

# वार्षिक प्रतिवेदन ANNUAL REPORT

2017-18



भाकृअनुप-कृषि प्रौद्योगिकी अनुप्रयोग  
अनुसंधान संस्थान, क्षेत्र-9

**ICAR-Agricultural Technology Application  
Research Institute, Zone IX**

जबलपुर, मध्य प्रदेश - 482 004

Jabalpur, Madhya Pradesh - 482 004



# **ANNUAL REPORT**

**2017-18**



**ICAR-Agricultural Technology Application Research Institute, Zone IX**  
**(Division of Agricultural Extension)**  
**Jabalpur, Madhya Pradesh**

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# सारांश

भा.कृ.अ.प.—कृषि तकनीकी अनुप्रयोग अनुसंधान संस्थान, क्षेत्र-9 के अन्तर्गत 76 कृषि विज्ञान केन्द्र, मध्यप्रदेश एवं छत्तीसगढ़ राज्यों में स्थित है।

## प्रक्षेत्र परीक्षण के द्वारा तकनीक आंकलन

विभिन्न कृषि विज्ञान केन्द्रों द्वारा 933 प्रक्षेत्र आंकलन, 8896 परीक्षण के द्वारा आयोजित किये गये। मध्य प्रदेश द्वारा 695 एवं छत्तीसगढ़ द्वारा 238 प्रक्षेत्र परीक्षणों का आयोजन किया गया। कुल प्रक्षेत्र परीक्षण 933 में से 637 प्रक्षेत्र परीक्षण फसल पर व शेष 296 अन्य उद्यमों पर रहा।

## अंग्रिम पंक्ति प्रदर्शन

प्रगति वर्ष के दौरान, कुल 724 अंग्रिम पंक्ति प्रदर्शन विभिन्न फसलों (दलहन, तिलहन, धन धान्य फसलें, सब्जी फसल, मोटे अनाज) पर आयोजित हुए। कुल प्रदर्शन में 6716.87 हे. क्षेत्र 15796 किसानों के प्रक्षेत्र पर आयोजित हुए। मुख्य आय सृजन वाले उद्यम पर भी अंग्रिम पंक्ति प्रदर्शन आयोजित किये गये। जिसमें क्षेत्रफल की दृष्टि से 471.10 हे., 437 इकाईयों एवं 2266 लाभार्थियों की संख्या रही।

## प्रशिक्षण एवम् क्षमता संवहन

कुल आयोजित 5556 प्रशिक्षण 158726 लाभार्थी (कृषक, महिलायें, ग्रामीण युवक, प्रसार कर्मी) ने भाग लिया। भारतीय कृषि अनुसंधान परिषद् के विभिन्न संस्थाओं सहयोग से मिलकर कृषि तकनीक अनुप्रयोग अनुसंधान संस्थान, जबलपुर द्वारा आयोजित 20 क्षमता संवहन कार्यक्रम से मध्य प्रदेश एवं छत्तीसगढ़ के कृषि विज्ञान केन्द्रों के 1373 विषय वस्तु विशेषज्ञ लाभान्वित हुए।

## बीजोत्पादन, रोपण सामग्री, जैव उत्पाद एवं पशु उपयोगी सामग्री का उत्पादन

कृषि विज्ञान केन्द्रों द्वारा 18008.92 क्विंटल बीज, 47.10 लाख रोपण सामग्री (धन-धान्य फसलें, दलहन, तिलहन, सब्जी, औषधीय पौधे, फलदार पौधे) का उत्पादन

किया गया। कृषि विज्ञान केन्द्रों द्वारा जैव उत्पाद एवं पशु उपयोगी सामग्री का भी उत्पादन किया गया।

## मृदा, जल एवं पौधों का परीक्षण

क्षेत्र के कृषि विज्ञान केन्द्रों ने 123957 मृदा एवं 105 जल नमूनों का परीक्षण कर 295853 किसान एवं 2766 गांव लाभान्वित हुए।

## प्रसार गतिविधियाँ

वर्ष में कुल 122752 प्रसार गतिविधियों (प्रक्षेत्र दिवस, किसान मेला, कृषक सलाहकारी सेवाएं, प्रदर्शनी, फिल्म शो आदि) के माध्यम से विभिन्न तकनीक का प्रसार कर 2926039 किसान एवं प्रसार कर्मी लाभान्वित हुए।

## वैज्ञानिक सलाहकार समिति की बैठक

वर्ष में कुल 92 वैज्ञानिक सलाहकार समिति की बैठकों का आयोजन किया गया। इनमें से म.प्र. के 23 कृषि विज्ञान केन्द्र ऐसे थे जिन्होंने वर्ष में दो बार उक्त बैठक आयोजित की गई एवं शेष 22 कृषि विज्ञान केन्द्रों में एक बार उक्त बैठक आयोजित हुई। छत्तीसगढ़ के 24 कृषि विज्ञान केन्द्रों में एक बार उक्त बैठक आयोजित हुई।

## परियोजना एवं प्रकाशन

प्रतिवेदित वर्ष के दौरान, 4 शोध पत्र (राष्ट्रीय/ अन्तर्राष्ट्रीय), 6 पुस्तक (लेखक/सम्पादित), 7 पुस्तक अध्याय/तकनीकी बुलेटिन, 6 संकलन/दस्तावेजीकरण, 1 सेमीनार प्रस्तुति इत्यादि लेख प्रकाशित हुए।

## एटिक वार्षिक प्रगति प्रतिवेदन

अटारी जबलपुर के अधीन 3 एटिक संस्थान हैं। वर्ष में 89780 कृषकों ने एटिक में भ्रमण किये, तकनीकी सूचनाओं से 84601 कृषक लाभान्वित हुए। प्रकाशन के अन्तर्गत 114685 प्रकाशित प्रतियां विक्रय कर कुल 34.11 लाख रुपये अर्जित हुए।

### पुरस्कार एवं सम्मान

कृषि विज्ञान केन्द्र, कांकेर, छत्तीसगढ़ ने पण्डित दीनदयाल उपाध्याय कृषि विज्ञान प्रोत्साहन (राष्ट्रीय) पुरस्कार प्राप्त किया एवं कृषि विज्ञान केन्द्र, दतिया, मध्य प्रदेश ने पण्डित दीनदयाल उपाध्याय कृषि विज्ञान प्रोत्साहन पुरस्कार (क्षेत्रीय) और इसके अलावा स्वच्छता पखवाड़ा (प्रथम पुरस्कार कृषि विज्ञान केन्द्र वर्ग में) प्राप्त हुआ।

### कृषि विज्ञान केन्द्रों में आगन्तुकों का आगमन

वर्ष में जोन-9 के कृषि विज्ञान केन्द्रों में 217901 आगन्तुको का आगमन हुआ, जिसमें कुल 210131 किसान, 6796 अधिकारीगण एवं 974 गणमान्य व्यक्ति शामिल हैं। राज्यवार आंकड़ों के अनुसार मध्य प्रदेश के कृषि विज्ञान केन्द्रों में सर्वाधिक संख्या 158245 (72.62 प्रतिशत), छत्तीसगढ़ में 59656 (27.38 प्रतिशत) रहा।

# Executive Summary

ICAR-Agricultural Technology Application Research Institute, Zone IX has 76 KVKs located in two Indian states viz., Madhya Pradesh and Chhattisgarh.

## Technology Assessment through On-Farm Testing

During 2017-18, 933 technologies were assessed in the Zone through 8896 On-Farm Trials. The highest number of technologies were assessed in the state of Madhya Pradesh (695) followed by Chhattisgarh (238). Out of total 933 technologies assessed, 637 were on crops and remaining 296 technologies on enterprises.

## Frontline Demonstrations

During year, 724 FLDs were conducted on crops (oilseeds, pulses, cereals, vegetables crops, cash crops, agro-forestry, millets, etc.) covering the total area 6716.87 ha. Benefiting 15796 farmers. FLDs were also conducted on important income generating enterprises, covering the 437 units and 471.10 ha area among 2266 beneficiaries.

## Training and Capacity Building

During the year there was a significant increase in the number of training and participants. In 5556 courses organized 158726 participants (farmers and farm women, rural youth, extension personnel) and those sponsored from different agencies were benefitted. ICAR-ATARI, Jabalpur also organized 20 capacity building programmes in collaboration with ICAR institutes for technical upscaling of 1373 Subject Matter Specialists in the Zone.

## Seed, Planting materials, Bio-products and Livestock material production

KVKs of the Zone produced total 18008.92 qtl. of seed and 47.10 lakhs planting material of different crops (cereals, pulses, oilseeds and vegetables), medicinal plants, fruits, etc. and distributed among farmers. Besides, this KVKs of the Zone also produced bio-products and livestock products at their farms.

## Soil, water and plant analysis

During year, 123957 soil samples and 105 water samples were analysed by KVKs of the Zone touching 295853 farmers of 2766 villages.

## Extension activities

A total of 1,22,752 extension activities were organized in the form of field days, Farmers fair, Farm advisory services, Exhibition, Film show etc. for promoting the technologies in the region which benefited 29,26,039 farmers and extension personnel in the ICAR-ATARI, Zone-IX.

## Technological backstopping

Technological backstopping were carried out through production of 169800 copies of technical literature, newsletters etc. of which 167635 were distributed among the farmers, in Panchayats as well as Line department officials.

## Scientific Advisory Committee Meeting

In the Zone, total 92 Scientific Advisory Committee (SACs) meetings were conducted by KVKs. In MP, 23 KVKs organized SAC meeting twice and 22 KVKs once during the reporting period. In Chhattisgarh in 24 KVKs SAC was organized once.

## Projects and publications

During year, Institute of ATARI, Jabalpur published 4 research journals (National/International), 6 Books (Authored/edited), 7 Book chapters/technical bulletins/manuals, 6 Compilation/ documentation and 1 Presentation in seminars.

## ATIC Progress

In the Zone, Three ATIC sare operational under ATARI, Jabalpur. In these ATICs there were 89780 footfalls during the year. Technological information was provided to 84601 farmers. A total 114685 publications (print & electronic media) were sold and generated revenue of Rs. 34.11 lakh.

## **Awards and Recognitions**

Pandit Deen Dayal Upadhyay Krishi Vigyan Protshahan Puraskar (National) 2017 award was conferred to KVK Kanker (C.G.). and Pandit Deendayal Upadhyay Krishi Vigyan Protsahan (Zonal) Award was conferred to KVK, Datia, (M.P.) and also got award of Swachhata Pakhwada Award (For Krishi Vigyan Kendra Category- First Prize), Smt. Lekesh Bai, District – Uttar Bastar Kanker was awarded Innovative farmers award by ICAR

Research Complex for Eastern Region, Patna 2018. IARI-Innovative Farmer awarded to Shri Asharam Netam from Kanker.

## **Footfalls in KVKs**

In the KVKs of Zone IX, there was 217901 footfalls (210131 farmers, 6796 officials and 974 dignitaries/VIPs) during 2017-18. In Madhya Pradesh, it was 158245 (72.62%) and in Chhattisgarh 59656 (27.38 %).

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# INTRODUCTION

Zonal Coordinating Unit established on 11<sup>th</sup> September, 1979 in the premises of Jawaharlal Nehru Krishi Vishwa Vidyalaya, Jabalpur Madhya Pradesh by ICAR was upgraded to Zonal Project Directorate (ZPD), Zone-IX in March 2009. The Directorate attained the status of Institution, and renamed as Agricultural Technology Application Research Institute (ATARI) in 2015. The Institute coordinates monitors and evaluates the mandated activities of 76 KVKs spread across two States- Madhya Pradesh and Chhattisgarh.

## Major activities of ATARI

- Formulate, implement, monitor and evaluate programmes organized by Krishi Vigyan Kendras
- Coordinate project related work of various agencies such as State Agricultural Universities (SAUs), ICAR Institutes, Voluntary agencies and development departments
- Serve as feedback point for research and extension systems
- Maintain liaison with research and extension institutions
- Coordinate agri-based schemes for successful implementation and better convergence with State/Central Government departments

## KVKs in ATARI, Jabalpur

The Institute monitors the activities of 76

**Table 1.1:** KVKs across the two state in the Zone IX

State	No of Districts	No. of of KVKs					
		SAUs	VU	CU	NGOs	ICAR	Total
Chhattisgarh	27	24	01	0	0	0	25
Madhya Pradesh	51	41	0	01	08	01	51
<b>Total</b>	<b>78</b>	<b>65</b>	<b>01</b>	<b>01</b>	<b>08</b>	<b>01</b>	<b>76</b>

SAU - State Agricultural University; VU- Veterinary University, CU- Central University, NGO - Non-Governmental Organization; ICAR - Indian Council of Agricultural Research.

KVKs in the two states namely Madhya Pradesh and Chhattisgarh.

## Krishi Vigyan Kendra

Realizing the role and importance of improved technology in the agriculture development for increasing food and nutritional security, Indian Council of Agricultural Research made an institutional innovation in the form of KVK. It was also envisaged that technology assessed by the KVK will be used as model for the Line departments and act as a catalyst to improve the existing systems for better delivery mechanism. For proper functioning, major emphasis was given on the strengthening of physical infrastructure and smooth human resources of KVKs. The name of the host institutions managing the KVKs is given in Table 1.2.

**Table 1.2:** Institutional set-up of KVKs under ATARI, Zone IX.

Host Institutions	No. of KVKs
<b>Madhya Pradesh</b>	<b>51</b>
Jawaharlal Nehru Krishi Vishwa Vidyalaya, Jabalpur	20
Rajmata Vijayaraje Scindia Krishi Vishwa Vidyalaya, Gwalior	21
Indira Gandhi National Tribal University, Amarkantak	1
ICAR-Central Institute of Agricultural Engineering, Bhopal	1
Deen Dayal Research Institute, Chitrakoot, Satna	1
Kasturba Gandhi National Memorial Trust, Indore	1
Lok mata Devi Ahilyabai Holkar Social National Mission, Burhanpur	1
Kalukheda Shikhcha Samiti, Jaora, Ratlam	1
Deen dayal Krishi Vikas Awam Anusandhan Samiti (DKVAAS) Bhopal	1
Centre for Rural Development and Environment, Sehore	1

Host Institutions	No. of KVKs
Shri Malwa Mahila Vikas Samiti, Sironj, Vidisha (sub-judice)	1
Bhausahab Bhuskute Smriti Lok Nyas Sansthan, Bankhed, Hoshangabad	1
<b>Chhattisgarh</b>	<b>25</b>
Indira Gandhi Krishi Vishwa Vidyalaya, Raipur	24
Chhattisgarh Kamdhenu Vishwa Vidyalaya, Durg	1

### Mandates of KVK

Assessment, refinement and demonstration of technology/products.

### Activities of KVK

- On Farm Testing to identify the location specific technologies in various farming systems
- Frontline Demonstrations to establish production potentials of newly released technologies on farmers' fields and provide feedback
- Training of farmers and farm women to

update their knowledge and skills in modern agricultural technologies and training of extension personnel to orient them in the frontier areas of technology development

- Work as knowledge and resource centre of agricultural technologies for supporting initiatives of public, private and voluntary sector for improving the agricultural economy of the district
- Create awareness about frontier technologies through various extension activities like Farmer fair, Field day, Strategic campaign, Ex-trainees meet, etc.
- Seed and planting materials production for making available to the farmers.

### Staff Position

KVKs have sanctioned staff of 16 members. The current staff position in KVKs of Zone-IX is given in Table 1.3. Out of the total posts, 58.83 per cent are filled while remaining 41.17 per cent are lying vacant. The percentage of vacant posts are comparatively higher in case of technical and administrative categories.

**Table 1.3.** Staff position in KVKs under ATARI, Jabalpur

State	No. of KVKs	Senior Scientist & Head (1)		Subject Matter specialists (6)		Programme Assistants (3)		Admn. (6)		Total (16)	
		Sanc.	Filled	Sanc.	Filled	Sanc.	Filled	Sanc.	Filled	Sanc.	Filled
MP	51	51	42	306	196	153	90	204	87	714	415
CG	25	25	16	150	102	75	50	100	43	350	211
<b>Total</b>	<b>76</b>	<b>76</b>	<b>58</b>	<b>456</b>	<b>298</b>	<b>228</b>	<b>140</b>	<b>304</b>	<b>130</b>	<b>1064</b>	<b>626</b>

The detail of budgetary provision of KVKs under Zone-IX, Jabalpur is given in Table 1. 4.

**Table 1.4:** Budgetary provision of KVKs and ICAR- ATARI, Zone IX (Rs. in lakh)

S. No.	State	Rs. in lakhs		
		Budget estimate	Revised estimate	Total expenditure
1	MP	5259.12	4996.92	4996.92
2	CG	2941.66	2689.54	2689.54
4.	ATARI, Zone IX	268.94	201.10	198.68
<b>Total</b>		<b>8469.72</b>	<b>7887.56</b>	<b>7885.14</b>

The details status of infrastructure facilities in KVKs under Zone-IX are given in Table 1.5.

**Table 1.5:** Status of infrastructure facilities in KVKs under Zone-IX

S. No.	State	No. of KVKs	Admn. Building			Trainees Hotel			Staff Quarters		
			Completed	In progress	NA	Completed	In progress	NA	Completed	In progress	NA
1	Madhya Pradesh	51	45	02	-	43	0	-	41	0	-
2	Chhattisgarh	25	15	09	-	10	02	-	06	0	-
<b>Total</b>		<b>76</b>	<b>60</b>	<b>11</b>	<b>-</b>	<b>53</b>	<b>02</b>	<b>-</b>	<b>47</b>	<b>0</b>	<b>-</b>

### Agro-climatic Zones (ACZ) in Zone-IX, Jabalpur

There are 78 rural districts under the jurisdiction of Zone-IX, Jabalpur out of which 76 districts are covered by KVKs. The coverage of KVKs under different agro-climatic zones is given in Table 1.6.

**Table 1.6:** Agro-climatic Zones in ATARI, Jabalpur

State	Agroclimatic Zones (ACZs)	KVKs	No. of KVKs
M.P.	Chhattisgarh Plains	Balaghat	01
	North Hills of Chhattisgarh	Shahdol, Umaria, Dindori, Mandla, Anuppur	05
	Bundelkhand Region	Datia, Tikamgarh, Chattarpur	03
	Gird Zone	Guna, Gwalior, Morena, Ashoknagar, Shivpuri, Sheopur, Bhind	07
	Kymore Plateau and Satpura Hills	Satna, Sidhi, Singrauli, Seoni, Jabalpur, Katni, Panna, Rewa	08
	Jhabua Hills	Jhabua, Alirajpur	02
	Malwa Plateau	Indore, Dhar, Dewas, Shajapur, Ujjain, Mandsaur, Ratlam, Rajgarh, Neemach, Agar Malwa	10
	Nimar Valley	Khandwa, Khargone, Badwani, Burhanpur	04
	Satpura Plateau	Chhindwara, Betul	02
	Vindhya Plateau	Sehore, Bhopal, Raisen, Sagar, Damoh, Vidisha	06
Central Narmada Valley	Narsinghpur, Hoshangabad (Bankhedi), Harda	03	
<b>Total</b>	<b>11 ACZs</b>		<b>51</b>
CG	Chhattisgarh Plains	Bilaspur, Durg, Baloda Bazar, Raipur, Gariyaband, Raigarh, Dhamtari, Janjgir-Champa, Mahasamund, Korba, Kanker, Rajnandgaon, Kabirdham, Durg-II, Mungeli, Bemetra	16
	North Hills of Chhattisgarh	Surguja, Mainpat (Surajpur), Jashpur, Korea, Balrampur	05
	Bastar Plateau	Bastar, Dantewada, Bijapur, Narayanpur	04
<b>Total</b>	<b>3 ACZs</b>		<b>25</b>



### **Thrust Areas of the KVKs under Zone-IX, Jabalpur**

Seven broad thrust areas identified for the KVKs under ATARI-IX are :

- Sustainable production system through location-specific assessment and demonstrations of technology.
- Resource conservation through watershed management, soil and water conservation including farm mechanization.
- Development and promotion of crop/enterprise diversification and alternate land use system.
- Integrated pest and disease management.
- Promotion of rural entrepreneurship (livestock, goatery, poultry, fishery, mushroom, Lac, bee keeping etc. by production, processing, value addition and marketing) for additional income generation.
- Empowerment of farm women and youth through income generating activities and drudgery reduction.
- Alternate livelihood support system in rural sector for marginal farmers, landless labourers and farm women to check migration.

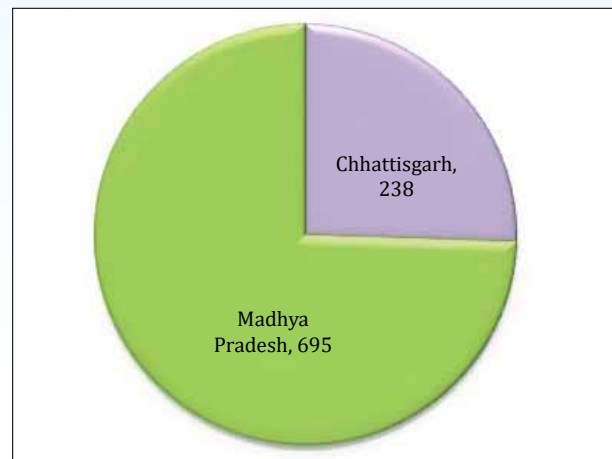
# TECHNOLOGY ASSESSMENT THROUGH ON-FARM TESTING

The claimed superiority of location specific technologies were tested by KVKs through On-Farm Testing (OFTs). Technologies to the tune of 933 were tested in the Zone through 8896 different trials (Table 2.1). The highest number of technologies were tested in the state of Madhya Pradesh (695) followed by Chhattisgarh (238). Out of these 637 technologies were assessed on crops whereas remaining 296 technologies were on enterprises. In crops (cereals, pulses, oilseeds and vegetables), major focus has been on testing

of location specific technologies. The focus was on 'more crop per drop of water' through in situ moisture conservation, drip irrigation and plastic mulching in vegetables, soil test based nutrient management etc. Among enterprises, fish production and management, farm mechanization, animal husbandry, poultry production and management were the priority areas.

**Table 2.1:** State-wise overall technology assessed during 2017-18

State	No. of	
	Technologies assessed	Trials
Chhattisgarh	238	1915
Madhya Pradesh	695	6981
<b>Total</b>	<b>933</b>	<b>8896</b>



**Figure-1:** State-wise overall technology assessed during 2017-18

**Table 2.2:** Crop wise OFTs conducted during 2017-18

Crop Category	No. of Technologies assessed			No. of Trials		
	CG	MP	Total	CG	MP	Total
Cash crops	2	7	9	14	63	77
Cereals	69	116	185	352	881	1233
Flowers	1	3	4	5	22	27
Foddercrops	3	3	6	12	17	29
Forest crops	-	2	2	-	12	12
Fruit crops	2	14	16	9	103	112
Intercropping	3	7	10	13	61	74
Medicinal Plants	1	6	7	4	42	46
Oilseed	15	84	99	83	617	700
Pulses	30	100	130	143	745	888
Spices	1	1	2	5	5	10
Vegetables	35	132	167	163	1095	1258
<b>Grand Total</b>	<b>162</b>	<b>475</b>	<b>637</b>	<b>803</b>	<b>3663</b>	<b>4466</b>

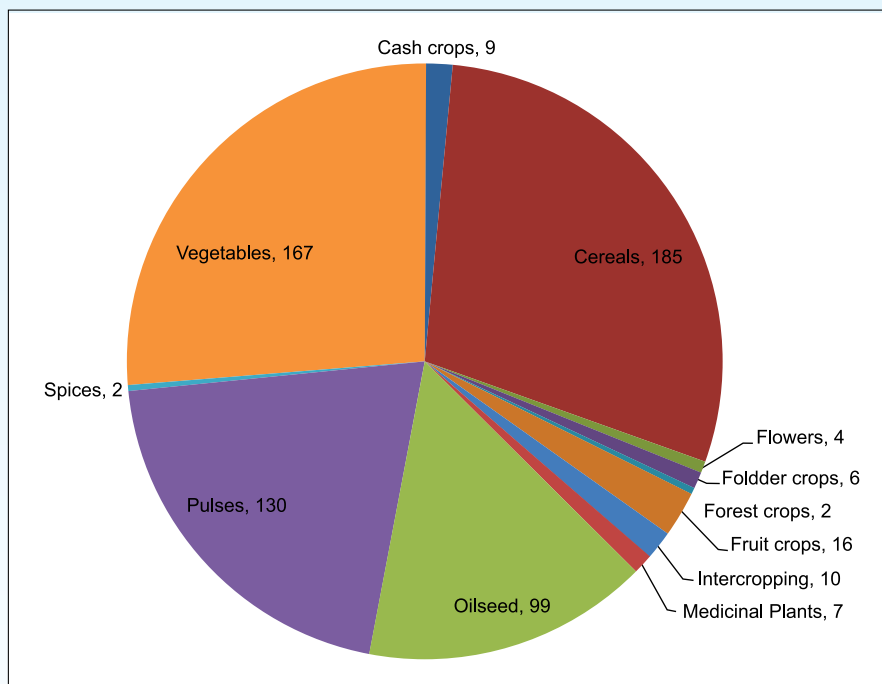
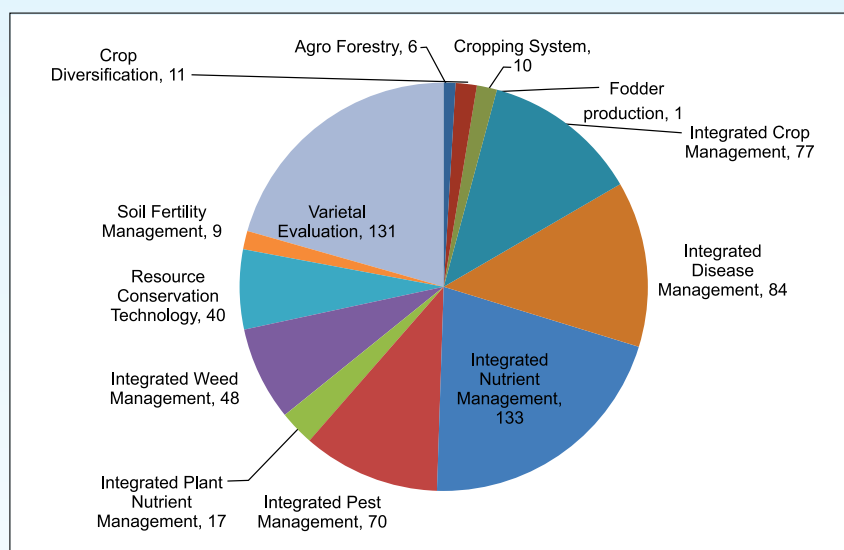


Figure-2: Crop wise OFTs conducted during 2017-18

Table 2.3: Thematic area wise OFTs conducted on crops during 2017-18

Crop Category	No. of Technologies assessed			No. of Trials		
	CG	MP	Total	CG	MP	Total
Agro Forestry	-	6	6	-	61	61
Crop Diversification	1	10	11	5	67	72
Cropping System	3	7	10	13	61	74
Fodder production	1	0	1	4	0	4
Integrated Crop Management	37	40	77	182	300	482
Integrated Disease Management	25	59	84	123	456	579
Integrated Nutrient Management	20	113	133	100	897	997
Integrated Pest Management	19	51	70	100	403	503
Integrated Plant Nutrient Management	12	5	17	69	27	96
Integrated Weed Management	12	36	48	58	280	338
Resource Conservation Technology	4	36	40	16	270	286
Soil Fertility Management	7	2	9	39	17	56
Varietal Evaluation	21	110	131	94	824	918
<b>Grand Total</b>	<b>162</b>	<b>475</b>	<b>637</b>	<b>803</b>	<b>3663</b>	<b>4466</b>



**Figure-3:** Thematic area wise OFTs conducted on crops during 2017-18

**Table 2.4:** Thematic area wise number of technologies assessed on enterprises during 2017-18

Thematic Area	No. of Technology assessed			No. of Trials		
	CG	MP	Total	CG	MP	Total
Animal Disease Management	2	4	6	36	35	71
Animal Feed / Fodder Management	5	15	20	21	104	125
Animal Nutrition Management	2	26	28	11	208	219
Farm Mechanization	12	25	37	66	175	241
Fish Nutrition	3	0	3	13	0	13
Fish Production & Management	2	1	3	8	5	13
Livestock Production and Management	0	1	1	0	10	10
Poultry Production and management	11	8	19	54	169	223
Resource Conservation Technology	6	18	24	30	111	141
Small Farm Implements	2	1	3	9	13	22
Storage loss minimization Technology	1	0	1	4	0	4
Drudgery reduction	1	25	26	4	171	175
Income Generation	4	26	30	15	195	210
Post harvest management	0	1	1	0	13	13
Value addition	2	11	13	11	94	105
Nutritional security	1	12	13	10	109	119
Composite Fish Farming	1	1	2	4	3	7
Fish-cum-Duck Farming	1	1	2	4	3	7
Fish Breeding	1	1	2	4	5	9
Fish Seed Production	2	0	2	9	0	9
Integrated fish farming	1	2	3	5	6	11
Prawn Farming	3	0	3	13	0	13
Fish Insect Management	1	0	1	4	0	4
Information Communication Technology (ICT)	12	41	53	777	1889	2666
<b>Grand Total</b>	<b>76</b>	<b>220</b>	<b>296</b>	<b>1112</b>	<b>3318</b>	<b>4430</b>

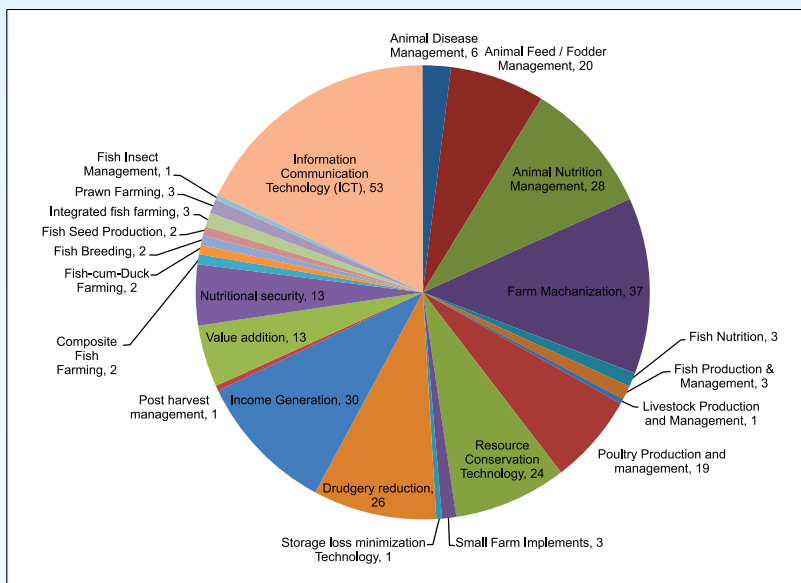


Figure-4: Thematic area wise number of technologies assessed on enterprises during 2017-18

## TECHNOLOGIES ASSESSED FOR MAJOR CROPS/ENTREPRISES

### SOYBEAN

#### Varietal Assessment in Soybean

**Problem identified:** Low yield of soybean due to use of old varieties

**Technology assessed:** Assessment of soybean variety RVS 2001-4 and JS 20-34

KVK Jhabua, Ratlam and Sheopur conducted 25 OFTs to assess the performance of soybean variety RVS 2001-4 and JS 20-34. The results of the assessment showed that JS 20-34 gave 21.53

and 4.02 per cent higher yield over the T1 and T2 respectively. The pods per plant also increased by 87.26 and 28.47 per cent over T1 and T2 respectively. The economic analysis showed that the incremental net return was Rs 8,052 per ha with this variety along with 0.34 higher BC ratio over farmer's practice. Due to its early maturity and higher production performance this variety is adopted by the farmers in the soybean growing districts of Madhya Pradesh.

Table 2.5- Performance of soybean variety RVS 2001-4 and JS 20-34

Details	No. of trials	Yield (q/ha)	No. of pods/plant	Net return (Rs/ha)	B:C ratio
Soybean variety JS 335/JS 95-60 (Farmers' practice) T <sub>1</sub>	25	13.19	31.33	22581	2.20
Soybean variety RVS 2001-4 (Recommended practice) T <sub>2</sub>		15.41	45.67	28951	2.47
Soybean variety JS 20-34 (Recommended practice) T <sub>3</sub>		16.03	58.67	30633	2.54



Soybean variety RVS 2001-4 and JS 20-34

**Problem identified:** Low yield of soybean due to use of old variety

**Technology assessed:** Assessment of soybean variety JS 20-34 and JS 20-29

KVK Chhindwara, Raisen and Satna conducted 28 OFTs to assess the performance of soybean variety JS 20-34 and JS 20-29. The results of the assessment indicated that JS 20-29 produced 38.44 and 10.15 per cent higher yield over the T<sub>1</sub> and

T<sub>2</sub> respectively. The pods per plant also increased by 106.43 and 16.18 per cent over T<sub>1</sub> and T<sub>2</sub> respectively. The economic analysis showed that the incremental net return was Rs 20,351 per ha with this variety along with 0.82 higher BC ratio over farmers practice. Soybean variety JS 20-29 is visibly adopted by the farmers in the soybean growing districts of Madhya Pradesh due to its better performance.

**Table 2.6:** Performance of soybean variety JS 20-34 and JS 20-29

Details	No. of trials	Yield (q/ha)	No. of pods/plant	Net return (Rs/ha)	B:C ratio
Soybean variety JS 335 (Farmers' practice) T <sub>1</sub>	28	12.85	23.17	6405	1.43
Soybean variety JS 20-34 (Recommended practice) T <sub>2</sub>		16.15	41.17	21673	1.96
Soybean variety JS 20-29 (Recommended practice) T <sub>3</sub>		17.79	47.83	26756	2.25



Soybean variety JS 20-34 and JS 20-29

## Integrated Nutrient Management in Soybean NPK, Sulphur and Zinc Management in Soybean

**Problem identified:** Low yield of soybean due to sulphur and zinc deficiency

**Technology assessed:** Assessment of response of NPK, sulphur and zinc in soybean

Among the oilseeds, soybean is an important kharif oilseed crop grown in majority of areas of Madhya Pradesh. Imbalanced/indiscriminate use of major plant nutrients, no use of secondary and micronutrients are the major reasons for declining the yield of soybean. Farmers are usually not applying recommended dose of NPK, not using sulphur containing fertilizers and zinc; hence,

especially sulphur and zinc deficiency is being observed in the soil, which affects the soybean productivity. Sulphur is responsible for synthesis of amino acids and fatty acids which in turn increase the oil content in oilseeds and zinc activates various enzymic activities. Looking to the problem, KVKs Chhindwara, Guna, Harda, Raisen, Rajgarh, Sheopur and Tikamgarh planned and conducted 48 OFTs to assess the response of NPK, sulphur and zinc; and applied @ 20:60:40 kg/ha and Sulphur @ 20 kg/ha through bentonite sulphur (T<sub>2</sub>) and T<sub>2</sub> + Zn @ 5 kg/ha on soil test basis in soybean (T<sub>3</sub>). The results showed that the seed yield was 29.68 and 1.24 per cent higher over the farmers' practice (T<sub>1</sub>) and (T<sub>2</sub>) respectively. The number of pods per

plant was also increased by 81.82 and 27.95 per cent over  $T_1$  and  $T_2$  respectively with the assessed technology. Similarly the incremental net return and B:C ratio was Rs. 9,129 and 0.36 over farmer's

practice with the assessed technology. On the basis of the above findings it may be concluded that the assessed technologies effective as it increases the crop yield vis-a-vis maintains the soil health.

**Table 2.7.** Performance of Pusa Hydrogel in soybean

Details of Technology	No. of trials	Yield (q/ha)	Soil moisture (%)	Net return (Rs/ha)	B:C ratio
NPKSZn @ 13:35:0:0 kg/ha (Farmers' practice- $T_1$ )	48	11.32	20.9	17451	1.97
Rhizobium & PSB @ 5 g/kg as seed inoculation + NPK @ 20:60:40 kg/ha and Sulphur @ 20 kg/ha ( $T_2$ )		14.50	29.7	25263	2.29
Rhizobium & PSB @ 5 g/kg as seed inoculation + NPK @ 20:60:40 kg/ha, Sulphur @ 20 kg/ha and Zn @ 5 kg/ha( $T_3$ )		14.68	38	26580	2.33



Response of NPK, sulphur and zinc in soybean

## RICE

### Varietal Assessment in Rice

**Problem identified:** Low yield due to use of medium duration variety in rainfed condition and moisture stress during dry spell

**Technology assessed:** Assessment of improved rice variety Sahbhagi

Under rainfed upland situations selection of suitable variety is most important factor among the various factors responsible for low productivity of rice at farmers' field. With the use of improved early and drought tolerant variety, the productivity of the crop can be enhanced. Keeping in view the

KVKs of Mandla and Sidhi planned and conducted 15 OFTs to assess the performance of the improved early and drought tolerant rice variety Sahbhagi. The results showed that the yield of this variety was 79.41 per cent higher over the farmers' practice ( $T_1$ ). The number of effective tillers/hill observed to be high by 61.11 per cent over farmer's practice ( $T_1$ ). The incremental net return and BC ratio was found Rs 14,879 per ha and 0.58 respectively with this variety as compared to the farmers practice. The variety resulted very good performance in drought situation under rain fed condition.

**Table 2.8:** Performance of improved rice variety Sahbhagi

Details of Technology	No. of trials	Yield (q/ha)	No. of effective tillers/hill	Net return (Rs/ha)	B:C ratio
Medium duration rice varieties under rainfed situation-IR 36/IR 64 (Farmers' practice- $T_1$ )	15	19.23	18	16961	2.64
Improved early and drought tolerant rice variety Sahbhagi ( $T_2$ )		34.50	29	31840	3.22



Paddy variety Sahbhagi Dhan at maturity stage



Transplanting of paddy variety Sahbhagi Dhan

### Integrated Nutrient Management in Rice

**Problem identified:** Low yield of rice due to zinc deficiency

**Technology assessed:** Assessment of zinc response in rice

Zinc is an important essential micronutrient which acts sometime as secondary element especially in few crops like rice, soybean, maize etc. It activates various hormonal and enzymatic activities in plants responsible for growth and development. Rice is an important crop grown among all the states of the zone in low and midlands. Imbalanced/indiscriminate use of fertilizers and no use of compost and zinc are the major reasons for declining yield of rice. Due to no use of zinc

containing fertilizers, the status of this nutrient is decreasing in the soil which is affecting the crop yield to the greater extent. Looking the above problem, KVKs of Raisen, Rewa and Shahdol of the Zone conducted 27 OFTs to assess the response of zinc applied @ 5 kg/ha through zinc sulphate with NPK fertilizers alone ( $T_2$ ) and with integration of FYM ( $T_3$ ) on soil test basis. The results showed that the seed yield was 29.88 and 44.80 per cent higher in  $T_2$  and  $T_3$  respectively over the farmers' practice. The number of tillers/hill also increased by 28.94 and 61.43 per cent in  $T_2$  and  $T_3$  respectively over farmer's practice with the assessed technology. The incremental net return and BC ratio was recorded to be Rs. 14,878 and 0.76 over farmer's practice with the assessed technology. On the

basis of the above findings it may be concluded that the technology assessed in T<sub>3</sub> is effective as

it increases the crop yield and maintains the soil fertility.

