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2019






भाकृअनुप
ICAR

ICAR-Agricultural Technology Application Research Institute, Zone IX
(Division of Agricultural Extension)
Jabalpur, Madhya Pradesh - 482 004

(Division of Agricultural Extension)

जबलपुर, मध्यप्रदेश–482 004

Jabalpur, Madhya Pradesh – 482 004

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सारांश

भा.कृ.अनु.प.–कृषि तकनीकी अनुप्रयोग अनुसंधान संस्थान, क्षेत्र–9 के अन्तर्गत 82 कृषि विज्ञान केन्द्र, मध्यप्रदेश एवं छत्तीसगढ़ राज्यों में स्थित है ।

प्रक्षेत्र परीक्षण के द्वारा तकनीक आंकलन–

विभिन्न कृषि विज्ञान केन्द्रों द्वारा 1217 प्रक्षेत्र आंकलन, 13848 परीक्षण के द्वारा आयोजित किये गये। मध्यप्रदेश द्वारा 903 एवं छत्तीसगढ़ द्वारा 314 प्रक्षेत्र परीक्षणों का आयोजन किया गया। कुल प्रक्षेत्र परीक्षण 1217 में से 823 प्रक्षेत्र परीक्षण फसल पर व शेष 394 अन्य उद्यमों पर रहा।

अंग्रिम पंक्ति प्रदर्शन–

प्रगति वर्ष के दौरान, कुल 926 अंग्रिम पंक्ति प्रदर्शन विभिन्न फसलों (दलहन, तिलहन, धन धान्य फसलें, सब्जी फसल, मोटे अनाज) पर आयोजित हुए। कुल प्रदर्शन में 10440.88 हे. क्षेत्र, 24938 किसानों के प्रक्षेत्र पर आयोजित हुए। मुख्य आय सृजन वाले उद्यम पर भी अंग्रिम पंक्ति प्रदर्शन आयोजित किये गये। जिसमें क्षेत्रफल की दृष्टि से 371.25 हे., 371 इकाईयाँ एवं 2276 लाभार्थियों की संख्या रही।

प्रशिक्षण एवम् क्षमता संवहन

कुल आयोजित 6501 प्रशिक्षण 193972 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 16 क्षमता संवहन कार्यक्रम से मध्यप्रदेश एवं छत्तीसगढ़ के कृषि विज्ञान केन्द्रों के 721 विषय वस्तु विशेषज्ञ लाभान्वित हुए।

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

कृषि विज्ञान केन्द्रों द्वारा 18224.68 क्विंटल बीज, 50.23 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 45206 मृदा एवं 75 जल नमूनों का परीक्षण कर 54629 किसान एवं 4912 गांव लाभान्वित हुए।

प्रसार गतिविधियाँ

वर्ष में कुल 73565 प्रसार गतिविधियों (प्रक्षेत्र दिवस, किसान मेला, कृषक सलाहकारी सेवाएं, प्रदर्शनी, फिल्म शो आदि) के माध्यम से विभिन्न तकनीक का प्रसार कर 2659679 किसान एवं प्रसार कर्मी लाभान्वित हुए।

वैज्ञानिक सलाहकार समिति की बैठक

वर्ष में कुल 113 वैज्ञानिक सलाहकार समिति की बैठकों का आयोजन किया गया। इनमें से म.प्र. का एक कृषि विज्ञान केन्द्र जिन्होने वर्ष में चार बार, 04 कृषि विज्ञान केन्द्रों ने वर्ष में तीन बार, 25 कृषि विज्ञान केन्द्रों ने वर्ष में दो बार उक्त बैठक आयोजित की गई एवं शेष 21 कृषि विज्ञान केन्द्रों में एक बार उक्त बैठक आयोजित हुई। छत्तीसगढ़ के 04 कृषि विज्ञान केन्द्र ऐसे थे जिन्होने वर्ष में दो बार उक्त बैठक आयोजित की गई एवं शेष 21 कृषि विज्ञान केन्द्रों में एक बार उक्त बैठक आयोजित हुई।

एटिक वार्षिक प्रगति प्रतिवेदन

अटारी जबलपुर के अधीन 3 एटिक संस्थान हैं। वर्ष में 15203 कृषकों ने एटिक में भ्रमण किये, तकनीकी सूचनाओं से 24360 कृषक लाभान्वित हुए। प्रकाशन के अन्तर्गत 63959 प्रकाशित प्रतियां विक्रय कर कुल 29.06 लाख रुपये अर्जित हुए।

पुरस्कार एवं सम्मान

कृषि विज्ञान केन्द्र कवर्धा को पण्डित दीनदयाल उपाध्याय कृषि विज्ञान प्रोत्साहन पुरस्कार– 2018 (जोनल) प्राप्त हुआ। उज्जैन जिले के प्रगतिशील किसान श्री अश्विनी सिंह को जगजीवन राम अभिनव किसान पुरस्कार–2018, प्रगतिशील किसान श्री मिलन विश्वकर्मा, कृषि विज्ञान केन्द्र महासमुंद को महिंद्रा कृषक समृद्धि (राष्ट्रीय) अवार्ड–2019 एवं श्री अरविंद कंकर, कृषि विज्ञान केन्द्र रतलाम को महिंद्रा समृध्दि इंडिया एग्री अवार्ड–2019 से सम्मानित किया गया। कृषि विज्ञान केन्द्र, धार को जनजातीय कृषि प्रणालियों में उत्कृष्ट अनुसंधान के लिए फखरूद्दीन अली अहमद अर्वाड–2018 प्राप्त हुआ। कृषि विज्ञान केन्द्र दतिया को सर्वश्रेष्ठ निकरा–केवीके–2019 का अवार्ड प्राप्त हुआ। साथ ही कवर्धा जिले की प्रगतिशील किसान श्रीमति अदिती कश्यप को कृषि कर्मण अवार्ड–2016–17 से पुरस्कृत किया गया।

कृषि विज्ञान केन्द्रों में आगन्तुको का आगमन

वर्ष में जोन–9 के कृषि विज्ञान केन्द्रों में 368442 आगन्तुको का आगमन हुआ, जिसमें कुल 358082 किसान, 8611 अधिकारीगण एवं 3780 गणमान्य व्यक्ति शामिल है। राज्यवार आंकड़ो के अनुसार मध्यप्रदेश के कृषि विज्ञान केन्द्रों में सर्वाधिक संख्या 182185 (49.45 प्रतिशत), छत्तीसगढ़ में 186257 (50.55 प्रतिशत) रहा।

Executive Summary

ICAR-Agricultural Technology Application Research Institute, Zone IX has 82 KVKs located in two Indian states viz., Madhya Pradesh and Chhattisgarh.

Technology Assessment through On-Farm Testing

During 2019, 1217 technologies were assessed in the Zone through 13848 On-Farm Trials. The highest number of technologies were assessed in the state of Madhya Pradesh (903) followed by Chhattisgarh (314). Out of total 1217 technologies assessed, 823 were on crops and remaining 394 technologies on enterprises.

Frontline Demonstrations

During year, 926 *FLDs were conducted on crops (oilseeds, pulses, cereals, vegetables crops, cash crops, agro-forestry, millets, etc.) covering the total area* 10440.88 *ha. Benefiting* 24938 *farmers. FLDs were also conducted on important income generating enterprises, covering the* 371 *units and* 371.25 *ha area among* 2276 *beneficiaries.*

Training and Capacity Building

During the year there was a significant increase in the number of training and participants. In 6501 courses organized 193972 participants (farmers and farm women, rural youth, extension personnel) and those sponsored from different agencies were benefitted. ICAR-ATARI, Jabalpur also organized 16 capacity building programmes in collaboration with ICAR institutes for technical upscaling of 721 Subject Matter Specialists in the Zone.

Seed, Planting Materials, Bio-Products and Livestock Material Production

KVKs of the Zone produced total 18224.68 qtl. of seed and 50.23 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, 45206 soil samples and 75 water samples were analysed by KVKs of the Zone touching 54629 *farmers of 4912 villages.*

Extension Activities

A total of 73,565 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 26,59,679 farmers and extension personnel in the ICAR-ATARI, Zone-IX.

Technological backstopping

Technological backstopping were carried out through production of 177800 *copies of technical literature, newsletters etc. of which* 171520 *were distributed among the farmers, in Panchayats as well as Line department officials.*

Scientific Advisory Committee Meeting

In the Zone, total 113 Scientific Advisory Committee (SACs) meetings were conducted by KVKs. In MP, one KVK organized SAC meeting four, 04 KVKs organized SAC meeting threes, 25 KVKs organized SAC meeting twice and 21 KVKs once during the reporting period. In Chhattisgarh, 04 KVKs organized SAC meeting twice and 21 KVKs SAC was organized once during the reporting period.

ATIC Progress

In the Zone, Three ATICs are operational under ATARI, Jabalpur. In these ATICs there were 15203 footfalls during the year. Technological information was provided to 24360 farmers. A total 63959 *publications (print & electronic media) were sold and generated revenue of Rs. 29.06 lakh.*

Awards and Recognitions

Krishi Vigyan Kendra Kawardha has been awarded Pt. Deen Dayal Upadhyay Krishi Vigyan Protsahan Award–2018 (Zonal), Jagjivan Ram Abhinav Kisan Puraskar/Jagjivan Ram Innovative Farmer Award-2018 to Progressive Farmer and Member of BoM of JNKVV, Jablapur Sh. Ashwini Singh, Mahindra Krishak Samriddhi Award National-2019 to Progressive farmer Shri Milan Vishwakarma, KVK Mahasamund and Mahindra Samriddhi INDIA AGRI AWARDS 2019 to Mr. Arvind Kankar of Ratlam district. Krishi Vigyan Kendra Dhar has been awarded Fakhruddin Ali Ahmed Award for Outstanding Research in Tribal Farming Systems-2018. Best NICRA-KVK for the year 2019 award received by KVK Datia. Krishi Karman Award 2016-17 to Progressive Farmer Smt. Aditi Kashyap of district Kabridham (C.G.).

Footfalls in KVKs

In the KVKs of Zone IX, there was 368442 footfalls (358082 farmers, 8611 officials and 3780 dignitaries/VIPs) during 2019. In Madhya Pradesh, it was 182185 (49.45%) and in Chhattisgarh 186257 (50.55 %).

1. Introduction

Zonal Coordinating Unit established on 11th 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 was renamed as Agricultural Technology Application Research Institute (ATARI) in 2015. The Institute coordinates monitors and evaluates the mandated activities of 82 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 82 KVKs in the two states namely Madhya Pradesh and Chhattisgarh.

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

State	No of Districts	No. of of KVKs					
		SAU	VU	CU	NGO	ICAR	Total
Chhattisgarh	27	27	01	0	0	0	28
Madhya Pradesh	52	44	0	01	08	01	54
Total	**79**	**71**	**01**	**01**	**08**	**01**	**82**

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

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 human resource development in the 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 Institution	No. of KVKs
A. Madhya Pradesh	**54**
Jawaharlal Nehru Krishi Vishwa Vidyalaya, Jabalpur	22
Rajmata Vijayaraje Scindia Krishi Vishwa Vidyalaya, Gwalior	22
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
Shri Malwa Mahila Vikas Samiti, Sironj, Vidisha (sub-judice)	1
Bhausahab Bhuskute Smriti Lok Nyas Sansthan, Bankhedi, Hoshangabad	1
B. Chhattisgarh	**28**
Indira Gandhi Krishi Vishwa Vidyalaya, Raipur	27
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, 59.22 per cent are filled while remaining 40.78 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 Sci. & head (1)		SMS (6)		PA (3)		Admn. (6)		Total (16)	
		Sanc.	Filled	Sanc.	Filled	Sanc.	Filled	Sanc.	Filled	Sanc.	Filled
Madhya Pradesh	54	54	44	324	193	162	103	324	151	864	491
Chhattisgarh	28	28	19	168	136	84	51	168	80	448	286
Total	**82**	**82**	**63**	**492**	**329**	**246**	**154**	**492**	**231**	**1312**	**777**

The detail of budgetary provision of KVKs underZone-IX, Jabalpuris given in Table 1.4.

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

S. no.	States & Institute	Rs. in lakh		
		Pre revised Estimate	Revised Estimate	Total Release/ Expenditure
1	**Madhya Pradesh**	5251.16	5609.46	5609.46
2	**Chhattisgarh**	2396.30	2555.50	2555.50
4.	**ATARI, Zone IX**	326.00	258.50	243.83
Total		**7973.46**	**8423.46**	**8408.79**

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

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

S. No.	States	No. of KVKs	Admn. Building			Trainees Hostel			Staff Quarters		
			Completed	In progress	NA	Completed	In progress	NA	Completed	In progress	NA
1	**Madhya Pradesh**	54	47	7	-	44	7	-	41	1	-
2	**Chhattisgarh**	28	24	4	-	12	8	-	6	-	-
Total		**82**	**71**	**11**	**-**	**56**	**15**		**47**	**1**	**-**

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

There are 79 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 (ACZ)	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

State	Agroclimatic Zones (ACZ)	KVKs	No. of KVKs
	Kymore Plateau and Satpura Hills	Satna, Sidhi, Singarauli, Seoni, Jabalpur, Katni, Panna, Rewa	08
	Jhabua Hills	Jhabua, Alirajpur	02
	Malwa Plateau	Indore, Dhar, Dhar-II, Dewas, Shajapur, Ujjain, Mandsaur, Ratlam, Rajgarh, Neemach, Agar Malwa	11
	Nimar Valley	Khandwa, Khargone, Badwani, Burhanpur	04
	Satpura Plateau	Chhindwara, Betul, Chhindwara-II	03
	Vindhya Plateau	Sehore, Bhopal, Raisen, Sagar, Sagar-II Damoh, Vidisha	07
	Central Narmada Valley	Narsinghpur, Hoshangabad (Bankhedi), Harda	03
Total	**11 ACZs**		**54**
CG	Chhattisgarh Plains	Bilaspur, Durg, Baloda Bazar (Bhatapara), Raipur, Gariyaband, Raigarh, Dhamtari, Janjgir-Champa, Mahasamund, Korba, Kanker, Rajnandgaon, Kabirdham, Durg-II, Mungeli, Bemetra, Balod	17
	North Hills of Chhattisgarh	Surguja(Surajpur), Mainpat, Jashpur, Korea, Balrampur	05
	Bastar Plateau	Bastar, Dantewada, Bijapur, Narayanpur, Sukma, Kondagaon	06
Total	**3 ACZs**		**28**

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, goatary, 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.

2. 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 1,217 were tested in the Zone through 13,848 different trials (Table 2.1). The highest number of technologies were tested in the state of Madhya Pradesh (903) followed by Chhattisgarh (314). Out of these, 823 technologies were assessed on crops whereas remaining 394 technologies were on allied 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 allied enterprises, fish production & management, farm mechanization, animal husbandry and poultry production & management were the priority areas.

Table 2.1: State-wise overall technology assessed during 2019

State	No. of Technologies assessed	No. of Trials
Chhattisgarh	310	1536
Chhattisgarh (ICT)	04	130
Total	**314**	**1666**
Madhya Pradesh	833	5898
Madhya Pradesh (ICT)	70	6284
Total	**903**	**12182**
Grand Total	**1217**	**13848**

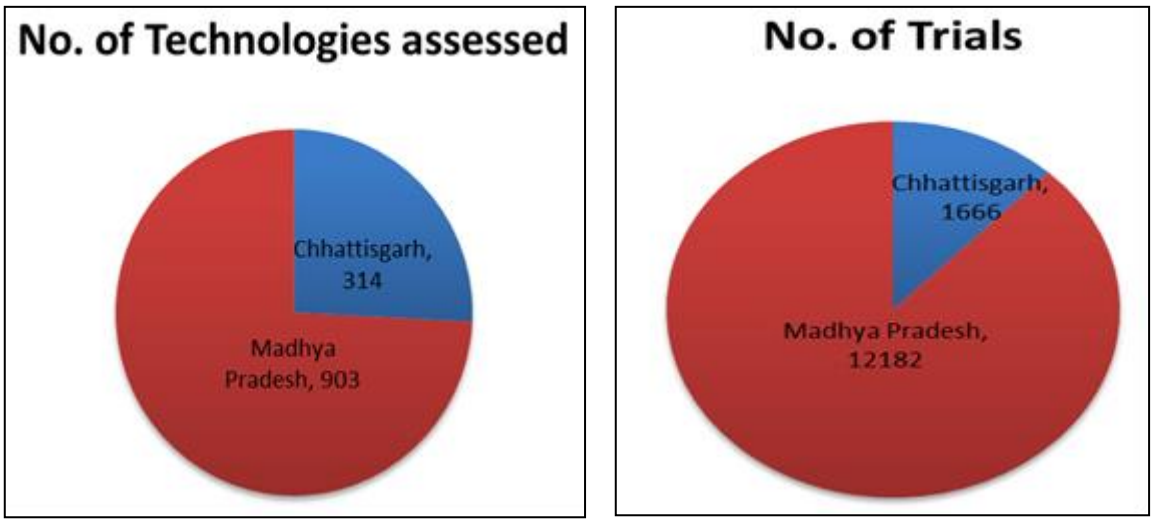


Figure-1: State-wise overall technology assessed during 2019

Table 2.2: Crop wise OFTs conducted during 2019

Crop Category	Number of technologies assessed			No. of trials		
	CG	MP	Total	CG	MP	Total
Cash	2	3	5	8	12	20
Cereal	87	150	237	426	1090	1516
Millets	5	3	8	21	20	41
Oilseed	22	97	119	124	733	857
Pulses	32	122	154	155	895	1050
Spices	6	32	38	28	238	266
Vegetable	35	132	167	181	878	1059
Tuber	3	5	8	15	39	54
Fibre	0	3	3	0	23	23
Fodder	6	6	12	24	35	59
Fruits	10	22	32	39	145	184
Flower	3	5	8	19	30	49
Forest	0	1	1	0	5	5
Nuts	0	1	1	0	5	5
Medicinal Plants	0	2	2	0	17	17
Others	2	26	28	14	155	169
Total	**213**	**610**	**823**	**1054**	**4320**	**5374**

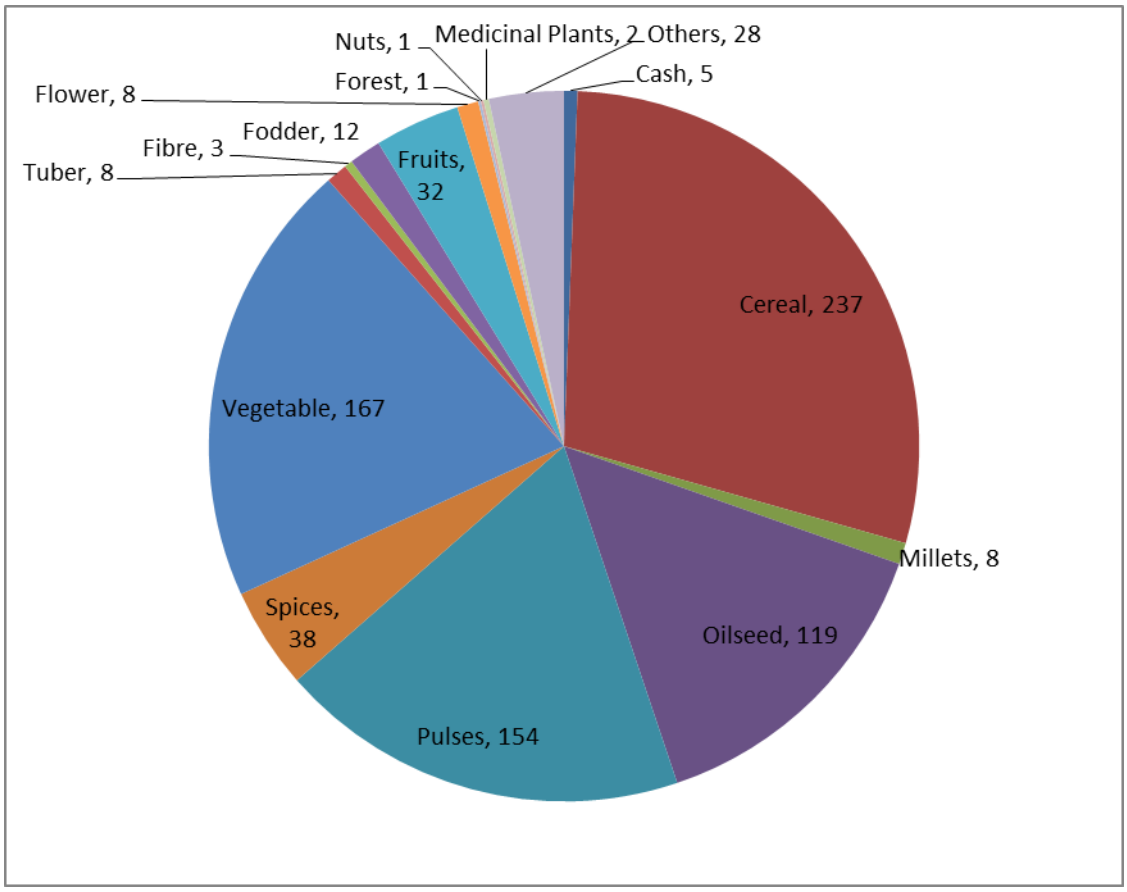


Figure-2 : Crop wise OFTs conducted during 2019

Table 2.3: Thematic area wise OFTs conducted on crops during 2019

Thematic Area	Number of technology Assessed			No. of trials		
	CG	MP	Total	CG	MP	Total
Agro Forestry	1	6	7	5	29	34
Feed and Fodder Production	6	3	9	24	20	44
Integrated Crop Management	51	79	130	264	636	900
Integrated Disease Management	14	45	59	70	321	391
Integrated Farming System	3	11	14	16	60	76
Integrated Nutrient Management	39	92	131	192	655	847
Integrated Pest Management	22	75	97	100	542	642
Integrated Plant Nutrient Management	4	22	26	21	136	157
Integrated Weed Management	22	26	48	119	197	316
Intercropping	5	17	22	18	117	135
Resource conservation Technology	2	24	26	8	126	134
Soil Fertilty Management	8	31	39	38	278	316
Varital Evaluation	30	163	193	153	1097	1250
Nursery raising	1	9	10	4	56	60
Crop Diversification	5	7	12	22	50	72
Grand Total	**213**	**610**	**823**	**1054**	**4320**	**5374**

