0.017	0.02	0.00
Total Oilseeds		**0.788**	**3.144**	**2.492**	**2.291**	**0.20**	**0.33**
20	Sugarcane	0.170	0.500	0.215	0.240	-0.025	0.060
21	Others	0.000	1.953	1.700	1.600	0.100	0.285
Total area Rabi		**8.587**	**18.510**	**15.228**	**15.838**	**-0.61**	**0.68**

(Normal Area (DES) Ave. 2011-12 to 2015-16)

(WWWR-Rabi Crops 07.02.2018)

Chhattisgarh

- The current Rabi crop sowing is in progress. The total Rabi sowing is reported in 15.23 Lha which is 177% of the normal area of 8.59 Lha and 82% of total stateôs target of 18.510 Lha. The current sowing is 0.61 Lha less than the corresponding period of last year.

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