**Table 2.9:** Response of zinc in rice

Details	No. of trials	Yield (q/ha)	No. of tillers/hill	Net return (Rs/ha)	B:C ratio
NPKZn @ 32:35:0:0 kg/ha (Farmers' practice-T <sub>1</sub> )	27	34.84	30.75	42635	2.62
NPK @ 80:40:30 kg/ha and Zn @ 5 kg/ha (Recommended practice-T <sub>2</sub> )		45.25	39.65	57304	2.87
FYM @ 5 to 6 t/ha + 75% NPK @ 80:40:30 kg/ha and Zn @ 5 kg/ha 1 kg/ha (Recommended practice-T <sub>3</sub> )		50.45	49.64	57513	3.38



Response of zinc in rice

## Integrated Disease Management in Rice

### Management of Sheath Blight disease in Rice

**Problem identified:** Low yield of rice due to high incidence of sheath blight disease

**Technology assessed:** Integrated management of sheath blight disease in rice

Rice is the major cereal crop which is widely grown across the country. Sheath blight of rice caused by *Rhizoctonia solani* Kuhn is a major biotic constraint of rice in most of the rice growing countries of Asia. The losses due to sheath blight occur between 20 to 50 percent when all the sheaths are infected. KVKs of Anjora (Durg), Baster,

Bhatapara, Bilaspur from Chhattisgarh; Raisen and Katni from Madhya Pradesh conducted 30 OFTs on sheath blight management in rice. Seedling treatment and spray of *Pseudomonas* spp. @ 1.5 kg/ha at early onset of disease (T<sub>2</sub>), seed treatment and spray of Hexaconazole @ 1 lit/ha at early onset of disease (T<sub>3</sub>) were assessed for sheath blight management. The results of OFTs revealed that the yield increased in T<sub>3</sub> by 33.1 and 27.9 percent over T<sub>1</sub> and T<sub>2</sub>, respectively. Sheath blight incidence decreased in T<sub>3</sub> by 54.2 and 44.3 percent over T<sub>1</sub> and T<sub>2</sub>, respectively. The net return increased by Rs. 22590 and 12809 per ha and B:C ratio 1.01 and 0.34 respectively over farmers' practice.

**Table 2.10:** Performance of Hexaconazole for sheath blight management in rice

Details of Technology	No. of trials	Disease incidence (%)	Yield (q/ha)	Net return (Rs/ha)	B:C ratio
Indiscriminate use of any fungicide after severe incidence (Farmers' practice-T <sub>1</sub> )	30	25.8	30.8	30745	1.79
Seedling treatment and spray of <i>Pseudomonas</i> spp. @ 1.5 kg/ha at early onset of disease (T <sub>2</sub> )		21.2	39.4	43554	2.13
Spray of Hexaconazole @ 1 l/ha at early onset of disease (T <sub>3</sub> )		11.8	41.0	53335	2.80

## Rhizome Rot Disease Management in Ginger

**Problem identified:** Low yield of ginger due to rhizome rot or soft rot disease

**Technology assessed:** Integrated management of rhizome rot disease of ginger

Rhizome rot or soft rot is an important disease of Ginger. KVKs of Narsinghpur, Dhar and Tikamgarh from Madhya Pradesh conducted 27 trials on Rhizoctonia disease management in ginger. The disease management technology assessed was

T<sub>1</sub>- No seed treatment (Farmers practice), T<sub>2</sub>- Deep summer ploughing + Treatment of rhizome with Metalaxil + Mancozeb MZ 78 @ 3 g/lit. of water, T<sub>3</sub>- Deep summer ploughing + soil solarization with white polythene sheet + rhizome treatment with T. viridae @ 6 g/Kg of rhizome. The increase of ginger yield in T<sub>3</sub> was 34 and 17.46 percent over T<sub>1</sub> and T<sub>2</sub> respectively, where disease incidence decreased 2.7 percent in T<sub>3</sub>. The increase in net return and B:C ratio under T<sub>3</sub>- was Rs. 279763 per ha and 3.86 unit, respectively over farmers' practice.

**Table 2.11:** Performance of IDM module for rhizome rot disease in ginger

Details of Technology	No. of trials	Weight of Rhizome (g)	Disease incidence (%)	Yield (q/ ha)	Net return (Rs/ha)	B:C ratio
Sowing without seed treatment (Farmers' practice-T <sub>1</sub> )	27	106.7	18.1	94.4	185506	2.70
Deep summer ploughing + Treatment of rhizome with Metalaxil + Mancozeb MZ 78 @ 3 g/lit. of water (T <sub>2</sub> )		112.2	5.1	107.7	206199	2.98
Deep summer ploughing + soil solarization with white polythene sheet + rhizome treatment with T. viridae @ 6 g/Kg of rhizome (T <sub>3</sub> )		151.2	2.7	126.5	279763	3.86

## Integrated Disease Management in Tomato

**Problem identified:** Low yield of tomato due to damping off and foliar disease

**Technology assessed:** Integrated Disease Management of Damping off and foliar disease in tomato

Tomato (*Lycopersicon esculantum*) is an important vegetable crop of Indian subcontinent, rich in vitamin A, C, potassium, minerals, antioxidants and fibres. The intensive cultivation without proper crop rotation, poor crop management has led to increase in pest and disease incidence causing 50-60 per cent yield loss.

KVKs of Sagar, Datia, Gwalior, Bhind from

Madhya Pradesh and Anjora (Durg), Bemetara and Bastar from Chhatisgarh conducted 41 trials on Integrated disease management in tomato. The disease management technology assessed was growing of tomato nursery on Raised bed method, Seed treatment with *Trichoderma viride*, before transplanting, tomato seedlings were treated with the solution of Imidacloprid 48 FS @ 3 ml/ lit. of water for 20-30 minutes, foliar spray of Thiophanate methyl at 35 day followed by chlorothalonil. The increase of tomato yield in T<sub>2</sub> was 27.6 percent over farmer practice, whereas disease incidence decreased in T<sub>3</sub> by 80.5 percent over T<sub>1</sub>. The increase in net return and B:C ratio under T<sub>2</sub>- was Rs. 30140 per ha and 0.83 unit over farmers' practice.

**Table 2.12:** Performance of IDM module for rhizome rot disease in tomato

Details of Technology	No. of trials	Mortality percent in nursery	Disease Incidence (%)	Yield (q/ ha)	Net return (Rs/ha)	B:C ratio
Growing of nursery on flate bed, Sowing without seedling treatment, foliar spray of Carbendazim + mancozeb after disease infestation treatment (Farmers' practice-T <sub>1</sub> )	41	56.7	53.4	188.5	84634	3.43
Growing of tomato nursery on Raised bed method, Seed treatment with <i>Trichoderma viride</i> , Before transplanting, tomato seedlings were treated with the solution of Imidacloprid 48 FS @ 3 ml/ lit. of water for 20-30 minutes, foliar spray of Thiophanate methyl at 35 day followed by chlorothalonil. (T <sub>2</sub> )		6.58	5.84	240.1	114779	4.23

### Integrated Management of Yellow Vein Mosaic (YMV) in Soybean

**Problem identified:** Low yield of soybean due to severe incidence of yellow vein mosaic disease

**Technology assessed:** Integrated Management of Yellow Mosaic Disease of Soybean

Yellow vein mosaic virus disease of soybean causes up to 50 percent yield loss. Susceptible varieties and non adoption of suitable integrated disease management modules cause YMV. KVKs of Burhanpur, Indore, Raisen, Rewa and Ujjain from Madhya Pradesh conducted 40 trials on YMV disease management in soybean. The disease management technology assessed was T<sub>3</sub>-Seed treatment with

Imidacloprid 48 FS @ 3 ml or Thiomethoxam 30 %FS @10ml/kg seed + Yellow sticky traps 20/ ha + Spray Thiamethoxam 25%WG @100ml/ha. T<sub>2</sub>- Seed treatment with Thiomethoxam 30 % FS @10ml/kg seed or spray of Thiamethoxam 25%WG @100ml/ha at disease appearance. (T<sub>1</sub>) Spray of Trizophos 40 EC at disease appearance. The increase of soybean yield in T<sub>3</sub> was 25.1 and 17.68 percent over T<sub>1</sub> and T<sub>2</sub> respectively, where disease incidence decreased in T<sub>3</sub> by 74.6 and 67.0 percent over T<sub>1</sub> and T<sub>2</sub>, respectively. The increase in net return and B:C ratio under T<sub>3</sub> was Rs. 16615 per ha and 0.60 unit, respectively over farmers' practice.

**Table 2.13:** Performance of IDM module for management YMV in soybean

Details of Technology	No. of trials	No of pods/ plant	Disease Incidence (%)	Yield (q/ ha)	Net return (Rs/ha)	B:C ratio
Spray of Trizophos 40 EC at disease appearance (Farmers' practice-T <sub>1</sub> )	40	23.5	12.8	10.74	16060	1.52
Seed treatment with Thiamethoxam 30 %FS @10ml/kg seed or spray of Spray Thiamethoxam 25% WG @100ml/ha at disease appearance (T <sub>2</sub> )		29.9	9.86	11.42	19274	1.63
Seed treatment with Imidacloprid 48 FS @ 3 ml or Thiamethoxam 30 %FS @10ml/kg seed + Yellow sticky traps 20/ha + Spray Thiamethoxam 25%WG @100ml/ha (T <sub>3</sub> )		31.0	3.25	13.44	32675	2.12



Integrated Management of Yellow Mosaic Disease of Soybean

### Yellow Vein Mosaic (YMV) Management in Blackgram

**Problem identified:** Low yield of Blackgram due to yellow vein mosaic disease

**Technology assessed:** Integrated disease management of yellow mosaic disease of Blackgram

Blackgram is an important pulse crop of Kharif season. The production and productivity of blackgram heavily affected by yellow vein mosaic disease because disease appears in any stage of the crop. KVKs of Ashoknagar, Panna and Datia from Madhya Pradesh and Janjgir-Champa from Chhatisgarh conducted 25 trials on YMV disease management in Blackgram. The technology for disease management assessed were  $T_3$ - Deep

summer ploughing and seed treatment with Thiamethoxam 70WP @ 3 g/kg seed along with Rhizobium and PSB cultures @ 10 g/kg seed followed by foliar spray of Thiamethaxam 25 WG @ 100 g/ha.  $T_2$  Removal of diseased plant and spray of Thiamethaxam 25 WG @ 100 g/ha. ( $T_1$ ) as farmers practice (Use of Mixed seed of T-9, No seed treatment, Spray of Trizophos at 30-35 DAS). The yield of blackgram increase as in  $T_3$  was 32.6 and 17.3 percent over  $T_1$  and  $T_2$  respectively, where disease incidence decreased in  $T_3$  by 83.1 and 48.6 percent over  $T_1$  and  $T_2$ , respectively. The increase in net return were Rs. 9890 and 6000 per ha and B:C ratio was 0.82 and 0.42 unit, respectively over farmers' practice and  $T_2$ .

**Table 2.14:** Performance of IDM module for management YMV in Blackgram

Details of Technology	No. of trials	No of pods/ plant	Disease Incidence (%)	Yield (q/ ha)	Net return (Rs/ha)	B:C ratio
Use of Mixed seed of T-9, No seed treatment, Spray of Trizophos at 30-35 DAS (Farmers' practice- $T_1$ )	25	26	41.9	6.74	18530	2.28
Removal of diseased plant and spray of Thiomethaxam 25 WG @ 100 g/ha ( $T_2$ )		32	15.2	7.62	22980	2.68
Deep summer ploughing and seed treatment with Thiamethoxam 70WP @ 3 g/kg seed along with Rhizobium and PSB cultures @ 10 g/kg seed followed by foliar spray of Thiomethaxam 25 WG @ 100 g/ha ( $T_3$ )		36	7.8	8.94	28420	3.1



Integrated Disease Management of Yellow Mosaic Disease of Blackgram

### Integrated Pest Management for Pod borer in Chickpea

**Problem identified:** Low yield of chickpea due to severe infestation pod borer

**Technology assessed:** IPM module for pod borer management in chickpea

Pod borer is a major pest of chickpea, responsible for heavy reduction (20-35%) in yield. KVK Harda, Morena, Neemuch, Panna, Rewa, Sehore, Ujjain and Mandsaur from Madhya Pradesh and Balrampur, Bilaspur, Durg- II and Rajnandgaon from Chhattisgarh conducted OFTs on integrated pod borer management in chickpea at 93 locations. The technology for pod borer management assessed were  $T_3$ - Deep Summer ploughing, Bird percher @ 50/ha, pheromone traps @ 5/ha and

foliar spray of mixed insecticide Profenophos + Cypermethrin 44 EC or Rynaxypyr @ 75ml/ha,  $T_2$ - Deep summer ploughing, spray of Profenophos 50 EC @ 1000 ml or Emamectin benzoate 5 SG @ 100gm/ha and farmers practice ( $T_1$ ) were Spray of Triazophos 40EC @ 800ml or Quinolphos 1000 ml/ha. Results of the OFTs revealed that the yield of chickpea increased in  $T_3$  by 20.3 and 16.2 percent in comparison to  $T_1$  and  $T_2$  while number of larvae/m<sup>2</sup> decreased by 80.2 and 50.7 percent respectively over  $T_1$  and  $T_2$ . The net return increased as Rs. 20,067 and 9589 per ha, while B:C ratio increased by 0.88 and 0.23 units respectively over  $T_1$  and  $T_2$ . Farmers are satisfied by this technology for pod borer management and they realized that IPM modules in chickpea are better than only use of chemical insecticide.

**Table 2.15:** Performance of IPM module-I for Management of Pod borer in Chickpea

Details of Technology	No. of trials	Pest Incidence (%)	Yield (q/ ha)	Net return (Rs/ha)	B:C ratio
T1- Spray of Triazophos 40EC @ 800ml or Quinolphos 1000 ml/ha (Farmers' practice- $T_1$ )	93	1.62	12.9	33280	2.28
Deep Summer ploughing, spray of Profenophos 50 EC @ 1000 ml or Emamectin benzoate 5 SG @ 100gm/ha ( $T_2$ )		0.65	13.84	43758	2.68
Deep Summer ploughing, Bird percher @ 50/ha, pheromone traps @ 5/ha and foliar spray of mixed insecticide Profenophos + Cypermethrin 44 EC or Rynaxypyr @ 75ml/ha ( $T_3$ )		0.32	15.52	53347	3.1



IPM module for pod borer management in chickpea

## Integrated Pest Management in Soybean

### Management of Girdle beetle and Semi looper in Soybean

**Problem identified:** Low yield of Soybean due to heavy infestation of Girdle beetle and Semi looper.

**Technology assessed:** Integrated pest management for management of Girdle beetle and Semi looper in Soybean

Semi looper infestation in soybean is a major problem reduces crop yield up to 30-40 percent if not managed in time. KVKs of Jhabua, Khandwa, Mandasaur, Neemuch and Raisen from Madhya Pradesh conducted 42 OFTs for assessing

the chemical management of semi looper in soybean. The result of these OFTs revealed that the yield increased by 16.46 and 4.81 percent with the assessed insecticidal treatment (spray of Chlorantraniliprole 18.5 SC @ 100 ml/ha at ETL (3- 4 larvae/ m<sup>2</sup>) over farmers' practice (spray of Chloropyrophos 20EC @ 1.5 lit /ha at severe infestation -T<sub>1</sub>) and spray of Trizophos 40 EC@800 ml/ha at ETL (T<sub>2</sub>), respectively. The number of larvae /m<sup>2</sup> area reduced to 5.48 and 1.04 per cent in the assessed technology over T<sub>1</sub> and T<sub>2</sub> respectively. The net return and B:C ratio under the assessed technology also increased by Rs. 5346 per ha and 0.44 respectively over farmers' practice.

**Table 2.16:** Performance of IPM for girdle beetle and semi looper in soybean

Details of Technology	No. of trials	No. of Larvae/m <sup>2</sup>	Yield (q/ ha)	Net return (Rs/ha)	B:C ratio
Spray of Triazophos 40%EC @ 800 ml./ha or Rynaxypyr 20 SC @ 100 ml/ha at 25-30 DAS (Farmers' practice-T <sub>1</sub> )	42	5.485	11.48	18709	1.75
Removal of diseased plant and spray of Thiamethaxam 25 WG @ 100 g/ha (T <sub>2</sub> )		1.04	13.37	24055	2.19



Integrated pest management for management of Girdle beetle and Semi looper in Soybean

## Integrated Pest Management in Brinjal

### Management of Fruit and Shoot borer in Brinjal

**Problem identified:** Low yield of Brinjal due to heavy infestation of Fruit and Shoot borer.

**Technology assessed:** Integrated pest management for management of Fruit and Shoot borer in Brinjal

Brinjal (*Solanum melongena L.*) is one of the most popular and economically important vegetables among small scale farmers. The brinjal crop is attacked by about 140 species of insect pests, out of numerous insects, brinjal shoot and fruit borer (*L. orbonalis*) has been reported as important

insect pests of the brinjal causes 60-70 percent yield loss. KVKs of Jhabua, Dindori and Seoni from Madhya Pradesh and Balrampur, Bemetara, Korba and Kanker from Chhatisgarh conducted 49 OFTs for assessing the integrated pest management against fruit and shoot borer in brinjal. The result of these OFTs revealed that the yield increased by 24.6 percent with the IPM technology (Summer Deep Ploughing + installation of Pheromone trap @ 10/ha + sequential spraying of Baveria Basiana/ Trizophos/Rynaxypyr over farmers' practice. The fruit borer infestation per plant reduced by 69.5 percent. The net return and B:C ratio under the assessed technology also Increased by Rs. 30213 per ha and 0.66 respectively over farmers' practice.

**Table 2.17:** Performance of IPM for management of fruit and shoot borer in Brinjal

Details of Technology	No. of trials	Fruit borer infestation per plant	Yield (q/ ha)	Net return (Rs/ha)	B:C ratio
Spray of Triazophos 40%EC @ 800 ml./ha or Rynaxypyr 20 SC @ 100 ml/ha at 25-30 DAS (Farmers' practice-T <sub>1</sub> )	49	25.2	231	138890	3.12
Summer Deep Ploughing+ Installation of Pheromone trap @ 10/ha + sequential spraying of Baveria Basiana/ Trizophos/Rynaxypyr (T <sub>2</sub> )		7.68	288	169103	3.78



Integrated pest management for management of fruit and shoot borer in Brinjal

## Integrated Pest Management in Cabbage

### IPM modules for the management of diamond back moth (DBM) in Cabbage

**Problem identified:** Low yield of Cabbage due to heavy infestation of DBM.

**Technology assessed:** IPM for management of diamond back moth in Cabbage

The diamondback moth (DBM), *Plutella xylostella* is the major destructive pest on cruciferous crops such as cauliflower, cabbage and mustard causes significant economic losses up to 50 percent per year. KVKs of Rewa, Dewas,

Dindori and Sehore from Madhya Pradesh and Korba from Chhattishgarh conducted 37 OFTs for assessing the IPM modules for the management of DBM in Cabbage. The result of these OFTs revealed that the yield increased by 24.7 percent with IPM practices (Summer Deep Ploughing + Installation of Pheromone trap @ 10/ha + spraying of NSKE 5%, Beubaria basiana and Flubendamide 48% SC @ 100 ml/ha) over farmers' practice. The number of larvae/plant reduced by 60 percent in the assessed technology over T<sub>1</sub>. The net return and B:C ratio under the assessed technology also increased by Rs. 14234 per ha and 0.45 respectively over farmers' practice.

**Table 2.18:** Performance of IPM for management of diamond back moth in Cabbage

Details of Technology	No. of trials	Number of larvae per plant	Yield (q/ ha)	Net return (Rs/ha)	B:C ratio
Regular Spray of Profenophos or Cartap hydrochloride at 7 days interval (Farmers' practice-T <sub>1</sub> )	37	6.4	178	90118	2.93
Summer Deep Ploughing + Installation of Pheromone trap @ 10/ha + spraying of NSKE 5%, Beubaria basiana and Flubendamide 48% SC @ 100 ml/ha (T <sub>2</sub> )		4.0	222	104352	3.38

## Integrated Pest Management

### Integrated pest Management in Rice for major insect pest

**Problem identified:** Low yield of Paddy due to heavy infestation of insect pests

**Technology assessed:** Integrated pest management of major insect pest in rice

Remarkable reduction in yield has been observed due to heavy infestation of stem borer and brown plant hopper in rice. KVK Dindori from Madhya Pradesh, Korba, Durg II, Rajnandgaon, Bhatapara and Bemetara from Chhattishgarh

conducted 44 OFTs for assessing the Integrated pest management for major insect pest in rice. IPM modules i.e. Use balance dose of fertilizer 20:80:20:20 NPKS kg/ha, installation of bird perches @ 50 perches/ha, spraying of Bio insecticide (Bt.) @ 1250 ml/ha followed by Imidacloprid 125 ml/ha (T<sub>2</sub>) was assessed for managing the stem borer and brown plant hopper. The results revealed that the crop yield increased by 17.77 percent over farmers practice. The number of dead heart decreased by 40 percent and Number of hopper/plant 23.5 percent over farmers practice. The net return and B:C ratio increased by Rs 7190 per ha and 0.97 over farmers' practice.

**Table 2.19:** Performance of IPM for management of Insect Pest in Rice

Details of Technology	No. of trials	Dead heart plant (%)	Number of hopper/plant	Yield (q/ ha)	Net return (Rs/ha)	B:C ratio
Indiscriminate use of insecticide after severe infestation of stem borer (Farmers' practice-T <sub>1</sub> )	44	42	21	32.3	29825	2.24
Use balance dose of fertilizer 20:80:20:20 NPKS kg/ha, installation of Bird perches @ 50 perches/ha, spraying of Bio insecticide (Bt.) @ 1250 ml/ha followed by Imidacloprid 125 ml/ha (T <sub>2</sub> )		30	17	38.04	37015	3.21



Integrated pest management of major insect pest in rice

### Weed Management in Soybean

**Problem identified:** Low yield of Soybean due to heavy infestation of mono and dicot weeds

**Technology assessed:** Imezathpyr 10%+ imezamox 35% @70g a.i./ha at 20-25 DAS for weed management in Soybean

Mono and dicot (narrow/broad leaf) grassy weeds infestation in crops drastically constraints the crop growth and significantly reduces the seed yield (35-40%). Proper weed management is not commonly practices; due to which the crop yield gets adversely affected. Looking to the above problem on priority, KVK Khandawa, Morena, Guna, Neemuch, Rajgarh, Shajapur, Tikamgarh

and khargone of the Zone conducted 50 OFTs to assess the response of Imezathpyr 10 percent+ imezamox 35 percent @70g a.i./ha at 20-25 DAS for weed management in Soybean (T<sub>2</sub>) and spray of Imezathpyr 10 percent at 30 DAS (T<sub>1</sub>) for weed management in Soybean. The results revealed that the yield under T<sub>2</sub> was 20.7 per cent higher over the farmers' practice (T<sub>1</sub>). The number of weeds per m<sup>2</sup> reduced to 47.5 per cent with the assessed technology over T<sub>1</sub>. The net return and B:C ratio was also found to be higher by Rs. 9950 and 0.12 with the assessed herbicides under T<sub>2</sub> which also restricted significantly the weed population per m<sup>2</sup> increased 20.7 per cent yield over farmers' practice.

**Table 2.20:** Performance of Imezathpyr 10% + imezamox 35% for weed management in Soybean

Details of Technology	No. of trials	Number of weeds per m <sup>2</sup>	Yield (q/ ha)	Net return (Rs/ha)	B:C ratio
Imezathpyr 10% at 30 DAS for weed management (Farmers' practice-T <sub>1</sub> )	50	36.6	8.6	41933	2.11
Imezathpyr 10% + imezamox 35% @70g a.i./ha at 20-25 DAS for weed management in Soybean (T <sub>2</sub> )		44.2	16.4	51883	2.23



Weed management in Soybean

## Weed Management in Wheat

**Problem identified:** Low yield of wheat due to heavy infestation of mono and dicot weeds

**Technology assessed:** Sulphosulfuron + metsulfuron methyl and Clodinafop 15% (60 g a.i./ha) + metsulfuron methyl 1% for weed management in wheat

Mono and dicot (narrow/broad leaf) grassy weeds infestation in crops drastically constraints the crop growth and significantly reduces the seed yield (35-40%). Proper weed management is not commonly practices; due to which the crop yield gets adversely affected. Looking to the above problem on priority, KVK Ashoknagar, Betul, Burhanpur, Chhatarpur, Guna Jhabua, Khargone, Lahar Bhind, Mandasaur, Shajapur and Sheopur of Madhya Pradesh and Raipur Jora of Chhatisgarh

conducted 92 OFTs to assess the response of sulphosulfuron 75 percent WP (25 g a.i./ha) + metsulfuron methyl 5 percent WP (6 g a.i./ha) at 25-30 DAS ( $T_2$ ) and Clodinafop 15 percent (60 g a.i./ha) + metsulfuron methyl 1 percent (4 g a.i./ha) at 25-30 DAS ( $T_3$ ) for weed management in wheat. The results revealed that the yield under  $T_3$  was 21.16 and 2.8 percent higher over the farmers' practice ( $T_1$ ) and  $T_2$  respectively. The number of weeds per  $m^2$  reduced to 43.71 and 2.58 percent with the assessed technology over  $T_1$  and  $T_2$  respectively. The net return was found to be higher in  $T_3$  by Rs. 12649 and 1512 per ha while B:C ratio was also found to be higher as 0.51 and 0.13 in  $T_3$ . The assessed herbicides restricted significantly the weed population per  $m^2$  and increased yield over farmers' practice.

**Table 2.21:** Performance of sulphosulfuron + metsulfuron methyl and clodinafop 15 percent + metsulfuron methyl for weed management in wheat

Details of Technology	No. of trials	Number of weeds per $m^2$	Yield (q/ha)	Net return (Rs/ha)	B:C ratio
One manual weeding (Farmers' practice- $T_1$ )	92	28.16	35.9	41940	2.61
Use of sulphosulfuron 75% WP (25 g a.i./ha) + metsulfuron methyl 5% WP (6 g a.i./ha) at 25-30 DAS ( $T_2$ )		16.24	42.3	53077	2.99
Use of Clodinafop 15% (60 g a.i./ha) + metsulfuron methyl 1% (4 g a.i./ha) at 25-30 DAS ( $T_3$ )		15.82	43.5	54589	3.12



Weed management in Wheat

## Nursery Management

**Problem identified:** Low income for farm women due to high mortality of vegetable seedlings.

**Technology assessed:** Nursery management through Pro tray, Raising bed with seed treatment, Low cost poly tunnel.

Nursery is a place where seedling, cutting and grafts are raised with care before transplanting. The production of good quality seedlings is very much essential for getting higher yield and quality of any crop however higher mortality of seedling at

farmer level is observed. Participation of women in nursery raising activity is higher. Nursery raising activity is known as drudgery less technology. KVKs Shahdol, Sidhi, Mandsaur, Guna, Neemuch, Bilaspur, Raisen and Ratlam conducted 59 trails on assessment of improve nursery management technology (pro tray, raising bed with seed treatment, low cost poly tunnel) for increasing germination with reduced mortality rate. Result, revealed the performance of low cost poly tunnel and pro tray technique for nursery rising was more profitable than farmers practice.

**Table 2.22:** Performance of pro tray, nursery raising with seed treatment and low cost poly tunnel in nursery management

Details	No. of trials	No. of sapling per unit	Cost of input (Rs/unit)	Incremental income (Rs/unit)	Net return (Rs/unit)	Savings (in Rs)	B:C ratio
Flat bed (Farmers' practice-T <sub>1</sub> )	59	310	350	900	550	200	2.57
Raising bed with seed treatment (Recommended Practice) (T <sub>2</sub> )		690	550	2250	1700	1150	4.09
Pro tray (Recommended Practice) (T <sub>3</sub> )		1432	942	1432	490	452	1.52
low cost poly tunnel (Recommended Practice) (T <sub>4</sub> )		2000	1500	10000	8500	7000	6.66



Nursery management through Pro tray

## Nutritional Security

**Problem identified:** Nutritional insecurity of farm family due to lack of fruits and vegetables at household level.

**Technology assessed:** Assessment of Nutritional kitchen garden & Terrace garden for nutritional security of farm family.

The magnitude of malnutrition and the ignorance about the relationship between food and health among a majority of the population at all levels necessitates the need for nutrition education. Kitchen gardening can thus be argued to improve access to food the vulnerable groups. Kitchen gardens provide and supplement subsistence requirement and generate secondary direct or indirect income. Direct income is by sale of surplus production while the indirect income is by the savings achieved by not buying the same product from the market as well as better trade

when produce is exchanged with others from the neighbours. Women can establish kitchen gardens with limited water source by recycling the household waste water. Initially women established kitchen garden with all types of vegetables seeds in their backyard. They started getting good harvests of vegetable and greens, which were used for consumption and save money every month. To address nutritional security and health issues in farm women KVKs Raipur and Bilaspur (MP) conducted 25 OFTS. In a season, each family could harvest 1685 kg vegetable round of the year, per capita consumption of vegetable is highly increase 300 gm/day and highly increase daily nutrient intake, anthropometric measurements increase weight 4.5 kg, height 5 cm per person and income is highly increase by sale of the vegetables. All over nutritional kitchen garden technology is more beneficial as health & income aspect for rural farm family.

**Table 2.23:** Performance of Nutritional kitchen garden /terrace garden for nutritional security

Details	No of trails	Performance indicators / parameter			Nutrient intake				Anthropometric measurements		
		Name of vegetable/ fruits/ product	Yield (kg/unit area)	Per capita consumption (g/day)	Energy (Kcal)	Protein (g)	Iron (mg)	Calcium (mg)	Increase		
									Wt. (kg)	Ht (cm)	BMI (%)
No use of backyard & terrace nutritional garden (FP)	25	Few vegetable	190.2	85	7.214	2.288	2.69	13.23	1.2	1	1.23
Nutritional kitchen garden (T1)		Round of the year vegetable	1685	300	17.04	6.014	4.55	30.24	4.5	5	3.2



Nutritional kitchen garden /terrace garden for nutritional security

## Farm Machinery

### Resource Conservation Technology

**Problem identified:** Burning of combine harvested rice/wheat stubbles before field preparation affecting crop productivity of subsequent crop due to delay in sowing

**Technology assessed:** Direct sowing of crop in combine harvested rice/wheat field by Happy Seeder

Burning of combine harvested rice/wheat stubbles before field preparation affected productivity of subsequent crop by delay in sowing. Moreover the burning of crop residue degraded the soil in terms of soil organic carbon, loss of soil microbial biomass and in conversion of soil upper layer into hard crust. In addition the continuous use of chemical fertilizers – ignoring the organic

manures – has lead to decreasing of organic carbon in the soil. Under such circumstances the use of Happy Seeder has come as a boon to the farmers. Happy Seeder facilitated the timely sowing of subsequent crop in combine harvested rice/wheat fields without burning the crop residue along with increase in soil organic carbon. KVK Narsinghpur, Damoh, and Ashoknagar conducted 22 OFTs on direct sowing in combine harvested rice/wheat field by happy seeder and happy turbo seeder. The results of the assessment were encouraging. Cost of cultivation reduced due to direct sowing in combine harvested rice/wheat fields. In case of wheat there was an increase in yield from 32.6 to 37.45 q/ha. The B:C ratio was encouraging as the recommended practice showed a BC ratio of 4.35 against 3.16 found under the farmer practice under wheat. Similar was the case of summer green gram. Overall the use of Happy Seeder gave good results.

**Table 2.24:** Performance of chickpea, wheat and summer green gram on sowing through Happy Seeder

Details	No. of trials	Crop	Yield (q/ha)	Net return (Rs/ha)	B:C ratio
Burning of crop residue (Farmers' practice-T <sub>1</sub> )	22	Wheat	32.6	44644	3.16
		Summer green gram	8.34	24700	2.00
		Soybean	15.5	26475	2.27
Direct sowing of subsequent crop by happy seeder in combine harvested field (T <sub>2</sub> )		Wheat	37.45	57708	4.35
		Summer green gram	12.92	45490	2.32
		Soybean	16.5	37190	2.60



Direct sowing of crop in combine harvested rice/wheat field by Happy Seeder

## Farm Machinery

### Resource Conservation Technology

**Problem identified:** Low infiltration and poor surface drainage develops water stagnation thereby affected the initial plant population and crop performance

**Technology assessed:** Raised Bed sowing through bed planter

Low yield of chickpea due to poor plant population, heavy wilt incidence in compact soil and poor nitrogen fixation has been observed in flat bed sowing. Even in the case of pigeon pea and

soybean low infiltration and poor surface drainage due to flat bed sowing develops water stagnation thereby affecting the initial plant population and crop performance. Similar is the case with potato. Under such circumstances it was necessary to cultivate crop on beds as it resulted into better rainwater management. KVK Ashoknagar, Damoh, Khandwa conducted 32 OFTs on raised bed sowing. The results were very encouraging. Yield under raised bed planting increased by 25.12 percent in chickpea. Similar was the case with other crops. Eventually, raised bed sowing was found to be a better approach for rainwater management.

**Table 2.25:** Performance of raised bed sowing through bed planter

Details	No. of trials	Crop	Yield (q/ha)	Net return (Rs/ha)	B:C ratio
Flat bed sowing (Farmers' practice-T <sub>1</sub> )	32	Chickpea	12.5	23510	2.28
		Pigeon pea	6.3	19654	2.16
		Soybean	16	28000	2.3
Raised bed sowing through bed planter (T <sub>2</sub> )		Chickpea	15.64	33051	2.58
		Pigeon pea	11.7	34506	2.51
		Soybean	19.5	37075	2.6



Raised Bed sowing through bed planter

**Problem identified:** Delay in Rabi crop sowing due to non availability of optimum field condition for field preparation after paddy harvest.

**Technology assessed:** Sowing through tractor drawn zero till seed drill

After the harvest of kharif paddy crops the field conditions at times delay the work of field preparation for the next crop. Delayed sowing results in low crop yields. Moreover the field preparation work increases the cost of cultivation. Sowing through tractor drawn Zero till seed drill not only reduces the cost of cultivation but also

facilitates timely sowing. Forty seven OFTs were conducted by KVK Bhatapara, Raisen, Seoni and Umaria on sowing by tractor drawn Zero till seed drill after harvest of kharif paddy crop. Results of mustard, chick pea and wheat sowing show an increase in yield under zero till seed drill over conventional sowing after field preparation. The net return also increased in the case of sowing by tractor drawn Zero till seed drill. Overall the use of Zero till seed drill reduced the cost of cultivation and facilitated in timely sowing and increased yields.

**Table 2.26:** Performance of crop showing by tractor drawn zero tili seed drill

Details	No. of trials	Crop	Yield (q/ha)	Net return (Rs/ha)	B:C ratio
Conventional sowing after field preparation (Farmers' practice-T <sub>1</sub> )	47	Mustard	3.75	21707	2.02
		Chick pea	9.68	28236	2.96
		Wheat	36.5	50540	3.24
Sowing through tractor drawn zero till seed drill (Recommended practice - T <sub>2</sub> )		Mustard	11.9	33041	2.7
		Chick pea	14.8	49420	4.14
		Wheat	41.75	64000	4.28



Sowing of crops through tractor drawn Zero till seed drill

## Animal Nutrition Management

**Problem identified:** Low milk yield due to lack of essential minerals in feed

**Technology assessed:** Assessment of minerals supplementation on milk production in dairy cattle/buffaloes

Mineral mixture is a feed supplement that helps to reduce mineral deficiencies in cattle. It contains micro-minerals and trace minerals, which helps improving growth rate in calves, better utilization of absorbed nutrients, increases milk production in animals, improves reproductive efficiency and

reduces inter-calving period, improves immunity status, increases productive life of animals and prevents metabolic diseases like milk fever, ketosis, haematuria which occur around calving period.

Ten KVKs (09 from MP and 01 from CG) from the zone conducted 71 OFTs on effect of supplementing minerals mixture for increased milk production along with daily feed. With the use of the above preparation the average milk yield and net returns increased by 23.45 percent and 18.49 percent respectively indicating beneficial effect of the mentioned preparation and enhancement in milk production.

**Table 2.27:** Performance of minerals supplementation on milk production in dairy cattle/buffalo

Details	No. of trials	Average milk yield (Lit/day)	Avg. Net Returns (Rs)	B:C ratio
No Feeding mineral mixture along with feed (Farmers' practice-T <sub>1</sub> )	71	5.67	3630.69	1.7
Feeding of mineral mixture along with feed @ 100-200 gm/animal/day (Recommended practice-T <sub>2</sub> )		7.00	4302.15	2.20



Minerals supplementation on milk production in dairy cattle

**Problem identified:** Poor growth in goats due to imbalance concentrate feeding

**Technology assessed:** Assessment of balance concentrate feeding on body growth performance in goats

Goats are mainly kept by the poor farmers in extensive system under ranged condition without any supplementation leading to reduced growth rate and poor reproductive performance. So to overcome this along with grazing these animals should be fed with concentrate in a balanced form.

As concentrate mixture is well balanced in protein and energy which is helpful in gaining body weight and improving other production performance.

Five KVKs from MP from the zone conducted 41 OFT for increasing body weight in growing goats. The above study revealed that balance concentrate feeding in growing goats increases average body weight and net return by 25.40 percent and 32.29% respectively indicating balance concentrate feeding along with mineral mixture supplementation helps in gaining body weight in goats.

**Table 2.28:** Performance of balance concentrate feeding and mineral mixture in goats

Details	No. of trials	Average body weight (Kg)	Avg. Net Returns (Rs)	B:C ratio
Imbalance concentrate feeding without mineral mixture supplementation (Farmers' practice-T <sub>1</sub> )	41	13.74	2053.62	1.96
Balanced Concentrate feeding + Mineral Mixture (Recommended practice-T <sub>2</sub> )		17.23	2716.80	2.21



Feeding concentrate mixture to goats



Concentrate mixture feeding to bucks

**Problem identified:** Low milk yield due to lack of or poor feed additives in milch animals.

**Technology assessed:** Assessment of supplementing feed additives to enhance milk production in lactating dairy animals.