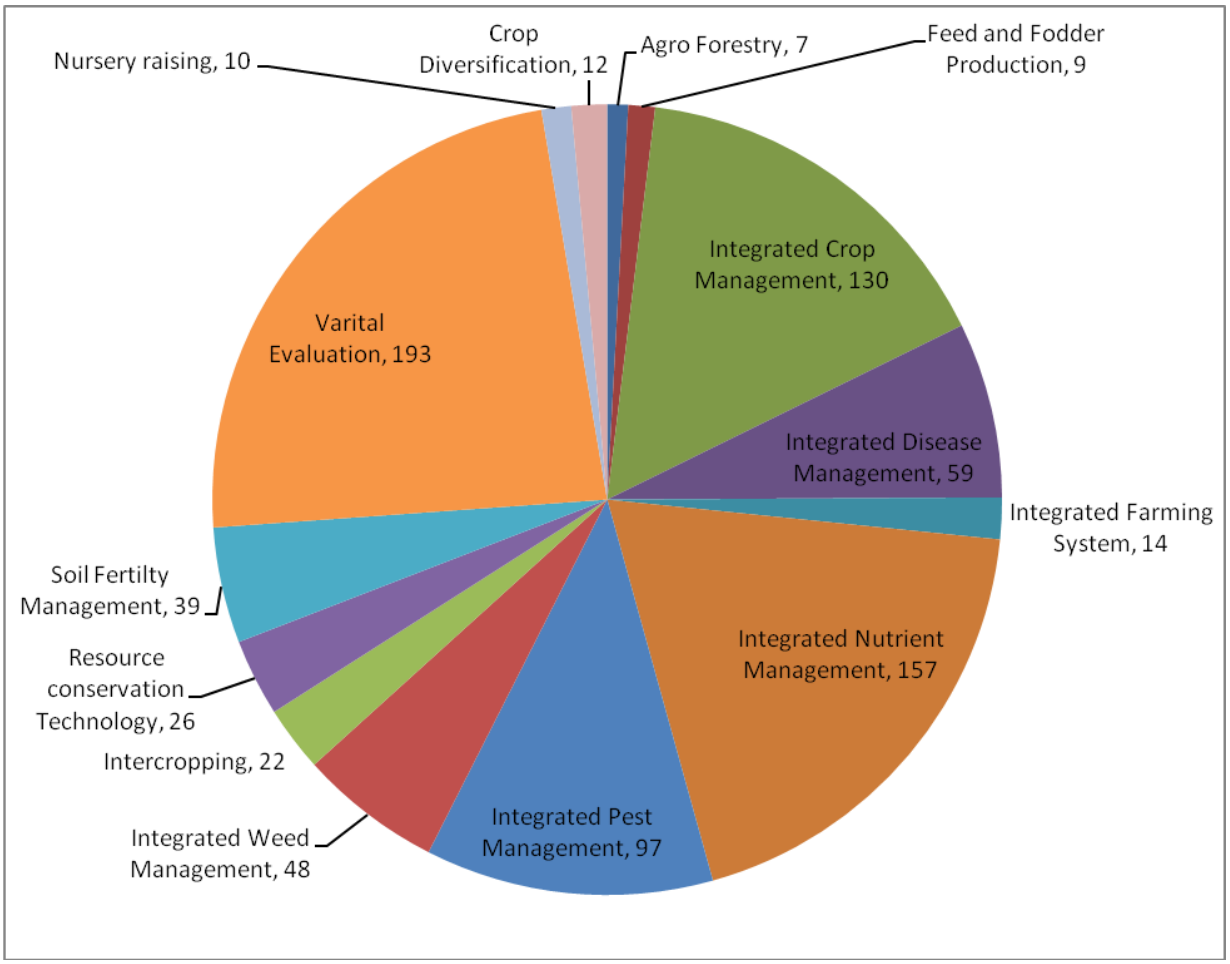
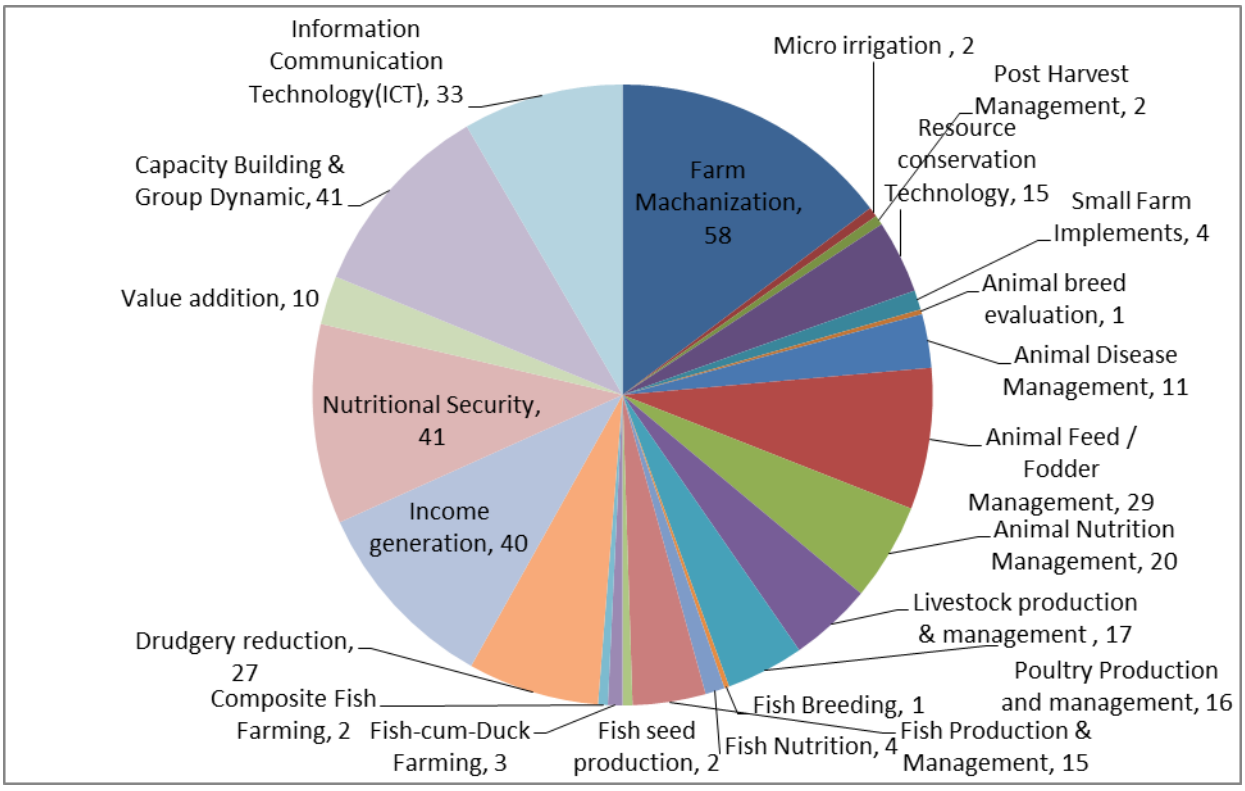


Figure- 3: Thematic area wise OFTs conducted on crops during 2019

Table 2.4: Thematic area wise number of technologies assessed on enterprises during 2019

Thematic Area	Number of technology Assessed			No. of trials		
	CG	MP	Total	CG	MP	Total
Farm Machanization	34	24	58	156	153	309
Micro irrigation	0	2	2	0	15	15
Post Harvest Management	2	0	2	7	0	7
Resource conservation Technology	1	14	15	4	75	79
Small Farm Implements	3	1	4	13	5	18
Animal breed evaluation	1	0	1	6	0	6
Animal Disease Management	2	9	11	9	71	80
Animal Feed / Fodder Management	3	26	29	13	193	206
Animal Nutrition Management	1	19	20	7	140	147
Livestock production & management	9	8	17	58	52	110
Poultry Production and management	6	10	16	41	72	113
Fish Breeding	1	0	1	4	0	4
Fish Nutrition	1	3	4	4	11	15
Fish Production & Management	10	5	15	33	15	48
Fish seed production	2	0	2	6	0	6
Fish-cum-Duck Farming	2	1	3	8	3	11
Composite Fish Farming	0	2	2	0	6	6
Drudgery reduction	1	26	27	5	234	239
Income generation	13	27	40	67	196	263
Nutritional Security	3	38	41	31	287	318
Value addition	2	8	10	10	50	60
Capacity Building & Group Dynamic	4	37	41	130	3973	4103
Information Communication Technology (ICT)	0	33	33	0	2311	2311
Total	**101**	**293**	**394**	**612**	**7862**	**8474**



TECHNOLOGIES ASSESSED FOR MAJOR CROPS/ENTREPRISES

SOYBEAN

Varietal Assessment in Soybean

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

Technology Assessed: **Assessment of soybean variety JS 20-34**

KVKs, viz. Ratlam, Damoh and Dewas conducted 38 OFTs to assess the performance of soybean variety JS 20-34. The results of the assessment showed that JS 20-34 gave 51.38 over higher yield in comparison of T_1 (farmers' practice). The pods per plant in assessed practice also increased by 43.42 per cent over farmers' practice. The economic analysis showed that the incremental net return was Rs 10,685 per ha with this variety along with 0.34 higher BC ratio over farmers' practice. Due to short duration and higher production performance, JS 20-34 has been adopted by the farmers in the soybean growing districts of Madhya Pradesh over old variety (JS 95-60).

Table - Performance of soybean variety JS 20-34

Details	No. of trials	Yield (q/ha)	No. of pods/plant	Net Return (Rs/ha)	B:C Ratio
Soybean variety JS 95-60 (Farmers' practice T_1)	38	8.66	19.76	10896	1.37
Soybean variety JS 20-34 (Recommended practice T_2)		13.11	28.34	21581	1.71

Soybean variety JS 20-34

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

Technology Assessed: **Assessment of soybean variety RVS 2001-4**

KVK Alirajpur, Jhabua, Ratlam and Shivpuri conducted 35 OFTs to assess the performance of soybean variety RVS 2001-4. The results of the assessment showed that RVS

2001-4 gave 49.33 per cent higher yield over the T_1 (Farmers' practice). The pods per plant also increased by 85.14 per cent over Farmers' practice. The economic analysis showed that the incremental net return was Rs 17,747 per ha with this variety along with 0.73 units higher BC ratio over farmers' practice. Due to higher production performance of RVS 2001-4, this variety was adopted by the farmers in the soybean growing districts of Madhya Pradesh.

Table - Performance of soybean variety RVS 2001-4

Details	No. of trials	Yield (q/ha)	No. of pods/plant	Net Return (Rs/ha)	B:C Ratio
Soybean variety JS 335/ JS 93-05 (Farmers' practice T_1)	35	10.50	23.15	16966	1.82
Soybean variety RVS 2001-4 (Recommended practice T_2)		15.68	42.86	34713	2.55

Assessment of soybean variety RVS 2001-4

RICE

Varietal Assessment in Rice

Problem identified: **Low yield due to use of old varieties in rainfed condition**

Technology Assessed: **Assessment of improved rice variety RRF 105 and RRF 127**

For direct seeding of rice under rainfed uplands, selection of variety is the most important factor responsible for optimal productivity. With the use of improved early and drought tolerant variety, the productivity of the crop can be enhanced. Keeping this in view, KVKs of Bastar, Bemetara, Dhamtari, Kanker, Korba and Mahasamund of the Zone planned and conducted 40 OFTs to assess the performance of the improved drought tolerant rice variety RRF 105 (T_2); while KVKs of Gariyaband and Durg-II assessed RRF 127 (T_3) with T_2. The results showed that the yield of the assessed variety under $T_3$was 39.21 and 10.97 per cent higher over the farmers' practice (T_1) and T_2, respectively. The number of effective tillers/hill was observed to be higher by 38.82 and 8.76 per cent over farmers' practice (T_1) and T_2, respectively. Similarly the assessed variety under T_2 produced 25.45 per cent higher yield over farmers' practice. The incremental net returns and BC ratios in T_2 and T_3 were found to be Rs. 19,376 and 13,914 per ha; and 0.46 and 0.47, respectively as compared to the farmers' practice. The assessed varieties gave very good performance in rain-fed condition.

Table: Performance of improved rice variety RRF 105 and RRF 127

Details	No. of trials	Yield (q/ha)	No. of effective tillers/hill	Net Return (Rs/ha)	B:C Ratio
Old rice variety MTU 1010 under rainfed situation (Farmers' practice T_1)	40	31.75	15.2	30119	2.14
Improved drought tolerant rice variety RRF 105 (Recommended practice T_2)		39.83	19.4	44033	2.60
Improved drought tolerant rice variety RRF 127 (Recommended practice T_3)		44.2	21.1	49495	2.61

Line sowing of the improved variety RRF-105

Crop at mature stage

WHEAT

Varietal Assessment in Wheat

Problem identified: Low yield of wheat due to use of old variety

Technology Assessed: Assessment of Wheat variety G 366, HD 2932, JW 3211, JW 3336, JW 3269 and JW 3020

A total number of 147 on-farm-testings were conducted by KVKs of Madhya Pradesh and Chatisgarah, namely Gariyaband, Janjgir-Champa, Korba, Alirajpur, Jhabua, Khargone, Agarmalwa, Dhar, Ratlam, Sehore, Anuppur, Sidhi, Jabalpur, Mandla, Seoni, Panna, Rewa, Satna, Umaria, Katni, Betul and Hoshangabad to enhance the production and productivity of wheat crop, because wheat production has not been increased up to desired level due to growing of old variety seeds of wheat crop. The average yield (62.2 q/ha) of improved variety (high yielding and disease resistant) was 39.3 per cent higher in different locations against that of farmers' practice (44.6 q/ha). Higher net returns (Rs. 44229.72) were observed under improved variety as compared to farmers practices (Rs. 31064.5), implying 86.3 per cent increase over farmers' exiting cultivar. Higher benefit cost ratio (2.8) was, accordingly, reflected for improved variety as compared to that of farmers' practice (2.3). Among the varieties of wheat, JW 3269 and JW 3211 were found suitable for semi irrigated areas, because of their drought tolerant and high yielding characteristics.

Table - Performance of Improved variety of Wheat

Details	No. of trials	Yield (q/ha)	No. of tillers/m^2	Net Return (Rs/ha)	B:C Ratio
Wheat variety LoK 1 and Malwa kriti (Farmers' practice T_1)	147	44.6	210	31064.55	2.3
Wheat variety GW 366,HD 2932,Pusa Anmol,JW 3288, JW 3269 and JW 3211 (Recommended practice T_2)		62.2	255	44229.72	2.8
Percentage increase		39.3	-	86.3	21.7

JW 3211

JW 3336

CHICKPEA

Varietal Assessment in Chickpea

Problem identified: **Low yield of chickpea due to use of degenerated seed/old variety.**
Technology Assessed: **Assessment of chickpea variety JG 14 and RVG 101.**

Majority of the farmers in both the states of MP and CG are still cultivating chickpea using traditional seed varieties and use of higher seed rates makes chickpea cultivation expensive. Chickpea production has not increased up to desired level due to growing of chickpea crop under marginal and most neglected conditions with minimal inputs. Therefore, to create awareness among the farming community, efforts have been made to assess the location specific improved varieties to enhance the production and productivity of chickpea crop. Under such situation the assessment of improved varieties of chickpea will be beneficial for increase seed yield. In this regards the average yield (14.27 q/ha) of improved varieties (high yielding and disease resistant) from 17 OFTs conducted was 28.6 per cent higher at different locations against that of farmers' practice (11.09 q/ha). Higher net returns (Rs. 25722) were realized under improved variety as compared to that of farmers' practices (Rs. 24620). On an average, net returns from adaptation of improved varieties was 4.5 per cent higher over that of farmers' exiting cultivar. Higher benefit cost ratio was accordingly reflected for improved variety (3.2) as compared to that of farmers' practice (2.7). Both varieties of Chickpea JG 12 and RVG 101 were resistant to wilt and tolerant to dry root rot diseases in this region.

Table - Performance of Improved variety of chickpea

Details	No. of trials	Yield (q/ha)	No. of pods/plant	Net Return (Rs/ha)	B:C Ratio
Chicpea variety JG 63 (Farmers' practice T_1)	17	11.09	19	24620	2.7
Chickpea variety JG 14 and RVG 101 (Recommended practice T_2)		14.27	22	25722	3.2
Percentage increase		28.60	-	4.5	18.5

RVG 101

JG-14

Integrated Nutrient Management in Soybean

Recommended dose of NPK, biofertilizers and organic manure in Soybean

Problem identified: Low yield of soybean due to imbalance/indiscriminate use of fertilizers.

Technology Assessed: Assessment of recommended dose of NPK along with bioferlizers and FYM in soybean.

Soybean is an important kharif oilseed crop grown in majority of areas of Madhya Pradesh. Imbalanced/indiscriminate use of major plant nutrients and non-adoption of biofertilizers and organic manure by the farmers are the major reasons for declining the yield of soybean. Therefore integration of inorganic fertilizers, biofertilizers and organic manure results in insoluble nutrients transforming to soluble form through release of organic acid which ultimately enhance the production and productivity of soybean crop. In this context, KVKs of Jhabua, Khandwa, Dewas, Indore, Rajgarh, Guna, Dhar, Harda and Tikamgarh conducted 75 OFTs to assess the response of integration of recommended doses of N:P:K @ 20:60:20 kg/ha, seed treatments by Rhizobium and PSB @ 5 g/kg as seed inoculation and FYM @ 5 t/ha (treatment T_3) and only use of recommended dose of N:P:K @ 20:60:20 kg/ha (treatments T_2). The results revealed higher seed yield (by 21 per cent and 49.5 per cent, respectively, under treatment T_2 and T_3) as compared to that under farmers' practice. The number of pods per plant also increased by 32 per cent and 77 per cent, respectively, under T_2 and T_3 over that under farmers' practices. Similarly the incremental net return and B:C ratio were found to be higher under the treatment T_3 (Rs. 16135 and 0.8 unit, respectively} over farmers' practice. On the basis of the above findings it may be concluded that the assessed technology under T_3 is more effective as this increases the crop yield *vis-a-vis*

maintaining soil health and fertility.

Table - Response of integration of recommended dose of NPK along with FYM and seed inoculation by Rhizobium & PSB of soybean.

Details	No. of trials	Yield (q/ha)	Percent increase Yield	No. of pods/ plant	Net Return (Rs/ha)	B:C Ratio
NPK @ 13:34:0:0:0 kg/ha (Farmers' practice T_1)	75	10.5		12	12964	1.7
NPK @ 20:60:20 kg/ha (Recommended practice T_2)		12.8	21	16	19935	1.9
Rhizobium & PSB @ 5 g/kg as seed inoculation + NPK @ 20:60:20 kg/ha + FYM @ 5 t/ha(Recommended practice T_3)		15.7	49.5	22	29099	2.5


Assessment of recommended dose of NPK along with bioferlizers and FYM in soybean

Integrated Nutrient Management in Rice

Recommended dose of NPK based on soil test value along with biofertilizers and FYM in Rice

Problem identified: Low yield of rice due to imbalance/non-judicious use of fertilizers.
Technology Assessed: Assessment of recommended dose of NPK along with bioferlizers and FYM in Rice.

Deficiencies of primary and secondary micronutrients have been observed in intensive cultivated areas. KVKs have tested the judicious use of balanced dose of fertilizers (100:60:40 NPK kg/ha) as per soil test value along with biofertilizers (PSB and Blue green algae) and organic manures against farmers practice (18:46:0 NPK Kg/ha). In this regard, 75 OFTs on the above mentioned technology were carried out by KVKs of Balod, Gariyaband, Bhatapara, Janjgir-Champa, Korba, Narayanpur & Rajnandgaon of Chhatisgarh and Gwalior, Anuppur, Jabalpur, Rewa, Hoshngabad, Umaria & Shahdol of Madhya Pradesh. The results showed that yield and yield attributes were directly influenced by the use of inorganic, biofertilizers and organic manure. Higher yield (47.4 q/ha) was recorded under improved practices, with an additional yield of 8.9 q/ha (23.1%) as compared to that under farmers' practices (38.5 q/ha).

Use of balanced dose of fertilizer with improved variety, played vital role in photosynthesis and proper uptake of nutrients as per crop demand. Consequently better expression of all these yield attributes resulted in increase in grain yield. Also higher net monetary returns (Rs.55234.3/ha) and B:C ratio (3.0) were realized from the judicious use of N:P:K as compared to exiting that under farmers' practice (net returns of Rs. 42457.7/ha and B:C ratio of 2.4). This technique will also maintain soil health and undoubtedly increase the sustainability of farming in future too.

Table - Response of integration of recommended dose of NPK along with FYM and seed inoculation by PSB in Rice.

Details	No. of trials	Yield (q/ha)	Percent increase Yield	No. of tillers/ plant	Net Return (Rs/ha)	B:C Ratio
NPK @ 18:46:0 NPK kg/ha (Farmers' practice T_1)	75	38.5		13	42457.7	2.4
NPK @ 100:60:40 NPK kg/ha (Recommended practice T_2)		45.0	16.80	20	52261.6	2.7
PSB @ 10 g/kg as seed inoculation and Blue green Algae + 100:60:40 NPK kg/ha and FYM @ 5 t/ha (Recommended practice T_3)		47.4	23.10	26	55234.3	3.0

Assessment of recommended dose of NPK along with bio fertilizers and FYM in Rice

Integrated Nutrient Management in Wheat

Recommended dose of NPK based on soil test value along with biofertilizers and vermicompost in wheat

Problem identified: Low yield of wheat due to imbalance/non-judicious use of fertilizers
Technology Assessed: Assessment of recommended dose of NPK along with bioferlizers and vermicompost in wheat.

The escalating population, intensified cropping and widespread soil degradation are responsible for less productivity of land as compared to their yield potential. In this situation INM is the key for raising productivity level and maintaining the soil health. In this regard KVKs tested on farmers fields with recommended dose of fertilizers (100:60:40 NPK kg/ha), seed inoculation by biofertilizers PSB @ 10g/kg seed and organic manure (vermicompost) @ 2.5 t/ha against the farmers' practices which comprised NPK @ 80:40:0 kg/ha without any

integration of organic and biofertlizer. These trials were conducted at 85 farmers' fields by KVKs of Morena, Khandwa, Gwalior, Indore, Seoni, Sagar, Balod and Bemetara.Results showed that the seed yield was higher by 13.6 per cent and 30.30 per cent, respectively, under treatment T_2 and T_3 over that of farmers' practice. The number of tillers per/m^2 also increased by 21.6 per cent and 32.4 per cent over that under farmers' practices, respectively. Similarly, the incremental net returns and B:C ratio, under the assessed technology T_3, were higher by Rs. 11787 and 0.6 unit over the same under farmers' practice. On the basis of the above findings it may be concluded that the assessed technology under T_3 is more effective as this increased the crop yield due to judicious use of balanced doses of fertilizers with integration of organic and biological source of plant nutrients, which in turn increased the efficiency of fertilizers.

Table- Effect on integration of recommended dose of NPK along with vermicompost and seed inoculation by PSB in wheat

Details	No. of trials	Yield (q/ha)	Percent increase Yield	No. of tillers/ m^2	Net Return (Rs/ha)	B:C Ratio
80:40:0 NPK kg/ha (Farmers' practice T_1)	85	35.7		185	51042.96	3.3
100:60:40 NPK kg/ha (Recommended practice T_2)		40.4	13.16	225	59365.98	3.5
100:60:40 NPK kg/ha+PSB @ 10 g/kg as seed inoculation and Vermicompost@ 2.5 t/ha (Recommended practice T_3)		46.5	30.30	245	62829.32	3.9

Integrated Nutrient Management in Wheat

Integrated Nutrient Management in Chickpea

Recommended dose of NPK based on soil test value and biofertilizers and vermicompost in chickpea

Problem identified: Low yield of chickpea due to imbalance/non judicious use of fertilizers

Technology Assessed: Assessment of recommended dose of NPK along with seed inoculation of bioferlizers and FYM in chickpea.

Current discourse in nutrient management in chickpea emphasizes on need to supplement chemical fertilizers with organic ones, more particularly bio-fertilizers of

microbial origin. The use of *Rhizobium leguminosorum* and *Phosphate solubilizing bacteria,* along with organic manure, has opened new vistas on judicious use of balanced nitrogen, phosphorus and potash for plant nutrition. In this regard, KVKs of Balod, Durg-II, Bhatapara, Jhabua, Sehore, Guna, Damoh, Betul and Harda conducted 65 trials on integrated nutrient management in Chickpea at farmers' fields. The results showed higher yield (16.2 q/ha) realized from the improved practice, which was 3.9 q/ha more (31.37%) as compared to that under farmers' practices (12.3 q/ha). Higher B:C ratio (3.3) was realized under the use of judicious and balanced dose of fertilizers as compared to that under exiting farmers practice (2.0). This can be attributed to symbiotic nitrogen-fixing bacteria called *rhizobia.* The rhizobia convert nitrogen gas from the atmosphere into ammonia and fixed phosphorus in the soil can be solubilized by PSB, which have the capacity to convert inorganic unavailable phosphorus form to soluble forms through biological process.

Table-Response of integration of recommended dose of NPK along with seed inoculation by Rhizobium & PSB and FYM in chickpea

Details	No. of trials	Yield (q/ha)	Percent increase Yield	No. of pods/ Plant	B:C Ratio
50 kg DAP /ha (Farmers' practice T_1)	65	12.3		17	2.0
20:60:20 NPK kg/ha (Recommended practice T_2)		15.2	23.5	22	3.3
20:60:20 NPK kg/ha+ Rhizobium and PSB @ 10 g/kg as seed inoculation and FYM @ 5 t/ha (Recommended practice T_3)		16.2	31.70	25	3.3

Integrated Nutrient Management in Chickpea

Integrated Nutrient Management in Maize

Recommended dose of NPK based on soil test value along with micronutrient zinc and soil application of biofertilizers in maize

Problem identified: Low yield of maize due to imbalance/non- judicious use of fertilizers
Technology Assessed: Assessment of recommended dose of NPK along with micronutrient of zinc and soil application of bioferlizers in maize.

Maize crop are recognized as heavy feeder of nitrogen, phosphorus and potash

fertilizers therefore its productivity is very much related to balanceed dose of NPK fertilizers. In this context, KVK scientists assessed the INM in maize by the soil application of NPK Zn @120:60:40:5 kg/ha + Azotobacter @ 2.5 kg/ha+ PSB @ 2.5 kg/ha against the farmers practices of NPK Zn @ 64:46:0:0 kg /ha. Higher yield (41.0 q/ha) was obtained under the recommended practice, which exceeded the yield under farmers' practices by 9.9 q/ha (31.8%). Yield (39.2 q/ha) from another recommended practice comprising use of recommended dose @120:60:40 NPK kg/ha only, was also higher as compared to that under farmers' practices (31.1 q/ha). Highest net return (Rs. 76390.25) and B:C ratio (4.2) were observed under the practice of integrating inorganic fertilizers and micronutrients along with soil application of biofertilizers. The same under existing farmers' practice was Rs. 41121 and 3.0, respecitvely. Thus, an incremental net return of Rs. 35269 and B:C ratio of 1.2 were realized under the assessed technology over the the same under farmers' practice. This significant increase in yield resulting from the use of organic and inorganic combination of nutrient supply might be due improvement in the physical and biological health of soil, thus resulting in more uptake of nutrients by improvement of mineralization process under the proper aeration. These are beneficial in enhancement of crop productivity and improve the soil healthin long term also.

Table- Effect of recommended dose of NPK along with micronutrient and soil application of biofertilizers in maize

Details	No. of trials	Yield (q/ha)	Percent increase Yield	Net return Rs/ha	B:C Ratio
64:46:0:0 kg NPK Zn/ha. (Farmers' practice T_1)	46	31.1		41121	3.0
120:60:40:5 kg NPK kg/ha (Recommended practice -T_2)		39.2	26	54318.83	3.4
120:60:40:5 N:P:K:Zn kg /ha + Azotobacter @ 2.5 kg/ha+ PSB @ 2.5 kg/ha (Recommended practice T_3)		41.0	31.80	76390.25	4.2

Integrated Nutrient Management in Pigeonpea

Integrated application of nutrients in pigeonpea

Problem identified: Low yield of pigeonpea due to inadequate application of fertilizers

Technology Assessed: Assessment of integrated application of nutrients in pigeonpea

Pigeonpea is the major pulse crop grown across the zone during kharif season on mid and uplands. Use of imbalanced/indiscriminate applications of chemical fertilizers and no use of

organic sources are the important factors responsible for declining yield of pigeonpea. Integrated use of organic manures and inorganic fertilizers help in sustaining the productivity and ensures availability of all the essential nutrients to the crop during the cropping period as per requirement. In the context of above problem, KVKs of Hoshangabad and Morena of the Zone conducted 10 OFTs to assess the application of NPK @ 20:50:20 kg/ha based on STV (T_2) and Vermicompost @ 2.5 t/ha and 75% RDF (NPK @ 20:50:20 kg/ha) based on STV (T_3) at farmers' field. The results showed that the seed yield was 27.22 per cent and 41.33 per cent higher in T_2 and T3 respectively as compared to that under farmers' practice. Similarly, number of pods/plant also increased by 43.75 and 59.7 per cent under T_2 and T_3, respectively over farmers' practice. The incremental net return and BC ratio, under assessed technology (T_3) were Rs. 39,653 and 1.55 units, respectively over the same under farmers' practice. On the basis of the above findings it may be concluded that the technology assessed in T_3 was more effective (followed by T_2) as it increases the crop yield and maintains the soil health.

Table : Performance of Integrated nutrient management in Pigeonpea

Details	No. of trials	Yield (q/ha)	No. of pods/ plant	Net Return (Rs/ha)	B:C Ratio
Application of semi-decomposed FYM @ 2 t/ha and NPK @ 9:23:0 kg/ha (Farmers' practice T_1)	10	13.96	774	50352	3.14
Application of NPK@ 20:50:20 kg/ha based on STV (Recommended practice T_2)		17.76	1113	75381	3.70
Vermicompost @ 2.5 t/ha and 75% RDF (NPK@ 20:50:20 kg/ha) based on STV (Recommended practice T_3)		19.73	1236	90005	4.69

Integrated Nutrient Management in Tomato

Integrated nutrient management in tomato

Problem identified: Lessfruit yield of tomato due to inadequate application of fertilizers

Technology Assessed: Assessment of integrated nutrient management in tomato

Tomato (Lycopersicum esculentum) belongs to the genus Lycopersicum under Solanaceae family. Tomato is an herbaceous sprawling plant growing to 1-3 m in height with weak woody stem. The fruits are harvested as red for consumption. It has prominent place in human food. Tomato is one of the most important "protective foods" because of its special nutritive value. It is one of the most versatile vegetable with wide usage in Indian culinary tradition. Tomatoes are used for soup, salad, pickles, ketchup, puree, sauces and in many other ways it is also used as a salad vegetable. In order to get the optimum production of tomato, nutrient management is the most important factor responsible for getting the desired production. Farmers generally do not use the suitable tomato cultivars hence they are getting less production. Keeping this in perspective, KVKs of Damoh, Dhar, Khargone and Sagar of the Zone conducted 32 OFTs to assess the application of NPK @ 150:100:60 kg/ha based on STV through chemical fertilizers and foliar application of 0.1% solution of Fe, B and Zn at 15, 30 and 45 DAT (T2) and FYM @ 10 t/ha and 75% RDF (NPK @ 150:100:60 kg/ha) based on STV + foliar application of 0.1% solution of Fe, B and Zn at 15, 30 and 45 DAT (T3) at farmers field. The results showed that the fruit yield was 34.85 and 57.4 per cent higher in T2 and T3

respectively, over that under farmers' practice. Similarly fruits per plant also increased by 16.36 and 31.58 per cent in T2 and T3, respectively over that under farmers' practice. Under the assessed technology (T_3), the incremental net return and BC ratio were Rs. 1,94,156 and 0.54 units when compared to the same under farmers' practice. On the basis of the above findings it may be concluded that the technology assessed in T_3 was more effective (followed by T_2) as it increases the fruit yield and maintains the soil fertility.

Table : Performance of Integrated nutrient management in tomato

Details	No. of trials	Fruit yield (q/ha)	Fruits/plant (No.)	Net Return (Rs/ha)	B:C Ratio
No use of FYM/compost and application of NPK @ 54:66:0 kg/ha through chemical fertilizers and no use of micronutrients (Farmers' practice T_1)	32	343.43	35	168419	3.56
Application of NPK@ 150:100:60 kg/ha based on STV through chemical fertilizers and foliar application of 0.1% solution of Fe, B and Zn at 15, 30 and 45 DAT (Recommended practice T_2)		463.13	40	286653	3.78
FYM @ 10 t/ha and 75% RDF (NPK@ 150:100:60 kg/ha) based on STV + foliar application of 0.1% solution of Fe, B and Zn at 15, 30 and 45 DAT (Recommended practice T_3)		540.59	46	362575	4.10

Integrated Nutrient Management in Papaya

INM based on STV in Papaya

Problem identified: **Low fruit yield of papaya due to indiscriminate use of fertilizers and no use of FYM / biofertilizers**

Technology Assessed: **Assessment of INM based on STV in Papaya**

Papaya (Carica papaya L.) is one of the important delicious fruit crops grown in the tropical and subtropical parts of the world. It is one of the few plants which produce fruits throughout the year. Regular consumption of papaya can ensure a good supply of vitamin A and C, which are essential for good health. Papaya ranks fourth in fruit production in India and ranks 8th in area under different fruit crops grown in India. Inefficient application of fertilizers by the farmers is the main constraint to realizing higher productivity. Integrated Nutrient Management refers to the maintenance of soil fertility and of essential nutrient supply to plants through all possible sources of organic, inorganic and biological components in order to achieve an optimum level productivity. Looking the above problem, KVK Khargone of the zone planned and conducted 7 on farm trials to assess the use of FYM @ 20 kg/plant + NPK @ 250:250:250 g/plant/year (T2) and use of FYM @ 20 kg/plant + Azotobactor and PSB @ 20 g/pit + NPK @ 250:250:250 g/plant/year(T2). The results showed that the fruit yield was 17.96 and 26.6 per cent higher under T_2 and T_3, respectively over that under farmers' practice (T_1).

Similarly, number of fruits per plant were 21.8 and 30.08 per cent higher under T_2 and T_3, respectively over that under farmers' practice. The net return and BC ratio were higher by Rs. 1,21,868 and 0.38 under the assessed technology (T_3) over the same under farmers' practice. On the basis of above findings it may be concluded that the technology is effective as it increases the fruit yield and maintains the soil health due to integrated use of organic, inorganic and biological components and enhances benefits for optimum crop production.

Table: Response of integrated nutrient management in Papaya

Details	No. of trials	Fruit yield (q/ha)	No. of fruits /plant	Net Return (Rs/ha)	B:C Ratio
Use of NPK @ 300:200:0g/plant/year (Farmers' practices T_1)	07	794.71	53	205481	2.07
Use of FYM @ 20 kg/plant+ NPK @ 250:250:250 g/plant/year (Recommended practice T_2)		937.43	64	302704	2.42
Use of FYM @ 20 kg/plant + Azotobactor and PSB @ 20 g/pit + NPK @ 250:250:250 g/plant/year (Recommended practice T_3)		1006.14	69	327349	2.45

Weed Management in Soybean

Imazamox 35 % +Imazethapyr 35 % WG @ 70 g/ ha at 20 DAS for weed management in soybean

Problem identified: **Low yield of soybean due to heavy infestation of weeds**

Technology Assessed: **Assessment of Imazamox 35 % +Imazethapyr 35 % WG @ 70 g/ ha at 20 DAS for weed management in soybean**

The degree of yield losses (31-84%) in soybean is largely dependent on the type of weed flora, their density and duration of competition for nutrient, water, light and space. In this situation selective weedicides have proven their role in the weed management system. In this regards KVKs of Rajnandgaon, Khargone, Sehore, Shajapur, Ujjain, Guna and Damoh have assessed single molecule of weedicide (either pre-emergence or post-emergence) and use of readymade combind two molecules of weedicide against the farmers' practices of inappropriate application of weedicide. Application of Imazamox 35 % + Imazethapyr 35 % WG @ 70 g/ ha at 20 days after sowing were found effective to management of broad and narrow leaf weeds in soybean crop against the single molecule of weedicide or farmer practices. The highest seed yield (16.6q/ha) was obtained within the plots treated with Imazamox 35 % +Imazethapyr 35 % WG @ 70 g/ ha which was significantly higher than weedy check plot (10.9 q/ha) and other treatments. The lowest seed yields, recorded in weedy check plots, might be due to the high weed density since the beginning of crop emergence which resulted in great competition with crop plants for nutrients, moisture and/ sunlight. Higher grain yields in these treatments might be due to effective weed control as reflected by higher weed control efficiency (86.4 %) as compared to that with the farmers' practices. Highest net return and B:C ratio were realized under the assessed treatment (Rs. 35479.7 and 2.6, respectively) respectively over the exiting farmers practice (Rs. 18688.4 and 1.9). It can be explained in the light of the facts that these treatments control the weeds effectively,

therefore more ensuring greater availability of nutrients to crops and consequently resulting in higher concentration of nutrients and more yields.

Table: Response of Imazamox 35 % +Imazethapyr 35 % WG @ 70 g/ ha for weed management in soybean

Details	No. of trials	Yield (q/ha)	No. of weeds/m^2	Weed Control Efficiency (%)	Net Return (Rs/ha)	B:C Ratio
No use of weedicide (Farmers' practices T_1)	58	10.9	55	-	18688.4	1.9
Use of inappropriate weedicide PE of or POE of single molecule of weedicide (Pendimethaline or Quizalo fop p ethyl) (Recommended practice T_2)		13.6	23	57.8	27273.8	2.3
Use of Imazamox 35 % +Imazethapyr 35 % WG @ 70 g/ ha at 20 days after sowing (Recommended practice T_3)		16.6	7	86.4	35479.7	2.6

Weed Management in Soybean

Weed Management in Rice

Bispyribac sodium for weed management in transplanted rice

Problem identified: Low yield of rice due to heavy infestation of weeds.

Technology Assessed: Assessment of bispyribac sodium for weed management in transplanted rice.

Generally the yield of rice decreases by 35-40% due to infestation of narrow and broad leaved weeds. Farmers either do not use weedicide for weed management timely or applying butachlor as pre-emergence weedicide; resulting in the crop yield adversely getting affected due to high weed infestation. In view of this problem, KVKs of Korba, Narayanpur, Rajgarh, Rajnandgaon and Rewa conducted 35 on farm trials to assess the response of pre and post emergence weedicides, i.e. pyrazosulfuron-ethyl 10% WP and bispyribac sodium 10 SC for weed management in transplanted rice. The results showed that the yield under the assessed weedicide (use of bispyribac sodium 10 SC - 25 gram a.i./ha at 15-20 DAT- T_3) was 39.3 q/ha (52.3%) higher over the yield under farmers' practice. The maximum weed control

efficiency (92.8%) was observed under treatments T_3, followed by T_2 (52.16 %) over existing farmers' practice. Similarly, the net return and B:C ratio, under the assessed weedicide (Bispyribac sodium), were also higher by Rs. 20539/ha and 0.6 units when compared with the same under farmers' practice. Under the weedicide used in T_2, the net returns and B:C ratio were higher by Rs. 12287/ha and 0.3 unit over the same under farmers' practices. Bispyribac sodium is a broad spectrum weedicide which controls both types of weed flora, i.e narrow or brad leaf weed. Therefore, the findings of this study suggest the use of these molecules in directed seed rice or transplanted rice.

Table - Response of bispyribac sodium for weed management in transplanted rice

Details	No. of trials	Yield (q/ha)	No. of weeds/m^2	Weed control efficiency (%)	Net Return (Rs/ha)	B:C Ratio
No weed control/ use of Butachlor @ 1.5 kg/ha(Farmers' practices T_1)	35	25.8	120		25978.6	2.3
Use of Pyrazosulfuron-ethyal 10% WP 20 g a.i./ha at 3 DAT (Recommended practice T_2)		33.9	57	52.16	38265.5	2.6
Use of Bispyribac sodium 10 SC - 25 gram a.i./ha at 15-20 DAT (Recommended practice T_3)		39.3	9	92.8	46507.1	2.9



Weed management in transplanted rice

Weed Management in Blackgram

Imazethapyre for weed management in blackgram

Problem identified: **Low yield of blackgram due to heavy infestation of narrow and broad leaf weeds**

Technology Assessed: **Assessment of imazethapyre for weed management in blackgram**

Weeds provide opportunities for harboring insects, pests and diseases and result in yield reduction. They reduce the crop yield and deteriorate the quality of produce and hence, reduce the market value of the turnout. Decrease in blackgram productivity (varying between 25-45.6%), due to weed competition, depends on weed intensity and duration of competition. Besides these, farmers do not use weedicide in blackgram due to lack of awareness about appropriate weedicides for control of all type of weed flora. In this situation KVKs of Bhatapara, Kanker, Korba and Rewa assessed the broad spectrum weedicide Imazthyper to management of all type of weed flora. Total 20 OFTs were carried out in

farmers' field on the application of post emergence weedicide (imazethapyre @ 75-100 g a.i./ha at 18-25 DAS) against farmers' practices. These molecules of weedicide can control all type of weed flora due to their own nature of broad spectrum weedicide. The treatment effectively controlled both groups of monocot and dicot weeds, resulting in increasing weed control efficiency (81.3 %) as compared to farmers' practices. The impact of different weed management practices were clearly reflected through their positive impact on yield of blackgram, with the additional seed yield, when compared to that under farmers' practices, being 2.4 q/ha (51.1%). Incremental net return and B:C ratio (Rs 11472 and 0.5 unit) was found under the assessed treatment, when compared to farmers' practices. This molecule of weedicide is broad spectrum weedicide they can control all types of weed flora with which they come in contact.

Table - Response of imazethapyre for weed management in Blackgram

Details	No. of trials	Yield (q/ha)	No. of weeds/m^2	Weed control efficiency (%)	Net Return (Rs/ha)	B:C Ratio
No use of any weedicide (Farmers' practices T_1)	20	4.7	45	-	12392.9	1.9
Use of pendimethalin750-1000g a.i./ha at 0-3 DAS (Recommended practice T_2)		6.6	21	52.7	21358.0	2.3
Use imazethapyre @ 75-100 g a.i./ha at 18-25 DAS(Recommended practice -T_3)		7.1	8	81.3	23864.4	2.4

Weed management in Blackgram

Integrated Crop Management in Rice

Improved variety and balance application of NPK along with biofertilizers and organic manure in Rice

Problem identified: Low yield of rice due to use of old variety and inadequate application of fertilizers

Technology Assessed: Assessment of improved variety and balance application of NPK along with biofertilizers and organic manure in Rice

With the passage of time, average land holding is shrinking in size, and simultaneously, costs of resources in farming is increasing under intensive cropping system. Also, crop productivity has not increased to the desired level due to improper supply of nutrients vis-a-vis demand of

crops. In this situation, adoption of scientific practices in supply of plant nutrients is one of the most important determinants for realizing higher crop productivity. In view of the above problem, KVKs of Bilaspur, Durg-II, Bhatapara, Balrampur, Dantewada, Kawardha, Surajpur (Surguja), Balaghat and Rewa conducted 69 OFTs to assess the improved variety RRF105 & MTU 1010 and STCR based balance application of NPK, @ 100:60:40 NPK Kg/ha along with seed inoculation of Azotobactor and PSB culture @ 10g/kg seed (T_2) at farmers' field. The results showed that the seed yield was 42.67 q/ha higher (21) than that under farmers' practice. The number of tillers/plant also increased by 42.3 per cent over that under farmers' practice. The incremental net return and B:C ratio, under the assessed technology, was recorded at Rs. 15700/ha and 0.5 unit when compared with the same under farmers' practice. On the basis of the above findings it may be concluded that the technology assessed in T_2 was more effective as it increases the crop yield and maintains the soil fertility.

Table - Performance of improved variety and STCR based integrated nutrient management in Rice

Details	No. of trials	Yield (q/ha)	No. of tillers/ plant	Net Return (Rs/ha)	B:C Ratio
Use of old variety mixed seed and application of NPK @ (80:46:00) NPK kg/ha (Farmers' practice T_1)	69	35.23	13	41305	2.3
Improved variety (RRF105 & MTU 1010) and application of NPK @ 100:60:40 kg/ha based on STV+ Seed inoculation of Azotobactor and PSB culture @ 10g/kg seed (Recommended practice T_2)		42.67	18.5	57005.67	2.8

STCR based integrated nutrient management in rice

Integrated Crop Management in Soybean

Improved variety and nutrient management in soybean

Problem identified: Low yield of soybean due to use of old variety and inadequate application of fertilizers.