A feed additive is a feed supplements for farm animals that is supplemented in extra other than regular feed that include vitamins, amino acids, fatty acids, and minerals. Feed additives are products used in animal nutrition for purposes of improving the quality of feed and the quality of food from animal origin, or to improve the animals'

performance and health, e.g. providing enhanced digestibility of the feed materials, successful in beneficially modifying rumen fermentation and enhance milk production in milch animals.

Three KVKs from MP from the zone conducted 26 OFT for enhancing milk production. The study revealed that there is an increase in average milk yield and net return by 14.02 percent and 17.60 percent respectively, indicating that the feed additives supplementation improves the efficacy of forage digestion and quantity and quality of milk production.

**Table 2.29:** Performance of feed additives to enhance milk production in milch animals

Details	No. of trials	Average milk yield (Lit/day)	Avg. Net Returns (Rs)	B:C ratio
No feed supplementation (Farmers' practice-T <sub>1</sub> )	26	4.85	2497.55	2.18
Feed with feed additive supplementation (Recommended practice-T <sub>2</sub> )		5.53	2937.33	2.27



Supplementing feed additives to enhance milk production in lactating dairy animals



Probiotic as feed additive distribution to farmers

### Animal Feed/Fodder Management

**Problem identified:** Low milk yield & high cost of milk production in summer season due to unavailability of green fodder

**Technology assessed:** Assessment of green fodder on production performance of lactating dairy animals

The most important nutrient source for ruminants is roughage which is met mainly through fodder. Green fodder is an economic source of nutrients for the dairy animals as this helps in enhancing the rumen microflora thus improving

digestibility which further helps in maintaining good health and increasing quality and quantity of milk.

Eleven KVKs (06 from MP and 05 from CG) from the zone conducted 66 OFT for enhancing milk production especially during summer season when there is unavailability of green fodder. The study revealed that there is an increase in average milk yield and net return by 15.63 percent and 40.40 percent respectively, indicating that the along with normal concentrate feed and dry fodder, green fodder is also essential for improving production of an animal.

**Table 2.30:** Performance of green fodder in milk production of milch animals

Details	No. of trials	Average milk yield (Lit/day)	Avg. Net Returns (Rs)	B:C ratio
Feeding only dry fodder (Farmers' practice-T <sub>1</sub> )	66	5.82	3073.74	2.15
Feeding dry along with green fodder per day (Recommended practice-T <sub>2</sub> )		6.73	4315.55	2.48



Maize Fodder crop at Farmers Field



Berseem cultivation at farmers field

**Problem identified:** Low milk production due to unavailability of green fodder in the diet of milch animal

**Technology assessed:** Assessment of Azolla as feed supplement for sustaining milk production

*Azolla* is a floating fern and belongs to the family of Azollaceae. This plant is with high protein content, essential amino acids, vitamins, growth promoter intermediaries and minerals like calcium, phosphorus, potassium, ferrous, copper, magnesium etc. The carbohydrate and fat content

of *Azolla* is very low. It is very easy to cultivate and ideal feed for cattle and other animals.

Seven KVKs from MP of this zone conducted 49 trials to assess the effect of *Azolla* as green fodder for sustaining milk production when there is unavailability of green fodder during lean period. The result revealed that there is an increase in average milk yield and net return by 12.72 percent and 35.77 percent respectively; indicating that when *Azolla* is supplemented with existent feed regularly at appropriate amount is beneficial in improving production of an animal.

**Table 2.31:** Performance of Azolla as feed supplement on milk production

Details	No. of trials	Average milk yield (Lit/day)	Avg. Net Returns (Rs)	B:C ratio
Feeding only dry Fodder (Farmers' practice-T <sub>1</sub> )	49	4.63	2589.38	2.32
Feeding dry fodder along with Azolla @ 1 to 1.5 kg /animal/ day (Recommended practice-T <sub>2</sub> )		5.22	3502.85	2.58



Assessment of Azolla cultivation and feeding to dairy buffaloes



Azolla cultivation

## Animal Health Management

**Problem identified:** Poor body weight due to heavy parasitic infestation in goats

**Technology assessed:** Assessment of anti-parasitic drugs on control of parasites for better body weight gain

Parasites both ecto and endo are a major cause of disease and production loss in livestock, frequently causing significant economic loss and have impact on animal welfare. To combat this problem, planned preventative programs

are necessary to minimize the risks of parasitic disease outbreaks and sub-clinical losses of animal production by affecting productivity such as weight loss, reduced milk production, reproductive inefficiency etc.

Three KVKs (01 from MP and 02 from CG) from the zone conducted 46 trial for assessing the effect of anti-parasitic drugs on control of parasites on growing kids. This resulted in reduction of incidence of parasites along with increase in average body weight and net return by 17.76% and 40.64% respectively.

**Table 2.32:** Performance of dewormer on Body weight & health management

Details	No. of trials	Average body weight (Kg)	Avg. Net Returns (Rs)	B:C ratio
No use of anti-parasitic drugs to control ecto-endo parasite (Farmers' practice-T <sub>1</sub> )	46	10.02	2507.70	1.71
Control of Ecto-endo parasites by using correct anti-parasitic drugs routinely (Recommended practice-T <sub>2</sub> )		11.80	3526.90	2.12



Oral administration of drugs for control of endoparasite



Ecto-parasite treatment in Osmanabadi breed

### Backyard Poultry Production

**Problem identified:** Low income due to poor body weight gain and egg production of local breeds of poultry reared in backyard/semi range system

**Technology assessed:** Assessment of improved variety of poultry birds in backyard rearing system

Backyard poultry production is being practiced by the farmers since long time in rural areas but due to rearing of local/indigenous variety of poultry birds with poor production performance leads to low return. However, the backyard poultry

production can be easily boost up with improved varieties of chicken/ducks and can promise a better production of meat and eggs.

Thirteen KVKs (05 from each M.P and 08 C.G) from zone conducted 182 OFT on assessment of improved variety of poultry bird (Kadakhnath, Black Plymouth Rock, Vanaraja, Gramapriya, RIR, Giriraja, Red Cornish, Narmada Nidhi etc.) in backyard free range system with better management results in increase in average body weight by 28.43% and eggs by 33.33% with net return by 96.44 %.

**Table 2.33:** Performance of Improved poultry bird in backyard system

Technology Details	No. of trials	Average body Weight (kg.)	Average egg production/month (nos.)	Avg. Net Returns (Rs)	B:C ratio
Rearing of Local colored bird (poor in egg and meat production) (Farmers' practice-T <sub>1</sub> )	182	1.02	12	1645.79	2.59
Rearing of Improved poultry bird (Kadakhnath, Vanaraja, Gramapriya, Narmada nidhi) with better health and feeding management (Recommended practice-T <sub>2</sub> )		1.31	16	3233.08	3.15



Rearing Kadaknath in backyard system

### Fish Seed Production & Management

**Problem identified:** Poor Survival of fish seed due to lack of feeding material in nursery pond.

**Technology assessed:** Assessment of fish seed (Spawn to Fry), (Fry to Fingerling) production.

Fish Farmer wants to quality seed for better production of fish and production of quality seed is the key factor in fish production growth and survival rate of fry and fingerling depends on management practices of seasonal ponds. And fish

farmer are using traditional feeds i.e. rice bran, oil cakes but there is demand to use floating feed, supplementary feed, manuring and liming which increases survival rate as well as growth of fry and fingerling. KVK, kawardha and Mungeli conducted 18 OFTs to assess of fish seed (Spawn to Fry), (Fry to Fingerling) production. Use of supplementary feeding and application of lime by utilization of oil cake and rice bran (1:1) and 200-250 kg/ha. For result increasing Maximum survival percent change in yield is 52.36 percent in fish pond

**Table 2.34:** Performance of production of fish fry

Details	No. of trials	Survival rate (%)	Cost of cultivation	Net Income (Rs /ha)	B:C ratio
No use of supplementary feeding and lime (Farmers' practice-T <sub>1</sub> )	18	33.8	51,500	103850	2.1
Recommended Stocking IMC fry @ 0.3 million/ha. Feeding with GNOC+Rice brawn 1:1 10-5% of body weight and cow dung @ 5 tonne/ha +200 Urea @ kg/ha. + SSP @ 300 kg/ha.		51.5	62875	159975	2.6



Spawn stocking



Fry Harvesting

## Integrated Fish Cum Duck Culture

**Problem identified:** Low growth of fish and less income.

**Technology assessed:** Assessment of Fish cum duck culture.

Village fish ponds are used for domestic purpose and no input are allowed in fish ponds. So only fish seed as input is being allowed and any other input is taken as a cognizance offence by the villagers hence fish productivity is very low. Integration of fish with duck farming was

introduced as it is socially acceptable duck dropping as manure for the growth of plankton a high protein natural feed for fishes enhancing production of fish and reducing input cost.

KVK, Mungeli, Balaghat, Gariyaband, Datiya conducted 15 OFTs to assess of fish cum duck culture stocking of fingerling @6000 nos/ha., stocking of ducks@250 nos/ha. Production increased by 36.66% due to plankton growth with the help of ducks droppings and oxygen increasing. Farmer also economically benefited from duck meat and eggs along with fish.

**Table 2.35:** Performance of fish cum duck culture

Details	No. of trials	Avg. Yield (q/ha)	Cost of cultivation (Rs)	Net Return (Rs)	B:C ratio
Only fish seed production (Farmers' practice-T <sub>1</sub> )	15	21	90587.5	107415	1.6
Integrated fish cum duck culture (Recommended practice-T <sub>2</sub> )		28.7	82514.7	182568.2	2.1



Healthy Ducklings for distribution



Ducks outside pond

## Fish Nutrition (Supplementary feeding)

**Problem identified:** High production cost in Feed based fish production technology

**Technology assessed:** Assessment of Low Cost Farm made Feed in Carp Polyculture.

Profitable fish culture there is a need of regular supply of sustained and balanced food for fish growth. Supplementary feeds are available locally

such as agriculture by-products i.e. groundnut oil cake, mustered oil cake, rice bran, soybean oil cake etc. KVK Bastar, Jora Raipur and KVK Mungeli conducted 13 OFTs to asses of Low Cost Farm made Feed in Carp Polyculture. Use of locally available low cost feed ingredient to use as supplementary feeding for increasing fish production is beneficial. The average yield increased by 33.71%.

**Table 2.36:** Performance of feed management (Fish Nutrition) on fish yield

Details	No. of trials	Avg. Yield (q/ha)	Cost of cultivation (Rs)	Net Return (Rs)	B:C ratio
Only fish seed production (Farmers' practice-T <sub>1</sub> )	13	22.5	112066.6	147966.6	2.1
Low cost farm made feed in carp polyculture (Recommended practice-T <sub>2</sub> )		30.1	135500	206910.3	2.4



Use of floating feeds



Harvested fish

### Cat Fish Culture

**Problem identified:** Low yield due to slow growth rate of fish.

**Technology assessed:** Assessment of Pangasius (Pangasianodon Hypophthalmus) Fish culture and clarias batrachus.

KVK Dewas conducted OFT to asses of

Pangasius (Pangasianodon Hypophthalmus) Fish culture with supplementary feeding and the result increases fish yield 29.44q/ha.

KVK Gariyaband conducted OFT to Refinement of Air Breathing Fish (Clarias batrachus) culture with supplementary feeding and the result increases fish yield 13.32q/ha.

**Table 2.37:** Performance of Cat Fish Culture

Details	No. of trials	Avg. Yield (q/ha)	Cost of cultivation	Net Income (Rs /ha)	B:C ratio
Catla, Rohu, Mrigala (Farmers' practice-T <sub>1</sub> )	9	20	72775	80415	1.6
Clarias batrachus, Pangasius fish (Recommended practice-T <sub>2</sub> )		21	63500	100170	2.15



Magur seed



Magur harvest

## Aquatic Insect Control in Fish Culture

**Problem identified:** Too much mortality of carp fry during rearing management due to aquatic insects and predatory and weed fishes.

**Technology assessed:** Assessment of pre stocking management of carp fry to see its servility.

Aquatic insect usually found in large number in ponds over the greater part of the year especially during and after rains they injure the spawn and

some of them prey upon spawn hence the insect should be eradicate prior to stocking to ensure maximum survival of the spawn. The spraying of oil-soap emulsion before stocking the fish seed in pond so as to eradicate the insects

KVK Kawardha conducted 04 OFT to assess pre stocking management of carp fry to see its servility uses of oil soap emulsion to control the aquatic insect the result increase fish seed survival 69% in fish pond.

**Table 2.38:** Performance of pre stocking management of carp fry to see its servility.

Details	No. of trials	Survival rate (%)	Cost of cultivation	Net Income (Rs /ha)	B:C ratio
No stocking management of carp fry (Farmers' practice-T <sub>1</sub> )	04	35	39000	31000	1.7
Pre stocking management of carp fry (Recommended practice-T <sub>2</sub> )		69	42000	53000	2.2



Aquatic insects



Oil-soap emulsion



Harvesting fish seed

## Composite Fish Culture

**Problem identified:** No use of nutraceuticals results in low return from ponds, farmer are used for signal species/improper stocking.

**Technology assessed:** Assessment of fish growth promoter in composite fish culture, poly culture, mixed fish culture.

Fish species of different feeding habits are stocked together in the same pond so this system are called composite fish culture, mixed fish culture. It is also known as polyculture. In this culture there are used all water bodies and all

ecological niches are occupied by fishes. Optimum utilization of the ponds productivity maximization of fish yield the object of composite fish culture is achieved by culture of fast growing fish and gets more production.

KVK Balaghat and Bastar conducted of 11 OFTs to assess of performance of fish growth promoter in composite fish culture. Stocked 8000 fingerling, in the 4:3:3 catla, rohu, mrigala and supplementary feeding, maunuring, liming uses of growth promoter in fish ponds the result increase fish Production 23.95 %.

**Table 2.39:** Performance of composite fish culture

Details	No. of trials	Avg. Yield (q/ha)	Cost of cultivation	Net Income (Rs /ha)	B:C ratio
No practices and do not stocked seed proper ratio, no use of supplementary feed (Farmers' practice-T <sub>1</sub> )	11	16.7	78738.3	118778.3	2.5
Stocked 8000 fingerling, in the 4:3:3 Catla, rohu, mrigala and supplementary feeding, maunuring, liming (Recommended practice-T <sub>2</sub> )		20.7	79005	160900.6	3.3

## Prawn Farming

**Problem identified:** Less yield and income due to lack of knowledge regarding the use of prawn with mixed carp culture

**Technology assessed:** Assessment on production of fresh water prawn in mixed carp culture.

KVK Jora Raipur conducted 04 OFT to asses on production of fresh water prawn in mixed carp culture. Uses of prawn in mixed carp for additional income to introduce prawn with carps result increase fish Production 27.8 q/ha.

**Table 2.40:** Performance on production of fresh water prawn in mixed carp culture

Details	No. of trials	Avg. Yield (q/ha)	Cost of cultivation	Net Income (Rs /ha)	B:C ratio
No use of prawn with mixed carp (Farmers' practice-T <sub>1</sub> )	04	21.3	144000	87330	1.6
Fresh water prawn in mixed carp culture (Recommended practice-T <sub>2</sub> )		27.8	179000	185760	2.03



Stocking of Catla and Rohu



Stocking size of prawn



Harvested Fresh Water Prawn

## Fish Breeding

**Problem identified:** No use of Community Tanks.

**Technology assessed:** Refinement of Breeding of Common carp (*Cyprinus carpio*).

KVK Gariyaband conducted 04 OFT on Refinement of Breeding of Common carp (*Cyprinus carpio*). Uses of Community tanks for breeding of common carp farmer get pour fish seed result increase fish Production 48.7 q/ha.

**Table 2.41:** Refinement of Breeding of Common carp (*Cyprinus carpio*).

Details	No. of trials	Avg. Yield (q/ha)	Cost of cultivation	Net Income (Rs /ha)	B:C ratio
No use of Community Tanks (Farmers' practice-T <sub>1</sub> )	04	40.5	5200	18850	4.62
Breeding of common carp in community tanks (Recommended practice-T <sub>2</sub> )		48.7	5870	23350	4.98



Common carp



Hapa & Fish seed

### Production of *Jayanti Rohu*

**Problem identified:** Poor growth recovery due to use of traditional breed

**Technology assessed:** Assessment of improve breed *Jayanti rohu* of fish.

Jayanti rohu is first genetically improved rohu

in India with higher growth efficiency. It is similar to rohu but grown much faster than the normal rohu

KVK Dewas conducted 05 OFT to assess of improve breed *Jayanti rohu* of fish. Uses of improve breed *Jayanti rohu* of fish generate additional income to the fish farmer result increase fish production 32.7q/ha.

**Table 2.42:** Performance of improve breed *Jayanti rohu* of fish.

Details	No. of trials	Avg. Yield (q/ha)	Cost of cultivation	Net Income (Rs /ha)	B:C ratio
Production of traditional breed of fish (Farmers' practice-T <sub>1</sub> )	05	23.6	66538	51462	1.77
Production of improve breed <i>Jayanti rohu</i> of fish (Recommended practice-T <sub>2</sub> )		32.7	75831	87669	2.15

## FRONTLINE DEMONSTRATIONS

Frontline demonstrations (FLD) are conducted to demonstrate the superiority of frontier and location specific proven technologies of agriculture and allied sector among the farming community and extension functionaries for up-scaling in the larger area as well as for generating the production data along with the feedback. During the year 2017-18, 724 FLDs were conducted on oilseeds,

pulses, cereals, vegetables crops, cash crops, agro-forestry, millets, etc covering the total area 6716.87 ha and benefitting 15796 farmers. FLDs were also conducted on important income generating enterprises, covering the total area of 471.10 ha in Zone IX including, 437 units and 2266 beneficiaries (Table -3).

**Table 3:** Summary of FLDs (State-wise) conducted in by KVKs of Zone-IX

State	Categories	No. of FLDs	Area (ha)/ Unit (no.)	Beneficiaries
Chhattisgarh	Crops	163	1977.3	3995
	Enterprises	54	173.10/101	590
Madhya Pradesh	Crops	561	4739.57	11801
	Enterprises	144	298.0/336	1676
<b>Total</b>	<b>Crops</b>	<b>724</b>	<b>6716.87</b>	<b>15796</b>
	<b>Enterprises</b>	<b>198</b>	<b>471.10/437</b>	<b>2266</b>

**Table 3.1:** Summary of FLDs (Crop wise) conducted by KVKs of Zone-IX

Categories	No. of FLDs	Area (ha)	Beneficiaries
Commercial crops	6	24	64
Flower	5	12.75	44
Fodder crops	1	2	10
Fruit	11	19.75	86
Millets	15	67.4	175
Oilseed	163	2178.84	4602
Plantation Crop	3	8	12
Pulses	218	2816.23	6449
Spice	51	133.2	446
Vegetable	77	345.6	1040
Medicinal Plant	2	4	10
Tuber	3	4.8	12
Inter-cropping	2	2.5	15
<b>Total</b>	<b>724</b>	<b>6716.87</b>	<b>15796</b>
<b>Enterprises (ha/Units)</b>			
Agril. Engg.	48	215.0	470

Categories	No. of FLDs	Area (ha)	Beneficiaries
Animal Science (ha/unit)	61	187.6/437	830
Fisheries	17	45.2	130
Women Empowerment	72	23.3	836
<b>Total</b>	<b>198</b>	<b>471.10/437</b>	<b>2266</b>
<b>Grand Total</b>	<b>922</b>	<b>7187.97/437</b>	<b>18062</b>

**Table 3.2:** Summary of FLDs conducted in different areas by KVKs of Madhya Pradesh

Categories	No. of FLDs	Area (ha)	Beneficiaries
Cereal	117	476.8	1350
Commercial crops	4	14	40
Flower	5	12.75	44
Fodder crops	1	2	10
Fruit	9	13.75	67
Millets	12	52.4	153
Oilseed	135	1707.94	3868
Plantation Crop	3	8	12
Pulses	171	2149.13	5170
Spice	43	104.2	399
Vegetable	58	194.1	673
Medicinal Plant	2	4	10
Inter-cropping	1	0.5	5
<b>Total</b>	<b>561</b>	<b>4739.57</b>	<b>11801</b>
<b>Enterprises (ha/Units)</b>			
Agril. Engg.	35	135.0	311
Animal Science (ha/unit)	43	135.0/336	664
Fisheries	6	4.70	34
Women Empowerment	60	23.30	667
<b>Total</b>	<b>144</b>	<b>298.0/336</b>	<b>1676</b>
<b>Grand Total</b>	<b>705</b>	<b>5037.57/336</b>	<b>13477</b>

**Table 3.3:** Summary of FLDs conducted by KVKs of Chhattisgarh

Categories	No. of FLDs	Area (ha)	Beneficiaries
Cereal	50	621	1481
Commercial crops	2	10	24
Fruit	2	6	19
Millets	3	15	22
Oilseed	28	470.9	734
Pulses	47	667.1	1279

Categories	No. of FLDs	Area (ha)	Beneficiaries
Spice	8	29	47
Vegetable	19	151.5	367
Tuber	3	4.8	12
Inter-cropping	1	2	10
<b>Total</b>	<b>163</b>	<b>1977.3</b>	<b>3995</b>
<b>Enterprises (ha/Units)</b>			
Agril. Engg.	13	80.0	159
Animal Science (ha/unit)	18	52.6/101	166
Fisheries	11	40.5	96
Women Empowerment	12	-	169
<b>Total</b>	<b>54</b>	<b>173.10/101</b>	<b>590</b>
<b>Grand Total</b>	<b>217</b>	<b>2150.40/101</b>	<b>4585</b>

**Table 3.4:** Summary of FLDs under Integrated Crop Management

Crops	No. of FLDs	Area (ha)	No. of farmers	Yield (q/ha)		Net Return (Rs/ha)	
				FP (T <sub>1</sub> )	RP (T <sub>2</sub> )	FP (T <sub>1</sub> )	RP (T <sub>2</sub> )
<b>Cereal</b>							
Maize	4	32	80	30.11	34.90	21368	31219
Paddy	12	48	140	36.67	39.10	33755	39970
Sweet corn	1	2	10	39.93	45.25	71519	84914
Wheat	17	112	366	34.59	42.14	35791	47676
<b>Flower</b>							
Marigold	1	1	10	84.38	111.82	78760	128640
<b>Fruit</b>							
Banana	1	2	5	720.00	735.00	545000	557000
Mandarin	1	1	10	197.50	235.80	197210	237610
Papaya	1	2	12	213.00	319.00	1078000	1664000
<b>Millets</b>							
Barley	2	15.2	40	36.44	43.60	30438	40944
Finger millet	1	5	12	10.00	16.00	11200	27500
Kodo	1	2	5	6.30	9.40	18612	26719
Kutki	1	2	5	5.30	8.70	3700	7275
Pearl millet	2	12	35	21.77	28.38	26577	25575
<b>Oilseed</b>							
Groundnut	1	30	75	11.26	16.09	30578	51350
Linseed	10	254.5	492	5.70	9.04	10836	21471
Mustard	17	385.8	759	11.71	15.28	27916	39508
Niger	3	90	171	3.55	4.59	8653	11804
Sesame	3	31.2	83	5.28	6.81	15857	27083
Soybean	24	484	1078	10.23	14.21	12945	23294

<b>Pulses</b>							
Black gram	18	281.5	680	6.43	9.36	16639	30184
Chickpea	27	523	1132	13.26	16.87	37224	52325
Gram	2	22	55	16.25	19.38	52623	66359
Green gram	6	140.5	404	7.00	10.93	23106	42191
Horse gram	2	40	74	4.92	6.35	15175	21425
Lentil	7	150	278	10.73	15.02	27844	43803
Pigeon pea	18	389	801	9.41	13.72	31056	50307
<b>Spice</b>							
Chilli	6	9.5	47	69.60	91.95	136035	212433
Garlic	1	1	10	105.50	130.80	221300	277710
<b>Vegetable</b>							
Field pea	4	82	210	25.08	31.45	54542	71155
Okra	2	3	20	86.47	118.46	48218	80345
Onion	3	5	27	136.37	172.71	70346	92885
Tomato	3	16	29	268.66	343.84	570456	144599
<b>Grand Total</b>	<b>202</b>	<b>3174.2</b>	<b>7155</b>				

\*FP-Farmer practices, \*\* RP-Recommended practice

**Table 3.5:** Summary of FLDs on Integrated Disease Management

Crops	No of FLDs	Area (ha)	No. of farmers	Yield (q/ha)		Net Return (Rs/ha)	
				FP (T <sub>1</sub> )	RP (T <sub>2</sub> )	FP (T <sub>1</sub> )	RP (T <sub>2</sub> )
<b>Cereal</b>							
Paddy	6	28.80	56	38.98	42.81	32197	37225
<b>Commercial crops</b>							
Sugarcane	1	5.00	12	0.00	0.00	149640	184750
<b>Oilseed</b>							
Linseed	1	10.00	10	5.50	7.80	10250	18550
Soybean	1	2.00	5	15.00	17.50	32150	32150
<b>Pulses</b>							
Black gram	1	2.00	5	3.72	4.68	4844	9336
Chickpea	7	24.00	50	12.18	15.67	30201	42009
Pigeon pea	1	2.00	5	12.20	15.80	40990	58860
<b>Spice</b>							
Chilli	3	4.50	25	59.14	85.03	131285	159446
<b>Vegetable</b>							
Brinjal	2	13.00	22	195.70	260.72	64572	96938
Onion	2	7.60	25	172.16	189.40	213214	237182
Potato	2	3.50	10	150.00	209.11	45286	73620
Tomato	2	3.00	20	269.15	362.32	174690	283397
<b>Grand Total</b>	<b>29</b>	<b>105.40</b>	<b>245</b>				

## Case Study: KVK, Sagar

### Enhancement in production and productivity of Blackgram through integrated Disease management

**Introduction:** Blackgram is grown in 29200 ha area in the Sagar district in the year 2014-15. Heavy infestation of Yellow mosaic disease and poor management are the limiting factor for lower production of Blackgram in the district i.e 278 kg/ha.

Previously farmers of the district used locally available mixed seed of T 9 with 30-40 kg DAP as basal application of, and spray of trizophos on insect/ disease appearance.

**KVK intervention:** KVK Sagar taken intervention through OFTs and FLDs on various aspect of YVM disease management i.e. YVM resistant variety IPU 94-1/ PU 30/ PU 31 in various years and timely weed management by the spray of Imizathypre 10% @750 ml/ha at 15-20 DAS, seed treatment with Imidacloprid

48% @ 3 ml/kg seed and spray of Trizophos/ Imidacloprid 17.8 SL at 25-30 DAS for the management of white fly.

**Output:** By the intervention of improved variety and weed management farmers harvested 718 kg blackgram per ha in comparison to 349 in farmers practice. In the second intervention, seed treatment with Imidacloprid 48% @ 3 ml/kg seed and spray of Trizophos/ Imidacloprid 17.8 SL at 25-30 DAS, farmers recieved 530 kg blackgram per ha and net returns of Rs. 16,578 in comparison to 11980 in their own practice.

**Impact:** Most of the farmers convinced with the technology and now the area of Blackgram increased by 87,000 ha in the district in the year 2017-18.



OFT on blackgram variety (IPU 94-1) with weed management



FLD on blackgram variety (PU 30) with insect management



FLD on integrated disease management in blackgram

**Table 3.6:** Summary of FLDs on Integrated Nutrient Management

Crops	No of FLDs	Area (ha)	No. of farmers	Yield (q/ha)		Net Return (Rs/ha)	
				FP (T <sub>1</sub> )	RP (T <sub>2</sub> )	FP (T <sub>1</sub> )	RP (T <sub>2</sub> )
<b>Cereal</b>							
Maize	8	25.00	65	37.01	42.56	28771	35358
Paddy	8	32.80	72	40.39	44.46	37514	47125
Wheat	13	48.50	131	35.73	41.93	36012	47149
<b>Commercial crops</b>							
Cotton	2	8.00	20	15.37	18.98	44707	59281
<b>Flower</b>							
Chrysanthemum	1	2.50	10	102.80	114.00	166220	189840
Marigold	1	4.00	8	44.03	53.86	102050	133510
<b>Fruit</b>							
Aonla	1	0.25	10	38.50	54.00	18200	25280
<b>Oilseed</b>							
Groundnut	1	4.00	10	7.90	12.20	14055	29300
Mustard	4	16.80	40	10.15	12.82	19675	29431
Soybean	13	70.74	181	12.09	14.97	14963	22897
<b>Pulses</b>							
Black gram	3	13.80	34	7.78	8.10	18593	30796
Chickpea	15	79.80	208	12.89	14.76	32779	43009
Gram	1	2.00	5	11.30	13.90	20550	26000
Green gram	1	5.00	15	12.00	15.50	55300	74500
Lathyrus	1	5.00	12	6.13	9.75	11034	17550
Pigeon pea	4	15.00	40	8.50	12.26	23683	38934
<b>Spices</b>							
Chilli	1	2.00	5	370.00	390.00	211000	224000
Coriander	1	1.00	5	4.50	7.30	23500	44400
Garlic	5	13.00	45	88.95	101.09	232361	294733
Ginger	1	2.00	10	142.00	170.00	216000	264000
<b>Vegetables</b>							
Bitter Gourd	2	6.00	15	180.17	218.75	116750	190825
Bottle gourd	1	1.00	10	243.63	273.40	169371	198534
Cabbage	1	1.00	10	255.94	284.90	286747	216736
Cauliflower	3	6.00	25	300.75	359.65	135698	197295
Cucumber	1	1.00	10	100.50	112.30	83755	98220
Field pea	1	5.00	10	6.80	10.25	20392	31962
Potato	1	2.00	10	165.00	197.50	257680	293200
Tomato	2	6.00	20	453.20	533.80	107384	154364
<b>Grand Total</b>	<b>97</b>	<b>379.19</b>	<b>1036</b>				

**Table 3.7:** Summary of FLDs on Integrated Pest Management

Crops	No of FLDs	Area (ha)	No. of farmers	Yield (q/ha)		Net Return (Rs/ha)	
				FP (T <sub>1</sub> )	RP (T <sub>2</sub> )	FP (T <sub>1</sub> )	RP (T <sub>2</sub> )
<b>Cereal</b>							
Maize	1	5.00	12	41.48	47.68	33572	40752
Paddy	9	30.50	77	31.25	40.40	26666	38943
Wheat	1	2.00	10	34.07	37.08	35242	39053
<b>Commercial crops</b>							
Cotton	2	6.00	20	16.54	20.05	38075	51039
<b>Oilseed</b>							
Mustard	8	25.60	79	10.66	14.35	27920	42364
Niger	1	30.00	45	2.80	5.20	8875	14374
Soybean	16	100.40	232	10.64	12.32	15141	13896
<b>Pulses</b>							
Black gram	1	2.00	10	7.85	9.65	8994	15750
Chickpea	21	101.70	260	12.97	15.65	35242	48192
Cluster bean	1	2.00	5	15.60	20.70	32750	48900
Green gram	1	2.00	5	6.46	11.35	18781	42925
Pigeon pea	3	19.40	39	6.65	7.61	8871	19984
<b>Spice</b>							
Chilli	4	13.60	43	127.33	145.94	140107	161994
Garlic	3	11.60	35	80.42	95.45	73904	113006
<b>Vegetable</b>							
Brinjal	2	3.00	20	216.13	276.80	180151	156594
Onion	2	4.50	10	166.11	238.44	91889	145778
Potato	1	2.00	5	119.00	144.00	83000	106500
Tomato	2	5.00	15	476.30	564.60	170108	210488
<b>Grand Total</b>	<b>79</b>	<b>366.30</b>	<b>922</b>				

**Table 3.8:** Summary of FLDs on Integrated Weed Management

Crops	No. of FLDs	Area (ha)	No. of farmers	Yield (q/ha)		Net Return (Rs/ha)	
				FP (T <sub>1</sub> )	RP (T <sub>2</sub> )	FP (T <sub>1</sub> )	RP (T <sub>2</sub> )
<b>Cereal</b>							
Maize	2	8.0	20	29.75	39.40	21304	32788
Paddy	4	14.0	35	26.83	36.94	19307	38953
Wheat	10	30.8	81	40.35	46.30	74625	91109
<b>Millets</b>							
Pearl millet	1	2.0	10	21.00	26.23	16330	21941
<b>Oilseed</b>							
Soybean	5	19.0	47	10.09	13.50	17015	25324
<b>Pulses</b>							

Crops	No. of FLDs	Area (ha)	No. of farmers	Yield (q/ha)		Net Return (Rs/ha)	
				FP (T <sub>1</sub> )	RP (T <sub>2</sub> )	FP (T <sub>1</sub> )	RP (T <sub>2</sub> )
Black gram	4	14.0	35	7.19	8.86	19222	26938
Chickpea	1	4.0	10	8.28	11.04	17710	28676
Cluster bean	1	2.0	5	15.80	19.44	34250	45290
Pea	1	2.0	10	69.22	86.12	65941	88958
Pigeon pea	1	2.0	5	17.28	20.26	51715	66635
<b>Spice</b>							
Chilli	1	5.0	10	53.30	70.60	50900	82800
Garlic	1	5.0	12	96.18	111.03	293130	343605
<b>Vegetable</b>							
Onion	5	20.2	45	186.78	220.88	156337	189953
<b>Grand Total</b>	<b>37</b>	<b>128.0</b>	<b>325</b>				

Table 3.9: Summary of FLDs on Varietal evaluation

Crops	No. of FLDs	Area (ha)	No. of farmers	Yield (q/ha)		Net Return (Rs/ha)	
				FP (T <sub>1</sub> )	RP (T <sub>2</sub> )	FP (T <sub>1</sub> )	RP (T <sub>2</sub> )
<b>Cereal</b>							
Maize	3	12.00	27	33.99	42.35	28464	38943
Paddy	24	96.80	218	32.74	38.80	22934	32847
Sweet corn	1	1.00	5	43.16	51.22	35628	55040
Wheat	32	136.60	347	33.58	39.91	39927	51606
<b>Flower</b>							
Marigold	2	5.25	16	126.74	173.88	61931	89521
<b>Fruit</b>							
Banana	2	4.00	17	540.53	695.13	340621	443591
Water melon	1	2.00	10	215.75	290.50	92500	131990
<b>Millets</b>							
Barley	2	8.80	26	34.29	41.14	33556	42951
Finger millet	1	5.00	5	8.56	14.34	6514	15265
Kodo	3	11.40	27	5.08	7.92	4833	9111
Kutki	1	4.00	10	5.30	7.20	3780	5630
<b>Oilseed</b>							
Groundnut	2	40.00	82	9.53	14.68	28492	51409
Linseed	5	38.60	90	7.01	18.92	11043	28024
Mustard	16	219.20	499	12.42	29.14	28290	39632
Niger	1	30.00	0	4.20	7.30	16800	38900
Sesame	6	122.00	259	4.03	5.43	14472	21553
Soybean	14	114.00	248	9.86	12.12	13334	19365
<b>Plantation Crop</b>							
Drumstick	1	5.00	5	27.50	55.65	44000	195000

Crops	No. of FLDs	Area (ha)	No. of farmers	Yield (q/ha)		Net Return (Rs/ha)	
				FP (T <sub>1</sub> )	RP (T <sub>2</sub> )	FP (T <sub>1</sub> )	RP (T <sub>2</sub> )
<b>Pulses</b>							
Black gram	9	114.40	291	4.68	6.96	14261	25355
Chickpea	23	304.93	764	11.42	16.63	32526	50366
Gram	1	2.00	5	13.04	15.60	54600	72335
Green gram	2	25.00	47	3.30	5.09	5900	14208
Lathyrus	1	5.00	12	5.38	6.71	4114	5918
Lentil	3	28.60	72	8.09	27.31	16784	35345
Pigeon pea	16	291.60	571	8.62	11.54	26373	37591
<b>Spice</b>							
Ajwain	2	7.60	24	8.71	11.58	43124	59811
Chilli	3	4.80	23	106.29	143.79	77413	139733
Coriander	5	15.00	32	8.33	12.02	32726	55201
Fenugreek	1	5.00	5	8.70	9.80	14800	18200
Garlic	1	2.00	5	90.00	120.00	250000	365000
Ginger	1	5.00	5	160.00	220.00	250000	380000
Kalonji	2	7.60	23	8.92	12.16	48263	71619
Turmeric	1	5.00	5	175.00	230.00	225000	325000
<b>Tuber</b>							
Colocasia	1	4.00	4	126.30	141.90	73108	99204
Elephant footyam	1	0.40	4	180.00	540.00	360000	101000
<b>Vegetable</b>							
Bitter Gourd	2	3.00	29	139.53	142.20	116689	94989
Bottle gourd	1	1.00	10	274.60	452.20	113400	197775
Capsicum	1	2.50	5	112.00	170.00	128000	205000
Cowpea	2	2.00	20	27.00	67.05	30258	50122
Field pea	5	70.70	198	7.16	31.96	7651	15395
Indian Bean	2	6.00	15	84.58	133.90	62375	114258
Onion	7	40.60	81	179.49	250.83	65105	100078
Potato	2	8.00	15	147.50	203.75	101750	151625
Tomato	1	0.60	14	0.00	130.00	25000	60000
<b>Grand Total</b>	<b>213</b>	<b>1817.98</b>	<b>4170</b>				

**Table 3.10:** Summary of FLDs on Inter Cropping

Crops	No. of FLDs	Area (ha)	No. of farmers	Yield (q/ha)		Net Return (Rs/ha)	
				FP (T <sub>1</sub> )	RP (T <sub>2</sub> )	FP (T <sub>1</sub> )	RP (T <sub>2</sub> )
<b>Inter-cropping</b>							
Maize + cowpea	1	2.00	10	43.50	47.50	12450	18800
Okra- Spinich-Onion	1	0.50	5	200.00	300.00	114400	148000
<b>Grand Total</b>	<b>2</b>	<b>2.50</b>	<b>15</b>				

**Table 3.11:** Summary of FLDs on Resource Conservation Technology

Crops	No. of FLDs	Area (ha)	No. of farmers	Yield (q/ha)		Net Return (Rs/ha)	
				FP (T <sub>1</sub> )	RP (T <sub>2</sub> )	FP (T <sub>1</sub> )	RP (T <sub>2</sub> )
<b>Cereal</b>							
Wheat	1	2.0	5	32.70	46.90	25955	51385
<b>Oilseed</b>							
Soybean	4	41.0	53	15.01	19.64	27675	39593
<b>Spice</b>							
Ginger	1	2.0	6	160.60	207.44	517884	679030
<b>Vegetable</b>							
Capsicum	1	2.0	10	415.30	520.75	414490	538075
<b>Grand Total</b>	<b>7</b>	<b>47.0</b>	<b>74</b>				

**Table 3.12:** Summary of FLDs on Integrated Plant Nutrient Management

Crops	No. of FLDs	Area (ha)	No. of farmers	Yield (q/ha)		Net Return (Rs/ha)	
				FP (T <sub>1</sub> )	RP (T <sub>2</sub> )	FP (T <sub>1</sub> )	RP (T <sub>2</sub> )
<b>Cereal</b>							
Paddy	1	2.0	12	23.82	34.62	38112	55392
Wheat	2	7.0	24	37.04	43.66	42316	53115
<b>Oilseed</b>							
Soybean	1	5.0	12	13.30	16.10	11815	20055
<b>Spice</b>							
Garlic	1	1.0	8	85.29	99.91	117037	146694
<b>Grand Total</b>	<b>5</b>	<b>15.0</b>	<b>56</b>				

**Table 3.13:** Summary of FLDs on Plant Protection

Crops	No of FLDs	Area (ha)	No. of farmers	Yield (q/ha)		Net Return (Rs/ha)	
				FP (T <sub>1</sub> )	RP (T <sub>2</sub> )	FP (T <sub>1</sub> )	RP (T <sub>2</sub> )
<b>Fruit</b>							
Water melon	1	2.0	5	350.00	500.00	155000	235000
<b>Oilseed</b>							
Soybean	2	4.0	18	15.30	18.23	25430	33497.5
<b>Pulses</b>							
Chickpea	1	2.0	5	20.00	23.00	67000	78500
<b>Vegetable</b>							
Brinjal	1	2.0	10	168.70	202.50	124430	153950
Okra	1	2.0	10	96.54	116.31	69200	101650
Potato	1	2.0	10	183.80	223.20	98040	127360
<b>Grand Total</b>	<b>7</b>	<b>14.0</b>	<b>58</b>				

**Table 3.14:** Summary of FLDs on Soil Fertility Management

Crops	No of FLDs	Area (ha)	No. of farmers	Yield (q/ha)		Net Return (Rs/ha)	
				FP (T <sub>1</sub> )	RP (T <sub>2</sub> )	FP (T <sub>1</sub> )	RP (T <sub>2</sub> )
<b>Cereal</b>							
Paddy	3	9	18	30.59	37.17	33195.44	38223.33
Wheat	1	2	5	37.38	45.05	62856	78622
<b>Oilseed</b>							
Linseed	1	2	12	9.74	11.13	29220	33390
Mustard	1	2	5	16.35	18.25	42375	47905
Soybean	1	5	12	7.1	9.3	6150	11950
<b>Pulses</b>							
Chickpea	1	2	5	17.43	20.74	49970	61500
Pigeon pea	1	2	12	9.82	12.78	34370	44730
<b>Spice</b>							
Garlic	1	1	10	72.4	84.6	26650	38030
<b>Grand Total</b>	<b>10</b>	<b>25</b>	<b>79</b>				

**Table 3.15:** Summary of FLDs on Crop Diversification

Crops	No. of FLDs	Area (ha)	No. of farmers	Yield (q/ha)		Net Return (Rs/ha)	
				FP (T <sub>1</sub> )	RP (T <sub>2</sub> )	FP (T <sub>1</sub> )	RP (T <sub>2</sub> )
<b>Medicinal Plant</b>							
Chandrasoor	1	2	5	6	7.9	22500	32700
Kalmegh	1	2	5	14	15.6	23000	52000
<b>Oilseed</b>							
Safflower	1	2	5	0	14.75	0	61750
<b>Spice</b>							
Chilli	1	2	19	70.93	83.92	93114	114204
Coriander	1	2	19	54.13	63.24	67667	90442
Kalonji	1	2	5	7.5	9.5	41500	57000
Turmeric	1	2	5	55.7	64.5	199960	237200
<b>Grand Total</b>	<b>7</b>	<b>14.0</b>	<b>63</b>				

## Case Study: KVK, Morena

### Crop Diversification replacement of long duration Pigeon pea by short duration cultivar (ICPL-88039)

#### Background:

District Morena comes under Gird agro-climatic zone and Jowar-Wheat crop zone of Madhya Pradesh. This zone is located in the north of the state between 25°15' N-Latitude and 70°30' to 76°22' E longitude with an altitude ranging from 150 m to 240 m above the mean Sea level. Total geographical area of the district is 5.01 lakh ha and a total cultivable area is 3.32 lakh ha. Out of which net sown area is 2.68 lakh ha. The area under irrigation is only 1.66 lakh ha. The major cereal crops of district are pearl millet and wheat, in pulse major crops are pigeon pea (long duration) and chickpea and oilseed are mustard and sesame.