Technology Assessed: Assessment of improved variety and balance application of NPK in soybean.

Soybean is an important legume oilseed crop grown across the zone in mid and uplands during *kharif* season. Use of old variety, degenerated seed and imbalanced/indiscriminate application of nutrients are the important factors contributing to declining yield of soybean. Further, agricultural lands have become vulnerable to nutrient depletion and loss of organic

matter, and have suffered a consequent decline in soil productivity and low use efficiency of fertilizers. Therefore, Scientists have re-evaluated our agricultural practices and have investigated alternative production system to supplement the nutritional requirement of crops through application of inorganic, organic inputs and biofertilizers to the maximum possible low-level use of chemical fertilizers. KVKs of AgarMalwa, Khargone, Gwalior, Neemuch, Indore, Shajapur, Guna, Sehore and Betul conducted 81 OFTs to assess the improved variety RVS 2001-4 and balance application of NPK @ 20:60:20 Kg/ha based on STV (T_2) and T_2 + seed inoculation of Rhizobium and PSB culture @ 10g/kg seed (T_3) at farmers field against the exiting farmers practice. The results showed that the maximum seed yield of 15.7 was recorded under T3, followed by 14.1 q/ha under T_2. The number of pods/plant also increased by 40 and 56 percent in T_2 and T_3, respectively when compared with the same under farmers' practice. The incremental net return and B: C ratio, under the assessed technology (T3) was recorded at Rs. 15274 and 0.7 unit over the same under farmers' practice. On the basis of the above findings it may be concluded that the technology assessed in T_3 was more effective than T_2 as it increased the crop yield and maintained the soil fertility.

Table - Performance of improved variety and integrated nutrient management in soybean

Details	No. of trials	Yield (q/ha)	No. of pods/ plant	Net Return (Rs/ha)	B:C Ratio
Use of old variety degenrated seed and application of DAP @ 50 kg/ha (Farmers' practice T_1)	81	11.7	12	21366.69	2.1
Improved variety (RVS 2001-4) and application of NPK @ 20:60:20 kg/ha based on STV (Recommended practice T_2)		14.1	17	29306.61	2.7
T_2 + seed inoculation of Rhizobium and PSB culture @ 10g/kg seed (Recommended practice T_3)		15.7	19	36640.58	2.8

Balance application of NPK in soybean

Integrated Plant Nutrient Management in Mustard

STV based IPNM module in mustard

Problem identified: **Low yield of mustard due to indiscriminate/inadequate application of fertilizers.**

Technology Assessed: **Assessment of STV based IPNM module in mustard.**

Mustard is an important *rabi* oilseed commonly grown in uplands across the country. Imbalanced/inadequate uses of fertilizers are the major reasons for decline in seed yield of mustard. Farmers are not using adequate doses of NPK fertilizers; resulting in poor nutrient status of soil, thus affecting availability of these nutrients to the crops, which in turn adversely affects the crop yield. Balanced dose of NPK even does not serve the purpose to get the desired yield, if there is nutrient imbalance in the soil and especially in marginal soils. In view of the above mentioned problems, KVK Balrampur, Surajpur (Surguja), Gwalior, Sheopur, Satna, Katni and Jabalpur conducted 69 on farm trials to assess the response of Integrated Plant Nutrient Management (IPNM) based on STV. The NPK doses were calculated by STV equation and accordingly the fertilizers were applied to supply the nutrients to crop as per requirement. High yielding insect tolerant variety NRCHB-101, seed treatment with fungicide trichoderma, and adjustment of recommended dose of fertilizers, as per soil test value, (60:40:30 NPK kg/ha) along with soil application of KSB and PSB @ 5kg/ha under treatment T_2. The results showed that the seed yield was increased by 23.53 per cent over farmers practice (T_1). Similarly, the number of siliqua/plant also increased by 30.14 per cent over that under farmers practice. The incremental net return and BC ratio was recorded to be Rs. 11544 and 1.0 unit over the same under farmers' practice. On the basis of the above findings it may be concluded that the technology is effective as it served the purpose and simultaneously helped in maintaining the soil health and fertility.

Table - Response of STCR based IPNM in mustard

Details	No. of trials	Yield (q/ha)	No. of siliqua /plant	Net Return (Rs/ha)	B:C Ratio
Application of NPK @ 80:40:0 kg/ha (Farmers' practice T_1)	69	13.6	146	36836.33	2.5
Recommended dose of NPK60:40:30 kg/ha as per STV and Soil application of PSB and KSB @ 5kg/ha (Recommended practice T_2)		16.8	190	48380.83	3.5

INM module in mustard

Integrated Nutrient Management in Wheat

Improved variety, balanced dose of NPK along with seed inoculation of biofertilizers in wheat

Problem identified: Low yield of wheat due to indiscriminate/inadequate application of fertilizers.

Technology Assessed: Assessment of improved variety, balanced dose of NPK along with seed inoculation of biofertilizers in wheat.

In India, under conventional intensive agriculture using high yielding varieties, indiscriminate use of chemical fertilizers is a common feature. This consequently results in decline in soil productivity and low resource use efficiency of fertilizers. In this situation, KVKs assed alternative production system to supplement the nutritional requirement of crops through application of organic, inorganic and bifertilizers to reduce the dose of chemical fertilizers. These technologies are not only the store house of a large number of essential nutrients but also improve considerably the physical environment of the soil and nutrients which minimize the expenditure on costly fertilizer inputs and improve the yield. In view of this KVKs of AgarMalwa, Gwalior, Indore, Ujjain and Sheopur conducted 41 OFT at farmers field to assess the application of NPK @ 120:60:40:5 N P K Zn kg/ha, Improved variety (Pusa Tejas and GW 322), seed treatment with azotobactor, PSB culture (T_3) and use of recommended dose of fertilizers NPK @120:60:30kg/ha under the treatment T_2. The results showed that the seed yield was 14.9 kg/ha higher (3.1%) per cent higher in T_3 as compared to that under farmers' practice. The number of tillers/m^2 also increased by 23.2 per cent and 9.3 per cent under T_3 and T_2, respectively over that under farmers' practice. The incremental net return and B: C ratio, under the assessed technology in T_3, was Rs. 11732 and 0.6 unit over the same under farmers' practice. On the basis of the above findings it may be concluded that the technology assessed in T_3 was more effective than T_2 and farmers practices (T_1). Therefore use of organic, inorganic input along with biofertilizers not only improves the productivity and soil health but also reduce the cost of nutrients.

Table - Performance of improved variety, NPK and biofertilizers in wheat

Details	No. of trials	Yield (q/ha)	No. of tillers/ m^2	Net Return (Rs/ha)	B:C Ratio
Application of NPK @ 80:20:0 kg/ha and no use of molybdenum (Farmers' practice T_1)	41	48.2	215	65161	3.9
Application of NPK @ 120:60:40: kg/ha based on STV (Recommended practice T_2)		49.7	235	66054	4.1
T_2 + Micronutrient Zn + seed inoculation with Biofertilizers Azotobactor nad PSB @ 10 /kg seed (Recommended practice T_3)		55.4	265	76893	4.2

Integrated Nutrient Management in wheat

Integrated Disease Management in Blackgram

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 Yellowvein Mosaic Disease of Blackgram.

Blackgramis an important pulse crop of Kharif season. The production and productivity of blackgram are heavily affected by yellow vein mosaic disease, as can appear in any stage of the crop. KVKs of Singrauli & Panna from Madhya Pradesh and Korba from Chhatishgarh conducted 20 trials on YMV disease management in Blackgram. Farmers practice (T_1) comprised use of mixed seed of T-9, No seed treatment, Spray of Trizophos at 30-35 DAS). The technology for disease management assessed were T_2 Removal of diseased plant and spray of Thiomethaxam 25 WG @ 100 g/h and 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 Thiomethaxam 25 WG @ 100 g/ha. The yield of blackgram under T_3 increased by 36.57 per cent and 11.28, percent over that under T_1 and T_2 respectively. Disease incidence decreased under T_3 by 81.45 per cent and 44.05 percent over T_1 and T_2, respectively. The increase in net return were Rs. 11553/ha and Rs. 5000/ha and B:C ratio was 0.5 and 0.18 unit, respectively over farmers' practice and T_2, respectively .

Table : 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 Triazophos at 30-35 DAS (Farmers Practice T_1)	20	16	38.75	4.84	12813	1.77
Removal of diseased plant and spray of Thiomethaxam 25 WG @ 100 g/ha(Recommended Practice T_2)		26	12.85	5.94	19620	2.09
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(Recommended Practice T_3)		28	7.19	6.61	24366	2.27

IDM module for management YMV in Blackgram

Integrated Disease Management in Chickpea

Integrated collar rot management module in Chickpea

Problem Identified: Low yield of Chickpea due to high incidence of collar rot

Technology assessed: Integrated collar rot management module in Chickpea

Collar rot of chickpea is one of the devastating soil borne diseases of fungal origin, due to yield loss ranging between 10-30 percent is incurred annually, according to severity of the disease. KVKs of Chhattisgarh of viz. Bhatapara and AnjoraDurg and KVK of Betul in Madhya Pradesh conducted OFTs on Integrated management of collar rot in chickpea i.e. Summer deep ploughing, Seed treatment with Trichoderma viride@5gm/kg of Seed, Soil application with Trichodermaviride @400gm/1q of FYM, Seed & soil treatment with Trichoderma @ 6g/kg of seed & 10 kg/ha, Basal application of P. florescence @ 2.5kg/ha; for collar rot managementat 14 locations. The result of the OFTs clearly expressed that the yield under recommended practice (T_2) increased by 19.21 percent with 51.14 percent decrease in collar rot incidence when compared with the same under farmers' practice. The net return and B:C ratio increased by Rs 9720 per ha and 0.09 units respectively over the same under farmers practice.

Table: Performance of Integrated collar rot management module in chickpea

Details	No. of Trials	Disease incidence (%)	Yield (q/ha)	Net Return (Rs/ha)	B:C Ratio
Seed treatment with carbendazim (2.5g/kg seed)(Farmers' practice T_1)	14	6.96	10.72	28075	2.39
Summer deep ploughing, Seed treatment with Trichoderma viride@5gm/kg of Seed, Soil application with Trichodermaviride @400gm/1q of FYM (Recommended practice T_2)		3.4	12.78	37795	2.48

Integrated Disease Management in Chickpea

Integrated Pest Management in Rice for major insect pest

Integrated management of major insect pest in rice

Problem Identified: Low yield of Paddy due to heavy infestation of insect pest

Technology assessed: Integrated 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. Stem borer is a very important and common pest of rice. It causes dead heart or drying of the central tiller during the vegetative stage and white heads where the emerging panicles are whitish and unfiled or empty in reproductive stage. The brown planthopper also damages rice by transmitting ragged stunt virus and grassy stunt virus. KVKs of Gwalior, Morena, Sheopur, Anuppur and Hoshangabad from Madhya Pradesh and Durg II, Dhamtari and AnjoraDurg fromChhattishgarh conducted 56 OFTs for assessing the Integratedpest management for this major insect pest in rice. IPM modules i.e. Use summer ploughing, single spray of cartaphydrachloride 50 WP @ 600g per ha at 60 DAT, use of bio-agent, blanket application of Propiconazole @ 0.1%, Fipronil 0.3 G @ 20 kg/ha, Dinitrofuran 250g/ha, 2-3 spray of Neem oil@ 2% at 10 days interval, Pheromone trap 5 mg lure @ 25 trap /ha(T_2) and Spray of Thiamethoxam 25 WG @100gm/haat 20 days interval, Cartap Hydrochloride 4 G @ 25 kg/ha and Chlorantraniliprole 0.4% GR 40gai/ha(T_3)was assessed for managing the stem borer and brown plant hopper.

The results revealed that the crop yield increased by 6.08 percent over that under farmers' practice. The number of dead heart incidence decreased by 61.23 per cent and number of hopper/plant decreased by 39.47 percent over the same under farmers practice. The net return and B:C ratio increased by Rs 6951 per ha and 0.22 over the same under farmers' practice.

Table : Performance of Integrated management of stem borer 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 and brown plant hopper (Farmers' practice T_1)	56	13.05	38	42.96	45678	2.21
Use summer ploughing, single spray of cartaphydrachloride 50 WP @ 600g per ha at 60 DAT, bio-agent, blanket application of Propiconazole @ 0.1%, Fipronil 0.3 G @ 20 kg/ha, Dinitrofuran 250g/ha, 2-3 spray of Neem oil@ 2% at 10 days interval, Pheromone trap 5 mg lure @ 25 trap /ha (Recommended practice T_2)		5.06	23	45.57	52629	2.43



Integrated pest management in rice

Integrated Pest Management for Pod borer in Chickpea

Integrated Pest management module for Pod borer in chickpea

Problem Identified: Low yieldof chickpea due to heavy infestation of Pod borer

Technology Assessed: Assessment of Integrated Pest management module for Pod borer in chickpea

Pod borer is a notorious pest of chickpea causing heavy damage to the crop. Yield loss due to pod borer is estimated up to 60 per cent. Looking at the importance of the crop and the pest, KVK of Balrampur from Chhattisgarh and Khargone, Ujjain, Guna, Singrauli, Seoni, Rewa, Hoshangabad, Shahdol, Mandla and Panna from Madhya Pradesh of the zone conducted on farm trials for assessing the integrated management module for pod borer in chickpea at 74 locations. The result of the on farm trials showed that the yield increased by 49.73 per cent and 15.69 per cent under the assessed integrated management technologies viz., deep summer ploughing + soil treatment with Trichoderma @ 5 l/ha +erection of bird perches @ 50/ha + installation of pheromone traps @ 10/ha + foliar spray of *Beauveriabassiana* @ 1000ml/ha at 45 DAS + need based spray of rynaxypyr 20 SP @ 100 g/ha at ETL over farmers' practice (foliar Spray of cholorpyrifos 20 EC @ 1.5 lit/ha and Profenophos-45EC @ 1 ml/ lit. and Trizophos-40EC@ 1 ml/ lit. after severe infestation) and T_2 (deep summer ploughing and soil treatment with Trichoderma @ 5 l/ha + erection of 'T' shape bird perches @ 50/ha + two spray of *Beauveriabassiana* @ 1 lit/ ha at 45 and 75 DAS +Pheromone trap @ 12/h - T_2). The pod borer population (no. of larvae/m^2 area), under T_3, also decreased by 76.35 per cent and 59.78 per cent, respectively, when compared to that under farmers' practice and T_2. The net return and B:C ratio under the assessed technology increased by Rs. 15635 per ha and 0.55, respectively over farmers' practice. Farmers were satisfied with the assessed technologies for pod borer management and they realized that IPM modules in chickpea are better than use of chemical insecticide only.

Table : Performance of IPM module for Management of Pod borer in Chickpea

Details	No. of trials	Yield (q/ha)	Insect population (No. of Larvae/ m^2 area)	Net Return (Rs./ha)	BC Ratio
Foliar Spray of cholorpyriphos 20 EC @ 2.5 lit/ha and profenophos-45EC @ 1 ml/lit and trizophos-40EC@ 1 ml/lit after severe infestation (Farmers' Practices T_1)	74	11.32	5	33365	2.52
Deep summer ploughing +soil treatment with trichoderma @ 5 l/ha + erection of 'T' shape bird perches @ 50/ha + Pheromone trap @ 12/h + two spray of *Beauveriabassiana* @ 1 lit/ha at 45 and 75 DAS + (Recommended practice T_2)		14.65	3	45658	2.91

T_2 + Two spray of Beauveriabassiana @ 1000ml/ha + Neem oil @ 0.5% at 45 and 75+ need based spray of rynaxypyr 20 SP @ 100g/ha at ETL (Recommended practice T_3)		16.95	1	49000	3.07



Integrated pest management module for pod borer in chickpea

Integrated Pest Management in Brinjal

Integrated management of shoot and fruit borer in Brinjal

Problem Identified: **Low yield of brinjal due to severe infestation (25-50%) of shoot and fruit borer**

Technology assessed: **IPM modules for management of shoot and fruit borer in brinjal**

Remarkable reduction in yield (up to 40 percent) has been observed due to heavy infestation of shoot & fruit borer in brinjal. KVKs of Bastar, Janjgir Champa & Kanker from Chhattisgarh and Tikamgarh & Chhindwara from Madhya Pradesh conducted OFTs at 26 locations on integrated management of shoot & fruit borer in brinjal. IPM module i.e. Use of pheromone trap@12/ha,spray Botanical Insecticide 3000 PPM @ 1.0 lt/ha at 10 DAYS Interval, Need-based spray of spinosad @175 ml/ha, Clipping of infested shoot with larvae inside at weekly interval from 15 DAT until the shoot infestation is lost+ two sprays of BT @1ml/L at 10 days interval at peak flowering (T_2) and removal of infected plant part / fruits + Foliar Spray of NSKE @ 5% at 15 days interval + Two foliar application of Agniastra at 15 days interval + spray of Chlorantraniliprole – 20 SC @ 20g a.i./ha (0.2ml/ lit of water) at ETL (T_3) were assessed for management of shoot & fruit borer. The results of the OFTs clearly showed that the yield under T_3 increased by 35.71 and 12.59 percent and Fruit damage decreased by 82.54 and 47.31 percent when compared to the same under farmers' practice and T_2, respectively. The net return and B:C ratio increased by Rs. 40853 per ha and 1.53 respectively over the same under farmers practice. Farmers were satisfied with both the technologies assessed for shoot and fruit borer management in brinjal and they realized that IPM module is the only option for insect management.

Table: Performance of Integrated Management of Shoot and Fruit Borer in Brinjal

Details	No. of Trials	% Fruit damage	Yield (q/ha)	Net Return (Rs/ha)	B:C Ratio
Indiscriminate use of insecticides after severe infestation (Farmers' practice - T_1)	26	26.93	224	142980	3.34
Use of pheromone trap@12/ha,spray of Botanical Insecticide 3000 PPM @ 1.0 lt/ha at 10 DAYS Interval,Need based spray of spinosad @175 ml/ha, Clipping of infested shoot with larvae inside at weekly interval from 15 DAT until the shoot infestation is lost+ two sprays of BT @1ml/L at 10 days interval at peak flowering (Recommended practice - T_2)		8.92	270	171460	3.61
Removal of infected plant part / fruits + Foliar Spray of NSKE @ 5% at 15 days interval + Two foliar application of Agniastra at 15 days interval + spray of Chlorantraniliprole – 20 SC @ 20g a.i./ha (0.2ml/ lit of water) at ETL (Recommended practice – T_3)		4.7	304	183833	4.87


Integrated management of shoot and fruit borer in Brinjal

RESOURCE CONSERVATION

Recycling of agro waste material

Problem identified:No use of bio decomposer and create pollution through burning of crop residue.

Technology Assessed: Assessment of recycling of bio waste management through waste decomposer

Recycling of agro wastes particularly crop residues has gained significant importance in the recent past which is considered as the precious resource for soil health restoration besides its importance as source of nutrients. About 500 million tones of crop residues is produced annually out of which, an estimated 141 million tones of the produce are mostly

burnt, resulting in nutrient losses. One of the alternative options of utilization of these large quantities of nutrient rich agricultural wastes is to convert them in to value added products like compost and recycle them back to the field. This has drawn the attention of scientists to leverage the potential of such wastes to not only reduce environmental pollution and increase efficiency of carbon, but also to provide nutrient rich inputs for higher agricultural productivity. In view of this, KVKs of Chhatarpur, Balagahat, Sidhi, Jabalpur, Mandla, Seoni, Panna, Sagar, Umaria, Harda, Shahdol, Narayanpur, Bilaspur, Ashoknagar, Neemuch, Morena and Sehore conducted 129 trials on assessment of biowaste decomposer for recycling of waste materials at farmers' field and KVK instructional farm. The result of the study indicated that the waste materials were converted by waste decomposer in to value added products like compost in 51 days of FYM heap, 60 days of legume crop residue heap and 120-130 days for cereals crop residue heap. This is against the normal 150-200 days required under farmers' traditional practices. Recovery percentage was 48-50%, 42.5% and 35%, respectively.The incremental net return and BC ratio was recorded to be Rs. 875 & Rs. 1150 and 0.7 & 1.1 unit, respectively, under T_2 and T_3 over that under farmers' practice. On the basis of the above findings it may be concluded that the technology assessed in T_2 and T_3 was more effective than farmers' traditional practice. On the basis of the trial findings, it may be concluded that the waste decomposer decomposed the crop residue in almost half duration in comparison to traditional composting. On the other hand it may be inferred that use of the waste decomposer increased one more cycle with higher recovery percentage of compost preparation in almost same duration; hence the production was doubled thereby, saving more than 50 percent of the nutrient cost and producing very good quality compost having high organic carbon and other nutrient content.

Table- Recycling of agro waste material through waste decomposer

Treatments	No. of days required for decomposition.	Recover %	Cost Rs./ton	Net Income (Rs./ton)
Cereal crop residue (T_1)	120 days	35	800	250
Legume crop residue (T_2)	60 days	42.5	1020	1075
Buffalo/Cow dung (T3)	51 days	48	1000	1400



Recycling of agro waste material

Home Science

Income Generation through Mushroom cultivation& processing

Problem identified: Poor economic status of the households due to seasonal unemployment of farm family.

Technology Assessed: **Assessment of Mushroom cultivation & processing for income generation of farm family.**

Mushroom production is suitable enterprises for small & marginal farm women for income generation. A total number of 44 On farm trials on mushroom cultivation and processing were conducted by several KVKs in Madhya Pradesh and Chatisgarah, namely Bilaspur, Dantewada, Korba, Raipur ,Raisen, and Shahdolon. The results of the OFTs showed that the Processing of mushroom (Pickle, dried powder, Sauce, papad) gave higher net return of Rs 55000 along with a higher B:C Ratio 2.80. Paddy straw Mushroom (VolvariellaVolvacea) (T_2) had an incremental net return of 32598 along with 3.92 B:C ratio respectively. Higher yield (109.33 kg/unit) of paddy straw mushroom was also realized. Trials showed that oyster mushroom (Pleurotusostretus) production fetched a net return of Rs. 15600 along with B:C ration 2.36 with a yield of 90 kg/unit cost of input 11400/unit. Farm women were satisfied with paddy straw mushroom production compared to oyster mushroom production because of higher yield, lower cost of inputs and higher net returns. Processing of mushroom also ensured much higher net returns.

Table - Performance of Mushroom cultivation & processing

Details	No. of trials	Production /unit (kg)	Cost of input (Rs/unit)	Gross return	Net Return (Rs/unit)	B:C Ratio
seasonal unemployment (Farmers' practice T_1)	-	-	-	-	-	-
Oyster Mushroom (Pleurotusostretus) (Recommended practice T_1)	44	90	11400	27000	15600	2.36
Paddy Straw Mushroom (VolvariellaVolvacea) (Recommended practice T_2)		109.37	11150	43748	32598	3.92
Processing of Mushroom (Pickle ,dried powder , Sauce , Papad) (Recommended practice T_3)		150	30000	85000	55000	2.80



Mushroom cultivation

Mahua seed decorticator for drudgery reduction

Problem identified: **High drudgery and low efficiency of farm women involved in Mahua decortication done manually**

Technology Assessed: **Assessment of Mahuaseed decorticator for drudgery reduction of farm women.**

Decortication is one of the most important post-harvest operation that decides the quality of seeds. The major problem in decortication is the high level of drudgery involved in the process

for the farm women and low efficiency due to manual decortication. In this context, KVKs of Jashpur, Dhar, Umaria, Shahdol conducted 20 trials on assessment of mahua decorticator for drudgery reduction of farm women. Results of farm trials showed that output increased by 7.45 kg/h over the traditional practice with the assessed technology. The assessed technology under T_2 performed well and gave less fatigue, low energy expenditure over 3.18 kj/min and increased work efficiency to 80.98 % when compared to manual practice. It may be concluded that assessed technology T_2 is more comfortable for farm women during farm activity.

Table: Assessment of Mahua seed decorticator for drudgery reduction

Details	No. of trials	Output (kg/h)	Est. Energy Expenditure kj/min.	WHR beat/min	% Reduction in drudgery	% increase in efficiency	Cardiac cost of work	% saving of cardiac cost
Manual practice (Farmers'practice) T_1	20	1.75	6.39	95	-	-	514.29	-
Mahua Seed decorticator (Recommended practice) T_2		9.2	9.57	115	69.57	80.98	156.52	69.59

Mahua seed decorticator

Nutritional security through drumstick leaves powder

Problem identified: **Low nutrition status of farm women due to unavailability of nutrient dense food in daily life**

Technology Assessed: **Nutritional security through drumstick leaves powder**

Farm women required additional nutrition during agricultural & home care activity due to heavy physical work load. For fulfillment of nutritional requirement at household level, moringa is best plant as source of all nutrients. The moringa leaves is a nutritionally rich, ecological & economical vegetable available in practically all tropical countries. Another way of consuming moringa leaves is to dry them and reduce them into powder, making it easier to store and use at any time. Moringa leaves are excellent concentrated source of protein, vitamins and minerals. Keeping this in mind, KVKs of Damoh, Harda, Shahdol, Chindwara and Sidhi conducted 35 trials on value addition of moringa leaves for nutritional security of farm

women, malnourished child etc. to convert them into various forms like powder, mix in chapatti, soups. Farm women take 20 gm moringa powder per day in different food items. Trials were carried out for 6 months using anthropometric method. Nutrient availability in diets increased; energy 41 kcal, protein 48.78 gm, iron 5.1 mg, calcium 400 mg per day diet. This increased nutrient helped farm women in their daily activities & higher productive efficiency also. In the context of anthropometric measurement, mean weight (3 kg) & BMI (1 kg/m2) increased amongst all beneficiaries after six months. In may be concluded that moringa & their products are helpful for farm women & children to increase nutrient availability in daily diet.

Table : Performance of nutritional security through drumstick leaves powder

Details	No. of trials	Energy (kcal)	Protein (gm)	Iron (mg)	Calcium (mg)	Increase in Wt(kg)	Increase in Ht(cm)	Increase in BMI (kg/m2)
No use drumstick in diet (F armers' practice) T_1	35	-	43.2	22.5	394	-	-	-
Use of drumstick leaves powder (Recommended practice) T_2		41	48.78	27.6	794	3	-	1



Nutritional security through drumstick leaves powder

Nutritional security through Nutrition-Kitchen garden

Problem identified: Low nutrition status of farm women due to unavailability of nutrient dense vegetable in daily life

Technology Assessed: Assessment of Nutritional kitchen garden for nutritional security of farm families.

Nutrition Kitchen garden is common in India. It serves as an additional source of income and caters to the daily household nutritional needs of the rural families. Vegetables are rich source of nutrition which comprises carbohydrates, protein, minerals and multi vitamins.This helps to fight against anemia, malnutrition and hidden hunger. Keeping this in view, all the KVKs of MP and Chhattisgarh conducted 50 trials on Nutrition kitchen garden, each measuring around 300 sqm land area. The following table shows the result of pre & post kitchen garden practice. Significant differences in nutrient contents & anthropometric measurement parameters were observed. Kitchen gardens of farm women get around 200 kg extra vegetables with increased nutrition and income. Increased weight (1.9 kg), height (1 cm), BMI (1 .5kg/m2) in six months time were observed. It may be concluded that nutrition-kitchen gardens have the potential to provide essential nutrients for the farm women, thus reducing health problems, and also enhancing the income round of the year.

Table : Performance of Nutrition Kitchen garden

Details	No. of trials	Production (kg)	Energy (kcal)	Protein (gm)	Calcium (Mg)	Anthropometric measurement		
						Increase in Wt. (kg)	Increase in Ht(cm)	Increase in BMI (kg/m^2)
Sowing Few vegetable in backyard (Farmer practice) T_1	50	100	65000	2900	130000	1.5	-	-
Nutrition Kitchen garden Recommended practice) T_2		300	195000	8700	390000	3.4	1	1.5

Backyard kitchen garden

Saat din Saat Kyari

Agriculture Engineering

Use of plastic mulches along with drip irrigation for vegetable production

Problem Identified: Low yield due to traditional cultivation of vegetables.

Technology Assessed: Plastic mulching with drip irrigation in vegetable crops

Use of plastic mulching and drip irrigation facilitate in efficient weed & water management and efficient water fertilizer application. Plastic mulches reduce weed population and maintain requisite soil temperature. Drip irrigation, a method of precise application of irrigation method; not only it aids in lowering weed population but also provides an environment best suitable for the crop growth. Drip irrigation also aids in efficient application of fertilizers. Trials were conducted by KVKs of Mandsaur, Shajapur and Shivpuri on assessment of plastic mulching and drip irrigation in chilli, cucumber and tomato crops. In chilli crop, the incremental increase in yield, net return and B:C ratio over the conventional cultivation were 36.2 q/ha, Rs.56936 per ha. and 0.48, respectively. Similar results were obtained in case of cucumber and tomato. Thus the results proved that plastic mulching along with drip irrigation proved beneficial than the conventional cultivation practices.

Table: Use of plastic mulch and drip irrigation in vegetable crops

Details	No. of Trials	Crop	Yield (q/ha.)	Net Return (Rs/ha)	B:C ratio
Conventional cultivation (Farmer practices)	20	Chilli	38.6	48420	2.32
plastic mulching along with drip irrigation (Recommended practices)		Chilli	74.8	105356	2.80



Plastic mulching with drip irrigation in vegetable crops

Seed cum fertilizer drill for line sowing

Problem Identified: Low yield due to broadcasting method of sowing.

Technology Assessed: Seed cum fertilizer drill for line sowing

Mechanization of farm operations facilitates timely operations which is one of the major factors for attaining higher crop yields. Small and marginal farmers, accounting for a major chunk of the Indian farming fraternity, are still dependent on older methods of crop cultivation like broadcasting of seed and fertilizer. Under modern crop production practices, line sowing of seeds is a promising technology that facilitates desired crop spacing, ease of farm operations and a better crop environment. KVKs of Balod, Bemetera, Korba in Chhattisgarh and KVKs of Katni, Shahdol under Jawaharlal Nehru Krishi Vishwa Vidyalaya, Jabalpur (M.P.) conducted a total of 38 OFTs on assessment of seed cum fertilizer drill for line sowing of chickpea, wheat, mustard, black gram and paddy.

The results of the trials were encouraging. In case of mustard, the incremental increase in yield, net return and B:C ratio over the broadcasting system were 1.23q/ha, Rs. 6995 per ha and 0.45 respectively. In case of chickpea the incremental increase in yield, net return and B:C ratio over the broadcasting system were 4.5q/ha, Rs.8234 per ha and 0.17, respectively. In case of black gram the incremental increase in yield, net return and B:C ratio over the broadcasting system were 0.9 q/ha, Rs. 2875 per ha and 0.04 respectively. Thus the use of seed cum fertilizer drill increased the crop yield and net return as compared to the broadcasting method.

Table: Sowing of seed through seed cum fertilizer drill

Details	No. of trials	Crop	Yield (q/ha.)	Net Return (Rs/ha)	B:C ratio
Broadcast sowing (Farmer practices)	38	Mustard	5.98	7918	1.43
		Chickpea	9.8	25464	1.93
		Black Gram	5.3	18352	2.46
		Paddy	25.5	9950	1.27
Sowing through tractor seed cum fertilizer drill (Recommended practices)		Mustard	7.21	14913	1.88
		Chickpea	14.3	33698	2.10
		Black Gram	6.2	21227	2.50
		Paddy	30	17285	1.45


Direct Seed Drill Sowing


Direct Seed Drill – Vegitative state

Direct Seed Drill – Mature

Resource Conservation Technology

Problem Identified:There is a need for in-situ soil and water conservation and proper drainage technology in crop cultivation.

Technology Assessed: Broad bed and furrow system of sowing.

Broad bed Furrow (BBF) system is a raised land configuration which helps the soil to preserve soil moisture for a longer period. The BBF technology has several advantages such as in-situ conservation of rain water in the furrows, drainage of excess water and good aeration in the seed bed and root zone. OFTs on Broad Bed Furrow system were conducted in chickpea, maize and soybean crops by KVKs of Kawardha, Dewas, Shahdol and Bhatapara. Results were encouraging. In case of chickpea the incremental increase in yield, net return and B:C ratio over the broadcasting system were 2.4 q/ha, Rs.10380 per ha and 0.49, respectively. In case of maize, the incremental increase in yield, net return and B:C ratio over the broadcasting system were 3.98 q/ha, Rs. 7165 per ha and 0.40, respectively. In case of Soybean, the incremental increase in yield, net return and B:C ratio over the broadcasting system were 4.91 q/ha, Rs.22670 per ha and 0.81 respectively. Thus the BBF technology is a good tool for in-situ conservation of rainwater in furrows, better drainage of excess water and proper aeration in the seedbed and root zone.

Table: Broad bed and furrow system of sowing

Details	No. of trials	Crop	Yield (q/ha.)	Net Return (Rs/ha)	B:C ratio
Conventional sowing after field preparation (Farmer practices)	20	Chickpea	16.1	44820	2.96
		Maize	17.5	13390	1.8
		Soybean	8.6	18252	1.73
Broad Bed Furrow system of sowing(Recommended practices)		Chickpea	18.5	55200	3.45
		Maize	21.48	20555	2.2
		Soybean	13.51	40922	2.54



Broad bed and furrow system of sowing

Direct Sowing through Happy Seeder

Problem Identified: There is need for shift from intensive tillage based practices to conservation agriculture based crop management techniques to address the issues of labor, energy, water and soil health.

Technology Assessed: Direct Sowing through Happy Seeder

As per the Operational Manual for Turbo Happy Seeder (International Maize and Wheat Improvement Centre (CIMMYT) and Indian Council of Agricultural Research (ICAR)), one of the key elements of CA is rational soil coverage with organics (crop residues, cover crops etc) which has greater relevance not only in terms of managing the agricultural waste particularly by eliminating/burning, improving soil health, conserve water, helping in adaptation to and mitigating climate change effects. Happy seeder is a seed drill/planter that is capable of direct drilling in the fields with surface retention of residues and without any soil disturbance. This is a promosing technology in conservation agriculture. KVKs of Betul, Hoshangabad and Katni conducted OFTs on assessment of happy seeder wheat and green gram. A total of three trials were conducted. Results were encouraging. In case of Wheat the incremental increase in yield, net return and B:C ratio over the broadcasting system were 14.6 q/ha, Rs.24965 per ha and 1.06, respectively. In case of green gram, the incremental increase in yield, net return and B:C ratio over the broadcasting system was 1.46 q/ha, Rs.10300 per ha and 0.45 respectively. Thus the concept of direct sowing through happy seeder is a promising technology.

Table: Direct Sowing through Happy Seeder

Details	No. of trials	Crop	Yield (q/ha.)	Net Return (Rs/ha)	B:C ratio
Conventional sowing after field preparation (Farmer practices)	20	Wheat	24.3	22410	2.02
		Green gram	12.44	63243	3.70
Direct Sowing through Happy Seeder (Recommended practices)		Wheat	38.9	47375	3.08
		Green gram	13.9	73543	4.15

Happy Seeder

Animal Science

Animal Nutrition Management

Oral calcium and phosphorus supplementation

: Low milk production due to deficiency of calcium in dairy animal feed

Technology assessed: Assessment feeding of oral calcium supplement on milk production in dairy animal

The major mineral requirements for dairy buffalo are calcium and phosphorus. The calcium:phosphorus ratio is important, and any imbalance can cause low milk production and infertility. There are reserves of both elements in the skeleton. Pasture is often deficient in minerals, mainly in calcium and phosphorus. In some grazing areas, particularly uplands, dairy buffalo are subject to a mineral deficiency (especially daring lactation), and thus calcium and phosphorus deficiency symptoms are frequently observed. To overcome the deficiency of calcium and phosphorus an OFT named supplementation of oral calcium and phosphorus supplement in dairy animal on milk production was conducted.

Five KVKs (4 from M.P and 1 from CG) from the zone conducted OFT to assess the oral calcium and phosphorus supplementation in dairy animal on milk production. Animals were given oral calcium and phosphorus @ 100 ml per animal per day for two month. Average milk production increased by 16.5%, i.e. 8.12 liter (FP) to 9.46 liter per animal per day (RP). Net return of farmer also increased from Rs. 7841 per animal (FP) to Rs. 9821 per animal per day (RP) over a period of two month.

Table : Assessment feeding of oral calcium supplement on milk production in dairy animal

Details	No. of trials	Average milk yield (Lit/day)	Avg. Net Returns (Rs.) in two month	B:C ratio
No oral calcium supplement in feed (Farmers' practices) T_1	36	8.12	7841	2.31
Oral Ca and P supplement in feed (Recommended practice) T_2		9.46	9821	2.67

Oral calcium and phosphorus distribution

Oral calcium and phosphorus distribution

Technology accessed: by pass fat supplementation

Problem Identified: Low milk production in high lactating dairy buffaloes due to lack of energy rich feed supplement in buffalo feeding.

Technology assessed: Assessment of feeding bypass fat onProblem Identified milk production in high lactating dairy buffalo.

During early lactation, high producing dairy animals remain in considerable negative energy balance leading to metabolic stress and sub-optimal milk production Addition of concentrates at higher level in ration of high producing dairy animals, as a strategy for enhancing energy density of ration, decreases fiber intake and leads to acidosis and milk fat. The milk fat, various factors limit its use in large amounts in ration. The extent of hydrolysis of the dietary feed in rumen is very high (85-95%), causing reduction in fiber digestibility. Role of the bypass fat in the rations of the high producing dairy animals is very crucial for enhancing the energy density of ration. Hence keeping in view the importance of bypass fat in dairy buffaloes, KVKs of zone IX conducted on farm trials on assessment of bypass fat on milk production in high lactating dairy buffaloes.

Four KVKs (2 from M.P and 2 from CG) from the zone conducted OFT to assess supplementation of bypass fat on milk production in high lactating dairy buffaloes. Animals were treated with Bypass fat @ 100 gm per animal per day for two month. There was encouraging result of the trial. The average milk production of animals increased by 12.68%, i.e. 11.40 liter (FP) to 12.85 liter per animal per day (RP). Net return of farmer increased from Rs. 205.20 per animal per day (FP) to Rs. 254.70 per animal per day (RP). B:C Ratio improved from 1.82 (FP) to 1.99 in RP.

Table: Assessment of feeding bypass fat on milk production in high lactating dairy buffalo

Details	No. of trials	Average body weight (kg)	Avg. Net Returns (Rs.)	B:C ratio
Imbalance concentrate feeding without mineral mixture supplementation (Farmers' practices) T_1	46	12.84	1660	1.99
Balanced Concentrate feeding + Mineral Mixture (Recommended practice) T_2		15.64	2419.8	2.49

OFT on by pass fat

OFT on by pass fat

Animal Feed/Fodder Management

Cultivation and feeding of hydroponic maize fodder

Problem diagnosed: Low milk production in high lactating dairy buffalo due to lack of green fodder in scarcity period.

Technology assessed: Assessment of cultivation and feeding of hydroponics green fodder on milk production in dairy buffalo in scarcity period as alternate green fodder.

It is a well-accepted fact that feeding dairy animals is incomplete without including green fodder in their diet. As an alternative to conventional method of green fodder production, hydroponics technology is coming up to grow fodder for farm animals. It is a technology of growing plants without soil, but in water or nutrient rich solution for a short duration. Different types of fodder like maize, wheat, cow pea, etc. can be grown by hydroponics technology. The yield of the hydroponics green fodder is highly influenced by the type and quality of seed, cleanliness and hygienic condition of the green house. Hydroponics fodder is more nutritious than the conventional green fodder. Hence keeping in view the importance of hydroponic fodder on milk production in dairy buffaloes, KVKs of zone IX conducted on farm trials on assessment of hydroponic green fodder.

Four KVKs of Madhya Pradesh from the Zone IX conducted OFT to assess cultivation and production of hydroponic fodder on milk production on dairy buffalo. Animals were treated by hydroponic fodder @ 10 kg per animal per day for two month. There was encouraging result of the trail. The average milk production of animals increased by 12.68%, i.e. 11.40 liter (FP) to 12.85 liter per animal per day (RP). Net return of farmers also increased from Rs. 205.20 per animal per day (FP) to Rs. 254.70 per animal per day (RP).

Table: Assessment of cultivation and feeding of hydroponics green fodder on milk production in dairy buffaloes in scarcity period as alternate green fodder

Details	No. of trials	Average body weight (kg)	Avg. Net Returns (Rs.)	B:C ratio
Imbalance concentrate feeding without mineral mixture supplementation (Farmers' practices) T_1	46	12.84	1660	1.99
Balanced Concentrate feeding + Mineral Mixture (Recommended practice) T_2		15.64	2419.8	2.49

Cultivation and feeding of hydroponic maize fodder

Round the year fodder production

Problem diagnosed: Low milk yield due to unavailability of green fodder round the year

Technology assessed: Assessment of cultivation and feeding of green fodder round the year on milk production dairy buffalo.

Green fodders play important role in the profitability of the livestock production. The objective of the increased milk production can be met only through ensuring availability of good quality fodder in balanced rations round the year. Success of dairy farming is largely dependent on the feed and fodder availability of high nutritional value, which accounts for 65-70 per cent expenses incurred over the animal feeds. Green forage availability is very important to maintain livestock health and productivity and this is particularly essential in dairy entrepreneurship where consistent and regular supply of green Fodder is imperative to sustain the milk production. Green herbage in addition to energy also provides vitamins, minerals with better dry matter digestibility.

Eight KVKs (09 from MP and 01 from CG) from the zone conducted OFT of cultivation and feeding of green fodder round the year on milk production in dairy buffaloes. The study revealed that there is an increase in average milk yield and net return by 46% and 65%, respectively, indicating that along with normal concentrate feed and dry fodder, green fodder is also essential for improving production of animals.

Table: Assessment of cultivation and feeding of green fodder round the year on milk production dairy buffalo

Details	No. of trials	Average milk yield (Lit/lactation)	Avg. Net Returns (Rs./lactation)	B:C ratio
Feeding green fodder only in rabi (Farmers' practices) T_1	49	7.4 (1988 / lactation)	35964	1.81
Feeding green fodder round the year (Recommended practice) T_2		9.2 (2484 / lactation)	54054	2.19

Note: one lactation taken 270 days

Maize Fodder cultivated At Farmers Field

Maize Fodder cultivated At Farmers Field

Cultivation and feeding of azolla in dairy buffaloes

Problem diagnosed: Low milk production due to unavailability of green fodder in the in the scarcity period in dairy buffaloes

Technology assessed: Assessment of feeding *Azolla* as green fodder supplement in scarcity period on milk production in dairy buffalo

Azolla is a floating fern and belongs to the family of Azollaceae. This plant is high with 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 dairy animals and poultry.

Twelve KVKs from MP of this zone conducted trials to assess the effect of *Azolla* as green fodder for sustaining milk production when there is unavailability of green fodder during lean period. In recommended practice 2.5 kg azola was offered to animal per day for two month in addition to the feed offered in farmers practice. The result revealed that there is an increase in average milk yield and net return by 14.66% and 29.24%, respectively; indicating that supplementing existing feed with *Azolla* regularly at appropriate amount is beneficial in improving production of an animal.

Table: Assessment of feeding *Azolla* as green fodder supplement in scarcity period on milk production in dairy buffalo

Details	No. of trials	Average milk yield (Lit/day)	Avg. Net Returns (Rs.)/animal/twomonth	B:C ratio
Feeding only dry Fodder (Farmers' practices) T_1	65	8.32	8986	2.3
Feeding dry fodder along with Azolla @ 1 to 1.5 kg /animal/day (Recommended practice) T_2		9.54	11614	3.1

Azolla production and feeding

Animal Health Management

Technology accessed: deworming in dairy cattle

Problem diagnosed: Low milk yield due to heavy parasitic infestation in cattle

Technology assessed: Assessment of anti-parasitic drugs on control of parasites for better production performance

Parasites both ecto and endo are a major cause of disease and production loss in

livestock, frequently causing significant economic loss and having 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 efficiency etc.

Nine KVKs (07 from MP and 02 from CG) from the zone conducted trial for assessing the effect of anti-parasitic drugs on control of parasites for milk production of milch cattle/buffaloes. This resulted in reduction of incidence of parasites along with increase in average milk yield and net return by 12.15% and 12.02%, respectively.