#### KVK Intervention:

Long duration cultivars of Pigeon pea suffer from frost in North-Western and Central India. The area, production and productivity of long duration Pigeon pea in the district were very low in the year 2010-11 and 2011-12. The KVK introduce short duration pigeon pea ICPL-88039 since 2012-13 in the district. The short duration pigeon pea matured before the probable time of frost in the month of December-January. The area under short duration pigeon pea gradually increases.

#### Output:

The short duration high yielding variety

has permitted raising second crop of wheat and barley in sequence in the winter season on semi-irrigated areas. This variety matured in about 135 to 160 days and escapes the risk of frost that commonly occurs in December and January. Short duration variety of pigeon pea has fitted well in various multiple cropping system under irrigated or semi irrigated condition.

#### Outcome:

In Morena district, short duration pigeon pea area, production & productivity was increase from 3000 to 29000 ha; 2.0 to 71 mt. and 666 to 2450 kg/ha since 2010-11.

#### Impact:

Short duration pigeon pea ICPL-88309 area increase due to maximum net return Rs. 60-70 thousand/ha and soil fertility is improve and Rabi crop timely sowing without yield loss.

#### Future prospectus:

Crop diversification through short duration pigeon pea by KVK Morena in the district by training and demonstrations. Other benefit in this crop- zero losses due to frost and hailstorm. Double cropping Pigeon pea-Wheat cropping system is more beneficial compare by low value crop of Pearl millet-Wheat cropping sequence and also improves of soil fertility.

Area, Production & Productivity of Pigeon Pea in Morena District

Year	Area (000ha)	Production (mt)	Productivity (kg/ha)
2010-11	3.0	2.0	666
2011-12	7.5	5.8	775
2012-13	16.9	32.1	1899
2013-14	20.0	41.9	2095
2014-15	8.0	16.8	2100
2015-16	21.4	48.10	2250
2016-17	29.0	71.0	2450

(Source:- Department of Agriculture M.P. Govt.)


**Table 3.16:** Summary of FLDs on Crop Production

Crops	No. of FLDs	Area (ha)	No. of farmers	Yield (q/ha)		Net Return (Rs/ha)	
				FP (T <sub>1</sub> )	RP (T <sub>2</sub> )	FP (T <sub>1</sub> )	RP (T <sub>2</sub> )
<b>Spice</b>							
Garlic	1	1.0	5	95.60	113.50	200200	243600
<b>Vegetable</b>							
Tomato	1	1.0	10	1.94	8.70	145900	168000
<b>Grand Total</b>	<b>2</b>	<b>2.0</b>	<b>15</b>				

**Table 3.17:** Summary of FLDs on Farm Mechanization

Crops	No. of FLDs	Area (ha)	No. of farmers	Yield (q/ha)		Net Return (Rs/ha)	
				FP (T <sub>1</sub> )	RP (T <sub>2</sub> )	FP (T <sub>1</sub> )	RP (T <sub>2</sub> )
<b>Farm mechanization</b>							
Chickpea	4	20.0	49	10.42	13.79	23938	35945
Garlic	5	27.6	44	55.47	55.98	76437	76475
Mustard	2	10.0	24	9.91	11.64	28457	34351
paddy	5	25.0	62	30.83	35.28	28787	37030
Potato	2	4.0	10	166.00	174.00	61800	86700
Soybean	10	30.2	118	12.55	13.95	17221	23186
Wheat	6	23.2	64	23.52	27.36	39110	47623
<b>Resource Conservation Technology</b>							
Black gram	1	2.5	5	5.60	9.80	15370	35215
Chickpea	3	8.0	22	14.57	18.21	47324	60667
Maize	1	2.0	5	44.50	54.50	30775	47075
paddy	2	7.5	10	35.93	40.17	20312	30714
Soybean	4	24.0	34	13.88	16.38	21413	28378
Wheat	2	11.0	11	9.00	14.68	10745	14956
<b>Small Farm Implements</b>							
Paddy	1	20.0	12	39.70	40.20	30819	32190
<b>Grand Total</b>	<b>48</b>	<b>215.0</b>	<b>470</b>				

## Success Story: KVK, Damoh

### Modification of small tractor with cultivator for weeding purpose

#### Introduction

Name: Mahendra Pandey  
 Address: Village - Hrideypur block - Damoh Dist. – Damoh,  
 Mobile No.: 9425456154, Adhar No.: 45944707413,  
 Age : 46 years, Size of land holding (acres): 4.0

KVK intervention: Motivational approach provided by KVK scientist regarding mechanization of weeding operation. Increase wheel axel length and using small narrow wheel tyre. Small changes in existing cultivator according to row to row space. Involvement of expenditure on this modification are total cost only Rs 23000. (Modification in tractor

wheel axel Rs 11000 + modification in existing cultivator parts Rs 12000)

#### Output

1. Easy & efficient of weeding operation in black gram & others pulse crops including horticulture crops
2. Labour saving compare to hand weeding

#### Outcome

Practice used	Total cost of Cultivation (Rs/ha)	Gross Income (Rs/ha)	Net Income (Rs/ha)	B:C ratio	% Increase in Yield
Farmers practice - Hand weeding	4500 (Manual)	8.0/ha (24000)	9000.00	1.60	-
Technology Intervention -modification of small tractor with cultivator for weeding purpose	250 (Mechanical)	12.5/ha (37500 Rs.)	26900.00	3.53	56.25

#### Impact

S. No.	Work	Farmers practices	Recommended practices
1	Labour saving	18 labour / ha hand weeding total cost hand weeding 4500	2.5 hour /ha by small modified tractor cultivator using for hand weeding = total cost Rs 250
2	Time saving	18 labour work One day / ha	2.5 hour /ha
3	Cost saving	hand weeding 4500	total cost Rs 250 /ha



**Table 3.18:** Summary of FLDs on Livestock and Poultry Production

Thematic area	No. of FLDs	Area (ha) / No. of animals or birds	No. of farmers	Result (q/ha)		Net Return (Rs)	
				FP (T1)	RP(T2)	FP (T1)	RP(T2)
<b>Cattle/Buffalo (Average milk yield-Lit./day)</b>							
Animal Disease Management	10	111	111	51.84	55.03	2346	3178
Animal Feed / Fodder Management (ha)	14	116.6	347	54.59	65.10	11193	12492
Animal Nutrition Management	16	159	169	7.34	6.94	3659	4710
<b>Goat &amp; Sheep (Average body weight in kg)</b>							
Animal Breed Evaluation	1	4	4	10.617	16.17	1030	2224
Animal Disease Management	3	24	24	18.83	22.81	1014	1580
Animal Feed / Fodder Management (ha)	6	71.0	61	25.06	34.91	1362	2197
Nutrition Management	1	30	5	16.2	11.5	1268	1036
<b>Poultry (Average body weight in kg)</b>							
Disease management	2	22	22	1.57	1.87	2720	4728
Feed management	4	41	41	0.51	0.60	51	98
Poultry Production and management	4	46	46	1.20	1.49	590	1038
<b>Grand Total</b>	<b>61</b>	<b>624.6</b>	<b>830</b>				

**Table 3.19:** Summary of FLDs on Fisheries

Thematic area	No. of KVKs	Area (ha)	No. of farmers	Results		Net Return (Rs)	
				FP(T <sub>1</sub> )	RP(T <sub>2</sub> )	FP(T <sub>1</sub> )	FP(T <sub>2</sub> )
Composite Fish Farming	3	8.4	22	17.33	36.25	80736	221683
Fingerling Production in Seasonal Ponds	2	4.5	14	20.09	58.52	21222	110833
Fish Nutrition	3	2.3	14	16.85	19.55	74267	149771
Fish Production & Management	5	23	43	16.16	27.50	94396	204584
Fish seed producing	1	4	10	46.50	71.80	48430	96560
Fish-cum-Duck Farming	2	5	14	3.60	4.40	17000	28000
Integrated Fish Farming	2	2	17	20.80	33.23	155080	730049
<b>Grand Total</b>	<b>18</b>	<b>49.2</b>	<b>134</b>				

**Table 3.20:** Summary of FLDs on Women Empowerment

Thematic Area	No. of FLD's	No. of Beneficiaries	Output m <sup>2</sup> /h	% reduction in drudgery	% increase in efficiency
<b>Drudgery Reduction</b>					
Cono weeder	1	10	120.63	31.55	41.04
Groundnut decorticator	2	16	26.36	86.05	89.77
Maize Sheller (kg/h)	1	8	25.34	17.4	49.01
Potato peeler and slicer (kg/h)	1	12	67	58.75	77.5
Spiral Seed grader	5	56	172.67	29.94	86.26
Trolley	1	12	174.83	49.83	50.17
Twin wheel hoe	1	10	140.23	31.46	69.38
Serrated Sickle	1	8	725.3	54.64	44.82
Bhindi Plucker (kg/h)	1	20	9.68	16.44	79.34
Bud chipper	1	5	190	9.75	53.33
<b>Total</b>	<b>15</b>	<b>157</b>			
<b>Value Addition</b>	<b>No. of FLD's</b>	<b>No. of Beneficiaries</b>	<b>Cost of input</b>	<b>Incremental income</b>	<b>Net Return</b>
Food Processing	5	52	3286.58	4354	1067
Fruit and vegetable preservation	5	87	2093	3915	1822
<b>Total</b>	<b>10</b>	<b>139</b>			
<b>Income Generation</b>	<b>No. of FLD's</b>	<b>No. of Beneficiaries</b>	<b>Cost of input</b>	<b>Incremental income</b>	<b>Net Return</b>
Agro processing	6	75	16335.6	73647	57311
Backyard poultry farming	1	10	4000	11040	7040
Flower production	2	20	23825	154128	130303
Goat rearing	1	10	370	1299	929
Mushroom production	4	42	3940	9931	5991
Nursery Management	5	47	15815.4	47617	31801
processing and value addition of Lac	1	10	10500	34000	23500
Vermi compost production.	3	22	3633.33	13733	10100
<b>Total</b>	<b>23</b>	<b>236</b>			
<b>Nutritional Security</b>	<b>No. of FLD's</b>	<b>No. of Beneficiaries</b>	<b>Per capita Consumption gm/ day</b>	<b>Energy (kcal)</b>	<b>Protein (gm)</b>
Nutritional Garden	21	254	432.78	1116.08	66.79
Nutritional Security through Value Addition	3	50	100	832.77	21.01
<b>Total</b>	<b>24</b>	<b>304</b>			
<b>Grand Total</b>	<b>72</b>	<b>836</b>			

**Table 3.21:** Summary of FLDs on Other Enterprises

Category	No. of KVKs	No. of Farmer	Yield		% change in yield	Economics of demonstration (Rs/ha)			
			Demo	Check		Gross Cost	Gross Return	Net Return	BCR
Oyster mushroom (kg/bag)	8	299	3.15	2.45	28.57	116	378	262	3.25
Paddy Straw Mushroom (kg/unit)	2	22	16.15	24.3	50.46	2000	6083	4083	3.04
Lac cultivation (q/ha)	3	32	165.77	58.7	430.8	117990	200963	82973	5.79
<b>Total</b>	<b>13</b>	<b>353</b>							

# TRAINING AND CAPACITY BUILDING

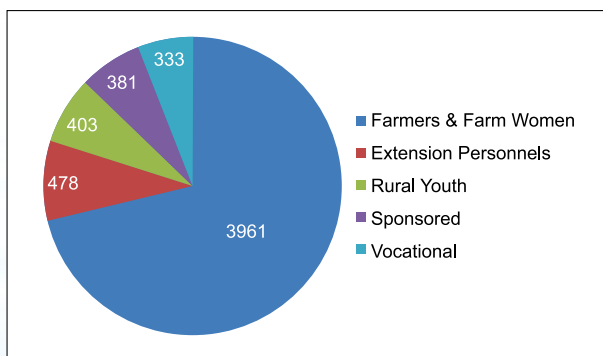
Training has been considered a key component for updating the knowledge and imparting the new skill to the participants. There was great emphasis on organizing training both for the farmers as well as for the trainers. During the year 2017-18,

5556 courses benefitting to 1,58,726 participants (including farmers and farm women, rural youth, extension personnel and sponsored from different agencies) were organised (Table 4.1).

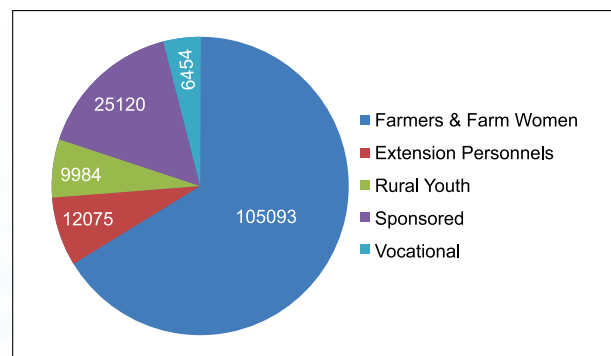
## A. Training organized by KVK

**Table 4.1:** State wise, category wise training programmes conducted by KVKs in Zone IX during 2017-18

Training	No. of courses			No. of participants		
	CG	MP	Total	CG	MP	Total
Farmers & Farm Women	1258	2703	<b>3961</b>	34677	70416	<b>105093</b>
Extension Personnels	101	377	<b>478</b>	2838	9237	<b>12075</b>
Rural Youth	172	231	<b>403</b>	5543	4441	<b>9984</b>
Sponsored	72	309	<b>381</b>	3634	21486	<b>25120</b>
Vocational	77	256	<b>333</b>	1319	5135	<b>6454</b>
<b>Total</b>	<b>1680</b>	<b>3876</b>	<b>5556</b>	<b>48011</b>	<b>110715</b>	<b>158726</b>



**Figure-5:** No. of courses



**Figure-6:** No. of participants

**Table 4.2: Training for Farmers and Farm women in Zone IX during 2016-17**

Thematic area	No of Courses	Duration (Days)	General			Other			SC			ST			Grand Total		
			M	F	Total	M	F	Total	M	F	Total	M	F	Total	M	F	Total
<b>Agril. Engineering</b>																	
Farm machinery & its maintenance	64	66	155	58	213	543	122	665	178	50	228	579	101	680	1455	331	1786
Installation and maintenance of micro irrigation systems	42	43	108	26	134	396	79	475	183	51	234	194	59	253	881	215	1096
Others	9	10	53	1	54	66	14	80	32	2	34	38	23	61	189	40	229
Post harvest technology	19	21	74	29	103	130	56	186	75	12	87	47	8	55	326	105	431
Production of small tools and implements	23	26	90	9	99	236	14	250	29	7	36	75	17	92	430	47	477
Repair and maintenance of farm machinery and implements	16	17	59	2	61	161	2	163	23	3	26	113	33	146	356	40	396
Use of Plastics in farming practices	2	2	9	2	11	4	3	7	18	0	18	11	4	15	42	9	51
<b>Agro forestry</b>																	
Integrated farming systems	5	5	31	2	33	63	7	70	19	7	26	21	8	29	134	24	158
Nursery management	49	37	393	84	477	306	26	332	109	22	131	229	27	256	1037	159	1196
Production technologies	18	18	181	5	186	238	46	284	83	24	107	41	18	59	543	93	636
Others	8	9	59	10	69	91	3	94	20	25	45	30	2	32	200	40	240
<b>Capacity Building and Group Dynamics</b>																	
Entrepreneurial development of farmers/youths	34	40	176	30	206	319	184	503	64	98	162	96	101	197	655	413	1068
Formation and management of SHGs	41	48	138	14	152	365	104	469	117	94	211	92	158	250	712	370	1082
Group dynamics	48	56	222	55	277	412	110	522	108	127	235	204	102	306	946	394	1340
Leadership development	35	42	228	20	248	329	99	428	116	45	161	200	71	271	873	235	1108
Mobilization of social capital	53	56	195	39	234	532	242	774	116	92	208	130	28	158	973	401	1374
WTO and IPR issues	14	16	65	15	80	194	6	200	17	10	27	108	44	152	384	75	459
Others	41	56	204	38	242	613	192	805	157	63	220	370	149	519	1344	442	1786
<b>Crop Production</b>																	
Crop diversification	37	39	157	17	174	325	130	455	66	40	106	220	75	295	768	262	1030
Cropping system	70	70	279	24	303	491	91	582	180	56	236	594	179	773	1544	350	1894
Installation and maintenance of micro irrigation systems	4	4	4	0	4	57	0	57	3	0	3	34	0	34	98	0	98
Integrated crop management	276	265	1087	70	1157	2239	186	2425	637	65	702	2193	456	2649	6156	777	6933
Integrated farming	36	37	94	30	124	230	78	308	57	20	77	309	181	490	690	309	999
Integrated nutrient management	201	185	878	61	939	1884	317	2201	740	134	874	1185	217	1402	4687	729	5416
Micro irrigation/irrigation	14	12	22	2	24	108	35	143	47	10	57	65	34	99	242	81	323
Nursery management	6	4	8	0	8	69	6	75	8	3	11	29	6	35	114	15	129
Production of organic input	71	68	293	46	339	766	57	823	144	18	162	493	38	531	1696	159	1855

Thematic area	No of Courses	Duration (Days)	General			Other			SC			ST			Grand Total		
			M	F	Total	M	F	Total	M	F	Total	M	F	Total	M	F	Total
Resource conservation	36	30	130	11	141	297	36	333	87	15	102	227	37	264	741	99	840
Seed production	88	80	387	30	417	700	177	877	195	60	255	568	115	683	1850	382	2232
Soil and water conservation	35	37	207	8	215	281	34	315	105	9	114	300	38	338	893	89	982
Weed management	122	123	521	53	574	1022	159	1181	341	49	390	909	235	1144	2793	496	3289
Others	65	72	282	59	341	579	93	672	252	30	282	336	75	411	1449	257	1706
<b>Fisheries</b>																	
Breeding and culture of ornamental fishes	1	1	7	2	9	8	2	10	2	2	4	2	0	2	19	6	25
Carp breeding and hatchery management	6	5	18	2	20	48	3	51	14	6	20	41	5	46	121	16	137
Carp fry and fingerling rearing	6	6	9	3	12	65	11	76	20	8	28	52	6	58	146	28	174
Composite fish culture	13	13	18	7	25	105	39	144	43	16	59	142	13	155	308	75	383
Fish processing and value addition	4	4	4	0	4	62	5	67	7	7	14	88	0	88	161	12	173
Hatchery management and culture of freshwater prawn	11	11	17	8	25	93	11	104	20	3	23	57	9	66	187	31	218
Integrated fish farming	15	14	31	3	34	153	20	173	34	16	50	77	26	103	295	65	360
Pearl culture	1	1	1	0	1	7	0	7	4	0	4	7	2	9	19	2	21
Pen culture of fish and prawn	3	3	5	0	5	24	3	27	8	2	10	52	1	53	89	6	95
Portable plastic carp hatchery	2	2	11	0	11	15	5	20	4	3	7	5	2	7	35	10	45
Others	12	10	103	6	109	84	6	90	18	4	22	13	4	17	218	20	238
<b>Home science /Women empowerment</b>																	
Design and development of low/minimum cost diet	33	42	33	88	121	29	369	398	36	145	181	42	109	151	140	711	851
Designing and development for high nutrient efficiency diet	2	4	0	1	1	0	27	27	0	6	6	4	15	19	4	49	53
Gender mainstreaming through SHGs	6	8	4	15	19	13	52	65	11	34	45	17	24	41	45	125	170
Household food security by kitchen gardening and nutrition gardening	74	83	97	212	309	150	529	679	63	373	436	218	366	584	528	1480	2008
Location specific drudgery reduction technologies	32	37	45	71	116	45	310	355	25	132	157	83	132	215	198	645	843
Minimization of nutrient loss in processing	14	18	27	52	79	34	136	170	8	46	54	14	27	41	83	261	344
Processing & cooking	10	42	20	44	64	13	88	101	11	50	61	21	50	71	65	232	297
Rural crafts	4	4	7	10	17	21	14	35	2	9	11	0	3	3	30	36	66
Storage loss minimization techniques	20	25	14	46	60	111	110	221	23	75	98	19	84	103	167	315	482
Value addition	101	127	68	218	286	251	805	1056	173	301	474	170	555	725	662	1879	2541
Women and child care	44	47	23	148	171	74	379	453	24	200	224	66	224	290	187	951	1138
Women empowerment	81	95	170	130	300	378	373	751	152	250	402	284	681	965	984	1434	2418
Others	3	5	0	9	9	9	29	38	6	3	9	3	1	4	18	42	60

Thematic area	No of Courses	Duration (Days)	General			Other			SC			ST			Grand Total		
			M	F	Total	M	F	Total	M	F	Total	M	F	Total	M	F	Total
<b>Horticulture Fruit</b>																	
Cultivation of fruit	23	20	104	48	152	141	90	231	60	61	121	186	70	256	491	269	760
Export potential fruits	7	5	21	10	31	59	18	77	9	3	12	73	46	119	162	77	239
Layout and management of Orchards	14	17	83	6	89	151	35	186	48	17	65	50	47	97	332	105	437
Management of young plants/orchards	13	15	52	9	61	114	3	117	33	18	51	94	18	112	293	48	341
Micro irrigation systems of orchards	20	20	103	49	152	143	28	171	43	19	62	95	40	135	384	136	520
Plant propagation techniques	23	20	117	27	144	138	46	184	34	14	48	129	15	144	418	102	520
Rejuvenation of old orchards	10	13	29	4	33	72	38	110	33	2	35	62	1	63	196	45	241
Training and Pruning	13	10	25	0	25	114	23	137	33	6	39	35	21	56	207	50	257
Others	28	24	122	17	139	285	53	338	75	32	107	207	51	258	689	153	842
<b>Horticulture Medicinal and Aromatic plants</b>																	
Nursery management	2	2	9	9	18	11	8	19	3	2	5	4	1	5	27	20	47
Production and management technology	13	15	66	5	71	133	11	144	26	16	42	34	11	45	259	43	302
Export potential of ornamental plants	4	4	6	0	6	44	4	48	2	0	2	52	3	55	104	7	111
Nursery management	3	3	14	0	14	7	6	13	7	1	8	8	14	22	36	21	57
Others	4	2	80	17	97	0	0	0	0	0	0	0	0	0	80	17	97
Propagation techniques of Ornamental Plants	3	3	13	4	17	26	2	28	24	1	25	10	1	11	73	8	81
<b>Horticulture Plantation crop</b>																	
Processing and value addition	1	1	5	0	5	7	0	7	5	0	5	8	0	8	25	0	25
Production and management technology	12	12	105	18	123	120	34	154	31	33	64	16	6	22	272	91	363
Others	1	1	5	4	9	2	4	6	2	4	6	6	1	7	15	13	28
<b>Horticulture Spice</b>																	
Processing and value addition	10	10	58	5	63	132	43	175	34	2	36	105	32	137	329	82	411
Production and management technology	50	60	184	16	200	492	119	611	144	25	169	343	62	405	1163	222	1385
Others	2	3	32	0	32	12	0	12	4	0	4	2	0	2	50	0	50
<b>Horticulture Tuber Crop</b>																	
Processing and value addition	1	1	14	2	16	3	1	4	10	0	10	0	0	0	27	3	30
Production and management technology	35	28	181	32	213	379	20	399	102	14	116	96	21	117	758	87	845
Others	1	1	20	7	27	0	0	0	0	0	0	0	0	0	20	7	27
<b>Horticulture Vegetable</b>																	
Exotic vegetables	7	7	82	8	90	75	0	75	13	6	19	5	0	5	175	14	189
Export potential of ornamental plants	1	2	1	0	1	17	0	17	0	0	0	1	0	1	19	0	19
Grading and standardization	1	1	0	0	0	42	0	42	0	0	0	0	0	0	42	0	42

Thematic area	No of Courses	Duration (Days)	General			Other			SC			ST			Grand Total		
			M	F	Total	M	F	Total	M	F	Total	M	F	Total	M	F	Total
Nursery raising	39	44	178	49	227	367	71	438	84	38	122	171	46	217	800	204	1004
Off season vegetables	34	34	115	14	129	328	63	391	66	32	98	201	81	282	710	190	900
Production of low volume and high value crops	20	16	80	14	94	196	34	230	68	11	79	91	23	114	435	82	517
Protective cultivation	33	35	119	67	186	267	41	308	92	44	136	300	50	350	778	202	980
Others	176	175	696	154	850	1674	525	2199	449	197	646	911	300	1211	3730	1176	4906
<b>Livestock Production and Management</b>																	
Animal nutrition management	6	7	26	0	26	74	0	74	15	0	15	45	0	45	160	0	160
Dairy management	101	114	453	111	564	716	150	866	195	68	263	544	185	729	1908	514	2422
Disease management	46	54	166	29	195	489	28	517	75	22	97	170	50	220	900	129	1029
Feed & fodder technologies	82	97	312	30	342	639	90	729	189	41	230	481	143	624	1621	304	1925
Poultry management	34	21	43	38	81	164	74	238	91	44	135	491	95	586	789	251	1040
Production of quality animal products	5	7	7	3	10	29	2	31	11	4	15	69	12	81	116	21	137
Rabbit management	1	1	22	0	22	1	0	1	3	0	3	0	0	0	26	0	26
Others	3	3	1	0	1	35	0	35	0	0	0	35	12	47	71	12	83
<b>Plant Protection</b>																	
Bio control of pests and diseases	17	21	222	12	234	112	101	213	24	19	43	55	131	186	413	263	676
Integrated disease management	169	166	612	87	699	1594	196	1790	300	116	416	919	298	1217	3425	697	4122
Integrated pest management	277	255	1134	150	1284	2664	439	3103	688	192	880	1489	382	1871	5975	1163	7138
Production of bio control agents and bio pesticides	3	3	4	2	6	31	7	38	11	2	13	12	3	15	58	14	72
Others	25	24	83	4	87	209	26	235	78	4	82	137	43	180	507	77	584
<b>Production of Input at site</b>																	
Bio agents production	10	8	21	3	24	106	7	113	30	2	32	105	20	125	262	32	294
Bio fertilizer production	27	17	20	4	24	93	26	119	30	11	41	247	40	287	390	81	471
Bio pesticides production	5	9	48	0	48	55	8	63	9	2	11	12	1	13	124	11	135
Mushroom production	36	35	72	40	112	221	320	541	33	48	81	146	330	476	472	738	1210
Planting material production	2	2	7	5	12	32	10	42	8	4	12	8	3	11	55	22	77
Production of Fish feed	1	1	4	0	4	9	6	15	3	0	3	3	0	3	19	6	25
Seed production	46	55	222	24	246	446	47	493	83	11	94	297	69	366	1048	151	1199
Small tools and implements	1	1	0	0	0	24	0	24	5	0	5	0	0	0	29	0	29
Vermicompost production	42	40	191	43	234	358	32	390	102	18	120	316	70	386	967	163	1130
WTO and IPR issues	1	1	3	0	3	5	0	5	3	0	3	6	0	6	17	0	17
Organic manures production	17	21	84	14	98	177	42	219	68	20	88	40	10	50	369	86	455
Others	17	20	64	2	66	179	29	208	33	0	33	118	5	123	394	36	430

Thematic area	No of Courses	Duration (Days)	General			Other			SC			ST			Grand Total		
			M	F	Total	M	F	Total	M	F	Total	M	F	Total	M	F	Total
<b>Soil Health and Fertility Management</b>																	
Balance use of fertilizer	2	2	2	0	2	3	0	3	1	0	1	43	3	46	49	3	52
Integrated nutrient management	61	70	165	12	177	592	95	687	159	42	201	413	102	515	1329	251	1580
Micro nutrient deficiency in crops	2	2	13	4	17	6	2	8	1	0	1	10	6	16	30	12	42
Nutrient use efficiency	2	2	2	1	3	7	1	8	1	1	2	19	9	28	29	12	41
Production and use of organic inputs	32	33	80	27	107	212	56	268	128	95	223	212	44	256	632	222	854
Soil and water testing	91	93	384	43	427	763	135	898	267	55	322	584	106	690	1998	339	2337
Soil fertility management	103	88	278	42	320	811	132	943	266	61	327	961	191	1152	2316	426	2742
Others	10	11	34	0	34	75	2	77	18	2	20	73	3	76	200	7	207
<b>Grand Total</b>	<b>3961</b>	<b>4089</b>	<b>15019</b>	<b>3250</b>	<b>18269</b>	<b>32320</b>	<b>9417</b>	<b>41737</b>	<b>9496</b>	<b>4414</b>	<b>13910</b>	<b>22872</b>	<b>8305</b>	<b>31177</b>	<b>79707</b>	<b>25386</b>	<b>105093</b>

**Table 4.3: Training for Extension Personnel in Zone IX during 2017-18**

Area of Training	No of Courses	Durations (Days)	General			Other			SC			ST			Grand Total		
			M	F	Total	M	F	Total	M	F	Total	M	F	Total	M	F	Total
Capacity building for ICT application	20	22	190	21	211	203	39	242	82	31	113	53	15	68	528	106	634
Care and maintenance of farm machinery and implements	7	9	21	3	24	81	15	96	31	3	34	22	5	27	155	26	181
Formation and management of SHGs	4	5	41	5	46	25	5	30	20	1	21	5	0	5	91	11	102
Gender mainstreaming through SHGs	10	8	83	10	93	41	13	54	19	13	32	65	12	77	208	48	256
Group dynamics and farmers organization	1	1	4	0	4	7	4	11	2	1	3	3	2	5	16	7	23
Household food security	50	67	331	352	683	75	501	576	37	194	231	18	236	254	461	1283	1744
Information networking among farmers	16	25	115	40	155	135	38	173	67	19	86	8	7	15	325	104	429
Integrated nutrient management	41	46	177	38	215	326	79	405	91	31	122	113	41	154	707	189	896
Integrated pest management	80	82	456	70	526	612	106	718	274	70	344	226	96	322	1568	342	1910
Livestock feed and fodder production	18	23	83	21	104	81	12	93	36	12	48	116	24	140	316	69	385
Low cost and nutrient efficient diet designing	17	20	54	17	71	102	54	156	37	17	54	49	17	66	242	105	347
Management in farm animals	9	11	52	17	69	78	13	91	31	12	43	34	10	44	195	52	247
Production and use of organic inputs	20	21	70	14	84	210	31	241	89	13	102	93	49	142	462	107	569
Productivity enhancement in field crops	112	183	546	59	605	1036	127	1163	315	64	379	426	142	568	2323	392	2715

Area of Training	No of Courses	Durations (Days)	General			Other			SC			ST			Grand Total		
			M	F	Total	M	F	Total	M	F	Total	M	F	Total	M	F	Total
Protected cultivation technology	43	49	192	75	267	377	63	440	77	43	120	83	26	109	729	207	936
Rejuvenation of old orchards	13	18	49	16	65	92	28	120	36	8	44	67	13	80	244	65	309
Women and child care	12	26	38	33	71	53	52	105	21	29	50	22	37	59	134	151	285
Production and use of organic inputs	4	5	15	5	20	3	9	12	1	4	5	40	9	49	59	27	86
Low cost and nutrient efficient diet designing	1	1	0	16	16	0	3	3	0	2	2	0	0	0	0	21	21
<b>Grand Total</b>	<b>478</b>	<b>622</b>	<b>2517</b>	<b>812</b>	<b>3329</b>	<b>3537</b>	<b>1192</b>	<b>4729</b>	<b>1266</b>	<b>567</b>	<b>1833</b>	<b>1443</b>	<b>741</b>	<b>2184</b>	<b>8763</b>	<b>3312</b>	<b>12075</b>

Table 4.4: Training for Rural Youth in Zone IX during 2017-18

Area of Training	No of Courses	Duration (Days)	General			Others			SC			ST			Grand Total		
			M	F	Total	M	F	Total	M	F	Total	M	F	Total	M	F	Total
Beekeeping	2	7	10	0	10	25	0	25	3	0	3	2	0	2	40	0	40
Cold water fisheries	1	1	0	0	0	12	0	12	8	0	8	0	0	0	20	0	20
Commercial fruit production	5	17	16	10	26	18	16	34	13	11	24	28	20	48	75	57	132
Dairying	4	11	12	3	15	21	15	36	8	3	11	48	9	57	89	30	119
Fish harvest and processing technology	2	2	4	0	4	9	5	14	11	0	11	33	12	45	57	17	74
Fry and fingerling rearing	5	5	0	0	0	6	12	18	6	0	6	138	42	180	150	54	204
Integrated farming	15	11	70	40	110	96	63	159	32	24	56	117	114	231	315	241	556
Mushroom production	28	122	122	42	164	148	130	278	35	11	46	64	149	213	369	332	701
Nursery management of horticulture crops	10	41	57	6	63	111	12	123	47	4	51	24	1	25	239	23	262
Ornamental fisheries	1	1	3	0	3	7	5	12	4	2	6	3	1	4	17	8	25
Piggery	1	1	4	1	5	5	2	7	3	0	3	15	2	17	27	5	32
Planting material production	4	5	0	3	3	0	15	15	0	19	19	0	7	7	0	44	44
Post Harvest technology	2	3	3	0	3	19	8	27	4	0	4	21	2	23	47	10	57
Poultry production	22	58	9	2	11	38	2	40	8	40	48	65	17	82	120	61	181
Production of organic inputs	13	21	18	18	36	91	69	160	46	46	92	40	26	66	195	159	354
Production of quality animal products	5	4	2	7	9	9	8	17	3	1	4	47	10	57	61	26	87
Protected cultivation of vegetable crops	27	55	113	42	155	217	25	242	64	34	98	153	34	187	547	135	682
Repair and maintenance of farm machinery and implements	16	31	21	16	37	136	44	180	87	26	113	97	31	128	341	117	458
Rural crafts	9	6	12	20	32	33	8	41	12	21	33	26	14	40	83	63	146
Seed production	31	96	163	50	213	145	46	191	72	16	88	269	88	357	649	200	849
Sheep and goat rearing	5	7	5	3	8	14	5	19	3	16	19	14	10	24	36	34	70
Tailoring and stitching	3	102	5	0	5	23	5	28	6	11	17	3	22	25	37	38	75

Area of Training	No of Courses	Duration (Days)	General			Others			SC			ST			Grand Total		
			M	F	Total	M	F	Total	M	F	Total	M	F	Total	M	F	Total
Training and pruning of orchards	7	17	35	7	42	35	10	45	4	1	5	26	14	40	100	32	132
VALUE ADDITION	22	123	11	33	44	25	65	90	11	44	55	91	46	137	138	188	326
Vermi-culture	29	47	62	36	98	185	64	249	76	36	112	261	110	371	584	246	830
Freshwater prawn culture	1	1	4	0	4	9	4	13	3	0	3	3	0	3	19	4	23
Other	133	482	589	171	760	1035	343	1378	327	246	573	579	215	794	2530	975	3505
<b>Grand Total</b>	<b>403</b>	<b>1277</b>	<b>1350</b>	<b>510</b>	<b>1860</b>	<b>2472</b>	<b>981</b>	<b>3453</b>	<b>896</b>	<b>612</b>	<b>1508</b>	<b>2167</b>	<b>996</b>	<b>3163</b>	<b>6885</b>	<b>3099</b>	<b>9984</b>

Table 4.5: Vocational Training in Zone IX during 2017-18

Area of Training	No of Courses	Duration (Days)	General			Others			SC			ST			Grand Total		
			M	F	Total	M	F	Total	M	F	Total	M	F	Total	M	F	Total
<b>Agriculture Extension</b>																	
Capacity building and group dynamics	6	30	20	0	20	79	22	101	15	10	25	21	40	61	135	72	207
Others	3	27	7	10	17	33	8	41	7	5	12	18	3	21	65	26	91
<b>Crop production and management</b>																	
Commercial fruit production	2	12	2	0	2	34	11	45	5	7	12	11	7	18	52	25	77
Commercial vegetable production	6	19	19	7	26	37	40	77	20	8	28	47	15	62	123	70	193
Integrated crop management	20	82	91	17	108	118	26	144	34	14	48	122	16	138	365	73	438
Organic farming	5	21	7	0	7	57	17	74	32	12	44	56	16	72	152	45	197
Production of bioagents, biopesticides	1	10	0	2	2	1	5	6	2	9	11	0	2	2	3	18	21
Seed production	3	100	6	1	7	44	1	45	1	1	2	9	0	9	60	3	63
Others	59	114	91	21	112	186	22	208	47	25	72	179	67	246	503	135	638
<b>Income generation activities</b>																	
Commercial fruit production	1	50	0	0	0	0	0	0	0	0	0	15	5	20	15	5	20
Mushroom cultivation	41	398	109	52	161	172	127	299	64	19	83	37	202	239	382	400	782
Nursery, grafting etc.	21	91	67	36	103	195	81	276	73	26	99	45	57	102	380	200	580
Production of bioagents, biopesticides	4	8	48	18	66	34	9	43	9	6	15	3	8	11	94	41	135
Repair and maintenance of farm machinery & implements	6	30	39	2	41	55	5	60	19	1	20	23	3	26	136	11	147
Rural crafts	13	17	0	11	11	0	71	71	4	16	20	0	6	6	4	104	108
Seed production	12	156	108	13	121	106	9	115	58	10	68	27	4	31	299	36	335
Sericulture	2	35	0	0	0	1	0	1	0	0	0	44	0	44	45	0	45
Tailoring, stitching, embroidery, dying etc.	8	110	0	34	34	0	69	69	0	10	10	0	0	0	0	113	113
Value addition	1	5	0	0	0	0	4	4	0	8	8	0	5	5	0	17	17
Vermicomposting	16	108	60	7	67	58	7	65	55	16	71	107	73	180	280	103	383
Others	24	81	71	25	96	188	49	237	47	12	59	13	46	59	319	132	451
<b>Livestock and fisheries</b>																	
Composite fish culture	5	91	50	8	58	24	9	33	6	6	12	27	14	41	107	37	144

Area of Training	No of Courses	Duration (Days)	General			Others			SC			ST			Grand Total		
			M	F	Total	M	F	Total	M	F	Total	M	F	Total	M	F	Total
Poultry farming	11	282	24	2	26	80	23	103	22	2	24	49	81	130	175	108	283
Sheep and goat rearing	3	5	17	0	17	8	0	8	6	0	6	15	0	15	46	0	46
Dairy farming	7	73	9	11	20	58	20	78	9	5	14	13	9	22	89	45	134
Others	10	32	19	0	19	59	0	59	14	0	14	0	18	18	92	18	110
<b>Post harvest technology and value addition</b>																	
Value addition	42	276	38	95	133	50	259	309	30	96	126	29	75	104	147	525	672
Others	1	5	11	0	11	13	0	13	0	0	0	0	0	0	24	0	24
<b>Grand Total</b>	<b>333</b>	<b>2268</b>	<b>913</b>	<b>372</b>	<b>1285</b>	<b>1690</b>	<b>894</b>	<b>2584</b>	<b>579</b>	<b>324</b>	<b>903</b>	<b>910</b>	<b>772</b>	<b>1682</b>	<b>4092</b>	<b>2362</b>	<b>6454</b>

Table 4.6: Vocational Training in Zone IX during 2017-18

Area of Training	No of Courses	Duration (Days)	General			SC			ST			Others			Grand Total		
			M	F	Total	M	F	Total	M	F	Total	M	F	Total	M	F	Total
<b>Agricultural Extension</b>																	
Capacity building and group dynamics	31	429	432	31	463	422	37	459	637	105	742	640	20	660	2131	193	2324
<b>Crop production and management</b>																	
Commercial production of vegetables	34	44	212	49	261	287	295	582	577	348	925	525	296	821	1601	988	2589
Fruit plants	10	10	42	12	54	39	1	40	87	0	87	37	3	40	205	16	221
Increasing production and productivity of crops	108	196	1521	224	1745	620	232	852	2250	608	2858	1480	338	1818	5871	1402	7273
Methods of protective cultivation	8	8	5	2	7	10	16	26	66	5	71	86	2	88	167	25	192
Ornamental plants	1	1	0	0	0	0	0	0	35	0	35	0	0	0	35	0	35
Production of Inputs at site	39	59	200	59	259	452	197	649	358	306	664	439	333	772	1449	895	2344
Soil health and fertility management	15	18	794	61	855	188	33	221	133	11	144	233	42	275	1348	147	1495
Spices crops	1	1	0	0	0	0	0	0	38	0	38	0	0	0	38	0	38
Other	54	68	301	152	453	483	242	725	1220	337	1557	558	226	784	2562	957	3519
<b>Farm machinery</b>																	
Farm machinery, tools and implements	34	39	361	67	428	389	233	622	465	225	690	519	194	713	1734	719	2453
<b>Home Science</b>																	
Drudgery reduction of women	7	7	0	9	9	5	2	7	91	3	94	72	43	115	168	57	225
Economic empowerment of women	11	64	42	5	47	52	395	447	99	112	211	161	534	695	354	1046	1400
Household nutritional security	3	3	0	45	45	11	12	23	122	40	162	60	28	88	193	125	318
Other	3	3	0	35	35	0	20	20	0	7	7	0	37	37	0	99	99
<b>Livestock and fisheries</b>																	
Animal disease management	1	1	0	0	0	0	0	0	32	0	32	0	0	0	32	0	32
Animal nutrition management	4	4	5	1	6	7	6	13	43	0	43	23	0	23	78	7	85
Fisheries management	8	8	13	3	16	4	31	35	35	5	40	49	6	55	101	45	146

Area of Training	No of Courses	Duration (Days)	General			SC			ST			Others			Grand Total		
			M	F	Total	M	F	Total	M	F	Total	M	F	Total	M	F	Total
Livestock production and management	2	8	1	0	1	4	0	4	13	0	13	13	0	13	31	0	31
<b>Post harvest technology and value addition</b>																	
Processing and value addition	7	6	5	3	8	20	5	25	167	74	241	13	14	27	205	96	301
<b>Grand Total</b>	<b>381</b>	<b>977</b>	<b>3934</b>	<b>758</b>	<b>4692</b>	<b>2993</b>	<b>1757</b>	<b>4750</b>	<b>6468</b>	<b>2186</b>	<b>8654</b>	<b>4908</b>	<b>2116</b>	<b>7024</b>	<b>18303</b>	<b>6817</b>	<b>25120</b>

## Capacity Building programmes

### B. Capacity Building programmes by DES and ATARI

**Table 4.7:** Capacity building activities organized in identified area for KVK Staff by the Directorate of Extension Services 2017-18

Training Title	Date	Venue	No. of participants
<b>Directorate of Extension Services, Jabalpur, M.P.</b>			
Knowledge Empowerment & Technical Backstopping & review of financial matters of KVKs Scientists	7 April, 2017	DES, JNKVV, Jabalpur	27
Knowledge Empowerment & Technical Backstopping & Action plan for doubling the farmers income by 2022	16-17 May, 2017	DES, JNKVV, Jabalpur	20
Knowledge Empowerment & Technical Backstopping & Finalize the crop diversification plan of M.P.	10-11 June, 2017	DES, JNKVV, Jabalpur	32
Knowledge Empowerment & Technical Backstopping & review the progress to KVK Scientists of KVK Tikamgarh	1 July, 2017	DES, JNKVV, Jabalpur	12
Knowledge Empowerment & Technical Backstopping & Review the progress of last five years (2012-2017) of KVKs	6 December, 2017	DES, JNKVV, Jabalpur	22
Knowledge Empowerment & Technical Backstopping & Review the progress of Seed Hub	18 December, 2017	DES, JNKVV, Jabalpur	15
<b>Total</b>			<b>128</b>
<b>Directorate of Extension Services, RVSKVV, Gwalior, M.P.</b>			
Facilitating entrepreneurship through skill development the farm family Income	17-19 November, 2017	KVK Jhabua	32
Enhancing Farm Income through Farm Mechanization and Custom Hiring entrepreneurship	13-14 March, 2018	CIAE, KVK Bhopal	28
Training Programme on Advance Extension Technology	19-21 March, 2018	KVK Indore	30
Integrated Farming System Concept Models and Approach for enhancing the Farm Income	20-21, March 2018	KVK Datia	28
Public Financial Management System	6 September 2017	DES, Gwalior	30
Public Financial Management System	8 September 2017	College of Agriculture Indore	40
<b>Total</b>			<b>188</b>

Training Title	Date	Venue	No. of participants
<b>Directorate of Extension Services, Raipur, C.G.</b>			
Doubling the income of farmers by 2022	27.4.2017	DES, IGKV, Raipur	64
Action Plan Workshop on Doubling the income of farmers by 2022	15.5.2017	DES, IGKV, Raipur	51
Training Programme on decorated crop on Terrace Garden	23.7.2017	DES, IGKV, Raipur	50
Cluster demonstration on Pulses	08.1.2018	DES, IGKV, Raipur	50
Cluster demonstration on Oilseeds	12.1.2018	DES, IGKV, Raipur	30
<b>Total</b>			<b>245</b>
<b>Grand Total Zone-IX</b>			<b>561</b>

ICAR-ATARI, Jabalpur organized 22 capacity building programmes in participatory mode for KVK scientists and programme assistants working in the KVKs for farming community. ATARI organized three Action Plan Workshops for finalization of the action plan of the KVKs for 2017-18. This is very important activity as it gives direction to each KVK to move further for planned change through scheduled work plan. Training-cum workshop was organized for extension experts on methodological initiative for acceleration technology application in agriculture so that technology application and its dissemination could be fastened. Review workshop of ICAR flagship programmes like NICRA, ARYA, Skill development and Seed Hub was organized to discuss the previous progress as well as future action plan to the concerned KVKs. For updating the computer programmers in data management, workshop on online reporting system involving the IT experts was conducted. As ATARI is involved in implementation of the CFLD oilseed and pulses, zonal workshop-cum training programmes was conducted involving experts from the SAUs and nodal officers of CFLD oilseed and pulses from KVKs under ATARI, Jabalpur. To digitize the farmers database, an interface was organized in collaboration with TCS, New Delhi for initiating the work at KVK. To quantify the technology flow in the farmers fields at larger scale, ATARI, Jabalpur has initiated documenting it through organizing Workshop-cum Training on Technology Adoption Matrix. An Interface on road map of agriculture for nutritional security was initiated by ATARI through Nutri-SMART village to strengthen the government nutrition mission.

**Table 4.8:** Capacity building activities organized by ATARI in collaboration with ICAR Institutes in identified areas for KVK staff during 2017-18

S. No.	Training/Workshop Title	Date	Venue	No. of Participants
1.	Annual action plan workshop of KVKs under JNKVV, Jabalpur on doubling farmers income by 2022	16-17 May, 2017	ATARI, Jabalpur	40
2.	Annual action plan workshop of KVKs under RVSKVV, Gwalior on doubling farmers income by 2022	May 8-9, 2017	DES, Gwalior	42
3.	Annual action plan workshop of KVKs under IGKV, Raipur on doubling farmers income by 2022	April 29-30, 2017	DES, Raipur	35
4.	Meeting on Nutritional security for block wise malnourished of district in Jabalpur Division	25 May, 2017	ATARI, Jabalpur	32

S. No.	Training/Workshop Title	Date	Venue	No. of Participants
5	Extension workshop on methodological initiative for acceleration technology application in agriculture	27 -28 May 2017	ATARI, Jabalpur	54
6	Review Meeting of NICRA, ARYA, Skill development, Seed Hub, KVKs	3-5 August,2017	ATARI Jabalpur	45
7	Interface of ICAR-KVK-ATMA and line departments for finalization of roadmap at village level for doubling the income of the farmers by 2022	9 August, 2017	ICAR-CIAE, Bhopal	78
8	Meeting on Road map of Agriculture for Nutritional Security	17 August 2017	ATARI Jabalpur	37
9	Interface on Road map of Agriculture for Nutritional Security	22-23 August, 2017	Vidhan Sabha, Bhopal	650
10	Workshop on online reporting system on KVK portal	5-6 September 2017	ATARI Jabalpur	57
11	Review meeting of seed hub project	24-25 October 2017	ATARI Jabalpur	20
12	Review workshop of NICRA	13-14 November 2017	ATARI Jabalpur	16
13	Review workshop of Farmer FIRST	13-14 November 2017	ATARI Jabalpur	12
14	Review workshop of Extension Experts	13-14 November 2017	ATARI Jabalpur	22
15	Special presentation of JNKVV	15 December 2017	ATARI Jabalpur	6
16	Special presentation of JNKVV	16 December 2017	ATARI Jabalpur	9
17	7 th IMC Meeting	11 January, 2018	ATARI Jabalpur	10
18	Zonal Workshop cum Training of Cluster Frontline Demonstrations in Oilseeds and Pulses	18-20, January 2018	KVK Jhabua	80
19	Workshop-cum Training on Technology Adoption Matrix for Chhattisgarh KVKs	8-9, February 2018	ATARI Jabalpur	24
20	Interface on Digital Works with TCS for KVK Computer Programmers at ATARI, Jabalpur	16 February 2018	ATARI Jabalpur	57
21	Workshop-cum Training on Technology Adoption Matrix for RVSKVV, Madhya Pradesh KVKs	19-20, February 2018	ATARI Jabalpur	22
22	Workshop-cum Training on Technology Adoption Matrix for JNKVV, Madhya Pradesh KVKs	27-28, February 2018	ATARI Jabalpur	25
<b>Total</b>				<b>1373</b>



Review Meeting of NICRA, ARYA, Skill development, Seed Hub



Review workshop of Farmer FIRST



Zonal Workshop cum Training of Cluster Frontline Demonstrations in Oilseeds and Pulses



Interface on Digital Works with TCS for KVK Computer Programmers

**Table 4.9:** KVK Visit/Workshop/Training/Symposium attended by the ATARI Staff/Scientist

S. No.	Particulars	No. of Programmes
1	Trainings	5
2	Workshops	18
3	Conferences	3
4	Seminars	1
5	KVK Visits	13
6	Any other (Review Meetings, Interface)	12
	<b>Total</b>	<b>52</b>

**Table 4.10:** HRD fund Allocation and Utilization

Particulars	Budget RE (Rs. in lakhs) allocated	Actual expenditure (Rs. in lakhs)	Utilization (%)
ATARI	14.320	14.316	99.97
<b>Total</b>	<b>14.320</b>	<b>14.316</b>	<b>99.97</b>

**Table 4.11:** Footfall in KVKs of Zone IX

State	No. of KVKs	No. of Foot falls			
		Farmers	Officials	VIPs	Total
Madhya Pradesh	42	153273	4460	512	158245
Chhattisgarh	22	56858	2336	462	59656
<b>Zone-IX</b>	<b>64</b>	<b>210131</b>	<b>6796</b>	<b>974</b>	<b>217901</b>

## Glimpses of activities



# SEED, PLANTING MATERIALS, BIO-PRODUCTS AND LIVESTOCK MATERIAL PRODUCTION

## Seed and Planting Materials

Availability of quality seeds, at the right time in adequate quantity are the major constraints of farmers. Therefore, it was taken as challenge and appropriate steps were taken by KVKs for helping farmers. Considerable progress has been made and there is increase in seed quantity as well as other planting materials as shown in the following

Tables 5.1 and 5.2. KVKs of the Zone produced 18008.92 q of seed and 47.10 lakhs planting material of different crops (cereals, pulses, oilseeds, vegetables, medicinal plants, fruits, etc.) and distributed among farmers. KVKs of the Zone also produced bio-products and livestock products at their farms.

**Table 5.1:** State- wise seed and planting material produced by the KVKs in Zone-IX

State	2017-18	
	Seed (q)	Planting material (in lakhs)
Chhattisgarh	5394.38	33.74
Madhya Pradesh	12614.54	13.36
<b>Total</b>	<b>18008.92</b>	<b>47.10</b>

**Table 5.2:** State- wise details of seed production produced by the KVKs in Zone-IX

State	Quantity (q.)	Value (Rs.)	Provided to no. of Farmers	Expected area coverage (ha.)
Chhattisgarh	5394.38	10740106	10459	4125.53
Madhya Pradesh	12614.54	64958518	18514	9646.27
<b>Zone-IX</b>	<b>18008.92</b>	<b>75698624</b>	<b>28973</b>	<b>13771.80</b>

**Table 5.3:** State- wise details of planting material produced by the KVKs in Zone-IX

State	Nos.	Value (Rs.)	Provided to no. of Farmers	Expected area coverage (ha.)
Chhattisgarh	3373975	1910550	5803	375.49
Madhya Pradesh	1336141	7620265	21871	239.482
<b>Zone-IX</b>	<b>4710116</b>	<b>9530815</b>	<b>27674</b>	<b>614.972</b>

**Table 5.4:** Status of seed production in Zone-IX

Crop Category	Crop	Crop Variety	Quantity (qt)	Value (Rs)	Provided to no. of Farmers
Cereal	Barley	BH 959	3.75	4656	2
Cereal	Rice	Athira	9	13500	7
Cereal	Rice	Badshabhog	7.44	11160	6
Cereal	Rice	Bamleshwari	30.7	64470	93
Cereal	Rice	Chandahasini	166.56	254000	162
Cereal	Rice	Danteshwari	225.14	428502	425
Cereal	Rice	DRR-42	24.48	56304	50
Cereal	Rice	IGKV R 1244	70	98000	100
Cereal	Rice	IGKV R2 (Durgeshwari)	606.93	552680	735
Cereal	Rice	IGKVR-1	138.2	83000	175
Cereal	Rice	Indira arohic	56.42	89600	42
Cereal	Rice	Indira Barani -1	176.87	324000	495
Cereal	Rice	Indira Rajeshwari	651.05	1100905	1682
Cereal	Rice	IR 64	881	2036500	967
Cereal	Rice	JR-767	2.8	11200	8
Cereal	Rice	Maheshwari	222	393600	696
Cereal	Rice	MTU-1010	1165.11	6896786	2651
Cereal	Rice	Panth -10	19.77	79080	50
Cereal	Rice	PB 1121	115.4	342026	18
Cereal	Rice	Pusa Basmati-01	10.29	72030	26
Cereal	Rice	Pusa Basmati-1509	3.7	25900	10
Cereal	Rice	Sahbhagi	7	28000	20
Cereal	Rice	Samleshwari	165	154300	244
Cereal	Rice	Vishnu bhog	5.89	345000	0
Cereal	Rice	Jeerashanker	23.32	184000	50
Cereal	Wheat	C-306	9.2	120000	32
Cereal	Wheat	CSW-18	8.35	33400	10
Cereal	Wheat	DBW-110	35.2	76800	21
Cereal	Wheat	GW 273	8	12000	12
Cereal	Wheat	GW-322	309.87	1183430	6
Cereal	Wheat	GW-366	500.08	752446	732
Cereal	Wheat	GWP-66, HI-8713,WH-1025	30	60000	750
Cereal	Wheat	H.I. - 1605	14.97	37500	0
Cereal	Wheat	HD-2932	1.02	4080	2
Cereal	Wheat	HD-4728 (Pusa Malviya)	54.32	74000	0
Cereal	Wheat	HI 1544	110.75	90280	21



Crop Category	Crop	Crop Variety	Quantity (qt)	Value (Rs)	Provided to no. of Farmers
Cereal	Wheat	HI- 8757 (Pusa Tejas)	6.08	9000	0
Cereal	Wheat	HI-1531 (Harshita)	7.2	15000	0
Cereal	Wheat	HI-8713 (Pusa Mangal)	93.65	134125	30
Cereal	Wheat	HI-8737 (Pusa Anmol)	42	24000	0
Cereal	Wheat	JW 3336	80	168000	10
Cereal	Wheat	JW-17	2.15	8600	3
Cereal	Wheat	JW-3211	1485.24	2369005	1028
Cereal	Wheat	JW-3288	718	3150000	1435
Cereal	Wheat	Lok-1	81.6	-	-
Cereal	Wheat	MP-1203	60	64800	62
Cereal	Wheat	MP-3211	3.73	14920	5
Cereal	Wheat	Raj - 4238	7	21000	0
Cereal	Wheat	Ratan	59.42	121821	64
Cereal	Wheat	RVW 4106	100	756000	
Cereal	Wheat	WH-1105	3.46	13840	6
Cereal	Maize	900M Gold and PAC-751	1.6	16000	8
Cereal	Maize	African tall	0.95	1330	4
Commercial Crop	Potato	19 Var.	3.8	11400	14
Commercial Crop	Potato	Kufari Pukhraj	100	300000	0
Commercial Crop	Sugarcane	CO-8036	390	122850	500
Fibre Crops	Sunhemp	Local	1.79	6265	0
Fibre Crops	Sunhemp	M-12	14	70000	150
Fibre Crops	Sunhemp	M-19	10	20000	-
Flower	Marigold	Pusa Basmati-01	0.002	990	10
Flower	Marigold	Pusa Narangi	0.006	3500	6
Fodder	Azola	Microphyla	0.1	10000	10
Fodder	Oat	JHO - 822	0.08	390	2
Fodder	Oat	JHO - 851	0.46	2175	2
Fodder	Hybrid Napier (root slip)	CO - 3	50	70000	40
Fruits	Makhana	Swarn vaidehi	10	65000	8
Medicinal Plant	Chandrasur	local	483	4830	50
Millets	Kodo	JK 41 B/S	4.8	19200	120
Millets	Kodo	JK 439 B/S	5.7	22800	142
Millets	Kodo	JK 8 B/S	3.3	13200	82

Crop Category	Crop	Crop Variety	Quantity (qt)	Value (Rs)	Provided to no. of Farmers
Millets	Ragi	GPU28	1.5	2500	3
Millets	Ragi	Indira ragi_1	11	27500	55
Oilseed	Groundnut	TG 37(BS)	1.5	10000	2
Oilseed	Linseed	Indira alsi 1	1	6300	12
Oilseed	Linseed	Indira Alsii -32	6	27000	32
Oilseed	Linseed	JLS 66	13.5	119075	85
Oilseed	Linseed	JLS-27	11.27	77763	87
Oilseed	Linseed	JLS-67	5.1	24325	30
Oilseed	Linseed	Kartika	7.82	52682	14
Oilseed	Linseed	Mau Azad-1	0.45	4950	7
Oilseed	Linseed	RLC 92	17.92	117332	95
Oilseed	Mustard	Bharat -1	1.32	15840	14
Oilseed	Mustard	CG Sarson	21.75	18000	170
Oilseed	Mustard	Giriraj	2.93	35160	50
Oilseed	Mustard	NRCRD - 2	3.7	18000	20
Oilseed	Mustard	NRCHB-1	3.75	18000	15
Oilseed	Mustard	PS - 30	0.25	1800	2
Oilseed	Mustard	Pusa Agrani	0.2	1600	3
Oilseed	Mustard	Pusa tarak	30.28	3360	3
Oilseed	Mustard	Pusa Vijai	3.57	42840	59
Oilseed	Mustard	RH-749	6.53	64319	75
Oilseed	Mustard	RVM-02	15	135000	90
Oilseed	Safflower	AKS-207	50	200000	125
Oilseed	Sesamum	JTS-21	0.19	2850	8
Oilseed	Sesamum	RT-346	0.64	9600	26
Oilseed	Sesamum	RT-351	0.71	10650	28
Oilseed	Sesamum	TKG- 308	2.23	12000	25
Oilseed	Soybean	CG-SOYA-1	18.5	197950	80
Oilseed	Soybean	JS 20-29	252.33	2075498	166
Oilseed	Soybean	JS 20-69	127.7	1228468	130
Oilseed	Soybean	JS 335	135	1366875	0
Oilseed	Soybean	JS 95-60	804.01	5720542	315
Oilseed	Soybean	JS-2034	305.05	2304800	291
Oilseed	Soybean	JS-9305	176.51	1171500	97
Oilseed	Soybean	JS-9752	65.41	552513	228
Oilseed	Soybean	RVS 2001-04	583.3	4530030	687
Oilseed	Soybean	JS-2029	126	0	0



Crop Category	Crop	Crop Variety	Quantity (qt)	Value (Rs)	Provided to no. of Farmers
Oilseed	Niger	GA-10	2.4	24000	52
Oilseed	Niger	JNC6 B/S	1.7	14450	30
Oilseed	Niger	JNS-09	4.35	30990	145
Pulses	Black gram	Azad-1	2.26	33900	12
Pulses	Black gram	Azad-3	94	705000	940
Pulses	Black gram	Birsa urad	15.5	133300	190
Pulses	Black gram	IPU-94-1	3.54	53100	70
Pulses	Black gram	JU-86	14.75	120000	110
Pulses	Black gram	PU-31	39.23	207140	213
Pulses	Black gram	TU -93-4	40	180000	180
Pulses	Chickpea	JG-16	337.4	508200	317
Pulses	Chickpea	JG-6	9.5	76000	5
Pulses	Chickpea	JAKI- 9218	1127	5269060	952
Pulses	Chickpea	JG 12	644	5273600	2037
Pulses	Chickpea	JG 322	54.61	589788	-
Pulses	Chickpea	JG 63	507	5062000	392
Pulses	Chickpea	JG-11	60	648000	-
Pulses	Chickpea	JG-130	77.67	652000	63
Pulses	Chickpea	JG-14	498.17	231350	156
Pulses	Chickpea	JG-226	5.2	37440	130
Pulses	Chickpea	JS 63	215	2150000	-
Pulses	Chickpea	Kripa	3.63	54450	4
Pulses	Chickpea	PKV-4	5.3	79500	4
Pulses	Chickpea	RVG-201	60	648000	0
Pulses	Chickpea	RVG-202	623.65	3710216	426
Pulses	Chickpea	RVG-203	40	300000	-
Pulses	Chickpea	Vaibhav	116.3	898480	120
Pulses	Chickpea	Vishal	8	52000	-
Pulses	Field pea	Paras	101	198000	103
Pulses	Field pea	Shubhra	4.5	24000	15
Pulses	Green Gram	GM-4	10	125000	62
Pulses	Green Gram	Paury moong	5	80000	25
Pulses	Green Gram	PDM 139	161.5	730500	679
Pulses	Green Gram	Samrat	0.26	3900	5
Pulses	Horse gram	Indira Kulthi 1	14	56000	180
Pulses	Lathyrus	Prateek	73	0	0
Pulses	Lathyrus	Pratik	6	18000	55

Crop Category	Crop	Crop Variety	Quantity (qt)	Value (Rs)	Provided to no. of Farmers
Pulses	Lentil	DPL-62	0.61	6100	10
Pulses	Lentil	Indira Alsi-32	3.13	10000	25
Pulses	Lentil	IPL – 81	2	8000	0
Pulses	Pea	Kashi Nandini	12	216000	12
Pulses	Pigeon pea	TJT-501	104.68	1059525	522
Pulses	Pigeon pea	Asha	22.68	85600	20
Pulses	Pigeon pea	ICPL-88039	41.95	365690	518
Pulses	Pigeon pea	IPA 2010-30-5	0.65	2000	2
Pulses	Pigeon pea	JKM-189	5.2	40000	20
Pulses	Pigeon pea	Rajeev Lochan	264.05	680800	695
Spice	Chillies	Kashi Anmol, PantC-1	0.14	27680	300
Spice	Coriander	Gujrat Dhaniya	0.218	7000	10
Spice	Coriander	Pant Haritima	0.22	6600	28
Spice	Fenugreek	Pusa Early Bunching, Kasuri methi	1.24	12400	100
Spice	Fenugreek	RMT-1	0.01	250	2
Spice	Garlic	G- 282	19.17	11850	29
Spice	Ginger	Local	5	25000	0
Spice	Ginger	Suprabha	1.9	18500	15
Spice	Turmeric	Pant Pitambh, Shoruma, Barua Sagar	0.5	500	3
Spice	Turmeric	Suroma	0.31	3720	5
Vegetables	Bottlegourd	Pusa naveen	0.09	900	18
Vegetables	Brinjal	Kashi Taru	4.23	8460	370
Vegetables	Cabbage	Chinese Cabbage	0.46	6200	2
Vegetables	Cowpea	Kashi Unnati, K-569	0.4	10000	60
Vegetables	Okra	Kashi Pragati, Azad-1	1.23	30750	240
Vegetables	Okra	VRO-22	0.0525	4200	4
Vegetables	Onion	ADR	0.08	4400	22
Vegetables	Onion	Agri Found Light Red	0.67	67000	25
Vegetables	Potato	-	14.12	11296	52
Vegetables	Pumpkin	Azad Harit	0.03	300	100
Vegetables	Radish	Japanese white/VRR-1, Arka Nishant, Kashi Hansh	0.24	8281	150
Vegetables	Spinach	All green	0.11	3250	132
Vegetables	Sponge gourd	S-1	0.51	510	12
Vegetables	Tomato	Kashi Vishesh, T-5, T-6	0.1	19700	450
Other	Oyster Mushroom	Pleurotus Sajar caju(spawn)	2.9	29000	128
<b>Grand Total</b>			<b>18008.92</b>	<b>75698624</b>	<b>28973</b>

**Table 5.5: Status of seed production in Madhya Pradesh**

Crop Category	Crop	Variety	Quantity (qt.)	Value (Rs.)	Provided to no. of Farmers
Cereal	Barley	BH 959	3.75	4656	2
Cereal	Rice	Danteshwari	23	149500	0
Cereal	Rice	IR 64	881	2036500	967
Cereal	Rice	JR-767	2.8	11200	8
Cereal	Rice	MTU-1010	1158.71	6886786	2615
Cereal	Rice	Panth -10	19.77	79080	50
Cereal	Rice	PB 1121	115.4	342026	18
Cereal	Rice	Pusa Basmati-01	10.29	72030	26
Cereal	Rice	Pusa Basmati-1509	3.7	25900	10
Cereal	Rice	Sahbhagi	7	28000	20
Cereal	Rice	Jeerashanker	23.32	184000	50
Cereal	Wheat	C-306	9.2	120000	32
Cereal	Wheat	CSW-18	8.35	33400	10
Cereal	Wheat	DBW-110	35.2	76800	21
Cereal	Wheat	GW-322	309.87	1183430	6
Cereal	Wheat	GW-366	279.08	214446	32
Cereal	Wheat	H.I. - 1605	14.97	37500	0
Cereal	Wheat	HD-2932	1.02	4080	2
Cereal	Wheat	HD-4728 (Pusa Malviya)	54.32	74000	0
Cereal	Wheat	HI 1544	110.75	90280	21
Cereal	Wheat	HI- 8757 (Pusa Tejas	6.08	9000	0
Cereal	Wheat	HI-1531 (Harshita)	7.2	15000	0
Cereal	Wheat	HI-8713 (Pusa Mangal)	93.65	134125	30
Cereal	Wheat	HI-8737 (Pusa Anmol)	42	24000	0
Cereal	Wheat	JW 3336	80	168000	10
Cereal	Wheat	JW-17	2.15	8600	3
Cereal	Wheat	JW-3211	1485.24	2369005	1028
Cereal	Wheat	JW-3288	718	3150000	1435
Cereal	Wheat	Lok-1	26		
Cereal	Wheat	MP-1203	60	64800	62
Cereal	Wheat	MP-3211	3.73	14920	5
Cereal	Wheat	Raj - 4238	7	21000	0
Cereal	Wheat	RVW 4106	100	756000	
Cereal	Wheat	WH-1105	3.46	13840	6
Commercial Crop	Potato	19 Var.	3.8	11400	14
Fibre Crops	Sunhemp	Local	1.79	6265	0
Fibre Crops	Sunhemp	M-12	14	70000	150
Fibre Crops	Sunhemp	M-19	10	20000	

Crop Category	Crop	Variety	Quantity (qt.)	Value (Rs.)	Provided to no. of Farmers
Flower	Marigold	Pusa Basmati-01	0.002	990	10
Flower	Marigold	Pusa Narangi	0.006	3500	6
Fodder	Azola	Microphyla	0.1	10000	10
Fodder	Oat	JHO - 822	0.08	390	2
Fodder	Oat	JHO - 851	0.46	2175	2
Fodder	Hybrid Napier (root slip)	CO - 3	50	70000	40
Millets	Kodo	JK 41 B/S	4.8	19200	120
Millets	Kodo	JK 439 B/S	5.7	22800	142
Millets	Kodo	JK 8 B/S	3.3	13200	82
Oilseed	Groundnut	TG 37(BS)	1.5	10000	2
Oilseed	Linseed	JLS 66	13.5	119075	85
Oilseed	Linseed	JLS-27	11.27	77763	87
Oilseed	Linseed	JLS-67	5.1	24325	30
Oilseed	Linseed	Mau Azad-1	0.45	4950	7
Oilseed	Mustard	Bharat -1	1.32	15840	14
Oilseed	Mustard	Giriraj	2.93	35160	50
Oilseed	Mustard	NRCDR - 2	3.7	18000	20
Oilseed	Mustard	PS - 30	0.25	1800	2
Oilseed	Mustard	Pusa Agrani	0.2	1600	3
Oilseed	Mustard	Pusa tarak	30.28	3360	3
Oilseed	Mustard	Pusa Vijai	3.57	42840	59
Oilseed	Mustard	RH-749	6.53	64319	75
Oilseed	Mustard	RVM-02	15	135000	90
Oilseed	Sesamum	JTS-21	0.19	2850	8
Oilseed	Sesamum	RT-346	0.64	9600	26
Oilseed	Sesamum	RT-351	0.71	10650	28
Oilseed	Soybean	JS 20-29	252.33	2075498	166
Oilseed	Soybean	JS 20-69	127.7	1228468	130
Oilseed	Soybean	JS 335	135	1366875	0
Oilseed	Soybean	JS 95-60	804.01	5720542	315
Oilseed	Soybean	JS-2034	305.05	2304800	291
Oilseed	Soybean	JS-9305	176.51	1171500	97
Oilseed	Soybean	JS-9752	1.15	11643	3
Oilseed	Soybean	RVS 2001-04	583.3	4530030	687
Oilseed	Soybean	JS-2029	126	0	0
Oilseed	Niger	JNC6 B/S	1.7	14450	30
Pulses	Black gram	Azad-1	2.26	33900	12
Pulses	Black gram	Azad-3	94	705000	940
Pulses	Black gram	IPU-94-1	3.54	53100	70



Crop Category	Crop	Variety	Quantity (qt.)	Value (Rs.)	Provided to no. of Farmers
Pulses	Black gram	JU-86	14.75	120000	110
Pulses	Black gram	PU-31	3.73	0	0
Pulses	Black gram	TU -93-4	40	180000	180
Pulses	Chickpea	JG-16	337.4	508200	317
Pulses	Chickpea	JG-6	9.5	76000	5
Pulses	Chickpea	JAKI- 9218	751	3739060	328
Pulses	Chickpea	JG 12	644	5273600	2037
Pulses	Chickpea	JG 322	54.61	589788	
Pulses	Chickpea	JG 63	507	5062000	392
Pulses	Chickpea	JG-11	60	648000	
Pulses	Chickpea	JG-130	53.67	363100	0
Pulses	Chickpea	JG-14	244.31	13100	4
Pulses	Chickpea	JS 63	215	2150000	0
Pulses	Chickpea	Kripa	3.63	54450	4
Pulses	Chickpea	PKV-4	5.3	79500	4
Pulses	Chickpea	RVG-201	60	648000	0
Pulses	Chickpea	RVG-202	623.65	3710216	426
Pulses	Chickpea	RVG-203	40	300000	0
Pulses	Green Gram	PDM 139	161.5	730500	679
Pulses	Green Gram	Samrat	0.26	3900	5
Pulses	Lentil	DPL-62	0.61	6100	10
Pulses	Lentil	IPL – 81	2	8000	0
Pulses	Pea	Kashi Nandini	12	216000	12
Pulses	Pigeon pea	TJT-501	104.68	1059525	522
Pulses	Pigeon pea	ICPL-88039	41.95	365690	518
Pulses	Pigeon pea	IPA 2010-30-5	0.65	2000	2
Pulses	Pigeon pea	JKM-189	5.2	40000	20
Pulses	Pigeon pea	Rajeev Lochan	55	260000	320
Spice	Chillies	Kashi Anmol, PantC-1	0.14	27680	300
Spice	Coriander	Pant Haritima	0.22	6600	28
Spice	Fenugreek	Pusa Early Bunching, Kasuri methi	1.24	12400	100
Spice	Fenugreek	RMT-1	0.01	250	2
Spice	Garlic	G- 282	19.17	11850	29
Spice	Ginger	Local	5	25000	0
Spice	Ginger	Suprabha	1.9	18500	15
Spice	Turmeric	Pant Pitambh, Shoruma, Barua Sagar	0.5	500	3
Vegetables	Bottlegourd	Pusa naveen	0.09	900	18
Vegetables	Brinjal	Kashi Taru	4.23	8460	370
Vegetables	Chinese Cabbage	CC	0.46	6200	2

Crop Category	Crop	Variety	Quantity (qt.)	Value (Rs.)	Provided to no. of Farmers
Vegetables	Cowpea	Kashi Unnati, K-569	0.4	10000	60
Vegetables	Okra	Kashi Pragati, Azad-1	1.23	30750	240
Vegetables	Okra	VRO-22	0.0525	4200	4
Vegetables	Onion	ADR	0.08	4400	22
Vegetables	Onion	Agri Found Light Red	0.67	67000	25
Vegetables	Potato	-	14.12	11296	52
Vegetables	Pumpkin	Azad Harit	0.03	300	100
Vegetables	Radish	Japanese white/ VRR-1, Arka Nishant, Kashi Hansh	0.24	8281	150
Vegetables	Spinach	All green	0.11	3250	132
Vegetables	Sponge gourd	S-1	0.51	510	12
Vegetables	Tomato	Kashi Vishesh, T-5, T-6	0.1	19700	450
Other	Oyster Mushroom	Pleurotus Sajar caju (spawn)	2.9	29000	128
<b>Grand Total</b>			<b>12614.54</b>	<b>64958518</b>	<b>18514</b>