Table: Assessment of anti-parasitic drugs on control of parasites for better production performance

Details	No. of trials	Average milk yield (Lit/day)	Avg. Net Returns (Rs.)	B:C Ratio
No use of anti-parasitic drugs to control ecto-endo parasite (Farmers' practices) T1	88	7.32	6588	2.3
Control of Ecto-endo parasites by using correct anti-parasitic drugs routinely (Recommended practice) T2		8.21	7380	2.8

Poultry Production

Technology accessed: Back yard poultry farming

Problem diagnosed: Low income due to poor body weight gain and egg production of local breeds of poultry reared in backyard/intensive system

Technology assessed: Assessment of improved variety of poultry birds reared in backyard/ intensive rearing system

Poultry production has been practiced by the farmers since long time in rural areas but rearing of local /indigenous variety of poultry birds, with poor production performance, leads to low economic return. However, the poultry production can be easily boosted up with

improved varieties of chicken/ducks and can promise better remuneration from production of meat and eggs.

Ten KVKs (04 from each M.P and 06 C.G) from the zone conducted OFT on assessment of Improved varieties of poultry birds (Kadaknath, Pratapdhan, Black Plymouth Rock, Vanaraja, Gramapriya, RIR, Giriraja, Red Cornish, Narmada Nidhi etc.) in backyard/intensive systems. Introduction of such varieties of birds, with better management practices, resulted in increase in average body weight by 29.75% and eggs by 38% with net return increasing by 55.70 %.

Table: Assessment of improved variety of poultry birds reared in backyard/ intensive rearing system

Technology Details	No. of trials	Average body Weight (kg.)	Average egg production/ month (nos.)	Avg. Net Returns /100 birds(Rs.)	B:C Ratio
Rearing of Local colored bird (poor in egg and meat production) (Farmers' practices) T_1	71	1.21	13	30250	3.28
Rearing of Improved poultry bird (Kadaknath, Pratapdhan, Vanaraja, Gramapriya, Narmada nidhi) with better health and feeding management (Recommended practice) T_2		1.57	18	47100	4.26

Poultary Farming

kadaknath chicks

Distribution of kadaknath chicks

Fisheries

Composite fish culture

Problem identified: Low yields are being obtained because of use of single species, improper ratio of fish species, no use of supplementary feed and improved variety by farmers.

Technology Assessed: Fish farming through community participation, poly-culture used in floating feed.

Stocking of cultivable fishes of different species which differ in feeding habits in same pond is called Composite Fish Culture or Polyculture or Mixed Fish Farming. In other words, combined or mixed farming of compatible fish species is called Polyculture or Composite Fish Culture. Simultaneous culture of non-competing fishes species through the utilization of different feeding zones from a pond increases total production. Optimium utilization of ponds in poly-culture boosts productivity for of fish.

KVK Gariyaband and Raipur conducted 02 OFTs on Assessment of fish farming through community participation and floating feed in poly culture carp using different fishes in grow-out culture and floating feed; the result revealed increasing fish yield by 30.91 q/ha.

Table: Performance of composite fish culture

Details	No of trials	Yield (q/ha.)	Cost of cultivation (Rs)	Net return (Rs)	B:C ratio (Rs)
No practices and do not stocked fish seed proper ratio ,no used of community pond (Farmers' practices) T_1	07	20.94	137,550	141,145	2.17
Stocking of 8,000 fingerlings of Catla, Rohu, Mrigal 4:3:3 ratio Application of mustard oil cake+ rice bran (1:1) / Floating fish feed @ 5-3 % of (Recommended practice) T_2		30.91	187.270	246,365	2.51



Fish seed production

Fish seed production in nursery pond, eradication of aquatic insect

Problem identified: Survival rate of low in fish seed and growth also due to poor management practices, lack of feeding material, aquatic insect & predatory fish.

Technology Assessed: Fish seed production in nursery pond, eradication of aquatic insect.

Quality fish seed production is good for fish culture. Survival & growth rates of fish seed depends on proper management practices of nursery ponds. Farmers still use traditional feeds of minimum quantity. There is demand to use supplementary feed, floating feed and pre stocking management like eradication of aquatic insect, predatory & weed fishes to use of

mahua oil cake and oil soap emulsion.

KVK Dhamtari conducted 02 OFTs on assessment of fish seed production at village pond and pre stocking management of carp fry see in survivalty. Maximum Survival rate (72%) was recorded by KVK Dhamtari.

Table: Performance of fish seed production.

Details	No of trials	Survival Rate (%)	Cost of cultivation (Rs)	Net return (Rs)	B:C ratio (Rs)
Does not remove Aquatic insects and predatory and weed fishes , not used supplementary feed (FPT_1)	06	49.0	46,500	43,000	2.0
Stocking of fish spawn catla, rohu, mrigal (10 lac) Application of mustard oil cake+ rice bran(1:1) Application of lime 200-250 kg/ha ,used of Oil Soap Emulsion @ 56 kg oil with 18 kg of any cheap soap/ha (RPT_2)		70.5	59,000	62,000	2.2

Fish seed production

Improved fish species

Problem identified: Lack of knowledge about Air Breathing Fish Culture, pangasius fish culture & Introduction of new fish species (Jayanti Rohu) with nursery pond management.

Technology Assessed: Production of air breathing fish, pangasius fish and jyanti rohu of fish culture.

Pangasius is an air breathing fish that can tolerate low dissolve oxygen (DO) of the water. It can be cultured in fish pond. It has strong market demand. Pangasius can be fed with kitchen wastes, rice bran or pellated feed at a rate of 2.5% of their average body weight. Magur is rather hardy fish and can live out of water for quite some time. This fish is in great demand due to high market value. Jyanti rohu is genetically improved rahu. The adoption of genetically improved strains will increase fish production and enhance profitability for fish

farmers.

KVKs of Gariyaband and Dhamtari conducted 3 OFTS on assessment of different improved fish variety. The results revealed increased fish yield by 50.24 % over farmers' practice.

Table: Performance of fish production Improve Fish Species (*Clarius batrechus*, pangasius, jayanti rohu)

Details	No of trials	Yield (q/ha.)	Cost of cultivation (Rs)	Net return (Rs)	B:C ratio (Rs)
No Air Breathing Fish Culture,Practicing the Local Rohu,Lack of knowledge about pangasius fish production technology (FPT_1)	12	28.62	78228	86191	1.8
Stocking of Clarias batrachus fingerling @50,000 /ha,Stocking of pangasius fsh seed @ 20,000/ha. , use of ABS, stocking of *jayanti rohu* fish @ 90,000 fingerling /ha. floating feed @ 5-3% BW		43.00	125868	183421	2.34

Fish Harvesting

Fish Nutrition

Problem identified: Lack of awareness about supplementary feeds, poor growth and low production.

Technology Assessed: Use of Vitamin Mineral Mixture in fish production.

Aquaculture has developed extensively in high stocking density with increased production level; the pond and natural feed resources are unable to provide the required nutrition to fish and available soluble nutrition in water is not sufficient for fast body growth. Thus, additional diet is required like vitamin mineral mixture for better growth of fish and good fish

production.

KVK Raipur & Dewas Conducted 02 OFTs on Assessment of Vitamin mineral mixture used in fish production. No of trials are seven and resuls show that increase in fish yield was 99.90 per cent over farmers' practice.

Table: Performance of used vitamin mineral mixture in fish production.

Details	No of trials	Yield (q/ha.)	Cost of cultivation (Rs)	Net return (Rs)	B:C ratio (Rs)
Using supplementary feeds as Mustard Oil Cake & Rice bran (1:1),Growing fish with farm based natural feed without any supplement (FPT_1)	07	10.43	138411	84329	1.46
Using supplementary feed as Mustard Oil Cake & Rice bran (1:1) with vitamin mineral premix, Multivitamin with minerals @ 2% of feed (RPT_2)		20.88	152761	156249	1.99

3. Frontline Demonstrations

Frontline demonstrations (FLD) are conducted to demonstrate the superiority of frontier and location specific proven technologies of agriculture and allied sectors 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 2019, 926 FLDs were conducted on oilseeds, pulses, cereals, vegetables crops, cash crops, agro-forestry, millets, etc.; covering the total area 10440.88 ha and benefitting 24938 farmers. FLDs were also conducted on important income generating enterprises, covering the total area of 371.25 ha in Zone IX including 371 units and 2276 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	120	705.68	-	1486
	CFLD (Oilseed)	66	716	-	1432
	CFLD (Pulses)	142	2177.4	-	4567
	Enterprises	60	246.25	47	727
Total		**388**	**3845.33**	**47**	**8212**
Madhya Pradesh	Crops	339	2095	-	6151
	CFLD (Oilseed)	81	1043	-	2547
	CFLD (Pulses)	178	3703.8	-	8755
	Enterprises	157	125	324	1549
Total		**755**	**6966.8**	**324**	**19002**
Total	**Crops**	**459**	**2800.68**	**-**	**7637**
	CFLD (Oilseed)	**147**	**1759**	**-**	**3979**
	CFLD (Pulses)	**320**	**5881.2**	**-**	**13322**
	Total	**926**	**10440.88**		**24938**
	Enterprises	**217**	**371.25**	**371**	**2276**
Grand Total		**1143**	**10812.13**	**371**	**27214**

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

Categories	No. of FLDs	Area (ha)	Unit (no.)	Beneficiaries
Agro forestry	1	4	-	10
Cash Crop	1	12	-	12
Cereal	111	577.45	-	1321
Fibre	4	15	-	43
Flower	3	6.4	-	42
Fodder	4	29	-	48
Fruit	5	6.2	-	33
Medicinal and aromatic plants	4	3.2	-	22
Millets	6	45	-	105
Oilseed	94	714.4	-	1479
Pulses	117	1060.13	-	2578
Spices	35	91.8	-	425
Tuber	9	24.22	-	95
Vegetable	65	211.88	-	1424
Total	**459**	**2800.68**	**-**	**7637**
Enterprises (ha/Units)			-	
Agril. Engg.	53	312.25	-	532
Animal Science (ha/unit)	49	15.8	371	471

Categories	No. of FLDs	Area (ha)	Unit (no.)	Beneficiaries
Fisheries	10	39.2	-	72
Women Empowerment	97	-	-	1132
Other enterprises	8	-	-	74
Total	**217**	**367.25**	**371**	**2281**
Grand Total	**676**	**3167.93**	**371**	**9918**

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

Categories	No. of FLDs	Area (ha)	Unit (no.)	Beneficiaries
Cereal	77	365.65	-	895
Fibre	4	15	-	43
Flower	2	6	-	30
Fodder	1	12	-	12
Fruit	5	6.2	-	33
Medicinal and aromatic plants	1	2.6	-	13
Millets	5	43	-	100
Oilseed	72	556.9	-	1183
Pulses	90	826.25	-	2112
Spices	28	70	-	363
Tuber	5	15	-	50
Vegetable	49	176.4	-	1317
Total	**339**	**2095**	**-**	**6151**
Enterprises (ha/Units)			-	
Agril. Engg.	30	110.8	-	226
Fisheries	2	7.2	-	10
Animal Science (ha/unit)	41	7	324	395
Women Empowerment (ha/unit)	79	-	-	879
Other enterprises	5	-	-	44
Total	**157**	**125**	**324**	**1554**
Grand Total	**496**	**2220**	**324**	**7705**

Table 3.3: Summary of FLDs conducted by KVKs of Chhattisgarh

Categories	No. of FLDs	Area (ha)	Unit (no.)	Beneficiaries
Agro forestry	1	4	-	10
Cash Crop	1	12	-	12
Cereal	34	211.8	-	426
Flower	1	0.4	-	12
Fodder	3	17	-	36
Medicinal and aromatic plants	3	0.6	-	9
Millets	1	2	-	5
Oilseed	22	157.5	-	296
Pulses	27	233.88	-	466
Spices	5	19.8	-	42
Tuber	4	9.22	-	45
Vegetable	18	37.48	-	127
Total	**120**	**705.68**		**1486**
Enterprises (ha/Units)			-	
Agril. Engg.	23	201.45	-	306
Fisheries	8	32	-	62
Animal Science (ha/unit)	8	8.8	47	76
Women Empowerment (ha/unit)	18	-	-	253
Other enterprises	3	-	-	30
Total	**60**	**242.25**	**47**	**727**
Grand Total	**181**	**951.93**	**47**	**2223**

Table 3.4: Summary of FLDs under Integrated Crop Management

Crops	No. of FLDs	Area (ha)	No. of farmers	yield (q/ha)		% Change	Net Return (Rs/ha)	
				RP* (T_2)	FP** (T_1)		FP (T_1)	RP (T_2)
Agro forestry								
Lac	1	4	10	4.80	3.56	34.83	83210	113850
Cereal								
Paddy	7	46.6	97	41.74	33.06	26.27	35250.31	51210.92
Wheat	4	10	25	46.35	39.20	18.24	45670.72	57039.7
Flower								
Marigold	1	0.4	12	101	80.6	25.31	110000	130000
Fruit								
Papaya	1	2	5	1081	825	31.03	410000	594800
Oilseed								
Groundnut	1	10	25	13.50	11.25	20	27500	35200
Linseed	2	14	34	8.51	6.21	37.04	15644.86	25366.43
Mustard	5	70.1	175	17.13	12.80	33.82	31598.49	42989.2
Niger	7	47.8	92	5.25	3.84	36.68	14487.81	21949.66
Sesame	3	36	69	4.32	3.06	41.20	10427.89	18743.34
Soybean	11	132	265	13.25	10.15	30.51	16182.71	26656.89
Pulse								
Black gram	14	203.2	529	7.26	5.43	33.77	13466.47	22620.1
Chickpea	13	218.8	487	13.55	10.29	31.66	26790.18	76396.72
Fieldpea	2	14	35	15.23	12.11	25.75	28965.71	42833.57
Green gram	4	39.2	94	9.73	7.97	22.06	34239.44	44881.63
Horse gram	1	10.08	28	6.04	5	20.80	16336	20620
Pigeonpea	4	40	100	7.87	5.09	54.46	7239	17152.75
Lentil	1	10.4	26	16.87	13.61	23.95	39416	52449
Spices								
Ginger	2	3	22	71.73	52.3	37.16	203833.33	287566.67
Turmeric	2	10	20	7.66	5.09	50.49	101098	198346
Chilli	1	5	10	386.5	263.5	46.68	84150	202850
Vegetable								
Bitter Gourd	1	1	5	110	90	22.22	82000	119000
Drumstick	1	1	5	100	60	66.67	70000	206000
Fenugreek	1	1	5	11	9	22.22	35000	48500
Onion	2	17	27	181.54	156.13	16.27	97776.47	133058.82
Millets								
Sorghum	1	20	50	24.24	20	21.2	30250	37632
Medicinal and aromatic plants								
Khus	1	0.2	3	10.8	6.23	73.35	17200	138400
Lemon grass	1	0.2	3	56.23	49	14.76	4040	27600
Palma rosa	1	0.2	3	63.26	59.2	6.86	13040	30420
Total	**96**	**967.18**	**2261**					

*** RP-Recommended practice, **FP-Farmers' practices**

Case Study: KVK, Panna

Enhancement in Area and productivity of mustard crop through integrated crop management

Introduction: Mustard is an important oilseed crop which is grown in 5000 ha area in the Panna district. Imbalance in fertiliser application and high infestation of aphid are the limiting factors causing lower productivity of mustard in the district (7-8q/ha). Previously, farmers of the district grew mustard with wheat and chickpea as mixed crops and no management.

KVK intervention: KVK Panna took intervention through OFTs and CFLDs on application of balanced fertilizer application, seed treatment with Trichoderma viride, Azatobactor and PSB, Spray of Imidacloprid 17.8 SL for the management of aphid

Output: By the improved cultivation practices, farmers harvested 12-14 q/ha mustard in comparison to old practice (7-8 q /ha).

Outcome: Mustard Yield increased by 45-60 per cent

Impact: Most of the farmers are convinced with the technology and are using scientifically recommended practices. Now the area has increased upto 18600 ha in the district.


Table 3.5: Summary of FLDs on Integrated Disease Management

Crops	No. of FLDs	Area (ha)	No. of farmers	yield (q/ha)		%Change	Net Return (Rs/ha)	
				RP (T_2)	FP (T_1)		FP (T_1)	RP (T_2)
Cereal								
Paddy	7	50.40	95	45.80	41.10	11.44	44405	53815
Wheat	1	2.00	5	41.00	39.50	3.8	44300	46340
Oilseed								
Soybean	2	7.20	18	12.38	7.23	71.19	16869	26106
Pulse								
Black gram	3	16.00	40	7.22	5.21	38.53	17369	25999
Chickpea	8	32.00	74	16.11	12.89	24.96	41005	53156
Green gram	1	2.00	5	11.78	9.05	30.17	20570	29105
Pigeonpea	1	2.00	1	15.80	11.60	36.21	42780	64390
Spices								
Ginger	1	2.00	5	104.00	86.56	20.15	175770	212487
Chilli	1	2.00	10	25.22	22.26	13.3	61317	71403
Garlic	2	5.10	23	110.56	99.51	11.1	269664	315212
Tuber								
Potato	1	5.00	25	176.00	134.40	30.95	15580	43738
Vegetable								
Brinjal	3	5.00	30	80.67	59.87	34.74	65121	192085
Onion	2	6.00	15	100.72	66.42	174.715	121110	173785
Tomato	3	11.00	33	380.03	311.69	21.93	82245	116716
Total	**36**	**147.70**	**379**					

Table 3.6: Summary of FLDs on Integrated Nutrient Management

Crops	No. of FLDs	Area (ha)	No. of farmers	yield (q/ha)		% Change	Net Return (Rs/ha)	
				RP (T_2)	FP (T_1)		FP (T_1)	RP (T_2)
Cereal								
Maize	7	51.60	139	33.62	27.41	21.16	26603	35010
Paddy	9	43.10	90	41.55	34.82	19.12	32966	42946
Wheat	5	15.80	42	46.08	39.55	16.68	45269	55972
Oilseed								
Groundnut	1	4.0	10	13.01	9.50	36.95	25685	37682
Linseed	1	20.0	20	5.90	4.20	40.48	9666	15186
Mustard	3	14.0	35	10.66	7.99	33.40	15919	24332
Sesame	1	2.4	6	6.22	5.00	24.46	9993	17182
Soybean	8	20.5	68	14.22	12.16	17.00	16995	22114
Pulse								
Black gram	7	71	179	5.37	3.91	37.55	4911	10877
Chickpea	9	36.05	78	17.28	12.74	35.6	37390	54661
Fieldpea	1	4	10	10.15	6	69.17	10125	25300
Pigeonpea	1	4	10	14.98	11.72	27.82	15760	24562
Fruit								
Mandarin (Santra)	1	2.6	13	109.00	82.00	32.93	43400	19500
Spices								
Ginger	1	1.0	5	184.93	136.42	35.56	376472	552783
Chilli	3	6.0	25	197.09	156.13	26.28	108063	146101
Ajwain	1	2.6	13	10.50	7.50	40.00	78000	100000
Garlic	3	9.5	25	102.54	87.07	17.88	150628	270197
Tuber								
Potato	2	6	10	215.3	178.1	20.89	108080	437632
Vegetable								
Brinjal	1	4.0	10	340.5	260.5	30.71	48246	77386
Tomato	3	4.0	12	503.08	397.24	26.64	140689	193231
Cauliflower	2	24.0	110	202.86	169.52	20.76	106277	139032
Onion	2	6.0	10	178.33	118.33	50.7	160583	253000
Cabbage	1	16.0	64	282.8	239.56	18.05	135401	169880
Bottle gourd	1	10.0	100	278.19	241.67	15.11	164120	196690
Cucumber	2	15.0	105	120.72	101.37	19.09	99312	128848
Brinjal, Tomato, Chili, Onion, Cauliflower, Cabbage, Broccoli, Capsicum	1	1.0	10	188	109	72.48	2595	28690
Fibre								
Cotton	1	4.0	10	25.17	22.66	11.08	61217	68794
Medicinal and aromatic plants								
Tulsi	1	2.6	13	17.50	14.00	25.00	69000	111000
Total	**79**	**400.75**	**1222**					

Table 3.7: Summary of FLDs on Integrated Pest Management

Crops	No. of FLDs	Area (ha)	No. of farmers	yield (q/ha)		% Change	Net Return (Rs/ha)	
				RP (T_2)	FP (T_1)		FP (T_1)	RP (T_2)
Cereal								
Paddy	12	60.35	114	42.87	33.13	29.42	36279	52379
Wheat	1	2.00	10	40.10	37.21	7.77	38332	41900
Oilseed								

Crops	No. of FLDs	Area (ha)	No. of farmers	yield (q/ha)		% Change	Net Return (Rs/ha)	
				RP (T_2)	FP (T_1)		FP (T_1)	RP (T_2)
Mustard	5	33.00	42	15.94	12.33	29.23	31068	44676
Sesame	1	2.00	5	6.6	5.05	30.69	17849	24701
Soybean	7	46.00	101	11.8	10.15	16.21	16210	21767
Pulse								
Black gram	1	5.00	12	9.14	6.83	33.82	22150	35103
Chickpea	7	36.60	87	16.68	14.51	14.95	37968	46303
Pigeonpea	1	2.00	5	19.2	13.8	39.13	53340	80060
Spices								
Chilli	1	2.00	10	116.25	96.55	20.40	12958	21128
Garlic	2	7.00	22	99.44	85.55	16.25	284458	339378
Tuber								
Potato	1	2.00	5	375	310	20.97	17849	24701
Vegetable								
Brinjal	3	5.40	26	192.43	124.03	55.15	64099	128286
Onion	2	4.50	20	275.5	230.52	19.52	132168	195293
Tomato	2	2.08	15	506.92	393.08	28.96	118308	165231
Cauliflower	2	4.40	11	171.6	127.09	35.02	82529	126731
Cucumber	1	2.50	10	193.3	166.5	16.10	73011	94430
Kharif onion	1	2.60	13	64.86	53.77	20.62	298769	373700
Fibre								
Cotton	2	6.00	20	17.22	14.82	16.15	27625	34797
Millets								
Little millet	1	1.00	5	8	4.5	77.78	4650	9450
Total	**53**	**226.43**	**533**					