Table 5.6: Status of seed production in Chhattisgarh

Crop Category	Crop	Variety	Quantity (qt.)	Value (Rs.)	Provided to no. of Farmers
Cereal	Rice	Athira	9	13500	7
Cereal	Rice	Badshabhog	7.44	11160	6
Cereal	Rice	Bamleshwari	30.7	64470	93
Cereal	Rice	Chandahasini	166.56	254000	162
Cereal	Rice	Danteshwari	202.14	279002	425
Cereal	Rice	DRR-42	24.48	56304	50
Cereal	Rice	IGKV R 1244	70	98000	100
Cereal	Rice	IGKV R2 (Durgeshwari)	606.93	552680	735
Cereal	Rice	IGKVR-1	138.2	83000	175
Cereal	Rice	Indira arobic	56.42	89600	42
Cereal	Rice	Indira Barani -1	176.87	324000	495
Cereal	Rice	Indira Rajeshwari	651.05	1100905	1682
Cereal	Rice	Maheshwari	222	393600	696
Cereal	Rice	MTU-1010	6.4	10000	36
Cereal	Rice	Samleshwari	165	154300	244
Cereal	Rice	Vishnu bhog	5.89	345000	0
Cereal	Wheat	GW 273	8	12000	12
Cereal	Wheat	GW-366	221	538000	700
Cereal	Wheat	GWP-66, HI-8713, WH-1025	30	60000	750
Cereal	Wheat	Lok-1	55.6		
Cereal	Wheat	Ratan	59.42	121821	64
Cereal	Maize	900M Gold and PAC-751	1.6	16000	8



Crop Category	Crop	Variety	Quantity (qt.)	Value (Rs.)	Provided to no. of Farmers
Cereal	Maize	African tall	0.95	1330	4
Commercial Crop	Potato	Kufari Pukhraj	100	300000	0
Commercial Crop	Sugarcane	CO-8036	390	122850	500
Fruits	Makhana	Swarn vaidehi	10	65000	8
Medicinal Plant	Chandrasur	local	483	4830	50
Millets	Ragi	GPU28	1.5	2500	3
Millets	Ragi	Indira ragi _1	11	27500	55
Oilseed	Linseed	Indira alsi 1	1	6300	12
Oilseed	Linseed	Indira Alsı -32	6	27000	32
Oilseed	Linseed	Kartika	7.82	52682	14
Oilseed	Linseed	RLC 92	17.92	117332	95
Oilseed	Mustard	CG Sarson	21.75	18000	170
Oilseed	Mustard	NRCHB-1	3.75	18000	15
Oilseed	Safflower	AKS-207	50	200000	125
Oilseed	Sesamum	TKG- 308	2.23	12000	25
Oilseed	Soybean	CG-SOYA-1	18.5	197950	80
Oilseed	Soybean	JS-9752	64.26	540870	225
Oilseed	Niger	GA-10	2.4	24000	52
Oilseed	Niger	JNS-09	4.35	30990	145
Pulses	Black gram	Birsa urad	15.5	133300	190
Pulses	Black gram	PU-31	35.5	207140	213
Pulses	Chickpea	JAKI- 9218	376	1530000	624
Pulses	Chickpea	JG-130	24	288900	63
Pulses	Chickpea	JG-14	253.86	218250	152
Pulses	Chickpea	JG-226	5.2	37440	130
Pulses	Chickpea	Vaibhav	116.3	898480	120
Pulses	Chickpea	Vishal	8	52000	
Pulses	Field pea	Paras	101	198000	103
Pulses	Field pea	Shubhra	4.5	24000	15
Pulses	Green Gram	GM-4	10	125000	62
Pulses	Green Gram	Pairy moong	5	80000	25
Pulses	Horse gram	Indira Kulthi 1	14	56000	180
Pulses	Lathyrus	Prateek	73	0	0
Pulses	Lathyrus	Pratik	6	18000	55
Pulses	Lentil	Indira Alsı-32	3.13	10000	25
Pulses	Pigeon pea	Asha	22.68	85600	20
Pulses	Pigeon pea	Rajeev Lochan	209.05	420800	375
Spice	Coriander	Gujrat Dhaniya	0.218	7000	10
Spice	Turmeric	Suroma	0.31	3720	5
<b>Grand Total</b>			<b>5394.378</b>	<b>10740106</b>	<b>10459</b>

**Table 5.7:** Status of Planting Material production in Zone-IX

Crop Category	Crop	Nos.	Value (Rs.)	Provided to no. of Farmers
Commercial	Sugarcane	1000	450000	50
Fodder	Azolla	160	32000	32
Forest Species	Bamboo	555	11855	85
Forest Species	Bottle palm	18	360	7
Forest Species	Gudachi	3	30	5
Forest Species	Gulmohar	52	620	25
Forest Species	Kachnar	582	10820	258
Forest Species	Karanj	50	500	5
Forest Species	Kesiasama	71	710	5
Forest Species	Meetha Neem	98	980	17
Forest Species	Seasum	830	8300	12
Forest Species	Semialata	40000	160000	25
Forest Species	Seven	143	2860	15
Forest Species	Shisham	38	570	15
Fruits	Aonla	457	10625	275
Fruits	Aonla, Guava, Lime, Pomegranate, Ber, Bael, Sweet Orange, Mandarin	0	53600	0
Fruits	Banana	100	5000	50
Fruits	Bel	112	2710	39
Fruits	Ber	1033	6099	4
Fruits	Citrus	1100	37500	515
Fruits	Custard Apple	5734	72575	285
Fruits	Guava	5143	50580	1683
Fruits	Imli	10	100	12
Fruits	Jackfruit	4198	24865	321
Fruits	Jamun	565	5650	135
Fruits	Karonda	771	12430	421
Fruits	Lemon	3376	92405	494
Fruits	Mango	13672	571380	351
Fruits	Papaya	37949	178580	2480
Fruits	Papaya Seedling	2230	44600	130
Fruits	Pomegranate	2614	42560	703
Fruits	Strawberry	2000	10000	3
Fruits	Pear	200	8000	120
Medicinal and Aromatic	Amltas	17	170	3
Medicinal and Aromatic	Black Turmeric	5000	5000	250
Medicinal and Aromatic	Tulsi	500	5000	250
Ornamental plants	Ashok	82	1640	14
Ornamental plants	Chameli	34	680	17



Crop Category	Crop	Nos.	Value (Rs.)	Provided to no. of Farmers
Ornamental plants	Chandani	111	2220	50
Ornamental plants	Crotan	102	2040	35
Ornamental plants	Durenta	110	550	17
Ornamental plants	Ficus	218	4360	52
Ornamental plants	Gaillardia	28080	11200	1061
Ornamental plants	Gudhal	7	70	5
Ornamental plants	Manokamani	140	2800	82
Ornamental plants	Marigold	157002	41800	373
Ornamental plants	Mogra	17	85	2
Ornamental plants	Ornamental (Madhukamni, Chandni, Champa, Rose, Bogainvillea)	102	2040	23
Ornamental plants	Rose	3055	11600	530
Ornamental plants	Vidya	12	720	7
Ornamental plants	Ornamental plants	500	10000	215
Plantation	Drumstick	34117	6462495	2164
Plantation	Neem	500		20
Plantation	Teak	618	2360	43
Vegetable Seedling	Acid lime	100	3000	80
Vegetable Seedling	Bitter Gourd	56	560	27
Vegetable Seedling	Bottlegourd	3587	870	27
Vegetable Seedling	Brinjal	302685	91226	2017
Vegetable Seedling	Brinjal	1000	500	20
Vegetable Seedling	Brinjal, Tomato, Chili	25000	17500	382
Vegetable Seedling	Brinjal, Tomato, Chilli, Cabbage, Cauliflower	5000	10000	125
Vegetable Seedling	Broccoli	7880	3690	264
Vegetable Seedling	Brockli, Tomato, Munga, Culiflower	5000	2000	660
Vegetable Seedling	Cabbage	613385	81911.5	1468
Vegetable Seedling	Cauliflower	637355	77128	1332
Vegetable Seedling	Chilli	339626	261466	2166
Vegetable Seedling	Cowpea	3500	0	0
Vegetable Seedling	Cucumber	36	540	34
Vegetable Seedling	Cucurbits	8000	40000	24
Vegetable Seedling	Curry leaf	500	5000	250
Vegetable Seedling	Knol Khol	10000	10000	300
Vegetable Seedling	Munga	2500	25000	145
Vegetable Seedling	Okra	2500	0	0
Vegetable Seedling	Onion	1317155	149554	1043
Vegetable Seedling	Potato	1242	5522	0
Vegetable Seedling	Pumpkin	51	510	23

Crop Category	Crop	Nos.	Value (Rs.)	Provided to no. of Farmers
Vegetable Seedling	Red Cabbage	5010	2505	260
Vegetable Seedling	Ridgegourd	2000	0	0
Vegetable Seedling	Seasonal Vegetables	0	2180	0
Vegetable Seedling	Sponge Gourd	84	840	24
Vegetable Seedling	Tomato	1026545.5	243819	3051
Vegetable Seedling	Tomato, Brinjal	100	200	100
Pulse	Pigeonpea	8000	16000	50
Other	Makhana Plant	27000	0	0
Other	Mushroom Spawn	30	3600	12
<b>Grand Total</b>		<b>4710116</b>	<b>9530815</b>	<b>27674</b>

**Table 5.8:** Status of Planting Material production in Madhya Pradesh

Crop Category	Crop	No.	Value (Rs)	Provided to no. of Farmers
Fodder	Azolla	160	32000	32
Forest Species	Bamboo	555	11855	85
Forest Species	Bottle palm	18	360	7
Forest Species	Gudachi	3	30	5
Forest Species	Gulmohar	52	620	25
Forest Species	Kachnar	582	10820	258
Forest Species	Karanj	50	500	5
Forest Species	Kesiasama	71	710	5
Forest Species	Meetha Neem	98	980	17
Forest Species	Seasum	830	8300	12
Forest Species	Seven	143	2860	15
Forest Species	Shisham	38	570	15
Fruits	Aonla	457	10625	275
Fruits	Aonla, Guava, Lime, Pomegranate, Ber, Bael, Sweet Orange, Mandarin		53600	0
Fruits	Banana	100	5000	50
Fruits	Bel	112	2710	39
Fruits	Ber	33	99	2
Fruits	Citrus	1100	37500	515
Fruits	Custard Apple	734	11375	285
Fruits	Guava	2048	36580	345
Fruits	Imli	10	100	12
Fruits	Jackfruit	1198	23965	321
Fruits	Jamun	565	5650	135
Fruits	Karonda	771	12430	421
Fruits	Lemon	3176	92005	468

Crop Category	Crop	No.	Value (Rs)	Provided to no. of Farmers
Fruits	Mango	1747	98380	265
Fruits	Papaya	5749	64830	878
Fruits	Papaya Seedling	2230	44600	130
Fruits	Pomegranate	889	33560	39
Medicinal and Aromatic	Amltas	17	170	3
Medicinal and Aromatic	Black Turmeric	5000	5000	250
Medicinal and Aromatic	Tulsi	500	5000	250
Ornamental plants	Ashok	82	1640	14
Ornamental plants	Chameli	34	680	17
Ornamental plants	Chandani	111	2220	50
Ornamental plants	Crotan	102	2040	35
Ornamental plants	Durenta	110	550	17
Ornamental plants	Ficus	218	4360	52
Ornamental plants	Gaillardia	28080	11200	1061
Ornamental plants	Gudhal	7	70	5
Ornamental plants	Manokamani	140	2800	82
Ornamental plants	Marigold	42002	22800	355
Ornamental plants	Mogra	17	85	2
Ornamental plants	Ornamental (Madhukamni, Chandni, Champa, Rose, Bogainvillea)	102	2040	23
Ornamental plants	Rose	3055	11600	530
Ornamental plants	Vidya	12	720	7
Ornamental plants	Ornamental plants	500	10000	215
Plantation	Drumstick	21117	6417495	1173
Plantation	Teak	118	2360	18
Vegetable Seedling	Acid lime	100	3000	80
Vegetable Seedling	Bitter Gourd	56	560	27
Vegetable Seedling	Bottlegourd	87	870	27
Vegetable Seedling	Brinjal	84685	39526	1928
Vegetable Seedling	Brinjal	1000	500	20
Vegetable Seedling	Brinjal, Tomato, Chili	25000	17500	382
Vegetable Seedling	Brinjal, Tomato, Chilli, Cabbage, Cauliflower	5000	10000	125
Vegetable Seedling	Broccoli	7880	3690	264
Vegetable Seedling	Brockli, Tomato, Munga, Cauliflower	5000	2000	660
Vegetable Seedling	Cabbage	44385	18911.5	1367
Vegetable Seedling	Cauliflower	45855	23128	1153
Vegetable Seedling	Chilli	147626	69165.5	2133
Vegetable Seedling	Cucumber	36	540	34
Vegetable Seedling	Curry leaf	500	5000	250

Crop Category	Crop	No.	Value (Rs)	Provided to no. of Farmers
Vegetable Seedling	Knol Khol	5000	5000	250
Vegetable Seedling	Munga	2500	25000	145
Vegetable Seedling	Onion	387155	115554	937
Vegetable Seedling	Potato	1242	5522	0
Vegetable Seedling	Pumpkin	51	510	23
Vegetable Seedling	Red Cabbage	5010	2505	260
Vegetable Seedling	Seasonal Vegetables	0	2180	0
Vegetable Seedling	Sponge Gourd	84	840	24
Vegetable Seedling	Tomato	435046	147319	2912
Pulse	Pigeonpea	8000	16000	50
<b>Grand Total</b>		<b>1336141</b>	<b>7620265</b>	<b>21871</b>

**Table 5.9:** Status of Planting Material production in Chhattisgarh

Crop Category	Crop	Nos.	Value (Rs)	Provided to no. of Farmers
Commercial	Sugarcane	1000	450000	50
Forest Species	Semialata	40000	160000	25
Fruits	Ber	1000	6000	2
Fruits	Custard Apple	5000	61200	0
Fruits	Guava	3095	14000	1338
Fruits	Jackfruit	3000	900	0
Fruits	Lemon	200	400	26
Fruits	Mango	11925	473000	86
Fruits	Papaya	32200	113750	1602
Fruits	Pomegranate	1725	9000	664
Fruits	Strawberry	2000	10000	3
Fruits	Pear	200	8000	120
Ornamental plants	Marigold	115000	19000	18
Plantation	Drumstick	13000	45000	991
Plantation	Neem	500	0	20
Plantation	Teak	500	0	25
Vegetable Seedlings	Bottlegourd	3500	0	0
Vegetable Seedlings	Brinjal	218000	51700	89
Vegetable Seedlings	Cabbage	569000	63000	101
Vegetable Seedlings	Cauliflower	591500	54000	179
Vegetable Seedlings	Chilli	192000	192300	33
Vegetable Seedlings	Cowpea	3500	0	0
Vegetable Seedlings	Cucurbits	8000	40000	24
Vegetable Seedlings	Knol Khol	5000	5000	50
Vegetable Seedlings	Okra	2500	0	0

Crop Category	Crop	Nos.	Value (Rs)	Provided to no. of Farmers
Vegetable Seedlings	Onion	930000	34000	106
Vegetable Seedlings	Ridgegourd	2000	0	0
Vegetable Seedlings	Tomato	591500	96500	139
Vegetable Seedlings	Tomato,Brinjal	100	200	100
Other	Makhana Plant	27000	0	0
Other	Mushroom Spawn	30	3600	12
<b>Grand Total</b>		<b>3373975</b>	<b>1910550</b>	<b>5803</b>

### Production of Bio-products

**Table 5.10:** Production of bio-agents, pesticides, fertilizers by KVKs in Zone-IX

Category	Major Group Bio agent/Bio fertilizers/Bio Pesticides	Name of the Product	Qty (in Kg)	Qty (in No)	Value (Rs)	Provided to no. of Farmers
<b>Bio Agents</b>	Bio Agents	Talc based Trichoderma	420	420	43000	284
		Tricoderma	1350	800	58000	478
	Bio Fungicide	Psb	487.5	1800	45000	525
		Tricoderma	122	122	7320	87
		Vermibased trichoderma	2400	0	144000	338
	Earth Worms	Earth worms	368	35	104700	155
		Eisenia foetida	210	160	74000	135
		Worms	16	0	4000	16
	<b>Bio Fertilizer</b>	Bio Fertilizer	Azolla	620	275	15200
Bga			10	0	1000	7
Compost			5000	0	2500	10
Liquid Rhizobium			100	100	20000	125
Nadep compost			27579	2	130000	80
Psb, Azotobactor, Rhizobium, Tricodurma			25	5400	135000	225
Rhizobium			62.5	125	6300	425
Vermi compost			160774	15791	3001495	1382
Worms			82	0	33800	19
<b>Bio Pesticide</b>	Bio Pesticide	Pesticide	400	80	4000	80
		Pseudomonas florescens	400	400	70000	221
		Trichoderma virde	443	223	67300	463
<b>Bio-Foods</b>	Bio-Foods	Honey	1277.5	0	68196	0
<b>Others</b>	Others	Cow dung dry (FYM)	5000	0	50000	0
		Mushroom spawn	50	250	7500	10
		<b>Total</b>	<b>207196.5</b>	<b>25983</b>	<b>4092311</b>	<b>5225</b>

**Table 5.11:** Production of bio-agents, pesticides, fertilizers by KVKs in Chhattishgarh

Category	Major Group Bio agent/Bio fertilizers/ Bio Pesticides	Name of the Product	Qty (in Kg)	Qty (in No)	Value (Rs)	Provided to no. of Farmers
<b>Bio Agents</b>	Bio Agents	Talc based trichoderma	320	320	33000	134
		Tricoderma	1350	800	58000	478
	Bio Fungicide	Tricoderma	122	122	7320	87
		Vermi based trichoderma	2400	0	144000	338
	Earth Worms	Earth worms	10		5000	25
		Eisenia foetida	110	160	39000	110
<b>Bio Fertilizer</b>	Bio Fertilizer	Azolla	420	5	200	10
		Bga	10	0	1000	7
		Compost	5000	0	2500	10
		Nadep compost	1250	2	0	0
		Vermi compost	21740	15740	2576300	471
<b>Bio Pesticide</b>	Bio Pesticide	Pseudomonas floescens	200	200	30000	121
		Trichoderma virde	83	23	11300	208
<b>Others</b>	Others	Cow dung dry (FYM)	5000	0	50000	0
		Mushroom spawn	50	250	7500	10
	<b>Total</b>		<b>38065</b>	<b>17622</b>	<b>2965120</b>	<b>2009</b>

**Table 5.12:** Production of bio-agents, pesticides, fertilizers by KVKs in Madhya Pradesh

Category	Major Group Bio agent/Bio fertilizers/ Bio Pesticides	Name of the Product	Qty (in Kg)	Qty (in No)	Value (Rs)	Provided to no. of Farmers
<b>Bio Agents</b>	Bio Agents	Talc based Trichoderma	100	100	10000	150
	Bio Fungicide	PSB	487.5	1800	45000	525
	Earth Worms	Earth worms	358	35	99700	130
		Eisenia foetida	100	0	35000	25
		Worms	16	0	4000	16
<b>Bio Fertilizer</b>	Bio Fertilizer	Azolla	200	270	15000	150
		Liquid Rhizobium	100	100	20000	125
		Nadep compost	26329	0	130000	80
		PSB, Azotobactor, Rhizobium, tricolor	25	5400	135000	225
		Rhizobium	62.5	125	6300	425
		Vermi compost	139034	51	425195	911
		Worms	82	0	33800	19

Category	Major Group Bio agent/Bio fertilizers/ Bio Pesticides	Name of the Product	Qty (in Kg)	Qty (in No)	Value (Rs)	Provided to no. of Farmers
Bio Pesticide		Pesticide	400	80	4000	80
		Pseudomonas fluorescens	200	200	40000	100
		Trichoderma virde	360	200	56000	255
Bio-Food	Bio-Food	Honey	1277.5	0	68196	0
	<b>Total</b>		<b>169131.5</b>	<b>8361</b>	<b>1127191</b>	<b>3216</b>

### Production of Livestock Materials

Table 5.13: Status of Livestock Production in KVKs in Zone-IX

Thematic Area	Name of the animal / bird / aquatics	Breed	Type of Produce	Qty. (kg/ qt./litre)	Value (Rs)	No. of Beneficiaries	No. of KVKs
Dairy animals	Buffalo	Murrah	Milk	9268.15	349848	135	3
Dairy animals	Buffalo	Murrah	Milk & FYM	12	12000	10	1
Dairy animals	Cow	Gir	Calf	10	0	50	1
Dairy animals	Cow	Gir	Milk	14543.5	902449	351	8
Dairy animals	Cow	Gir	Milk & FYM	16	16000	0	1
Dairy animals	Cow	Gir, Sahiwal	Milk	22919	869900	180	2
Dairy animals	Cow	H.F, Jersey	Calf	2	36000	0	1
Dairy animals	Cow	H.F, Jersey	Milk	2	80000	0	1
Dairy animals	Cow	Sahiwal	Calf	7	23500	0	2
Dairy animals	Cow	Sahiwal	Milk	22534.5	933428	160	10
Dairy animals	Cow	Sahiwal	Milk & FYM	12	155000	10	1
Dairy animals	Goat	Barbari	Doe/Buck/Kid	224.94	114891	20	4
Dairy animals	Goat	Barbari	Kid & Meat	10	10000	0	1
Dairy animals	Goat	Barbari & jamnapari	Kid & Meat	3	15000	25	1
Dairy animals	Goat	Barbari, Black Bengal	Meat	10	50000	0	1
Dairy animals	Goat	Black bangal	Meat	37	178689	9	1
Dairy animals	Goat	Jamunapari	Breeding	21	135000	15	2
Dairy animals	Goat	Sirohi	Doe/Buck/Kid	524.3	219175	5	3
Dairy animals	Goat	Sirohi	Milk & Meat	25	162000	9	4
Dairy animals	Goat	Osmanabadi	Breeding	280	67000	21	1
Fisheries	Fish	Catla, Rahu, Mrigal, Common carp	Fingerlings	30002	46950	21	3
Fisheries	Fish	Catla, Rahu, Mrigal, Common carp	Fish	300150	40000	15	3
Fisheries	Fish	Indian major carp	Fingerlings	495800	149450	83	2

Thematic Area	Name of the animal / bird / aquatics	Breed	Type of Produce	Qty. (kg/ qt./litre)	Value (Rs)	No. of Beneficiaries	No. of KVKs
Fisheries	Fish	Rohu, Katla and Mrigal	Fingerlings	0	100000	10	1
Poultry	Duck	Khakhi campbell, White pekin	Chicks	152	0	10	2
Poultry	Duck	Nagraj	Chicks	170	2000		1
Poultry	Poultry	Kadaknath	Birds	511	25500	30	2
Poultry	Poultry	Kadaknath	Chicks	56512	4405070	1069	9
Poultry	Poultry	Kadaknath	Eggs	750	10077	106	2
Poultry	Poultry	Kadaknath	Meat	482.95	265040	329	5
Poultry	Poultry	Kadaknath	Egg, Meat & chicks	2589	247955	182	4
Poultry	Poultry	Kadaknath and Narmada Nidhi	Meat	100	20000	0	1
Poultry	Poultry	Narmada Nidhi	Chicks	500	25000	0	1
Poultry	Poultry	Vanraja	Chicks	200	6800	25	1
Poultry	Poultry	Vanraja, Black rock, White laghorn cross	Hen/Cock	300	40000	0	1
	<b>Total</b>			<b>958680.34</b>	<b>9713722</b>	<b>2880</b>	

**Table 5.14:** Status of Livestock Production in KVKs under Chhattishgarh during 2017-18

Thematic Area	Name of the animal / bird / aquatics	Breed	Type of Produce	Qty. (kg/qt/ litre)	Value (Rs)	No. of Beneficiaries	No. of KVKs
Dairy animals	Cow	Gir	Calf	10	0	50	1
Dairy animals	Cow	Gir	Milk	9703	641969	50	4
Dairy animals	Cow	Gir, Sahiwal	Milk	13547	541880	45	1
Dairy animals	Cow	Sahiwal	Calf	7	23500	0	2
Dairy animals	Cow	Sahiwal	Milk	18588	570573	131	8
Dairy animals	Goat	Barbari	Doe/Buck/ Kid	217.94	65891	20	3
Dairy animals	Goat	Barbari, Black Bengal	Meat	10	50000	0	1
Dairy animals	Goat	Black bangal	Meat	37	178689	9	1
Dairy animals	Goat	Sirohi	Doe/Buck/ Kid	524.3	219175	5	3
Dairy animals	Goat	Sirohi	Milk & Meat	5	40000	5	1
Dairy animals	Goat	Osmanabadi	Breeding	280	67000	21	1
Fisheries	Fish	Catla, Rahu, Mrigal, Common carp	Fingerlings	30002	46950	21	3
Fisheries	Fish	Catla, Rahu, Mrigal, Common carp	Fish	300150	40000	15	3
Fisheries	Fish	Indian major carp	Fingerlings	495800	149450	83	2

Thematic Area	Name of the animal / bird / aquatics	Breed	Type of Produce	Qty. (kg/qt/litre)	Value (Rs)	No. of Beneficiaries	No. of KVKs
Poultry	Duck	Khakhi campbell, White pekin	Chicks	152	0	10	2
Poultry	Duck	Nagraj	Chicks	170	2000		1
Poultry	Poultry	Kadaknath	Chicks	41884	2861810	1005	6
Poultry	Poultry	Kadaknath	Meat	284.95	165240	187	4
Poultry	Poultry	Kadaknath	Egg, Meat & chicks	250	40000	100	1
Poultry	Poultry	Vanraja	Chicks	200	6800	25	1
Poultry	Poultry	Vanraja, Black rock, White laghorn cross	Hen/Cock	300	40000	0	1
	<b>Total</b>			<b>912122.19</b>	<b>5750927</b>	<b>1782</b>	

**Table 5.15:** Status of Livestock Production in KVKs under Madhya Pradesh during 2017-18

Thematic Area	Name of the animal / bird / aquatics	Breed	Type of Produce	Qty. (kg/qt/litre)	Value (Rs)	No. of Beneficiaries	No. of KVKs
Dairy animals	Buffalo	Murrah	Milk	9268.15	349848	135	3
Dairy animals	Buffalo	Murrah	Milk & FYM	12	12000	10	1
Dairy animals	Cow	Gir	Milk	4840.5	260480	301	4
Dairy animals	Cow	Gir	Milk & FYM	16	16000	0	1
Dairy animals	Cow	Gir, Sahiwal	Milk	9372	328020	135	1
Dairy animals	Cow	H.F, Jersey	Calf	2	36000	0	1
Dairy animals	Cow	H.F, Jersey	Milk	2	80000	0	1
Dairy animals	Cow	Sahiwal	Milk	3946.5	362855	29	2
Dairy animals	Cow	Sahiwal	Milk & FYM	12	155000	10	1
Dairy animals	Goat	Barbari	Doe/Buck/Kid	7	49000	0	1
Dairy animals	Goat	Barbari	Kid & Meat	10	10000	0	1
Dairy animals	Goat	Barbari & jamnapari	Kid & Meat	3	15000	25	1
Dairy animals	Goat	Jamunapari	Breeding	21	135000	15	2
Dairy animals	Goat	Sirohi	Milk & Meat	20	122000	4	3
Fisheries	Fish	Rohu, Katla and Mrigal	Fingerlings	0	100000	10	1
Poultry	Poultry	Kadaknath	Birds	511	25500	30	2
Poultry	Poultry	Kadaknath	Chicks	14628	1543260	64	3
Poultry	Poultry	Kadaknath	Eggs	750	10077	106	2
Poultry	Poultry	Kadaknath	Meat	198	99800	142	1
Poultry	Poultry	Kadaknath	Egg, Meat & chicks	2339	207955	82	3
Poultry	Poultry	Kadaknath and Narmada Nidhi	Meat	100	20000	0	1
Poultry	Poultry	Narmada Nidhi	Chicks	500	25000	0	1
	<b>Total</b>			<b>46558.15</b>	<b>3962795</b>	<b>1098</b>	

## SOIL, WATER AND PLANT ANALYSIS

Soil and water testing is an important activity of KVK for improving the soil fertility and sustainability of agricultural production in the region. During the reporting year, KVKs analyzed 123957 soil samples and 105 water samples benefitting 2,95,958 farmers

of 2826 villages (Table 6). The highest numbers of samples were tested in the state of Madhya Pradesh followed by Chhattisgarh. The KVK wise details of soil and water samples tested are given in Table 6 & Table 6.1.

**Table 6:** Summary of water samples tested by the KVKs in Zone-IX during 2017-18

State	Details	No. of Samples	No. of Farmers	No. of Villages covered
Chhattisgarh	Water Samples	55	55	55
Madhya Pradesh	Water samples	50	50	5
	<b>Total</b>	<b>105</b>	<b>105</b>	<b>60</b>

**Table 6.1:** Summary of soil samples tested by the KVKs in Zone-IX during 2017-18

State	Soil Testing Kits sanctioned	Soil Testing Kits Procured	Number of Soil Samples Analysed		Total	Number of Soil Health Cards distributed		Total	No. of farmers benefited	Village Covered
			Through Mini Soil Testing kit/labs	Through Soil testing laboratory		Through Mini Soil Testing kit/labs	Through Soil testing laboratory			
Chhattisgarh	23	23	22495	4005	26500	58920	23772	82692	86627	1138
Madhya Pradesh	59	59	25447	72010	97457	57215	153787	211002	209226	1628
<b>Zone-IX</b>	<b>82</b>	<b>82</b>	<b>47942</b>	<b>76015</b>	<b>123957</b>	<b>116135</b>	<b>177559</b>	<b>293694</b>	<b>295853</b>	<b>2766</b>

## EXTENSION ACTIVITIES

Transfer of technology holds key to rapid development and transformation of rural society. Krishi Vigyan Kendras having district as jurisdiction, are playing crucial role in transfer of technology and thereby enhancing productivity and income of the farming community. The various extension activities include demonstration for farmers group and exhibition reaching large number of farmers. To reach to wider masses, different means of information dissemination from traditional ones like poster exhibition to new ICT tools like mobile messaging and social media are used. Broadly, extension activities conducted by KVK includes- (i) Advice based like farm advisory services; lectures delivered as resource person; method demonstration, etc. (ii) Animal related like

animal health and vaccination camp (iii) Literature based like exhibition, extension literature and popular article (iv) Media based like production of CD/DVD, Film show, Newspaper coverage, radio talks and TV talks (v) Meeting based like ex-trainee sammelan, celebration of important days, club meet, farmers' seminar, field day, group meet, gosthi, mela, SHG meeting and workshops (vi) Soil related activities like soil health camp and soil test campaign (vii) Visit based activities like diagnostic visits, exposure visits, farmers visit to KVK and scientists visits to farmers fields. In all, 1,22,752 activities were conducted and 29,26,039 farmers, farm women, rural youth and extension workers were benefited (Table 7.1).

**Table 7.1 :** Details of extension activities organized by the KVKs of Zone-IX during 2017-18

Activity	No. of activities (Achieved)	Details of participants								
		Farmers (Other)		Farmers (SC/ST)		Extension Officials		Total Farmers & Extension personnel		
		M	F	M	F	M	F	M	F	Total
Advisory Services	2075	394194	37376	246908	35564	4070	982	645172	73922	719094
Agri mobile clinic	576	4595	97	1564	109	247	61	6406	267	6673
Animal Health Camp	95	1870	197	1555	339	145	11	3570	547	4117
Awareness programme	286	9300	1748	9461	1743	1036	186	19797	3677	23474
Celebration of important days (World Soil Health day, Kisan Mahila diwas, Womans day, World Food day, Kisan Diwas, Hindi Pakhwara, Republic Day, Independence Day)	376	20848	7015	9357	4014	1572	453	31777	11482	43259
Diagnostic visits	2308	7199	1351	7736	1426	765	175	15700	2952	18652
Exhibition	368	67280	18388	46627	6976	13013	2397	126920	27761	154681
Exposure visits	234	5266	1130	3620	1030	399	56	9285	2216	11501
Extension Literature	1665	24366	4235	22569	3093	2082	591	49017	7919	56936
Ex-trainees Sammelan	142	4447	364	4691	750	343	136	9481	1250	10731
Farm advisory Services	2925	472566	7179	332959	13699	10717	601	816242	21479	837721

Activity	No. of activities (Achieved)	Details of participants								
		Farmers (Other)		Farmers (SC/ST)		Extension Officials		Total Farmers & Extension personnel		
		M	F	M	F	M	F	M	F	Total
Farm Science Club conveners meet	29	609	128	201	60	61	26	871	214	1085
Farmers Seminar/ Workshop	258	4198	709	3109	952	625	155	7932	1816	9748
Farmers visit to KVK	91528	85174	12122	65546	20511	5725	1571	156445	34204	190649
Field Day	576	12469	2785	7455	2087	780	178	20704	5050	25754
Film Show	880	16699	5229	11049	3511	2459	709	30207	9449	39656
Group meetings	572	6106	1315	3315	1104	501	221	9922	2640	12562
Interface	69	2054	293	1093	267	330	90	3477	650	4127
Kharif Sammelan	84	4842	939	3980	1188	472	150	9294	2277	11571
Kisan Chaupal	2	2200	300	1400	600	40	10	3640	910	4550
Kisan Ghosthi	919	29082	6965	14652	5389	3494	820	47228	13174	60402
Kisan Mela	179	94425	15071	55149	14644	5779	1079	155353	30794	186147
KMAS Camp	95	16700	1250	7700	2500	450	150	24850	3900	28750
Krishi Gyan Doot meet	20	423	59	280	50	14	8	717	117	834
Krishi Mahotsav	424	73934	13038	27721	7068	4767	575	106422	20681	127103
Lectures delivered as resource persons	3406	55895	9931	32506	11746	3855	822	92256	22499	114755
Mahila Mandals conveners meetings	74	41	1112	28	887	21	136	90	2135	2225
Method Demonstrations	375	2744	1315	2953	942	385	136	6082	2393	8475
Newspaper coverage	2113	2771	209	6302	108	343	115	9416	432	9848
Popular articles	492	1562	231	435	135	306	60	2303	426	2729
Pradhanmantri phasal bema yojana	132	74382	237	729	240	282	36	75393	513	75906
Radio talks	463	886	12	546	5	15	5	1447	22	1469
Sankalp Se Siddhi	5	1984	373	785	366	180	21	2949	760	3709
Scientific visit to farmers field	4722	21113	3214	14962	3814	1417	346	37492	7374	44866
Self Help Group conveners meetings	166	1179	1505	671	847	153	99	2003	2451	4454
Soil health Camp	1602	5547	1040	3812	994	496	110	9855	2144	11999
Soil test campaigns	1430	3136	738	2772	2689	2201	78	8109	3505	11614
Summer deep ploughing	252	1199	278	757	278	281	37	2237	593	2830
Swachhata Pakhwada	26	869	231	192	156	19	6	1080	393	1473
Technology Week	205	10624	932	3605	854	218	92	14447	1878	16325
TV talks	270	456	20	385	56	53	12	894	88	982
Workshop	225	8090	1726	2773	757	1894	342	12757	2825	15582
Others	109	4768	406	1356	312	147	32	6271	750	7021
<b>Grand Total</b>	<b>122752</b>	<b>1558092</b>	<b>162793</b>	<b>965266</b>	<b>153860</b>	<b>72152</b>	<b>13876</b>	<b>2595510</b>	<b>330529</b>	<b>2926039</b>

Note: M-Male, F-Female

**Table 7.2:** Details of extension activities organized by the KVKs of Chhattisgarh during 2017-18

Activity	No. of activities (Achieved)	Detail of Participants								
		Farmers (Others)		Farmers (SC/ST)		Extension Officials		Total of Farmers and Extension Personal		
		M	F	M	F	M	F	M	F	Total
Advisory Services	332	95381	29502	111293	31547	1634	425	208308	61474	269782
Agri mobile clinic	37	191	52	487	104	125	47	803	203	1006
Animal Health Camp	17	269	52	724	227	49	5	1042	284	1326
Awareness programme	53	1281	496	1580	699	167	50	3028	1245	4273
Celebration of important days (World Soil Health day, Kisan Mahila diwas, Womans day, World Food day, Kisan Diwas, Hindi Pakhwara, Republic Day, Independence Day)	163	3713	993	3883	1319	280	136	7876	2448	10324
Diagnostic visits	1303	1653	465	4209	841	298	82	6160	1388	7548
Exhibition	132	2835	1143	3779	830	213	109	6827	2082	8909
Exposure visits	126	4057	892	2773	898	115	19	6945	1809	8754
Extension Literature	119	10221	424	16689	636	444	116	27354	1176	28530
Ex-trainees Sammelan	55	1516	87	3781	411	111	46	5408	544	5952
Farm advisory Services	574	36964	2809	38168	3050	1540	306	76672	6165	82837
Farm Science Club conveners meet	4	60	3	57	7	14	9	131	19	150
Farmers Seminar/Workshop	183	975	213	1500	517	312	56	2787	786	3573
Farmers visit to KVK	51977	16820	3915	29877	13562	2614	1089	49311	18566	67877
Field Day	139	4138	1506	3355	939	256	80	7749	2525	10274
Film Show	233	2968	731	2587	1127	308	117	5863	1975	7838
Group meetings	167	1432	421	1296	500	169	79	2897	1000	3897
Kharif Sammelan	14	1769	524	2782	773	112	37	4663	1334	5997
Kisan Ghosthi	325	2671	652	3134	747	306	76	6111	1475	7586
Kisan Mela	63	12239	3657	13373	4306	951	303	26563	8266	34829
Krishi Gyan Doot meet	2	18	0	102	0	0	0	120	0	120
Krishi Mahotsav	47	0	0	1	1	0	0	1	1	2
Lectures delivered as resource persons	576	5276	1368	5126	2209	567	200	10969	3777	14746
Mahila Mandals conveners meetings	18	4	183	6	332	2	9	12	524	536
Method Demonstrations	188	757	476	1565	604	198	78	2520	1158	3678
Newspaper coverage	686	2656	93	5986	65	265	89	8907	247	9154
Popular articles	149	300	0	225	6	150	40	675	46	721
Pradhanmantri phasal bema yojana	4	0	0	0	0	0	0	0	0	0
Radio talks	140	0	0	0	0	0	0	0	0	0
Scientific visit to farmers field	1428	3294	902	3531	1195	248	79	7073	2176	9249