Table 3.8: Summary of FLDs on Integrated Weed Management

Crops	No. of FLDs	Area (ha)	No. of farmers	yield (q/ha)		% Change	Net Return (Rs/ha)	
				RP (T_2)	FP (T_1)		FP (T_1)	RP (T_2)
Cereal								
Maize	1	4.0	10	1.50	1.00	50.00	33600	47800
Paddy	5	27.0	47	41.36	31.79	30.12	33524	47959
Wheat	12	54.0	137	38.03	31.69	20.03	41806	53698
Fodder								
Napier grass	1	4.0	10	550.00	432.00	27.31	43200	100000
Oilseed								
Groundnut	2	6.0	15	14.43	11.25	28.26	36129	51732
Soybean	7	38.0	77	15.35	12.26	25.24	14289	21031
Niger	1	4.0	10	6.25	3.14	99.04	9224	21300
Pulse								
Black gram	3	17.0	42	7.96	5.97	33.23	21555	31638
Green gram	1	2.0	10	6.80	4.73	43.76	21340	35456
Pigeonpea	1	2.0	5	23.70	14.90	59.06	59250	92250
Tuber								
Potato	1	8.0	21	205.00	179.00	14.53	135800	164000
Vegetable								
Coriander	1	1.0	10	12.66	10.98	15.30	60240	77680
Okra (Bhindi)	1	1.0	5	140.00	110.00	27.27	70000	105000
Onion	3	22.4	47	194.32	173.33	12.10	64086	62570
Kharif onion	1	3.0	10	116.09	104.01	11.61	300091	339355
Millets								
Pearl millet	1	2.0	10	22.88	19.89	15.03	25137	20291
Total	**42**	**195.4**	**466**					

Table 3.9: Summary of FLDs on Varietal evaluation

Crops	No. of FLDs	Area (ha)	No. of farmers	yield (q/ha)		% Change	Net Return (Rs/ha)	
				RP (T_2)	FP (T_1)		FP (T_1)	RP (T_2)
Cash Crop								
Sugarcane	1	12.0	12	894.25	762.76	17.24	152542	193296
Cereal								
Maize	5	28.0	70	33.64	25.43	32.28	21939	36529
Paddy	9	32.4	81	37.17	30.48	21.94	28017	91502
Wheat	19	98.2	228	40.49	33.13	22.23	41242	52436
Flower								
Marigold	2	6.0	30	132.92	113.23	17.38	184646	222512
Fruit								
Papaya	1	0.5	5	370.80	231.20	60.38	151200	258800
Oilseed								
Groundnut	1	10.0	25	14.02	10.52	33.27	31469	45435
Linseed	3	52.0	84	12.02	8.57	40.19	28765	29080
Mustard	4	21.5	46	10.50	7.31	43.52	21657	32976
Niger	2	12.5	30	4.04	2.58	56.59	6544	13320
Sesame	2	15.2	38	3.21	2.19	46.38	4968	8758
Soybean	9	71.6	125	11.33	7.72	46.72	10481	22310
Pulse								
Black gram	5	56.6	130	8.76	6.49	34.97	10316	15416
Chickpea	12	139.6	363	15.20	10.97	38.54	28448	37662
Green gram	2	11.0	30	6.66	5.04	32.15	12327	21686
Lathyrus	1	12.0	12	10.50	8.90	17.98	8867	13150
Pigeonpea	7	50.0	119	12.51	9.01	38.91	28096	45146
Kabuli gram	1	4.0	10	14.13	10.93	29.28	29570	42350
Spices								
Coriander	4	14	35	14.86	11.7	26.97	47581	65332
Fenugreek	1	0.1	10	12.75	10.50	21.43	69842	90208
Chilli	3	8.0	130	126.69	97.25	30.27	96144	144932
Kharif onion	1	1.4	10	160.13	141.40	13.25	91000	108733
Ajwain	2	10.0	20	11.10	7.31	51.78	35243	60109
Garlic	2	1.1	10	92.86	80.53	15.32	110931	139099
Tuber								
Elephant Foot Yam	3	1.2	24	538.29	392.12	37.28	382984	571539
Potato	1	2.0	10	256.80	201.40	27.51	115520	155940
Vegetable								
Brinjal	5	8.4	123	130.04	107.11	256.26	117979	148744
Cowpea	1	0.4	5	154.00	120.00	28.33	59000	84000
Drumstick	1	10.0	100	11.00	0.00	-	0	54000
Onion	2	6.0	15	270.45	184.50	46.59	93050	170708
Tomato	4	7.6	128	405.79	297.53	36.39	171167	209419
Okra	1	1.0	10	119.29	75.68	57.62	50666	102998
Cabbage	2	2.0	200	610.00	500.00	22.00	106700	138000
Cauliflower	1	1.0	100	530.00	450.00	17.78	114500	141000
Spinach	1	0.5	5	300.00	200.00	50.00	150000	175000

Crops	No. of FLDs	Area (ha)	No. of farmers	yield (q/ha)		% Change	Net Return (Rs/ha)	
				RP (T_2)	FP (T_1)		FP (T_1)	RP (T_2)
Pea	1	2.0	10	89.92	76.25	17.93	218375	251920
Fibre								
Cotton	1	5.0	13	24.40	15.50	57.42	63900	114520
Millets								
Finger millet	1	2.0	5	13.88	8.22	68.86	6534	15266
Barley	1	10.0	10	29.85	22.68	31.61	22708	32285
Pearl millet	1	10.0	25	28.59	21.42	33.47	28332	40560
Total	**126**	**736.82**	**2436**					

Table 3.10: Summary of FLDs on Resource Conservation Technology

Crops	Methods of RCT	No. of FLDs	Area (ha)	No. of farmers	yield (q/ha)		% Change	Net Return (Rs/ha)	
					RP (T_2)	FP (T_1)		FP (T_1)	RP (T_2)
Cereal									
Paddy	Direct dry seeding technology	1	10.0	25	36.03	27.84	29.42	25911	39676
Fruit									
Pomegranate	Drip irrigation & Poly mulching	1	1.0	5	88.00	61.00	44.26	89000	147000
Vegetable									
Tomato	Plastic mulching	2	1.1	15	367.43	280.54	30.97	208991	276791
Total		**4**	**12.1**	**45**					

Table 3.11: Summary of FLDs on Soil Fertility Management

Crops	No. of FLDs	Area (ha)	No. of farmers	yield (q/ha)		% Change	Net Return (Rs/ha)	
				RP (T_2)	FP (T_1)		FP (T_1)	RP (T_2)
Cereal								
Paddy	2	22.0	55	45.97	38.29	20.06	50168	63382
Wheat	4	20.0	51	45.73	38.00	20.35	53412	67639
Oilseed								
Linseed	2	5.8	17	8.92	5.90	51.15	12750	21917
Mustard	2	14.8	37	19.58	16.97	15.37	38454	44291
Soybean	1	4.0	10	10.29	9.22	11.57	13395	17367
Pulse								
Chickpea	3	10.8	30	15.44	11.73	31.57	31782	42341
Lathyrus	1	6.8	17	8.62	6.07	42.01	3367	12068
Pigeon pea	1	2.0	10	21.60	17.50	23.43	75080	96821
Spices								
Garlic	1	1.0	10	78.37	64.85	20.84	117232	154183
Total	**17**	**87.2**	**237**					

Table 3.12: Summary of FLDs on Crop Diversification

Crops	No. of FLDs	Area (ha)	No. of farmers	yield (q/ha)		% Change	Net Return (Rs/ha)	
				RP (T_2)	FP (T_1)		FP (T_1)	RP (T_2)
Fruit								
Pomegranate	1	0.1	5	15.00	12.00	25.00	325000	510000
Vegetable								
Cauliflower	1	1.0	10	211.10	188.40	12.05	104286	127271

Crops	No. of FLDs	Area (ha)	No. of farmers	yield (q/ha)		% Change	Net Return (Rs/ha)	
				RP (T_2)	FP (T_1)		FP (T_1)	RP (T_2)
Broccoli	1	1.0	5	182.00	127.00	43.31	145500	216000
Total	**3**	**2.1**	**20**					

Table 3.13: Summary of FLDs on Feed and Fodder

Crops	No. of FLDs	Area (ha)	No. of farmers	yield (q/ha)		% Change	Net Return (Rs/ha)	
				RP (T_2)	FP (T_1)		FP (T_1)	RP (T_2)
Fodder								
Napier	1	8.0	16	43.8	29.5	48.47	58500	98400
Sorghum	1	5.0	10	19.5	13.2	47.73	8600	24500
Azolla	1	12.0	12	0.8	0.5	60.00	0	33000
Total	**3**	**25.0**	**38**					

Table 3.14: Summary of FLDs on Farm Mechanization

Technology	Crops	No. of FLDs	Area (ha)	No. of farmers	Yield (q/ha)		%Change	Net Return (Rs/ha)	
					RP(T_2)	FP(T_1)		FP(T1)	RP(T2)
Farm Mechanization									
Eight Row Paddy drum Seeder	Paddy	2	4	10	49.57	42.48	16.69	41759	58363.5
Garlic planter	Garlic	2	4.6	18	90.85	86.08	5.54	162514.78	182199.57
Multi crop planter	Paddy	3	13.8	30	34.99	29.45	18.81	45570.29	60304.12
	Pigeon pea	1	5	10	18.42	12.56	46.66	48717	117317
Paddy weeder	Paddy	1	4	10	45.3	36	25.83	22436	39198
Potato planter	Potato	1	2	5	174.2	168	3.69	66020	81040
Power weeder	Paddy	1	2.05	10	47.45	39.1	21.36	40955	59690
Rotavator	Wheat	1	4	10	36.5	23.9	52.72	21268	39194
Seed cum Fertilizer drill	Chick pea	2	9	23	365.39	257.74	41.76	35844.67	61590.22
	Paddy	6	18.4	47	42.64	35.72	19.36	42567.53	58948.94
	Soybean	1	2	5	11.2	9.74	14.99	15470	19770
	Wheat	2	15.6	26	31.51	28.2	11.75	34273.33	40629.17
Seed Drill	Chick pea	1	15	38	15.01	8.12	84.85	22057	49616
	Linseed	1	50	63	11.22	6.89	62.84	14000	35913
	Niger	1	10	18	7.32	4.23	73.05	6929	23717
Self-propelled paddy transplanter	Paddy	1	2	5	38.1	37.5	1.6	35663	40593
Reaper cum binder	Wheat	1	2	5	0.45	0.25	80	0	0
Self propelled vertical conveyor reaper	Paddy	2	18	18	35	31.01	12.84	36432.17	46260.5
	Wheat	1	13	13	28.85	26.32	9.61	30876	35971
Inclined Plate Planter	Paddy	1	13	1	47.6	41.5	14.7	41052	53970
RMB Plough	Soybean	1	4	10	11.75	9.9	18.69	3650	10125
Resource Conservation Technology									
Drip Irrigation	Cabbage	1	1	5	273	221	23.53	86000	103400
	Chilli	1	1	5	214	148	44.59	67600	121800
DSR and line sowing	Paddy	1	10.2	15	43.02	37.07	16.05	68175	86950
Raised bed furrow system	Chickpea	1	2	8	17.21	13.97	23.14	52566	2.4
	Soybean	2	6	15	15.17	11.93	27.09	15192	26381.67
Straw reaper	Wheat	1	11	11	0.38	-	-	-	12054
Zero Till Seed cum fertilizer drill	Chickpea	1	2	7	16.2	12.6	28.57	32650	48250
	Mustard	1	5	12	28.15	25.63	9.83	17928	27353
Broad Bed Furrow (BBF) Seed Dril	Soybean	3	20.6	31	17.26	12.57	37.33	19633.01	36416.55

Technology	Crops	No. of FLDs	Area (ha)	No. of farmers	Yield (q/ha)		%Change	Net Return (Rs/ha)	
					RP(T_2)	FP(T_1)		FP(T1)	RP(T2)
Raised bed planter	Soybean	2	6	6	12.64	9.43	34.02	18017.6	30284.53
	Maize	1	2	5	51.2	42.8	19.63	30500	42000
Small Farm Implements									
Groundnut decoticator	Groundnut	1	7	7	2.6	1.7	52.94	3981	5750
Rotary weeder proto type-1	Paddy	1	2	5	41.54	36.12	15.01	42716	50709
Spiral grain separator	Soybean	3	25	25	240.32	27.56	772.04	977.1	2041
Grand Total		**53**	**312.25**	**532**					

Table 3.15: Summary of FLDs on Livestock and PoultryProduction

Thematic area	No. of FLDs	Area (ha) / No. of animals or birds	No. of farmers	Parameter	Result		% change	Net Return (Rs) over two moth of demonstration	
					RP(T_2)	FP (T_1)		FP (T1)	RP(T2)
Cattle/Buffalo (Average milk yield-1/day), Body wt gain in gm /day, mortality %									
Animal Disease Management	6	57	52	Milk yield	7.6	6.5	16.92	7920	9152
				Body wt gain in gm /day	482	435	10.80		
				Mortality %	18.5	15.05	22.92		
Animal Feed / Fodder Management (ha)	6	15.8	46	Milk yield	10.2	8.6	18.60	10320	12240
				Bodywt gain in gm /day	565	510	10.78		
Animal Nutrition Management	21	208	200	Milk yield	9.6	7.9	21.52	9480	11236
				Bodywt gain in gm /day	510	455	12.09		
Livestock production & management	4	43	43	Milk yield	9.5	8.1	17.28	9685	11265
Goat & Sheep (Average body weight in kg)									
Animal Disease Management	2	15	12	Average body weight in kg	10.87	9.46	14.90	8960	10800
Nutrition Management	3	40	35	Average body weight in kg	15.18	12.26	23.82	8450	10320
Poultry (Average body weight/100 birds in kg in two month)									
Feed management	1	12	12	Average body weight in kg	163	124	31.45	11268	15275
Poultry Production and management	6	72	68	Average body weight in kg	178.6	144.82	2333	13460	17685

Thematic area	No. of FLDs	Area (ha) / No. of animals or birds	No. of farmers	Parameter	Result		% change	Net Return (Rs) over two moth of demonstration	
					RP(T_2)	FP (T_1)		FP (T1)	RP(T2)
Grand Total	**49**	**15.8 ha (447 unit)**	**468**						

Table 3.16: Summary of FLDs on Fisheries

Thematic area	No. of FLD	Area (ha)	No. of farmers	Results			Net Return (Rs.)	
				RP(T_2)	FP(T_1)	% Change	FP(T_1)	FP(T_2)
Composite Fish Farming	4	16.00	28	18082.54	11803.83	53.19	106041	215384
Fingerling Production in Seasonal Ponds (no./ha)	2	5.20	18	14.34	11.98	19.72	81198	206550
Fish Production & Management	2	13.00	17	17.50	12.16	43.88	50492	117689
Fish Seed Production(no./ha)	1	4.00	4	35.54	20.85	70.46	130630	253835
Fish-cum-Duck Farming	1	1.00	5	31.00	23.00	34.78	98000	126000
Grand Total	**10**	**39.20**	**72**					

Table 3.17: Summary of FLDs onWomen Empowerment 2019

Name of Technology demonstrated	No of beneficiaries	Output (m^2/kg/hr)		Av. % reduction in drudgery	Av. % increase in efficiency
		FP (T_1)	RP (T_2)		
Drudgery Reduction					
Hanginging sieve	8	35.9	169.8	29.93	78.83
Revolving stool	20	120	150	16.84	12.61
Naveen seed dibbler	10	10	29	65.62	20
CIAE seed drill	10	55	148	20	65.5
Bhindiplucker	10	9	21	35.6	62.8
V-Blade hand hoe	10	34	245	13	57.1
Pedal cum motor operated grain cleaner cum grader	10	18.8	172.4	21.26	86.12
Multipurpose hand drawn trolley	9	576	1243	32.2	89.1
Twin wheel hoe	10	10	41	30.5	53.7
Potato peeler and slicer	6	2.45	29.1	49.9	75.61
Groundnut decorticator	15	120	150	33.25	91.58
Total	**118**				
Name of Technology demonstrated	**No of beneficiaries**	**Cost of input(Rs/kg/q)**		**Gross income(Rs.)**	**Net Return (Rs.)**
		FP (T_1)	RP (T_2)		
Value Addition					
Fruits & vegetables	4	4500	8500	21250	12750
Jackfruit chips	10	30	100	880	780
Tomato pickle	9	20	100	160	60
Ber powder and squash	6	30	70	285	215
Bale jam and squash	4	35	85	324	239
Tamarind sauce	13	1540	1250	2625	1375
Garlic pickle	13	850	3640	7470	3830
Dalia(wheat)	11	5639	7115	31374.9	24259.9
Aonla Candy	29	6500	2000	13000	11000

Linseed laddu	5	300	2060	6000	3940
Soybean Tofu (soya panner)	12	492	1020	4000	2980
Total	**116**				
Name of Technology demonstrated	**No. of beneficiaries**	**Cost of input(Rs/kg/q)**		**Gross income(Rs.)**	**Net Return (Rs.)**
		FP (T_1)	**RP (T_2)**		
Income Generation					
Bee keeping	15	-	10000	80000	70000
Balance feed for Goatry	10	320	380	1528	1148
Storage in Grain pro super bag	54	80	200	2715	2515
Hybrid maize (sugar 75) for green cob/ grain	5	27000	58000	202800	144800
Production HYV Sweet Pea Arkel	10	50000	50000	190000	140000
IFS Model (Rice-Chickpea/Maize/Vegetable) + Fish cum Duck + Poultry + Goatry + Animal Husbandry	5	58500	85700	170980	85280
Marigold flower cultivation	43	70000	75000	434970	359970
Processing of minor millets (Kutki)	10	5000	12000	30000	18000
Moringa products (Dried leaves powder, Pods pickle) as additional income for SHGs)	47	-	36750	131250	94500
Mushroom production 02unit (30bags per unit/round)	104	-	900	14850	11250
Nursery management	15	16747	19763	91974	72211
Processing of rice through mini rice mill	84	2023	23180	41580	18400
Vermicompost production	39	2520	1750	7070	5320
Total	**441**				
Name of Technology demonstrated	**No. of Beneficiaries**	**Average of Per capita Consumption gm/ day**		**Average of Per capita Consumption of Iron (mg)/day**	**Average of Per capita Consumption Calcium (mg) T2**
		FP (T_1)	**RP (T_2)**		
Nutritional Security					
Nutritional Kitchen Garden	457	78	112	20.4	227
Total	**457**				
Grand Total	**1132**				

Table 3.18: Summary of FLDs on Small Scale Income Generation

Category	**No. of FLDs**	**No. of Farmer**	**Area**	**Result**		**Net Return (Rs)**	
				RP (T_2)	**FP (T_1)**	**FP (T_1)**	**RP (T_2)**
Lac Cultivation in Semialata	1	10	4 ha	69.13	36.25	45000	112490
Nursery raising in soil-less pro-tray	1	10	200 tray	1886.7	1549.1	1704	2090
Residues management through bio decomposer	1	12	5	25.3	17.5	12500	30040
Vermicompost production	4	32	32 ha	24.15	15.96	595	9409
Vermiculture (pit)	1	5	10 (no.)	35	30	3400	18875
Total	**8**	**69**					

Success Story: KVK, Satna

Adoption of Agri-Horti-Livestock farming system model doubled the farmers' income in three years

Introduction: More than 80% of Indian farmers own less than 2 ha of land. Their share of cultivated land is about one third of the total available agricultural land in the country. Over the time, due to high population growth that caused a division of land holdings, and a very slow growth rate of the rural economy, the pressure on land has been steadily increasing and the number of small and marginal farmers has been growing. These farmers can play a leading role in the development of the country by contributing to the nation's capital formation, if their uneconomic holdings are converted into economic ones. However, with the traditional cropping system, small and marginal farmers are finding it difficult to produce adequate food to feed their families. The only way to convert these holdings into profit-making ones is through the intensive use of land through diversification of crops. In order to improve the economic and social status of these targeted groups of farming community, an effort was made by Krishi Vigyan Kendra (Satna) to develop some technologies for the benefit of marginal farm families. In this regard, a horticulture-based farming system model of 1.5 and 1 acre were formulated and tested at the KVK, farm, Satna, with the objective of providing sustainable food and nutritional security along with sufficient income. After the success of these models at the KVK farm, the models were replicated at farmers' fields for further validation and to help spread it to other neighboring farmers. The success of 1.5 ha model at one such farmer's field is given below.

Background: Shri Rajender Singh Kushwaha of village Pagarkhurd in Majhgawan Tehsil, having 7 family members possesses 1.5 ha of land. Detailed survey of the farm family conducted in year 2016 revealed that the farmer despite having 1.5 ha of land and a well–perennial source of water, was not in a position to earn enough to feed his family well. The causes of low income were found to be under-utilization of available resources and traditional system of farming. The cropping pattern being adopted by the farmer was Paddy-wheat. In the 1.5 ha model, the cropping pattern being followed by the farmer was changed. The planning and layout of field was done on the basis of food requirement of the family. The area under each crop was allotted on the basis of average productivity of crop in the region. Crop calendar for the whole year was prepared to enable the farmer to perform various cultural operations timely as shown in the following layout plan.

KVK intervention: Agri-Horti-Livestock based farming system model
Inclusion of high valued crops in the cropping pattern, off season vegetable cultivation, foliar application of water soluble fertilizers and micronutrients; feed and fodder management for buffalo, market oriented farming

Diversification & Intensification of farming –

- Transforming the cropping pattern as per the market requirement
- Selection of crops and their high yielding varieties/ hybrids
- Raising crops during summer months

Soil Health Management-

- Regular application of compost @ 50 q per acre
- Soil test based application of fertilizers & micro nutrients
- Foliar application of water soluble fertilizers (NPK- 19:19:19(1%) and micronutrient (agromin 0.2%) 30, 45 and 60 days after planting

Improved Crop Management Practices-

- Water management(Drainage & irrigation) – ridge and furrow sowing/ planting
- Timely Intercultural operations(weeding, hoeing, spraying, thinning, picking)

Collective marketing of produce:

- Marketing through group approach

Output:

Enterprise	Unit size	Investment (Rs)	Gross return /year	Net Return /year	B/C ratio
Field Crops	0.4	26150	46988	20838	1.80
Horticulture	1.12	190048	462430	272382	2.43
Dairy (buffalo)	3 no.	39500	86400	46900	2.19
Total		**255698**	**595818**	**340120**	**2.33**

Outcome:

- Cropping Intensity has increased from 1.72 to 232.67 %
- Net returns from farming has increased from Rs 138930 to Rs 340120
- B:C ratio has increased from 1.73 to 2.33
- Farmers reduced the cost of production by 9.94 %

Impact: Sh. Rajender Kukar Kushwaha is emerging as progressive/ innovative farmer in Pagarkhurd village. Seeing the success of the farmer, 176 farmers in the village are following his cropping system. He continuously motivates other farmers in the village, helping them to select the improved varieties of vegetables, and in practicing the improved management practices.