Activity	No. of activities (Achieved)	Detail of Participants								
		Farmers (Others)		Farmers (SC/ST)		Extension Officials		Total of Farmers and Extension Personal		
		M	F	M	F	M	F	M	F	Total
Self Help Group conveners meetings	57	217	364	224	316	34	41	475	721	1196
Soil health Camp	1429	1336	338	1837	523	275	69	3448	930	4378
Soil test campaigns	818	267	110	774	274	127	42	1168	426	1594
Summer deep ploughing	61	67	30	118	58	12	11	197	99	296
Technology Week	13	178	35	354	66	29	21	561	122	683
TV talks	41	0	0	0	0	0	0	0	0	0
Workshop	143	642	115	338	88	983	164	1963	367	2330
Others	50	0	0	0	0	0	0	0	0	0
<b>Grand Total</b>	<b>61866</b>	<b>216165</b>	<b>52551</b>	<b>265514</b>	<b>68777</b>	<b>12908</b>	<b>4030</b>	<b>494587</b>	<b>125358</b>	<b>619945</b>

Note: M-Male, F-Female

**Table 7.3:** Details of extension activities organized by the KVKs of Madhya Pradesh during 2017-18

Activity	No. of activities (Achieved)	Detail of Participants								
		Farmers (Others)		Farmers (SC/ST)		Extension Officials		Total of Farmers and Extension Personal		
		M	F	M	F	M	F	M	F	Total
Advisory Services	1743	298813	7874	135615	4017	2436	557	436864	12448	449312
Agri mobile clinic	539	4404	45	1077	5	122	14	5603	64	5667
Animal Health Camp	78	1601	145	831	112	96	6	2528	263	2791
Awareness programme	233	8019	1252	7881	1044	869	136	16769	2432	19201
Celebration of important days (World Soil Health day, Kisan Mahila diwas, Womans day, World Food day, Kisan Diwas, Hindi Pakhwara, Republic Day, Independence Day)	213	17135	6022	5474	2695	1292	317	23901	9034	32935
Diagnostic visits	1005	5546	886	3527	585	467	93	9540	1564	11104
Exhibition	236	64445	17245	42848	6146	12800	2288	120093	25679	145772
Exposure visits	108	1209	238	847	132	284	37	2340	407	2747
Extension Literature	1546	14145	3811	5880	2457	1638	475	21663	6743	28406
Ex-trainees Sammelan	87	2931	277	910	339	232	90	4073	706	4779
Farm advisory Services	2351	435602	4370	294791	10649	9177	295	739570	15314	754884
Farm Science Club conveners meet	25	549	125	144	53	47	17	740	195	935
Farmers Seminar/ Workshop	75	3223	496	1609	435	313	99	5145	1030	6175
Farmers visit to KVK	39551	68354	8207	35669	6949	3111	482	107134	15638	122772



Activity	No. of activities (Achieved)	Detail of Participants								
		Farmers (Others)		Farmers (SC/ST)		Extension Officials		Total of Farmers and Extension Personal		
		M	F	M	F	M	F	M	F	Total
Field Day	437	8331	1279	4100	1148	524	98	12955	2525	15480
Film Show	647	13731	4498	8462	2384	2151	592	24344	7474	31818
Group meetings	405	4674	894	2019	604	332	142	7025	1640	8665
Interface	69	2054	293	1093	267	330	90	3477	650	4127
Kharif Sammelan	70	3073	415	1198	415	360	113	4631	943	5574
Kisan Chaupal	2	2200	300	1400	600	40	10	3640	910	4550
Kisan Ghosthi	594	26411	6313	11518	4642	3188	744	41117	11699	52816
Kisan Mela	116	82186	11414	41776	10338	4828	776	128790	22528	151318
KMAS Camp	95	16700	1250	7700	2500	450	150	24850	3900	28750
Krishi Gyan Doot meet	18	405	59	178	50	14	8	597	117	714
Krishi Mahotsav	377	73934	13038	27720	7067	4767	575	106421	20680	127101
Lectures delivered as resource persons	2830	50619	8563	27380	9537	3288	622	81287	18722	100009
Mahila Mandals conveners meetings	56	37	929	22	555	19	127	78	1611	1689
Method Demonstrations	187	1987	839	1388	338	187	58	3562	1235	4797
Newspaper coverage	1427	115	116	316	43	78	26	509	185	694
Others	59	4768	406	1356	312	147	32	6271	750	7021
Popular articles	343	1262	231	210	129	156	20	1628	380	2008
Pradhanmantri phasal bema yojana	128	74382	237	729	240	282	36	75393	513	75906
Radio talks	323	886	12	546	5	15	5	1447	22	1469
Sankalp Se Siddhi	5	1984	373	785	366	180	21	2949	760	3709
Scientific visit to farmers field	3294	17819	2312	11431	2619	1169	267	30419	5198	35617
Self Help Group conveners meetings	109	962	1141	447	531	119	58	1528	1730	3258
Soil health Camp	173	4211	702	1975	471	221	41	6407	1214	7621
Soil test campaigns	612	2869	628	1998	2415	2074	36	6941	3079	10020
Summer deep ploughing	191	1132	248	639	220	269	26	2040	494	2534
Swachhata Pakhwada	26	869	231	192	156	19	6	1080	393	1473
Technology Week	192	10446	897	3251	788	189	71	13886	1756	15642
TV talks	229	456	20	385	56	53	12	894	88	982
Workshop	82	7448	1611	2435	669	911	178	10794	2458	13252
<b>Grand Total</b>	<b>60886</b>	<b>1341927</b>	<b>110242</b>	<b>699752</b>	<b>85083</b>	<b>59244</b>	<b>9846</b>	<b>2100923</b>	<b>205171</b>	<b>2306094</b>

Note: M-Male, F-Female

## TECHNOLOGY WEEK

Technology week concept is promoted among KVKs for showcasing the available technologies to the district level extension functionaries and farmers. During technology week, farmers could directly interact with KVK experts, technology

generators and extension personnel which results in higher adoption of the technology. Status of Technology week organized by KVKs in Zone IX is given in Table 8.

**Table 8 :** Details of Technology week organized by the KVKs of Zone-IX during 2017-18

Type of Activities	No. of Activities	Number of Participants
Animal health camp	44	1707
Awareness programme	120	6936
Bio Fertilizers (q)	4413	1293
Bio Product distribution (Kg)	131	878
Bio Production Distribution (q)	36	25
Cashless Transaction Week	12	359
Celebration of important days (Parthenium eradication week, Swachhata Abhiyan and Soil Health Day, International Women Day, National Integrity Day, World Environment Day, World Forestry Day, World Water Day)	220	18445
Demonstration	833	7858
Diagnostic Practicals	562	4289
Diagnostic Visits	45	105
Distribution of fingerlings	2	17
Distribution of Literature (No.)	10522	52117
Distribution of Livestock specimen (No.)	578	68
Distribution of Planting materials (No.)	19636	4850
Distribution of Seed (q)	2857	2581
Distribution of vegetable Seed mini kit	4	300
Exhibition	135	10223
Exposure visit	87	3851
Extension activity	203	65924
Ex-trainees Meet	39	1110
Fair	56	50494
Farm Visit	15329	20859
Farmer scientist interaction	353	4015
Farmers Trainings Programme	831	20055
Field Day	124	5176

Type of Activities	No. of Activities	Number of Participants
Field visit	785	3174
Film show	215	12461
Gosthies	200	8344
Group discussion	1	14
Group Meeting	165	3235
Jai Kisan Jai Vigyan Sangoshthi	28	1062
Lectures organised	711	14420
Narmada sewa Yatra	7	1220
News Paper/Mass Media	433	3619
Plant health camp	27	500
Plant Protection Week	8	336
Progressive Farmers Sammelan	1	49
Scientists visits in farmers field	1106	7824
Seed treatment campaign	52	715
Self Help Group convener meet	35	1019
Soil health awareness programme	2	1056
Soil health Camp	27	4479
Swachha Bharat Abhiyan (Swachhata Pakhwara, Swachhta hi Sewa)	296	10253
Total number of farmers visited the technology week	3962	81427
Training	2	49
Van Mahotsava	6	593
<b>Grand Total</b>	<b>65241</b>	<b>439384</b>

**Table 8.1 :** Details of Technology week organized by the Chhattisgarh KVKs during 2017-18

Type of Activities	No. of Activities	Number of Participants
Animal health camp	8	272
Awareness programme	46	2118
Bio Fertilizers (q)	4100	513
Bio Product distribution (Kg)	110	364
Cashless Transaction Week	6	221
Celebration of important days (Parthenium eradication week, Swachhata Abhiyan and Soil Health Day, International Women Day, National Integrity Day, World Environment Day, World Forestry Day, World Water Day)	81	9111
Demonstration	82	2932
Diagnostic Practicals	440	2554
Distribution of fingerlings	2	17
Distribution of Literature (No.)	8260	11254
Distribution of Livestock specimen (No.)	50	55
Distribution of Planting materials (No.)	11721	140
Distribution of Seed (q)	409	1007
Exhibition	68	4611

Type of Activities	No. of Activities	Number of Participants
Exposure visit	52	2792
Extension activity	71	62601
Ex-trainees Meet	11	237
Fair	24	17273
Farm Visit	9540	14617
Farmer scientist interaction	173	2003
Farmers Trainings Programme	367	9150
Field Day	52	2903
Field visit	561	2358
Film show	80	3586
Gosthies	100	4024
Group Meeting	123	2254
Jai Kisan Jai Vigyan Sangoshthi	12	616
Lectures organised	263	5442
News Paper/Mass Media	250	3319
Plant health camp	4	128
Plant Protection Week	2	73
Scientists visits in farmers field	713	4804
Seed treatment campaign	33	300
Self Help Group convener meet	17	337
Soil health awareness programme	2	1056
Soil health Camp	10	2234
Swachha Bharat Abhiyan (Swachhata Pakhwara, Swachhta hi Sewa)	81	3461
Total number of farmers visited the technology week	3626	4883
Van Mahotsava	1	25
<b>Grand Total</b>	<b>41551</b>	<b>185645</b>

**Table 8.2 :** Details of Technology week organized by the Madhya Pradesh KVKs during 2017-18

Type of Activities	No. of Activities	Number of Participants
Animal health camp	36	1435
Awareness programme	74	4818
Bio Fertilizers (q)	313	780
Bio Product distribution (Kg)	21	514
Bio Production Distribution (q)	36	25
Cashless Transaction Week	6	138
Celebration of important days (Parthenium eradication week, Swachhata Abhiyan and Soil Health Day, International Women Day, National Integrity Day, World Environment Day, World Forestry Day, World Water Day)	124	8686
Demonstration	751	4926
Diagnostic Practicals	122	1735
Diagnostic Visits	45	105



Type of Activities	No. of Activities	Number of Participants
Distribution of fingerlings	0	0
Distribution of Literature (No.)	2262	40863
Distribution of Livestock specimen (No.)	528	13
Distribution of Planting materials (No.)	7915	4710
Distribution of Seed (q)	2448	1574
Distribution of vegetable Seed mini kit	4	300
Exhibition	67	5612
Exposure visit	35	1059
Extension activity	132	3323
Ex-trainees Meet	28	873
Fair	32	33221
Farm Visit	5789	6242
Farmer scientist interaction	180	2012
Farmers Trainings Programme	464	10905
Field Day	72	2273
Field visit	224	816
Film show	135	8875
Gosthies	100	4320
Group discussion	1	14
Group Meeting	42	981
Hindi diwas pakhwada	15	648
Jai Kisan Jai Vigyan Sangoshthi	16	446
Lectures organised	448	8978
Narmada sewa Yatra	7	1220
News Paper/Mass Media	183	300
Plant health camp	23	372
Plant Protection Week	6	263
Progressive Farmers Sammelan	1	49
Scientists visits in farmers field	393	3020
Seed treatment campaign	19	415
Self Help Group convener meet	18	682
Soil health Camp	17	2245
Swachha Bharat Abhiyan (Swachhata Pakhwara, Swachhta hi Sewa)	215	6792
Total number of farmers visited the technology week	336	76544
Training	2	49
Van Mahotsava	5	568
<b>Grand Total</b>	<b>23690</b>	<b>253739</b>

# TECHNOLOGICAL BACKSTOPPING THROUGH LITERATURE AND MEDIA

## 9.1. Newsletter

**Table 9.1:** State wise Newsletter published by the KVKs during 2017-18

State	No. of KVKs	No. of issues	Number of copies printed	Number of copies distributed
Chhatisgarh	21	4	51700	50066
Madhya Pradesh	45	4	118100	117569
<b>Grand Total</b>	<b>66</b>	<b>-</b>	<b>169800</b>	<b>167635</b>

## 9.2. Publications

**Table 9.2:** Category wise literature published and distributed by the KVKs of Zone IX during 2017-18

S. No.	Type	Number	No. of KVKs
1	Book/Book Chapter/Booklet	13610	39
2	Brochure	1023	7
3	Leaflet / Folder	179675	37
4	Literature	8015	24
5	News Letters	10000	9
6	News Paper Coverage	39	11
7	Other	1002	5
8	Pamphlet	19610	20
9	Popular Article	27019	22
10	Research Paper	29	74
11	Technical Bulletin/Report/Manual	23914	76
12	Year Planner	838	7
	<b>Grand Total</b>	<b>284774</b>	

## FLAGSHIP PROGRAMMES

### 1. Kisan Mobile Advisory (KMA)

**Incharge :** Dr. S.R.K. Singh, Principal Scientist (AE)

Kisan Mobile Advisory (KMA) is the easiest ICT tool working successfully for dissemination of latest information to the farmers and farm women in the States of Madhya Pradesh, Chhattisgarh. This ICT based alternate agricultural information and rural delivery mechanism through mobile phone was initiated during 2007 in ATARI, Zone IX, Jabalpur. It is based on the linear model of communication. This is the unique programme for making linkages between different stakeholders who are key players for making Indian agriculture sustainable in the coming future through intensive use of ICT tools like mobile phone.

Short Message Service (SMS) is being provided by KVKs to the farmers. KVKs implemented the programme during 2017-18, total 3987 text messages were sent which benefitted 33,76,460 users in 42,153 villages by the operational KVKs in the Zone.

### 2. Climate Resilience Agriculture through KVKs under NICRA

**Project:** Technology Demonstration Component under National Initiative on Climate Resilient Agriculture (NICRA)

**Nodal Scientist:** Dr. S.R.K. Singh, Principal Scientist (AE)

NICRA is operational in 12 KVKs in States of Madhya Pradesh & Chhattisgarh in Zone IX. ATARI, Zone IX monitor the performance of NICRA KVKs

namely Balaghat, Chhattarpur, Datia, Guna, Morena, Satna, Tikamgarh, Jhabua and Ratlam in Madhya Pradesh; Bhatapara, Bilaspur and Dantewada in Chhattisgarh. During 2017-18, through various planned activities, total 26231 farmers were benefitted including 11061 by technological interventions and 15170 by capacity building and extension activities.

Under **Natural Resource Management Module**, total 816 farmers were benefitted covering an area of the 459.2 ha area. Demonstration were focused on *in-situ* moisture conservation, water harvesting and recycling for supplemental irrigation, improved drainage in flood prone area, etc.

In **Crop Production Module**, a total of 1419 farmers were benefitted through demonstrations conducted on 500.60 ha area focused on drought tolerant varieties, advancement of planting dates of *rabi* crops to escape for terminal heat stress, etc on chickpea, wheat, barley, green gram, pigeon pea and vegetable crops.

In **Livestock and Fisheries Module**, a total of 1189 farmers were benefitted by the demonstrations conducted focusing on preventive vaccination, de-worming of animals, animal health camps and nutrition management for their 2009 animals and covered 34.8 ha areas.

In **Institutional Interventions Module**, total 1762 farmers were benefitted through showcasing of technology, custom hiring, community nursery, community fodder production, vermi-compost production.

**Table 10.1:** Details of KMA during 2017-18 by KVKs of Zone IX

State	No. of KVK	No. Of villages	No. of messages sent	No. of Farmers	No. of Ext. Pers.	Beneficiaries
MP	46	30665	2984	2465742	30663	2496405
CG	23	11488	1003	910718	8549	919267
<b>Total</b>	<b>69</b>	<b>42153</b>	<b>3987</b>	<b>3376460</b>	<b>39212</b>	<b>3415672</b>



Ploughing by Disc harrow under Custom Hiring Centre



Water saving by using Rain gun for irrigation in Black gram



Early stage of Drought tolerant variety of Barley BH-959

Under **Capacity building programme**, total 173 training courses were organized benefiting 4050 participating farmers.

In order to create awareness among the farmers in region, various **Extension Activities** were organized by KVK at the farmer and the farmer's field. During the year, total 440 activities were organized benefitting 7059 farmers and farm women.

### 3. Tribal Sub Plan (TSP) on pulses

**Incharge :** Dr. A.A. Raut, Scientist (Agril. Extension)

Tribal Sub Plan (TSP) scheme is aimed for 'Enhancing Pulses Production for Food, Nutritional Security and livelihoods of Tribal Community through Demonstration and Training'. Participatory demonstration programme on pulses under TSP pulses was implemented by ATARI Jabalpur in Zone IX in collaboration with IIPR Kanpur. Under ATARI, Jabalpur eight KVKs located in the tribal region namely Shahdol, Dhar, Jhabua and Badwani in Madhya Pradesh and Kanker, Jagdalpur, Dantewada, and Kawardha in Chhattisgarh conducted demonstrations under five

crops in 431.25 acre area.

During *Kharif* 2017, a total of 35 demonstrations with 35 acre in pigeon pea (TJT-501, Pusa-992) and 100 acre in black gram (PU 31, TAU-2,) were conducted in pulse crops. During *Rabi* 2017-18 pulse crops 290 demonstrations were conducted in different pulse crops in 296.25 acre area with chick pea, field pea, and lentil. Improved varieties of chickpea namely JG-11, JAKI-9218, JG-130, RVG-201, JG-14; field pea Vikas, Shubhra, Paras and lentil IPL-316 were demonstrated under this programme. KVKs also organized training and field days for enhancing production of pulses.

Regarding the average demonstrated yield of important pulse crops like pigeon pea the yield was reported between 9.93 to 12.35 q/ha. The average demonstrated yield of black gram ranged between 6.36 to 10.21 q/ha. In *Rabi* crops the average demonstrated yield of chick pea was reported between 11.32 to 14.36 q/ha. The average demonstrated yield of field pea ranged between 7.14 to 14.61 q/ha. In case of lentil average demonstrated yield ranged between 8.70 to 11.58 q/ha.

**Table 10.2:** Performance of demonstrations under different crops

S. No.	Crop	Area (Acre)	No. of Farmers	Cost of cultivation (Rs/ha)		Total gross Return (@ 70 Rs/Kg) Rs/ha		Net Return (Rs)		B:C ratio (Gross Return/Cost of Cultivation)	
				Demo	Control	Demo	Control	Demo	Control	Demo	Control
1	Black gram	100	100	17634	14796	44668	30462	27034	15666	2.53	2.06
2	Chickpea	201.25	195	19341	17018	61195	46424	41854	30784	3.16	2.73
3	Field pea	70	70	20165	17952	42117	31464	21952	13512	2.09	1.75
4	Lentil	25	25	17350	15270	39840	30000	22490	14730	2.30	1.96
5	Pigeon pea	35	35	15000	13150	61141	48236	46141	35086	4.08	3.67



KVK Badwani



Chickpea variety JG 130



Lentil variety IPL-316

#### 4. PPV & FRA Awareness

**Incharge:** Dr. A.A. Raut , Scientist (Agril. Extension)

India is predominating in agriculture and 12<sup>th</sup> mega biodiversity hot spot in the world. The farmers are playing major role to conservation of biodiversity in the country. There is a need for develop an effective system for empowered the farmers for their right for protecting the plant varieties in different part of the country. Looking the importance of the above programmes, the ICAR-ATARI, Zone- IX, Jabalpur and PPV & FRA, New Delhi jointly launched the programme for creation of awareness among the farmers' and other stakeholders about the provision of Protection of Plant Varieties & Farmers' Right Act, 2001 in 35 KVKs.



#### Methodology/ Action Plan/ Road Map

ICAR-ATARI, Zone-IX, Jabalpur and PPV & FRA, New Delhi collaborated to identify the district for the creation of awareness among the farmer's and other stake holders about the provision of Protection of Plant Varieties & Farmer's Right Act, 2001 in five hot spot in the Zone viz. two in M.P. namely Malwa Plateau & Central highland, Bundelkhand and one in C.G. namely Bastar.

#### Outcome of the Programme

The programme outcome are 7499 farmers' applied 708 varieties including 267 in Cereals, 178 in Vegetable, 29 in Fruits and Spices, 46 in Oilseeds, 101 in pulses and 87 in others applied for registration under PPV & FRA.



**Table 10.3:** Classification of participants attended the programme

S.No.	KVK Name	No. of farmers	No. of Scientists	No. of State Govt. Officers/Officials	No. of NGO Persons and other participants
<b>JNKVV, Jabalpur</b>					
1	Dindori	202	5	3	3
2	Harda	400	7	3	6
3	Jabalpur	110	12	2	-
4	Narsinghpur	86	3	4	2
5	Panna	616	3	7	6
6	Sagar	250	11	27	2

S.No.	KVK Name	No. of farmers	No. of Scientists	No. of State Govt. Officers/Officials	No. of NGO Persons and other participants
7	Shahdol	200	4	4	2
8	Sidhi	335	3	16	4
9	Tikamgarh	128	8	3	1
10	Umaria	393	7	3	3
	<b>JNKVV Total</b>	<b>2720</b>	<b>63</b>	<b>72</b>	<b>29</b>
<b>RVSKVV, Gwalior</b>					
11	Badwani	115	6	3	2
12	Datia	101	10	8	4
13	Dhar	306	8	17	4
14	Jhabua	243	7	6	9
15	Khargone	400	8	12	2
16	Mandsaur	107	6	9	8
17	Neemuch	197	7	12	2
18	Shajapur	204	9	32	10
	<b>RVSKVV Total</b>	<b>1673</b>	<b>61</b>	<b>99</b>	<b>41</b>
<b>NGO</b>					
19	Raisen	160	10	2	2
20	Satna	337	12	7	4
21	Sehore	126	6	12	2
	<b>NGO Total</b>	<b>623</b>	<b>28</b>	<b>21</b>	<b>8</b>
<b>IGKV, Raipur</b>					
22	Balrampur	120	5	10	6
23	Bastar	81	5	6	-
24	Bijapur	80	7	4	2
25	Bilaspur	116	12	22	24
26	Dantewada	138	8	16	5
27	Dhamtari	112	2	1	1
28	Janjgir Champa	144	9	2	3
29	Jashpur	425	6	8	6
30	Kanker	150	9	5	3
31	Kawardha	125	15	10	5
32	Korea	150	3	3	2
33	Raipur	521	25	6	3
34	Rajnandgaon	200	14	5	12
35	Surguja	121	12	5	1
	<b>IGKV Total</b>	<b>2483</b>	<b>132</b>	<b>103</b>	<b>73</b>
	<b>Grand Total</b>	<b>7499</b>	<b>284</b>	<b>295</b>	<b>151</b>



## 5. Cluster Frontline Demonstrations of Oilseeds 2017-18

**Incharge:** Dr. S.R.K. Singh, Principal Scientist (AE)

Cluster frontline demonstration of Oilseed 2017-18 under the “National Mission of Oilseed and Oil Palm” was implemented in Zone IX of ICAR through Agricultural Technology Application Research Institute. Under the project major crops under taken were Soybean, Niger, Sesame, Rapeseed & Mustard, Linseed and Groundnut in *Kharif* and *Rabi* seasons in Madhya Pradesh and Chhattisgarh states.

In Madhya Pradesh, major crops Soybean, Niger, Sesame and Groundnut were taken under *Kharif* season. Under soybean crop total 2530 demonstration covering in area of 1047 ha was conducted in 31 KVKs, where as 295 demonstrations with 140 ha area in 4 KVKs was covered by Niger crops. Sesame was demonstrated in 97.8 ha in 5 KVKs through 240 demonstrations and Groundnut was conducted in 30 ha with

75 demonstrations in 1 KVK at farmer’s field. In *Rabi* season 614 ha area covered with 1424 demonstration in Rapeseed and Mustard crop in 22 KVKs and Linseed crop was demonstrated in 13 KVKs through 858 demonstrations in 364 ha area.

In Chhattisgarh under *Kharif* season, major crops Niger, Groundnut, Sesame and Soybean was grown. In Niger crop 376 demonstration were conducted in 200 ha area in 7 KVKs, whereas in Groundnut crop 244 demonstration conducted in 4 KVKs through 100 ha area. Soybean was demonstrated in 192 ha area in 3 KVKs covering 192 demonstration and under Sesame 85 ha area was conducted with 158 demonstration in 4 KVKs. In *Rabi* season under Rapeseed and Mustard crop covering 766 demonstration was through 434 ha area in 15 KVKs and Linseed crop was laid out in 14 KVKs covering 291 ha area through 520 demonstration whereas in sesame crop 44 ha area was covered with 70 demonstration in 2 KVKs and Groundnut crop laid out in 7 ha area in 1 KVKs through 14 demonstration.

**Table 10.4:** The productivity, net returns along with B:C ratio, season wise of each crop

State	Crop	KVKs	Area (ha)	No. of Farmer	Productivity (q/ha)	Net return (Rs)	B:C Ratio
<b>Kharif</b>							
<b>Madhya Pradesh</b>	Groundnut	1	30	75	16.1	51349	3.15
	Sesame	5	97.8	240	6.25	25164	2.99
	Soybean	31	1047	2530	14.45	23111	2.09
	Niger	4	140	295	4.59	16250	3.01
	<b>Total</b>		<b>1314.8</b>	<b>3140</b>			
<b>Chhattisgarh</b>	Groundnut	4	100	244	12.87	41746	2.8
	Sesame	4	85	158	4.4	13198	2.2
	Soybean	3	115	192	11.31	21873	2.2
	Niger	7	200	376	4.9	15086	2.9
	<b>Total</b>		<b>500</b>	<b>970</b>			
<b>Grand Total</b>			<b>1814.8</b>	<b>4110</b>			

State	Crop	KVKs	Area (ha)	No. of Farmer	Productivity (q/ha)	Net return (Rs)	B:C Ratio
<b>Rabi</b>							
<b>Madhya Pradesh</b>	Mustard	22	614	1424	15.74	41540	3.27
	Linseed	13	364	858	11.63	31329	2.99
	<b>Total</b>		978	2282	27.37	72869	6.26
<b>Chhattisgarh</b>	Groundnut	1	7	14	13.38	47300	3.16
	Sesame	2	44	70	2.5	3722	1.4
	Mustard	15	434	766	8.7	17354	2.27
	Linseed	14	291	520	7.62	21631	2.5
	<b>Total</b>	<b>32</b>	<b>776</b>	<b>1395</b>	<b>16.32</b>	<b>38985</b>	<b>4.77</b>
<b>Grand Total</b>		<b>67</b>	<b>1754</b>	<b>3677</b>			



## 6. Cluster Frontline Demonstrations on Pulses

**Incharge :** Dr. A.A. Raut, Scientist (Agril. Extension)

Cluster Frontline Demonstration on Pulses 2017-18 under the National Food Security Mission was implemented through Agricultural Technology Application Research Institute, Zone-IX Jabalpur.

Major crops undertaken were black gram, green gram, horse gram, lathyrus, pigeon pea, chickpea, field pea and lentil in all three seasons in the operational states of Chhattisgarh and Madhya Pradesh.

In Madhya Pradesh, major crops were taken black gram, green gram and pigeon pea under *kharif* season. Under black gram crop, total 731 demonstrations covering an area of 300 ha was conducted. Green gram crop was demonstrated in 70.60 ha with 202 demonstrations, whereas 1419 demonstrations and 580.80 ha area was covered by pigeon pea crop. In *Rabi* season, under chickpea crop, 2508 demonstrations were conducted covering in 1033.60 ha area. Lentil crop was demonstrated in 220.60 ha area through 520 demonstrations, whereas 50 demonstrations

and 20 ha area was covered by field pea crop. In summer black gram, 44.40 ha area was covered by 111 demonstrations whereas, green gram was conducted in 297.80 ha area by 745 farmers.

In Chhattisgarh, major crops were taken black gram, green gram, horse gram and pigeon pea under *kharif* season. Under black gram crop, total 948 demonstrations covering an area of 410.40 ha was conducted. Green gram crop was demonstrated in 60 ha with 129 demonstrations. Under horse gram total 120 demonstrations covering 60 ha area whereas 653 demonstrations and 308 ha area was covered by pigeon pea crop. In *Rabi* season, under chickpea total 1029 demonstrations covering 487.20 ha area was laid out. Field pea crop was demonstrated in 203.40 ha area with 452 demonstrations. Under lathyrus, total 82 demonstration with coverage of 40 ha area was conducted. Lentil crop was demonstrated in 86.60 ha with 144 demonstrations, whereas 80 demonstrations and 50 ha area was covered by pigeon pea crop. In summer black gram, 30 ha area was covered by 62 demonstrations whereas, green gram was conducted in 130 ha area by 245 farmers.

**State-wise & Season-wise outcome of Cluster Frontline Demonstrations on Pulses 2017-18**

State	Season	Crop	Conducted		Yield (q/ha)		Net return (Rs/ha)		B:C	
			Area (ha)	No. of Demo	Local	Demo	Local	Demo	Local	Demo
Madhya Pradesh	Kharif	Black gram	300.00	731	6.01	8.23	15680	27770	2.18	2.85
		Green gram	70.60	202	6.00	7.99	17668	25227	3.03	3.56
		Pigeon pea	580.80	1419	9.52	14.18	25570	47633	2.57	3.47
	Rabi	Chickpea	1033.60	2508	11.92	16.79	32951	52179	2.66	3.36
		Field pea	20.00	50	17.00	23.68	31527	44369	2.56	3.04
		Lentil	220.60	520	9.47	12.91	21482	35170	2.37	3.01
	Summer	Black gram	44.40	111	8.34	11.71	24420	39467	2.27	2.80
		Green gram	297.80	745	6.83	9.74	18963	33487	2.11	2.93
Chhattisgarh	Kharif	Black gram	410.40	948	4.92	7.25	13893	25464	2.10	2.70
		Green gram	60.00	129	3.94	5.78	11168	20735	2.04	2.58
		Horse gram	60.00	120	4.50	6.37	13850	22350	2.44	2.97
		Pigeon pea	308.00	653	8.53	11.83	36627	52889	3.46	4.84
	Rabi	Chickpea	487.20	1029	7.93	10.89	17702	29926	2.00	2.68
		Field pea	203.40	452	5.42	8.13	8031	18944	1.58	2.23
		Lathyrus	40.00	82	4.48	6.67	7013	12493	1.89	2.36
		Lentil	86.60	144	4.98	6.87	9969	20093	1.76	2.38
		Pigeon pea	50.00	80	8.93	13.49	22407	52187	2.18	3.52
	Summer	Black gram	30.00	62	3.66	4.83	10420	16032	1.92	2.28
		Green gram	130.00	245	6.29	7.05	11690	21954	1.98	2.30



Pigeon pea, variety: Rajeev Lochan at KVK Balaghat



Green gram, variety: TJM-3 at KVK Khargone



Chickpea, variety: JG-74 at KVK Bhatapara

## NEW INITIATIVES

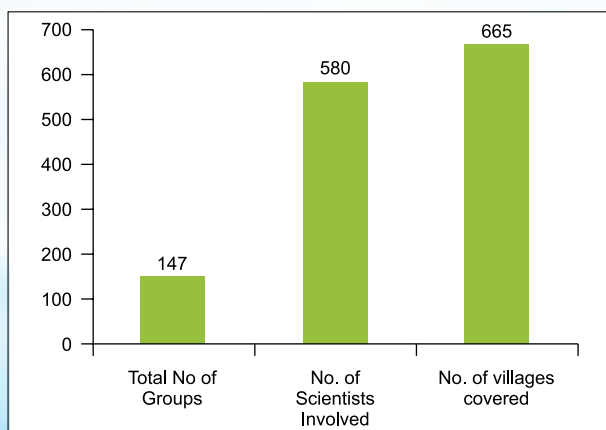
With the changing scenario, new initiatives are required to tackle emerging problems of the farming community with the latest technological solutions vis-à-vis methodological blending for providing the real benefits of the scientific endeavours. KVK is performing well in the farmers' condition through its planned mandated activities under the guidance of Division of Agricultural Extension and monitoring system of the ICAR-ATARI with Director Extension of SAUs. As a result, KVK efforts are being recognised and appreciated at various platforms.

Some of the important initiatives taken/continued during the period are being presented here.

### a. Mera Gaon Mera Gaurav

**Nodal Scientist:** Dr. S.R.K. Singh, Principal Scientist (AE)

*Mera Gaon Mera Gaurav* is operational in 10 institutions including ICAR institutes (5) and SAU's (05) under Zone IX. It is monitored by ATARI, Jabalpur. DWR, Jabalpur, IISS, Bhopal, CIAE, Bhopal, IISR, Indore, NIBSM, Raipur, JNKVV, Jabalpur and NDVSU, Jabalpur, IGKVV, Raipur, CGKV, Raipur, RVSKVV, Gwalior are institutes working under MGMG programme.



**Figure-7:** Total No. of groups, Scientists and villages covered under MGMG programme

### Different activities by ICAR institutes and SAUs under MGMG programme are as follows:

During 2017-18, total 87 group formed by involving 326 scientists under ICAR institutes and SAUs. Through training, demonstration, literature distribution, general awareness and linkages created with other Departments/ Organizations total of 37521 farmers of 397 villages were benefited under MGMG programme.

Two groups involving 10 scientists of the ICAR-DWR, Jabalpur conducted total 52 demonstrations, trainings and field activities by covering 10 villages. Training, demonstration, literature distribution, general awareness and linkages created with other Departments/ Organizations benefited total 1325 farmers.

In IISS, Bhopal, 11 groups were formed in which 45 scientists were involved by covering 55 villages. Total 3671 farmers were benefited through 475 demonstration and trainings conducted by the different groups.

In CIAE, Bhopal, 16 groups were formed in which 66 scientists were involved covering 80 villages. Total 9215 farmers were benefitted through 102 extension activities conducted by different groups.

In IISR, Indore, a total of 1917 farmers of 25 villages were benefited through 257 demonstrations and 19 trainings by 05 groups involving 5 scientists.

NIBSM, Raipur laid out 03 demonstrations, two training programme and conducted other extension activities, involving 3 groups of 13 scientists in 15 villages and total 1035 farmers were benefited.

JNKVV, Jabalpur conducted total 07 demonstration and other extension activities in 05 adopted villages by which 288 farmers were benefited under MGMG programme.


 Glimpses of *Mera Gaon Mera Gaurav*

NDVSU, Jabalpur made 26 visits to different villages and conducted 05 Ghoshties by which, total 2100 farmers of 14 villages were benefited in involving 03 groups of 18 scientists.

IGKV, Raipur conducted total 12 extension activities by which 2275 farmers were benefited under MGMG programme.

CGKV, Durg made 02 groups of 06 scientists for creating awareness among farmers.

RVSKVV, Gwalior, undertake 39 extension activities viz. demonstrations, trainings etc. involving 41 groups of 159 scientists in 193 villages and total 15695 farmers were benefited.

**Table 11.1:** Institute- wise progress under *Mera Gaon Mera Gaurav*

S. No	Name of Institute	Total No of Groups / team formed	No. of Scientists Involved	No. of villages covered	No. of field activities conducted	No. of messages/ advisory sent	Farmers benefited (No.)
1	ICAR-Directorate of Weed Research, Jabalpur (MP)	2	10	10	52	26	1325
2	ICAR-Indian Institute of Soil Science Nabibagh, Bhopal (MP)	11	45	55	475	388	3671
3	ICAR- Central Institute of Agriculture Engineering, Bhopal (MP)	16	66	80	102	165	9215
4	ICAR-Indian Institute of Soybean Research, Indore (MP)	5	5	25	570	939	1917
5	ICAR- National Institute of Biotic Stresses Management, Raipur (CG)	03	13	15	35	39	1035
6	Jawaharlal Nehru Krishi Vishwa Vidhyalaya, Jabalpur (MP)	04	04	05	07	22	288
7	Nanaji Deshmukh Veterinary Science University, Jabalpur (MP)	3	18	14	54	40	2100
8	Indira Gandhi Krishi Vishwavidyalaya, Raipur (CG)	-	-	-	12	-	2275
9	Chhattisgarh Kamdhenu Vishwavidyalaya, Durg (CG)	2	6	-	-	-	-
10	Rajmata Vijayaraje Scindia Krishi Vishwavidyalaya, Gwalior (MP)	41	159	193	39	-	15695
	<b>Total</b>	<b>87</b>	<b>326</b>	<b>397</b>	<b>1346</b>	<b>1619</b>	<b>37521</b>

\*Field work not done due to protocol problem

## b. Attracting and Retaining Youth in Agriculture (ARYA)

**Nodal Officer:** Dr. A.A. Raut, Scientist (Agril. Extension)

ARYA project is being implemented in two KVKs viz. Gwalior in Madhya Pradesh and Dantewada in Chhattisgarh. ARYA project aimed towards entrepreneurship skill development among rural youth. Each KVK has Agro-Technology Park having different demonstration units viz. vermi-compost unit, poultry unit, net house, mushroom unit, hatchery unit, and BGA unit for demonstration of improved agricultural technologies for rural youth. The training and capacity building activities are undertaken in convergence modes through linkages established with various line departments, Govt. organizations & NGOs for successful implementation of the

programme. After the training the participants are encouraged to start their enterprises and technical and advisory support is provided for establishment of the entrepreneurial ventures.

### i. KVK Gwalior

**Selection of Villages:** KVK has selected (17) villages having rural youth in cluster form viz. Amrol, Banwar, Baroua, Mauchh, Nikodi, Gadajar, Billaua, BadkiSarai, Kheriya, Girwai, Ajaypur, Panihar, Himmatgarh, Santhri, Bilheti, Veerpur and Gadajar.

**Selection of youths:** KVK Gwalior has selected 200 rural youths in different villages of Gwalior district under 4 types of entrepreneurship i. e. vermi composting, nursery management, mushroom production and poultry production.

**Table 11.2 :** Activities and youth selected under ARYA

S. No	Name of Enterprises	No. of Beneficiary/Youths	No. of beneficiaries started enterprises
1	Vermi Compost Production	60	22
2	Nursery Management	50	30
3	Mushroom Production	40	25
4	Poultry Production	50	24

**Table 11.3:** Economic Impact of ARYA project

S.N.	Name of activities	No. of Beneficiaries	Economic Impact (Rs/Farmer / Month)		% Change in Income
			Before Intervention	After Intervention	
1	Vermi Compost Production	22	2267.00	3165.00	39.61
2	Nursery Management	30	4425.00	6875.00	55.36
3	Mushroom Production	25	3725.00	6540.00	75.57
4	Poultry Production	24	2700.00	5175.00	91.66



Vermi Compost Unit



Mushroom Production



Poultry Production

## ii. KVK Dantewada

**Selection of youths:** KVK has selected (17) villages having rural youth in cluster form viz. Badekarali, Hiranar, Kasoli, Nagul, Muchnar, Gamawada, Jhodiya Badam, Bade Paneda, Binjam Metapal, Cheetalur, Mandoli, Bade Karli, Jodatrai, Bade Paneda, Gumda and Teknar.

**Selection of youths:** KVK selected 200 youths having age less than 35 years, the selection of the youth shall be made on the basis of gender and social status. The entrepreneurial activities i.e. Mushroom, Poultry (Kadakhnath), Lac cultivation, Processing and Value addition of NTFPs and Processing and value addition of minor millets etc. were taken by KVK.

**Table 11.4:** Activities and youth selected under ARYA

S.No.	Name of Enterprises	No. of beneficiaries/ Youth	No. of beneficiaries started enterprises
1.	Mushroom Production	40	35
2.	Processing and Value addition of NTFPs	40	30
3.	Processing and Value addition of Lac	60	45
4.	Backyard Poultry Management	50	50
5.	Processing and value addition of minor millets	10	10

**Table 11.5:** Economic Impact of ARYA project:

S. No.	Name of Activities	No. of Beneficiaries	Economic impact (Rs./farmer/ month)		% Change in income
			Before intervention	After intervention	
1.	Mushroom Production	40	1500	3250	116.67
2.	Processing and Value addition of NTFPs	40	1400	3800	171.43
3.	Processing and Value addition of Lac	60	1800	3650	102.78
4.	Backyard Poultry Management	50	2000	7500	275.00
5.	Processing and value addition of minor millets	10	1500	2600	73.33



Exposure Visits



Processing of minor millets



Processing value addition of Honey



Processing value addition of NTFPs



Lac Cultivation



Kadakhnath Poultry rearing

### c. Farmer FIRST

**Nodal Scientist:** Dr. S.R.K. Singh, Principal Scientist (AE)

'Farmer FIRST' programme is an ICAR initiative to move beyond the production and productivity, to privilege the smallholder agriculture and complex, diverse and risk prone realities of majority of the farmers through enhancing farmers-scientist interface. The programme is operational in 03 ICAR institute and 04 SAUs under zone IX which is monitored by ATARI, Jabalpur. ICAR-DWR, Jabalpur, ICAR-IISS, Bhopal, ICAR-NIBSM, Raipur and JNKVV, Jabalpur, RVSKVV-ZARS, Morena, NDVSU, Jabalpur, IGKV-SKS Collage of Agriculture and Research Station, Rajnanadgaon (C.G.) are institutes working under Farmer FIRST programme and covered total 32 villages.

**Table 11.6:** Over all progress under Farmer FIRST project

Module	Area (ha)/ Animals covered	No of Households covered
Crop based Module	1819.2	4615
Horticulture based Module	192.26	457
Livestock based Modules	8678	1850
Enterprise based Modules	22	44
NRM based Module	395.4	579
ICT based Modules		110
Integrated Farming Systems module	25	510

### Module wise progress of institute under Farmer FIRST Project

Under crop based module, intervention on development of synthesized sustainable model for predominant cropping systems under rain-fed conditions, refinement and improvement of locally cultivated scented variety of paddy (Chinnor), conservation agriculture through Happy Seeder, improved crop production practices like line sowing, seed treatment and biotic stress management

practices and conservation agriculture based low cost, energy saving sustainable management for improving crop productivity and improving soil health.

Name of Institute	Area cover (ha)	No of Households covered
ICAR-IISS – Bhopal (MP)	20	85
ICAR-DWR, Jabalpur (MP)	278	340
ICAR- NIBSM, Raipur (CG)	120	240
JNKVV, Balghat (MP)	300	750
RVSKVV, Gwalior (MP)	386.2	1888
IGKV, Raipur (CG)	715	1312
<b>Total</b>	<b>1819.2</b>	<b>4615</b>

Under horticultural based module, cultivation of horticultural crops under irrigated and rain-fed condition, scientific vegetable production technologies, shade net house, vegetable cultivation in Kharif and Rabi, maintenance and development of new orchards and introduction of improved fruit Variety.

Name of Institute	Area covered (ha)	No of Households covered
ICAR-IISS – Bhopal (MP)	4.26	49
ICAR-DWR, Jabalpur (MP)	100	100
ICAR- NIBSM, Raipur (CG)	33	110
JNKVV, Balghat (MP)	18	90
RVSKVV, Gwalior (MP)	21	23
IGKV, Raipur (CG)	16	85
<b>Total</b>	<b>192.26</b>	<b>457</b>

Under livestock based modules, intervention on fish cultivation, goat farming established with the introduction of Sirohi, Jamnapari and Barbari breeds, backyard poultry farming with Kadaknath breed, training organizing animal health camps. Supplementation of balanced mineral nutrition for different categories of animals

Name of Institute	No of Animals covered	No of Chicks covered	No of Households covered
ICAR-IISS – Bhopal (MP)	-	500	50
ICAR-DWR, Jabalpur (MP)	50	-	50
ICAR- NIBSM, Raipur (CG)	95	5000	195
JNKVV, Balghat (MP)	1680	-	1045
NDVSU, Jabalpur	2020	-	500
<b>Total</b>	<b>8678</b>		<b>1850</b>

Under enterprise based modules, intervention on, backyard composting through introduction of worms, Oyster mushroom production technology, backyard poultry

Name of Institute	Area	Area covered Vermi bed/Area (ha)/unit (No.)/ chicks	No of Households covered
ICAR-IISS – Bhopal (MP)	Vermi Compost	1 bed/farmer	40
ICAR- NIBSM, Raipur (CG)	Mushroom production Farm Communication Center	4 unit 2 center	40
JNKVV, Balghat	Backyard poultry	2000 chicks	100
IGKV, Raipur (CG)	Mushroom & Spawn production	16 unit	322

**Under Integrated Farming Systems (IFS) module**, intervention on **need** based depending on situation willingness of farmer, resources, soil status and IPM to avoid occurrence of pest and disease

Name of Institute	Area covered (ha)/	No of Households covered
ICAR-IISS – Bhopal (MP)	5	10
ICAR-DWR, Jabalpur (MP)	-	-
ICAR-NIBSM, Raipur (CG)	-	-
JNKVV, Balghat (MP)	-	-
RVSKVV, Gwalior (MP)	-	-
IGKV, Raipur (CG)	-	-

as Pheromone traps and Trichogramma, low cost Azolla production, introduction of storage bins, solar powered sprayers, wheel hoes.

Intervention	Area covered (ha)/ unit	No of Households covered
ICAR-IISS – Bhopal (MP)	20	99
ICAR-DWR, Jabalpur (MP)	161	195
ICAR- NIBSM, Raipur (CG)	45	75
JNKVV, Balghat (MP)	2.4	6
RVSKVV, Gwalior (MP)	119	155
IGKV	48	49
<b>Total</b>	<b>395.4</b>	<b>579</b>

**Under natural resource management (NRM) module**, intervention on, resource conservation based interventions through in situ composting, vermin composting, balanced nutrient application in rabi seasons, to improve soil health crop productivity and efficient utilization of crop residues in agriculture without burning, installation of Vermi pits, silvi-pasture system, eco-friendly crop protection technologies such

### ICT based Modules

Farmer Communication Centres (FCCs)

Intervention	Villages	Centres covered	No of Households covered
JNKVV, Balghat	3	-	FF of project area
NIBSM, Raipur	2	2	110



Demonstration and training regarding vermicomposting



Training on bee keeping



Sowing of experimental crops under zero till condition

#### d. Sankalp se Siddhi (Attainment through Resolve)

**Nodal Officer:** Dr. A.A. Raut, Scientist (Agril. Extension)

Sankalp Se Sidhi program was organized during 19-31, August 2017 by KVKs of ATARI Jabalpur to commemorate the 75<sup>th</sup> Anniversary of Quit India Movement. The programs comprise of Kisan Film having message of Hon'ble PM to double farmers' income by year 2022, followed by pledge for Sankalp Se Sidhi, lecture by agriculture experts and address of the Chief Guest. The farmers were briefed about various activities in the KVKs and institutes to acquaint them with the latest technologies. A film on patriotism is also being screened on this occasion to motivate the participants. A large number of farmers, extension workers, social activists and various organizations are participating in these programs.

"Sankalp Se Sidhi" programme was conducted in 69 KVKs of Zone IX in Madhya Pradesh and Chhattisgarh. Hon'ble Loksabha Speaker Smt Sumitra Mahajan was the Chief Guest in Sankalp Se Siddhi programme at KVK Indore. In her address, she stated that farmers should also look for alternatives to soybean crop and take initiatives to double their income, the other members from the family should come forward to take up agriculture

allied enterprises and processing and value addition in addition to agriculture to enhance their income. Hon'ble Chief Minister, Madhya Pradesh Sh. Shivraj Singh Chauhan was the Chief Guest in Sankalp Se Siddhi programme at KVK Ashoknagar and Guna. In his address, he highlighted the benefits of PMFBY for farmers and urged farmers to take pledge for enhancing their income through agriculture and allied enterprises as per seven-point strategy. Hon'ble Chief Minister, Chhattisgarh Dr. Raman Singh was the Chief Guest in Sankalp Se Siddhi programme at KVK Raipur.

"Sankalp Se Siddhi" (Attainment through Resolve) programme is a new initiative launched by PM Narendra Modi for a New India movement from 2017 to 2022. This program aims to bring in many changes in the country for the betterment of country's economy, citizens, society, governance, security and other verticals.

This programme organized 69 KVKs in MP and CG. In this programme total number of participants was 171035 included as 6 Union Ministers, 47 Hon'ble MPs (Loksabha/Rajyasabha), 28 State Govt. Ministers, 66 MLAs, 48 Chairman/Zila Panchayat, 39 Distt. Collector/DM, 1054 Bank Officials, 162589 Farmers, 7239 Govt. Officials, PRI members.

#### Summary Report of Sankalp Se Siddhi Program

State	No. of KVKs	Participants (No.)										Coverage	
		Union Ministers	Hon'ble MPs	State Govt. Ministers	MLAs	Chairman / Zila Panchayat	Distt. Collector/ DM	Bank Officials	Farmers	Govt. Officials, PRI members etc.	Total	DD	Others
MP	45	4	31	15	47	30	22	202	143713	4761	148775	16	47
CG	24	2	16	13	19	18	17	852	18876	2478	22260	2	14
<b>Total</b>	<b>69</b>	<b>6</b>	<b>47</b>	<b>28</b>	<b>66</b>	<b>48</b>	<b>39</b>	<b>1054</b>	<b>162589</b>	<b>7239</b>	<b>171035</b>	<b>18</b>	<b>61</b>



Hon'ble Speaker Loksabha Smt. Sumitra Mahajan at KVK Indore



Hon'ble Chief Minister of Madhya Pradesh Sh. Shivraj Singh Chauhan at KVK Ashoknagar



Hon'ble Chief Minister of Chhattisgarh Dr. Raman Singh at KVK Raipur

### e. World Soil Health Day Celebration

**Nodal Scientist:** Dr. S.R.K. Singh, Principal Scientist (AE)

World Soil Health Day 2017 was celebrated on December 5, 2017 in 69 KVKs of Zone IX in Madhya Pradesh, and Chhattisgarh. Hon'ble Union Minister Dr. Virendra Kumar, Minister of State for Women & Child Development, GOI was the Chief Guest in World Soil Day programme at Tikamgarh.

The World Soil Day programme was attended by four State Ministers, Shri Jaibhan Singh Pawaiya Minister of Higher Education at KVK Ashoknagar, Smt. Ramshila Sahu Minister of Women and Child Development at Durg, Sh. Brijmohan Agrawal,

Minister of Agriculture, Animal Husbandry, Fish Rearing and Water Resources, Chhattisgarh at Raipur, Shri Labhchand Bafna Minister for Home affair, health and labour Chhattisgarh.

The World Soil Health Day programme was attended as Chief Guest by nine Hon'ble Member of Parliament, 28 MLAs, 82 Zila Panchayat Chairman and other dignitaries. Exhibitions were organized by KVKs on this occasion, distribution of soil health card, showing seeds, planting material and various soil health conservation technologies. The KVKs received support from other line departments of state governments in organization of World Soil Health Day Programme.

#### Summary Report of World Soil Health Day

State	Number of KVKs Organised the programme	No. of Union Ministers	No. of Hon'ble MPs (Loksabha/ Rajyasabha)	No. of State Govt. Ministers participated	No. of MLAs	No. of Chairman Zila Panchayat	No. of Distt. Collector/ DM	No. of Bank Officials	No. of Govt. Officials, PRI members etc.	No. of farmer	Total No. of Participants	No. of Soil Health Cards distributed
Madhya Pradesh	45	1	7	1	9	37	8	62	1261	20091	22169	17988
Chhattisgarh	24	0	2	3	19	45	11	46	747	15301	46414	13309
<b>Total</b>	<b>69</b>	<b>1</b>	<b>09</b>	<b>04</b>	<b>28</b>	<b>82</b>	<b>19</b>	<b>108</b>	<b>2008</b>	<b>35392</b>	<b>68583</b>	<b>31297</b>



Dr Virendra Kumar, Hon'ble Union Minister of State for Women and Child Development at KVK Tikamgarh



Shri Jaibhan Singh Pawaiya Hon'ble Minister for Higher Education at KVK Ashoknagar



## f. Seed hubs for increasing production of pulses

**Nodal Scientist:** Dr. A. A. Raut, Scientist (AE)

Augmenting the availability of quality seeds of pulses, the Department of Agriculture, Cooperation and Farmers' Welfare, Government of India, has sanctioned a project on "Creation of seed hubs for increasing indigenous production of pulses in India". Seed hub project aimed at establishing 93 seed hubs across the country in State Agricultural Universities/Krishi Vigyan Kendras/ICAR Institutes. ICAR-Indian Institute of Pulses Research (IIPR), Kanpur is a Nodal Agency for coordination and monitoring of project on creations of seed

hubs and provided the technical support for seed production at to each hub Centers.

Under Seed Hub project ICAR-Agricultural Technology Application Research Institute (ATARI), Zone IX, Jabalpur fifteen districts were selected from two States i.e., Madhya Pradesh and Chhattisgarh during 2017-18 for pulses seed Hub. This programme was implemented through Krishi Vigyan Kendras of selected districts. Seed hub pulses is being implemented in 15 districts by KVK Betul, Narsinghpur, Damoh, Harda, Ujjain, Dewas, Datia, Morena and Tikamgarh in Madhya Pradesh and KVK Bhatapara, Surguja, Rajnandgaon, Kawardha, Kanker, Janjgir-Champa in Chhattisgarh.

### Achievement under seed hub Kharif 2017

State	Area (ha)		Production (q)	
	At KVK	At farmer's field	At KVK	At farmer's field
Madhya Pradesh	-	183.46	-	467.03
Chhattisgarh	8.60	87.78	83.10	527.91
<b>Total</b>	<b>8.60</b>	<b>271.24</b>	<b>83.10</b>	<b>994.94</b>

### Achievement under seed hub Rabi 2017-18

State	Area (ha)		Production (q)	
	At KVK	At farmer's field	At KVK	At farmer's field
Madhya Pradesh	22	281.33	216.68	3520.53
Chhattisgarh	19.90	328.95	174.79	2518.06
<b>Total</b>	<b>41.90</b>	<b>610.28</b>	<b>391.47</b>	<b>6038.59</b>



### g. Skill development programme

**Nodal Scientist:** Dr. A. A. Raut, Scientist (AE)

Skill development programme is the flagship scheme of ICAR being implemented at KVK. The Agriculture Skill Council of India (ASCI) have prepared 142 Qualification Packs (QPs) & Model Curricula in agriculture and allied areas. The objective of this programme is to enable a large number of Indian youth to take up agriculture related skill training that will help them in securing a better livelihood. The programme is operational in two Krishi Vigyan Kendras and one ICAR Institute namely KVK Bhopal, KVK Jabalpur and ICAR-CIAE Bhopal in Madhya Pradesh under ATARI, Jabalpur.

The orientation programme of master trainers at KVK was held at RVSKVV Gwalior during December 11-13, 2017 and at IGKV Raipur during 04-06 January 2018, the assessment of master trainers in respective QPs was conducted by ASCI.

During 2017-18 the skill training programme was provided in 3 QPs viz. Agriculture Extension Service Provider, Tractor Operator and Harvesting Machine Operator were the identified job roles by KVKs as per the skill needs of farmers, rural youth and women in their districts. The training programmes were conducted at KVKs as per National Occupational Standards (NOS) developed by ASCI.

S. No.	KVK/ Institute	Job Role of trainings	No of candidates enrolled	No of candidates qualified
1	CIAE, Bhopal	Harvesting Machine Operator	20	20
2	KVK Bhopal	Tractor Operator	20	20
3	KVK Jabalpur	Agriculture Extension Service Provider	20	20



Skill development training on Harvesting Machine Operator at CIAE, Bhopal



Skill development training on Agriculture Extension Service Provider at KVK, Jabalpur



Skill development training on Tractor Operator at KVK, Bhopal

# INSTITUTE PROJECTS AND PUBLICATIONS

## Papers in research journals (National / International)

1. D.V. Singh, A. Mishra, S.R.K. Singh and Tushar Athare (2017). Impact of backyard poultry rearing on living standards of tribal community in Kandhmal district of Odisha. *Int. J.Curr.Microbiol. Appl.Sci.* (2017) Vol. 6 (12), 3908-3914.
2. D.V. Singh, A. Mishra, S.R.K. Singh and Tushar Athare (2017). Knowledge level of tribal farmers regarding Parthenium (*Parthenium hysterophorus L.*) weed and their control actions. *Int. J.Curr. Microbiol.Appl.Sci.* (2017) Vol. 6 (12), 3869-3877.
3. P. Rajan, N.K. Khare, S.R.K. Singh and M.K. Khan (2017). Impact assessment of KVK activities on income enhancement of tribal farmers. *Flora & Fauna.* Vol. 23 (1), Pp 45-52.
4. K.K. Rana, P. Rajan and S.R.K. Singh (2018). Assessing impact of KVK on employment generation of rural youth. *Int. J.Curr.Microbiol. Appl.Sci.* (2018) Vol. 6, 2822-2826.

## Books (Authored/edited)

1. A.K. Singh, A. Mishra, V.P. Chahal, A.P. Dwivedi, S.R.K. Singh, A.A. Raut and T.R. Athare (2017). *Treasure of Biodiversity-Conservation by Farmers.* Division of Agricultural Extension, ICAR, New Delhi. Pp. 247.
2. A. Mishra, S.R.K. Singh and R.K. Yogi (2017). *Terminology in KVK.* ICAR-ATARI, Jabalpur. Pp. 232.
3. A. Mishra, S.R.K. Singh, Shashi Gour and Neelu Vishwakarma (2017). *Nutrition Sensitive Agriculture for Nutritional Security.* ICAR-ATARI, Jabalpur. Pp. 293.
4. A. Mishra, S.R.K. Singh, A.A. Raut, Prem Chand, S.B. Nahatkar and Moni Thomas (2017). *Doubling Farmers' Income by 2022 – Strategy Document for Madhya Pradesh.* ICAR-ATARI, Jabalpur. Pp. 147.
5. A. Mishra, S.R.K. Singh, A.A. Raut (2017). Editorial team of ICAR 2017. *Symbols of success – Pathway to Prosperity.* Division of Agricultural

Extension, ICAR, New Delhi. Pp. 116

6. R.K.Singh, S.R.K. Singh and D. Singh (2018). *Impact of developed modules on yield and economics of field crops.* LAMBERT Academic Publishing. ISBN: 978-613-5-85774-0.

## Book chapters/technical bulletins/manuals

1. A. Mishra, S.R.K. Singh, S. Patnaik and S. Karketta (2017). *Training Manual on Poultry Brooding and Management at Backyard.* ICAR-ATARI, Jabalpur. Pp. 18
2. A. Mishra, S.R.K. Singh, Shashi Gour (2017). *Poshan Pustika.* ICAR-ATARI, Jabalpur.
3. A. Mishra, S.R.K. Singh, T. Athare and A.A. Raut (2017). *ATARI Initiative for doubling farmers income.* ICAR-ATARI, Jabalpur. Pp. 20.
4. A. Mishra, S.R.K. Singh, Shashi Gour and A.A. Raut (2017). *Impact of ergonomics on women friendly tools.* ICAR-ATARI, Jabalpur. Pp. 19.
5. A. Mishra, S.R.K. Singh, Shashi Gour and A.A. Raut (2017). *Impact of income generation on women empowerment some experiences.* ICAR-ATARI, Jabalpur. Pp. 22.
6. A. Mishra, S.R.K. Singh and A.A. Raut (2017). *Mobile messaging – Kisan Mobile Advisory Initiatives by ICAR-ATARI, Jabalpur towards 100 percent coverage of villages.* ICAR-ATARI, Jabalpur.

## Compilation/ documentation

1. A. Mishra, S.R.K. Singh and A.A. Raut (2017). *Satellite Village on Doubling Farmers Income by 2022 in Madhya Pradesh – An Initiative.* ICAR-ATARI, Jabalpur. Pp. 529.
2. A. Mishra, S.R.K. Singh and A.A. Raut (2017). *Agro-Ecology Specific Action Plan for Doubling Farmers' Income based on recommended Interventions/Technologies in Chhattisgarh.* ICAR-ATARI, Jabalpur. Pp. 612.
3. A. Mishra, S.R.K. Singh and A.A. Raut (2017). *Agro-Ecology Specific Action Plan for Doubling*



- Farmers' Income based on recommended Interventions/Technologies in Madhya Pradesh. ICAR-ATARI, Jabalpur. Pp. 1078.
4. A. Mishra, S.R.K. Singh and A.A. Raut, T. Athare, Moni Thomas, Prem Chand, A.P. Dwivedi (2017). Annual Report 2016-17. ICAR-ATARI, Jabalpur. Pp. 190.
  5. S.R.K. Singh, A. Mishra and A.A. Raut (2017). TDC-NICRA Annual Report 2016-17. ICAR-ATARI, Jabalpur. Pp. 52.
  6. A. Mishra, A.A. Raut and S.R.K. Singh (2017). Training-cum-Awareness Programme on Protection of Plant Variety and Farmers' Rights. ICAR-ATARI, Jabalpur. Pp. 104
  7. A. Mishra, S.R.K. Singh A.A. Raut and T. Athare (2017). Zonal Agri-News, Vol.9, No. 1-4. ICAR-ATARI, Jabalpur.

### **Presentation in workshops/seminars/ symposia/ conferences**

1. S.R.K. Singh, A. Mishra, S.D. Upadhyay and A.A. Raut (2018). Combating drought condition in Central India through in-situ moisture conservation techniques in soybean. Research Paper presented during National Seminar on Climate Change at EPCO, Bhopal during March 22-24, 2018.

# SCIENTIFIC ADVISORY COMMITTEE MEETINGS

Scientific Advisory Committee meetings were conducted by KVKs to get advice and feedback on the mandated activities of KVK in planned and systematic manner by the participating members from ICAR institutions, ATARI, line department, farmers, etc. The Committee monitors progress and facilitate exchange of views on the specific tasks. The Committee reviews periodically and takes further course of action deemed fit for further validation on application by the KVK. Therefore, all KVKs were mandated to conduct the meetings on the periodical basis (twice in a year).

Total 92 SAC meetings were conducted during 2017-18 in a 75 functional KVKs (Table 13)

**Table 13:** Status of SAC conducted by KVKs during 2017-18

S. No.	Name of KVKs	No. of SACs conducted
<b>Indira Gandhi Krishi Vishwa Vidyalaya, Chhattisgarh</b>		
1	Balrampur	1
2	Bastar	1
3	Bemetara	1
4	Bhatapara	1
5	Bijapur	1
6	Bilaspur	1
7	Dantewada	1
8	Dhamtari	1
9	Durg-I	1
10	Durg-II	1
11	Gariyaband	1
12	Janjgir-Champa	1
13	Jashpur	1
14	Kanker	1
15	Kawardha	1
16	Korba	1
17	Korea	1
18	Mahasamund	1

S. No.	Name of KVKs	No. of SACs conducted
19	Mungeli	1
20	Narayanpur	1
21	Raigarh	1
22	Raipur	1
23	Rajnandgaon	1
24	Surguja	1
	<b>Total</b>	<b>24</b>
<b>Jawahar Lal Nehru Krishi Vishwa Vidyalaya, Jabalpur</b>		
1	Balaghat	1
2	Betul	1
3	Chhatarpur	1
4	Chhindwara	1
5	Damoh	1
6	Dindori	-
7	Harda	1
8	Jabalpur	1
9	Katni	1
10	Mandla	1
11	Narsinghpur	1
12	Panna	1
13	Rewa	1
14	Sagar	1
15	Seoni	1
16	Shahdol	1
17	Sidhi	1
18	Singrauli	1
19	Tikamgarh	1
20	Umaria	1
21	Raisen (NGO)	2
22	Satna (NGO)	1
	<b>Total</b>	<b>22</b>



S. No.	Name of KVKs	No. of SACs conducted
<b>Rajmata Vijayaraje Scindia Krishi Vishwavidyalaya, Gwalior</b>		
1	Ashoknagar	2
2	Barwani	2
3	Bhind	2
4	Datia	1
5	Dewas	2
6	Dhar	2
7	Guna	2
8	Gwalior	2
9	Jhabua	2
10	Khandwa	2
11	Khargone	2
12	Mandsaur	2

S. No.	Name of KVKs	No. of SACs conducted
13	Morena	2
14	Neemuch	2
15	Rajgarh	1
16	Shajapur	2
17	Sheopur	2
18	Shivpuri	2
19	Ujjain	2
20	Bhopal (ICAR)	2
21	Burhanpur (NGO)	2
22	Indore (NGO)	2
23	Ratlam (NGO)	2
24	Sehore (NGO)	2
<b>Total</b>		<b>46</b>
<b>Grand Total</b>		<b>92</b>

# AWARDS AND RECOGNITIONS

## Pandit Deen Dayal Upadhyay Krishi Vigyan Protshahan Puraskar (National) 2017

KVK Kanker has done pioneering work on the nutritional literacy and technological interventions for ensuring nutritional security of the people by introduction of innovative Concept of the “Nutritional Garden”. KVK also promoting Kadaknath variety of poultry which spread over 12 district of Chhattisgarh state and 3 other states. The innervations in terms of improved crop and natural resources management involving water harvesting and adopting principles of integrated farming systems have paid big dividends. KVK Kanker is promoting IFS models including; Poultry, Goatry and Fishery, Lac cultivation, Collection and primary processing of Non-Timber Forest Produce (NTFP). KVK Kanker has also undertaken quality seed production in major agricultural crops, produced organic manure at village level, introduced

mushroom production technology besides taking initiatives in the areas of women empowerment and crop diversification.

## Pandit Deen Dayal Upadhyay Krishi Vigyan Protshahan Puraskar (Zonal) 2017

KVK Datia has been awarded Pandit Deen Dayal Upadhyay Krishi Vigyan Protsahan Puraskar 2017 for Zone IX. KVK Datia has done commendable work in improving the livelihood of farmers of the district in a very short period. KVK has been striving hard towards promoting a wide range of improved agriculture technologies and package of practice in the field for the holistic development of the district. KVK has played a major role in skill development of the farmers and unemployed youth and creating job opportunities and self employment opportunities among rural youth through skill enhancement and entrepreneurship development.



## Swachhata Pakhwada Award (For Krishi Vigyan Kendra Category- First Prize)

KVK Datia has been awarded Swachhata Pakhwada Award for Krishi vigyan kendra category- First Prize. Krishi Vigyan Kendra Datia conducted 16 number of programme during swachhata pakhwada in 14 different villages of Datia district and KVK Campus. The Scientists, Principle Scientists, Head of ICAR institution, District administration Officers of Agriculture and allied department had participated as guest during the different programmes. Total 1120 participants including farmers, farmwomen students and extension personals had participated in these programmes. The major emphasis during the Pakhwada was given on the cleanliness and sanitation activities with management of bio wastes to produce quality organic manure and other best management practices to resilience climatic variability. During the programmes different aspects on cleanliness and sanitation had been approached to create awareness and positive thinking about the cleanliness.



## Innovative farmers Award by ICAR Research Complex for Eastern Region, Patna 2018

Smt. Lekesh Bai., Village – Thanabodi, District – Uttar Bastar Kanker. She is practiced Integrated Farming System in her farm by cultivation of crop, fish cum duck, improved dairy, goat and poultry rearing. Vegetable production in drip with polythene mulching. Improved dairy and dairy product. Crop diversification, Integrated pest management practices. She is now a source of inspiration for all the women and other farmers of the locality who are learning the things for improving their livelihood. Approximately 850 no. of farmers and farm women visited her farm.



## IARI-Innovative Farmer Award

Shri Asharam netam is a farmer of tribal dominant district Kanker. Once upon a time, he was working hard in his field for his family survival. But due to lack of resources and technical knowledge he was not getting the desirable output even with his sufficient land holding for his existence. He came in contact of Krishi Vigyan Kendra (KVK) Kanker in the year 2012-13. KVK scientists provide training and technical guidance to Shri Asharam and assets like shed, pond by convergence of different schemes. Now he practices integrated farming system along with modern Dairy, Fish cum Duck and cultivating Rice and Maize, Chickpea, Linseed crops. In three years his Net income increased three times i.e. Rs. 1.33 lac to Rs 8.56 lac per annum.



## DISTINGUISHED VISITORS

### **KVK Datia and Gwalior: Hon'ble DG & Secretary DARE, ICAR visits KVK Gwalior and Datia**

Hon'ble DG & Secretary DARE, ICAR Dr. Trilochan Mohapatra visited KVK Gwalior and Datia on 29<sup>th</sup> July 2017. He was accompanied by Hon'ble Vice-chancellors, Dr. A.K. Singh, RVSKVV and Dr. Arvind Kumar, CAU Jhansi and Directors of

IGFRI Jhansi, CAFRI Jhansi, ATARI, Jabalpur. During the visit Hon'ble DG & Secretary DARE visited the Soil testing laboratories at KVKs, Demonstrations units, crop cafeteria at KVK farm. He interacted with scientist and staff of the KVK. At KVK Datia Dr. Mohapatra also interacted with the group of women farmers at the KVK.



Hon'ble DG & Secretary DARE interacting with KVK staff at Datia



Hon'ble DG & Secretary DARE interacting with KVK staff at Datia



Hon'ble DG & Secretary DARE interacting with KVK staff at Gwalior



Plantation by Hon'ble DG & Secretary DARE at KVK Gwalior

### **KVK Khandwa: Hon'ble DG, ICAR has visited farmers' fields and KVK, Khandwa**

Hon'ble DG, ICAR has visited farmers' fields and KVK, Khandwa on 26<sup>th</sup> November during his visit to Zonal workshop of KVKs at Burhanpur. He has visited fields of Sh. Krishanpal Singh Mourya, Nimarkhedi, Sh. Govind Savner, Bhojakhedi, Sh. Ajay Rameshwar Patel, Kumthi and Krishi Vigyan Kendra, Khandwa. At KVK, Hon'ble DG visited administrative building, Kadaknath poultry unit, Vermi compost Unit, Soil Testing Lab etc.



### **KVK Badwani: Hon'ble Vice Chancellor, RVSKVV, Gwalior visit KVK Badwani**

Hon'ble Vice Chancellor Prof. S.K. Rao, RVSKVV, Gwalior visited KVK Barwani on 12<sup>th</sup> November, 2017 monitored the activities of Krishi Vigyan Kendra. He looked the Soil testing lab, Mini mrida



parikshak, Vermi composting unit, Hydroponics unit of KVK. Senior Scientist & Head Dr. S.K. Badodiya presented all the activities of KVK. He also visited KVK farm and crop cafeteria, he suggested to KVK scientists to take the different variety of Kabuli gram in cafeteria. He was very happy to see the clean campus, green campus & nice management of farm. He appreciated to the work done by KVK team.

### **KVK Rewa: Hon'ble Vice Chancellor, JNKVV, Jabalpur visit KVK Rewa**

Honourable Vice Chancellor, JNKVV Dr. P.K. Bisen blessed KVK-Rewa (MP) with his visit on 23<sup>rd</sup> of December, 2017 where Senior Scientist and Head, KVK- Rewa (MP) Dr. A.K. Pandey apprised him with mandatory and other extension activities of the centre. Dr. Bisen was welcomed by the team of Krishi Vigyan Kendra-Rewa warmly headed by the Head. Honourable Vice Chancellor appreciated the crop cafeteria, mushroom unit and poly house during his trans-visit along with Dean College of





Agriculture, Dr. S. K. Pandey and Joint Director Extension Dr. Dinkar Sharma.

**KVK Gwalior: Visit of Hon'ble Minister of Farmer welfare and Agriculture Development, M.P. Govt.**

Shri Gauri Shankar Bisen, Hon'ble Minister of Farmer welfare and Agriculture Development M. P. Govt. visited KVK Gwalior Agro-Technology Park on 27.12.2017. During the visit Prof. S. K. Rao, Hon'ble Vice Chancellor, RVSKVV, Gwalior, Dr. B. S. Baghel, Director Research Services, Dr. R. L. Rajput Director Instruction, Dr. S. P. S. Tomar Dean Student welfare, Dr. U. P. S. Bhadauria, JDE RVSKVV Gwalior and officials from agriculture and align department were also present. Hon'ble minister appreciated the work and efforts of KVK Gwalior to double farmer income. He also visited poultry unit, Solar Energy Pumps, Fruit orchards, located at Agro-Technology park.

**KVK Neemuch:**

Prof S. K. Rao, Hon'ble Vice Chancellor, RVSKVV visited KVK, Neemuch on dated 20-21.12.2017. He visited all demonstration units viz Crop cafeteria, Vermi Compost Unit, Poultry, Nutritional Kitchen Garden, Poly house, Green House etc and gave necessary instructions to improved KVK activities





**KVK Kawardha:**

Dr. S. K. Patil, Hon'ble Vice Chancellor, IGKV Raipur visited KVK Kawardha for inauguration of seed processing unit, dairy unit, mushroom unit,

poultry unit, soil water testing lab and green house unit. During the programme Hon'ble Vice Chancellor interacted with different group of farmers of the Kabirdham District on dated 09.01.2018.



# ATIC PROGRESS REPORT

## A. Details on ATIC

S. No	Name of the ATIC	Name of the Host Institute	Name of the ATIC Manager
1	ATIC, Jabalpur	JNKVV, Jabalpur (M.P.)	Dr. Dinkar Sharma
2	ATIC, Raipur	IGKV, Raipur	Dr. S.S. Tuteja
3	ATIC, CIAE, Bhopal	Central Institute of Agricultural Engineering, Bhopal, M.P.	Dr. Uday R. Badegaonkar

## B. Details of farmers visit

S. No	Purpose of visit	Number of farmers visited
1	Technology information	84601
2	Technology products	3879
3	Diagnostic services	775
4	Others, if any (VIP Visitors/Diganitaries)	525
	<b>Total</b>	<b>89780</b>

## C. Facilities in the ATIC

S. No	Particulars	Availability (Please ✓ mark)	Number of ATICs
1	Reception counter	✓	3
2	Exhibition / technology museum	✓	3
3	Touch screen Kiosk	✓	3
4	Cafeteria	✓	3
5	Sales counter	✓	3
6	Farmers' feedback register	✓	3
7	Others (Visitors register, Stock store register, Telephone etc.)	✓	3

## D. Technology information provided

### D.1. Details on technology information

S. No	Information category	Total number of farmers benefited	Category of information						
			Varieties / hybrids	Pest management	Disease management	Agro-techniques	Soil and water conservation	Farm Mechanization and Value addition	Animal Husbandry and fisheries
1	Crop & Livestock	81855	-	-	-	-	-	-	-
2	Kisan Call Centre / other Phone calls from farmers	941	190	262	155	192	36	78	14
3	Letters received	2	-	-	-	-	-	5	
4	Letters replied	2	-	-	-	-	-	-	
5	Training to farmers / technocrats / students	2200	-	-	-	-	-	-	-
6	Video shows	11350	1450	4090	3595	922	-	843	
	<b>Total</b>	<b>96350</b>	<b>1640</b>	<b>4352</b>	<b>3750</b>	<b>1114</b>	<b>36</b>	<b>926</b>	<b>14</b>

### D.2. Publications (Print & Electronic media)

S. No	Particulars	Numbers sold	Revenue generated (in Rs. lakh)	Number of farmers benefited
1	Books & Technical Bulletins	18245	990850	Mass
2	<b>Others</b>			
	Krishi Panchang-2018	93200	2330000	Mass
	IGKV Telephone directory	1980	59400	Mass
	DVDs (Video film of different technologies)	1260	31500	Mass
	<b>Total</b>	<b>114685</b>	<b>3411750</b>	<b>0</b>

## E. Technology services provided

S. No	Particulars	Number of farmers benefited
1	Details about the services to line Departments	125
2	Farmers' visited ATIC	84605
3	Mechanization Planning Advisory	2750

S. No	Particulars	Number of farmers benefited
4	Plant diagnostics	25
5	Soil and water testing	-
6	<b>Soil Health Cards issued &amp; Farmers' training conducted in KVKs &amp; NGOs</b>	
	(i) No. of Soil sample tested by KVKs	-
	(ii) No. of Soil Health Card distributed	-
	(iii) Farmers/Farm Women trained	-
	(iv) Rural Youths	-
	(v) Extension Personnel	-
7	Technologies on freshwater aquaculture (hatchery management, grow out culture and post harvest technology)	375
8	Through Kisan Call Centre	906
9	Through Letters	5
10	Others (Krishi Gyan Portal)	-
	<b>Total</b>	<b>88791</b>

# LIST OF SCIENTIFIC, TECHNICAL AND ADMINISTRATIVE STAFF

## Director

**Dr. Anupam Mishra**

## Scientific

Dr. S.R.K. Singh, Principal Scientist

(Agrl. Extension)

Dr. A.A. Raut, Scientist (Agrl. Extension)

Sh. T.R. Athare, Scientist (Agrl. Extension)

## PME Cell

Dr. S.R.K. Singh, Principal Scientist

(Agrl. Extension)

## Technical

Sh. Ashok Kumar Dubey, Driver (T2)

## Administration

### Assistant Administrative Officer

Shri Sunil Kumar Gupta

### Finance and Accounts Section

Sh. Rajeev Kulshrestha

Assistant Finance and Account Officer

### PS to Director

Shri A.K. Bhowal

### Programme Assistant

Shri R.K. Soni

### Supporting

Shri Sukhchain Das









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