Success Story: KVK, Seoni

Adoption and Horizontal spread of integrated pest management practices for managing fruit & shoot borer in brinjal

Introduction: Seoni district is thepioneering district of Madhya Pradesh in adopting latest technologies in agriculture to achieve higher production and productivity. It is considered as brinjal bowl of Madhya Pradesh. Brinjal is the important vegetable for more than 70% population of Seoni district. It is integral components of farming system grow in commercial level as well as in kitchen garden. Brinjal or egg plant (*Solanum melongena* L.) is one of the most commonly grown vegetable crop of the country. India produces about 7.8 M mt of brinjal from an area of 0.47 M ha with an average productivity of

16.3 mt/ha. Brinjal has ayurvedic medicinal properties and white brinjal is good for diabetic patients. It is also a source of vitamins A, C and minerals. Brinjal commonly suffers from more than a dozen insect-pest species out of which brinjal shoot and fruit borer (Leucinodes orbonalis Guenee, Pyralidae: Lepidoptera) are most serious (Sardana *et al*, 2004). In the earlier stages, it attacks the terminal shoots and bores.

Reasons for low yield of brinjal

- Indiscriminate and untimely application of pesticide
- Use of Low yielding varieties
- High plant population
- Imbalance use of chemical fertilizers
- Not adopting proper agronomic practice

KVK intervention

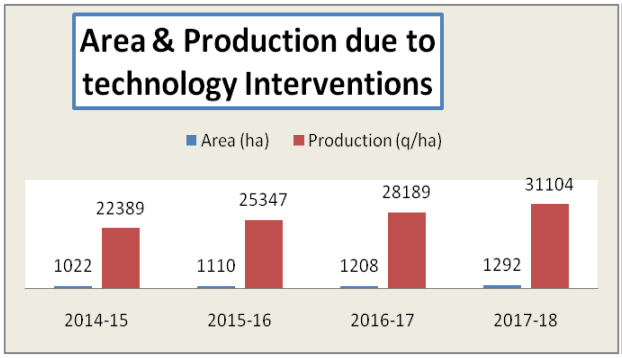
- The technology for selected farmers included seedling root dip with Chlorantranilprole18.5 SC@ 0.5ml /l water for 30 minutes ,Installation of Pheromone trap @ 10/ha + Baveria Basiana @ 1 L/ha +Spray of 5 %NSKE
- The improved package and practices included, transplanting of 25 days old seedling of brinjal transplanting in raised bed distance row to row 120 cm &plant to plant 90 cm + Balance application of Fertilizer @ 150 kg N, 115 Kg, P2 O5 and 150 Kg K_2o /ha along with foliar application of plant nutrition
- Integrated Pest Management
- Foliar application of 2 % Urea coupled with planofix 0.5 ml/l water apply twice 30 % 45 DAP

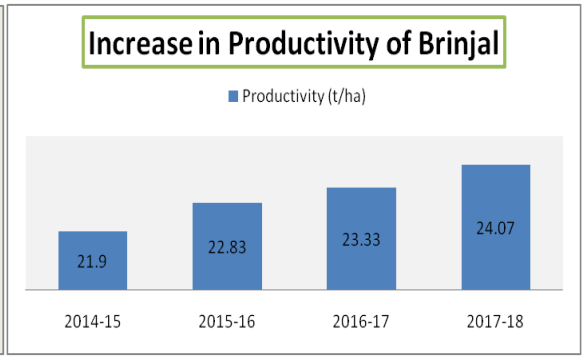
Table: Performance of integrated pest management practices for managing fruit & shoot borer in brinjal at Farmer Field

Treatment	Fruit damage %	No of fruit /plant	Yield q/ha	Cost of cultivation Rs/ha	Gross return Rs/ha	Net return Rs/ha	B:C Ratio
Recommended practice	10.91	18	194.72	97912	233664	135752	2.38
Farmers Practice	59.42	10	142.10	89123	170520	81397	1.91

Table: Area & Production of Brinjal in Seoni District

Year	Area (ha)	Production (q/ha)	Productivity (t/ha)
2014-15	1022	22389	21.90
2015-16	1110	25347	22.83
2016-17	1208	28189	23.33
2017-18	1292	31104	24.07





Outcome: Due to technological interventions by KVK (Seoni), the farmers of the district have well-accepted the improved technology and also appreciated the efforts of KVK. The increase in yield, improvement of quality edible and cooking quality all these factors impart for high market appeal leading to higher consumer acceptance. The brinjal growers have gained confidence in producing high quality fruits.

Table: Impact of Front Line Demonstration (FLDs) on Horizontal Spread of Brinjal Integrated crop management practices

Technology	Area (ha)		Change in Area (ha)	Impact (% Change)
	Before Demonstration	After Demonstration		
Seedling root dip with Chlorantranilprole18.5 SC@ 0.5ml /l water for 30 minutes ,Installation of Pheromone trap @ 10/ha + Baveria Basiana @ 1 L/ha +Spray of 5 %NSKE	8.0	49.0	41.0	600

Success Story: KVK, Indore

Poultry farming became a powerful tool to increase income

Introduction: Agriculture is the main occupation in rural areas but the farmers are getting low income from it. To increase the income of farmers KVK is motivating farmers for adopting mixed farming. In this context, KVK organized a vocational training programme on broiler poultry farming for rural youths. Shri Amit Chouhan participated in the same training course. Being a landless farmer he started poultry farming.

KVK intervention: KVK provided technical knowledge and other information related to inputs and marketing.

Output: After training Shri Chouhan started a poultry unit of 4000 birds (broiler) on a rental poultry shed (rent - Rs. 17000/month) and got net income of Rs. 101850/- in 2 month. Total cost of the unit was Rs. 677450 and he gained Rs. 779300 after selling 3700 adult birds (total weight – 7793 kg.) at the rate of Rs.100/kg. He received a net income of Rs. 101850 in two month. Hence, he got a income of Rs. 50925/month which is very good in the begning of the enterprise.

The economic details are as follows:

Total Expenses-

Sl. No.	Description	Rate	Amount (in Rs.)
1	Cost of chicks	Rs. 40/chicks	160000.00
2	Rent of shed	Rs.17000/month	34000.00
3	Feed cost	Rs.218625/month	437250.00
4	Medicine and vaccine cost	Rs.10000/month	20000.00
5	Labour cost	Rs. 7500/month	15000.00
6	Electricity and other miscellaneous cost	Rs. 5000/month	10000.00
7	Mortality of chicks (300)	Rs. 40/chicks	1200.00
	Total Cost		**677450.00**

Total Sell (Gross income) -

Sl. No.	Description	Rate	Amount (in Rs.)
1	Sold 3700 adult birds (Total weight-7793 kg)	Rs. 100/kg.	779300.00
	Total Sell (Gross income)		**779300.00**

Net income (in 2 month) -

Sl. No.	Description	Amount (in Rs.)
1	Total Cost	677450.00
2	Gross income	779300.00
3	Net income	101850.00

Outcomes: He is satisfied by this enterprise and motivating other farmers to do poultry farming with the existing cropping pattern for increasing their income by which they would be economically sound.



Beekeeping adoption: A case study of smallholder farming communities in khairbar village in Ambikapur, Distt.- Surguja (C.G.)

Introduction: Khairbar village is located in Ambikapur Tehsil of Surguja district in Chhattisgarh, India. Khairbar is a richest village in terms of natural resources particularly abundance of forest and flora. Due to lack of scientific knowledge and skill, farmers were unable to exploit the huge potentiality existing in this area for beekeeping.

KVK intervention: Refinement of technology by increasing number of combs from per frame for domestic bees i.e. *Italian bee (Apis melifera)* and *Indian bee (Apis cerena)*. Farmers learnt skill to divide and manage bee colonies, and to store and purify produced honey. Farmers were made aware about earnings from its value added products such as selling bee wax, royal jelly, propolis, bee venom, making foundation sheets. KVK has established marketing window where trained bee keepers to sell the unprocessed honey.

Output: 10 farmers out of 15, started to adopt bee keeping after training.

Outcome:

- Average extraction of 14-20 kg honey per beehive per year
- Income of 5,600-8000 Rs. per beehive per year
- Total annual income depends upon number of beehives

Impact:

- 10-15 % of yield increase has been observed in seasonal crops as in Mustard, Pigeon pea.
- Socio economic condition of farmers increased
- Nearby villages showing their interest for bee keeping adoption.
- Unemployed youths are also motivated to adopt beekeeping technically as source of income

Case Study- Dhar

Resource conservation technology in Chick pea

Introduction: The FIRBS machine was introduced mainly to cope up with the problem of moisture stress in the soybean, gram, vegetables and spice fields. The soil moisture is managed by maximizing the use of rainfall through increased infiltration and moisture retention and reducing runoff and soil erosion. Thus, by this machine, the performance of high yielding improved varieties is optimized by in situ moisture management. Surface runoff and deep drainage water is exploited as supplemental irrigation to post-rainy season crops like wheat and chickpea. The same FIRBS machine helps to drain out the excess water from the field to save the crop from water logging condition also. By adoption of Raised bed planting system of sowing production increased by average 40-60 % as compared to traditional method (sowing by sweep seed drill) in adverse climate situation.

KVK intervention: KVK Scientists motivated farmers for FIRBS machine in different villages and arranged on campus & off campus trainings for resource conservation technology and made exposure visits to improve soil fertility and organic farming in small holding & motivate to other farmers/ women.

Output: After harvesting the chickpea, yield was increased by upto 50% and moisture of soil is also taken a vital role for increase in productivity.

Outcome: Now-a-days many villages of the district are adopting resource conservation technologies in chick pea, soybean, maize etc on their fields. In this way he is also getting more profit and income from these crops.

Impact: The horizontal spread of this technology was in about 850 villages of the district and farmers appreciated the technology and are ready to adopt to get more yield and income for livelihood security.

Used Practice	Yield (q/ha)	Gross cost (Rs/ha)	Gross income (Rs/ha)	Net income (Rs/ha	B:C ratio
Farmer practices	12.52	22400	43803	21353	1.95
Demonstration	15.53	23470	54370	30900	2.32

Used Practice	Yield (q/ha)	Gross cost (Rs/ha)	Gross income (Rs/ha)	Net income (Rs/ha	B:C ratio
% Increase of FIRB	24.04	4.78	24.12	44.71	-

Success Story: KVK, Kawardha
Integrated Farming System

Introduction: Smt. Aditi Kashyap, is a dedicated and innovative farmer, native from the village-Paliguda, Block-Kawardha, District-Kabirdham. She is a housewife and chosen agriculture as profession and started devoting her time focusing on a better farming. She is having 5.0 ha of land.

Though she was cultivating paddy, Maize, Wheat, and pulses like gram and pigeonpea in her farm regularly, but she was not getting the expected income. She felt that doing agriculture through conventional method minimized the yield and income. It is also associated with low productivity, increased cost on agriculture inputs and poor or no utilization of existing farm resources available in the farm. The conventional method also produced ecological problems on crop diversity, animals and poultry as well as soil and water pollution.

KVK intervention: To overcome the problems faced by her, she started searching the new method which improves the farm productivity, soil health and income. She had visited Krishi Vigyan Kendra, Kawardha during year 2015 and learned about the Integrated Farming System models. With the convergence programme with the allied department, she dug one pond for fish cultivation, and also established fruit orchard, grew vegetables and spices, reared milch cows to fulfill the organic farming component units in her farm. From 2015 onwards, she is having close contacts with the KVK for the technical help, up-gradation of new components and guidance. She has been attending trainings, seminars, workshops conducted by the KVK. With the guidance of KVK, she practices Integrated Farming system in a total of 5.0 ha of land area.

She has also established a vermicompost production unit and a fish pond with the production capacity of 1000 fishes in 90 days cycle. As a progressive farmer she always tries to improve her skill and eager to know every aspects of farming from various sources, trainings, experts, department personnel etc. she eventually set a good example of improved cultivation/farming by incorporating those knowledge with his own innovation in front of other farmers. She adopted so many new technologies in farming. Smt. Aditi Kashyap is integrating all the existing resources available in her farm completely for the economic and ecological improvements for the past 4 years.

Output: The adoption of integrated farming system involving minimum use of external inputs, crop residue recycling and organic practices can improve economic and ecological issues. With this challenge,

- The Integrated Farming System increased the sustainable income from various components round the year.
- The cost of production has been drastically reduced due to reduction in external output purchase as the recycling of most of the available resources was done for the production.

The environmental, soil and water pollution have been decreased considerably as the farm and other wastes were recycled effectively.

Outcome: Her success influenced neighboring farmers so much that many other farmers got interested and adopted the IFS models in their farm. Now she has become the role model for

establishing a successful Integrated farming System in the district. To recognize Smt. Aditi Kashyap's effort in the field of farming, The Govt. of India, awarded with **Krishi Karman Award 2016-17** for highest Paddy production during the farmers' day celebration in 02 January 2020 at Karnataka.

S. No.	Crop	Production (q)	Cost	Gross Income	Net Income	Area
1	Fish	2.50	2000	18000	16000	25 dec.
2	Paddy	450.00	292000	854500	562500	6.00 ha
3	Gram	60.00	70000	240000	170000	6.00 ha
4	Guava	4.00	5000	80000	75000	140 plants
5	Lemon	5.00	3000	18000	15000	15 plants
6	Mango	3.50	-	14000	14000	13 plants

Krishak Samridhi Award – 2019 on 29.07.2019

Krishi Karman Award – 2016-17 on 02.01.2020

4. 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 2019, 6501 courses benefitting 1,93,972 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 2019

Training	No. of courses			No. of Participants		
	CG	MP	Total	CG	MP	Total
Farmers & Farm Women	1764	2941	**4705**	56137	87024	**143161**
Extension Personnels	155	362	**517**	4780	9245	**14025**
Rural Youth	379	267	**646**	9074	7318	**16392**
Sponsored	168	213	**381**	6341	7964	**14305**
Vocational	72	180	**252**	1709	4380	**6089**
Total	**2538**	**3963**	**6501**	**78041**	**115931**	**193972**

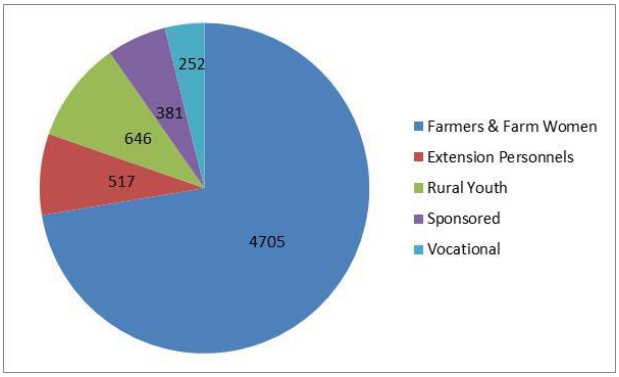


Figure- 1. No. of courses

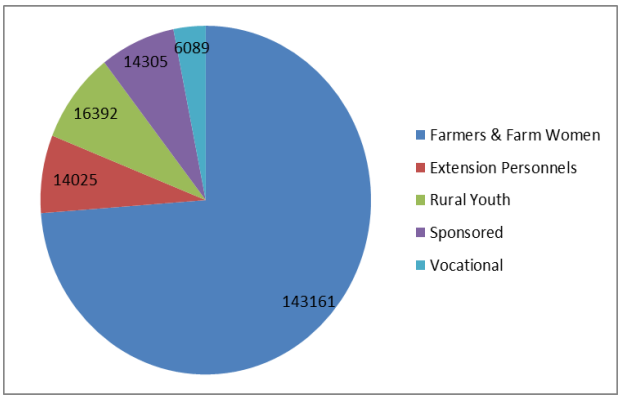


Figure- 2. No. of participants

Table 4.2: Training for Farmers and Farm Women in Zone IX during 2019

Area of training	No. of Courses	General			Others			SC			ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
Agril. Engineering																
Farm machinery & its maintenance	68	303	21	324	637	71	708	288	45	333	511	77	588	1739	214	1953
Installation and maintenance of micro irrigation systems	37	116	24	140	371	31	402	110	20	130	305	44	349	902	119	1021
Post harvest technology	19	42	8	50	227	35	262	33	28	61	279	67	346	581	138	719
Production of small tools and implements	14	60	22	82	145	53	198	22	10	32	71	69	140	298	154	452
Repair and maintenance of Farm machinery and implements	17	62	3	65	109	14	123	61	4	65	202	38	240	434	59	493
Small scale processing and value addition	17	31	7	38	113	40	153	30	14	44	266	95	361	440	156	596
Use of plastics in farming practices	15	55	10	65	146	17	163	27	14	41	104	38	142	332	79	411
Others	31	103	22	125	243	29	272	64	31	95	274	82	356	684	164	848
Total	**218**	**772**	**117**	**889**	**1991**	**290**	**2281**	**635**	**166**	**801**	**2012**	**510**	**2522**	**5410**	**1083**	**6493**
Agro forestry																
Integrated farming systems	10	4	4	8	72	41	113	4	7	11	91	18	109	171	70	241
Nursery management	6	15	7	22	55	30	85	7	3	10	23	20	43	100	60	160
Production technologies	23	108	20	128	213	60	273	42	16	58	143	56	199	506	152	658
Others	8	20	3	23	83	6	89	3	5	8	63	49	112	169	63	232
Total	**47**	**147**	**34**	**181**	**423**	**137**	**560**	**56**	**31**	**87**	**320**	**143**	**463**	**946**	**345**	**1291**
Capacity Building and Group Dynamics																
Entrepreneurial development of farmers/youths	27	60	19	79	136	76	212	55	51	106	351	199	550	602	345	947
Formation and	48	125	81	206	307	92	399	123	108	231	228	88	316	783	369	1152

Area of training	No. of Courses	General			Others			SC			ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
management of SHGs																
Group dynamics	44	120	40	160	398	122	520	105	35	140	185	73	258	808	270	1078
Leadership development	32	108	38	146	308	91	399	82	43	125	101	29	130	599	201	800
Mobilization of social capital	11	48	0	48	136	16	152	40	6	46	20	45	65	244	67	311
WTO and IPR issues	7	8	5	13	77	27	104	17	11	28	16	7	23	118	50	168
Others	66	413	7	420	606	29	635	139	9	148	523	132	655	1681	177	1858
Total	**235**	**882**	**190**	**1072**	**1968**	**453**	**2421**	**561**	**263**	**824**	**1424**	**573**	**1997**	**4835**	**1479**	**6314**
Crop production																
Crop diversification	82	451	43	494	777	383	1160	456	62	518	1086	611	1697	2770	1099	3869
Cropping systems	94	562	70	632	535	246	781	284	68	352	856	273	1129	2237	657	2894
Integrated crop management	220	938	359	1297	1944	292	2236	486	122	608	1780	571	2351	5148	1344	6492
Integrated farming system	64	265	66	331	374	145	519	170	91	261	710	218	928	1519	520	2039
Integrated nutrient management	97	390	99	489	623	177	800	272	62	334	1183	305	1488	2468	643	3111
Micro irrigation/irrigation	39	115	18	133	234	87	321	144	34	178	746	156	902	1239	295	1534
Nursery management	34	130	42	172	178	76	254	74	224	298	407	210	617	789	552	1341
Production of organic inputs	94	531	659	1190	398	896	1294	705	156	861	441	791	1232	2075	2502	4577
Resource conservation technologies	73	272	52	324	663	250	913	602	88	690	1332	552	1884	2869	942	3811
Seed production	141	686	85	771	1346	233	1579	1070	193	1263	1420	328	1748	4522	839	5361
Soil & water conservation	39	404	49	453	359	63	422	121	504	625	564	214	778	1448	830	2278
Weed management	139	931	104	1035	1069	218	1287	1279	325	1604	1996	974	2970	5275	1621	6896
Others	42	244	17	261	315	91	406	212	33	245	353	55	408	1124	196	1320
Total	**1158**	**5919**	**1663**	**7582**	**8815**	**3157**	**11972**	**5875**	**1962**	**7837**	**12874**	**5258**	**18132**	**33483**	**12040**	**45523**
Plant protection																
Bio-control of pests and diseases	56	193	22	215	525	66	591	165	53	218	547	175	722	1430	316	1746
Integrated disease management	144	409	56	465	1225	297	1522	475	125	600	918	271	1189	3027	749	3776

Area of training	No. of Courses	General			Others			SC			ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
Integrated pest management	265	1014	124	1138	2613	298	2911	890	124	1014	1672	445	2117	6189	991	7180
Production of bio-control agents and bio-pesticides	31	51	20	71	331	82	413	92	54	146	144	96	240	618	252	870
Others	34	89	24	113	231	76	307	36	33	69	230	113	343	586	246	832
Total	**530**	**1756**	**246**	**2002**	**4925**	**819**	**5744**	**1658**	**389**	**2047**	**3511**	**1100**	**4611**	**11850**	**2554**	**14404**
Horticulture (fruits)																
Cultivation of fruits	39	222	22	244	334	47	381	106	18	124	539	117	656	1201	204	1405
Export potential fruits	1	5	0	5	19	0	19	0	0	0	0	0	0	24	0	24
Layout and management of orchards	21	95	21	116	249	96	345	82	23	105	162	60	222	588	200	788
Management of young plants/orchards	22	83	16	99	154	31	185	35	21	56	131	19	150	403	87	490
Micro irrigation systems of orchards	28	41	13	54	180	18	198	98	21	119	503	59	562	822	111	933
Plant propagation techniques	32	55	110	165	100	105	205	70	42	112	205	60	265	430	317	747
Rejuvenation of old orchards	10	48	2	50	82	6	88	35	4	39	103	7	110	268	19	287
Training and pruning	20	63	12	75	103	18	121	107	16	123	130	166	296	403	212	615
Others	12	22	0	22	63	31	94	12	15	27	43	16	59	140	62	202
Total	**185**	**634**	**196**	**830**	**1284**	**352**	**1636**	**545**	**160**	**705**	**1816**	**504**	**2320**	**4279**	**1212**	**5491**
Horticulture (ornamental plants)																
Export potential of ornamental plants	7	29	7	36	40	30	70	13	1	14	52	24	76	134	62	196
Management of potted plants	6	32	0	32	81	0	81	9	0	9	29	0	29	151	0	151
Nursery management	17	42	7	49	100	61	161	59	16	75	87	36	123	288	120	408
Propagation techniques of ornamental plants	9	21	0	21	102	4	106	35	1	36	58	6	64	216	11	227
Others	2	10	0	10	35	0	35	9	2	11	10	4	14	64	6	70
Total	**41**	**134**	**14**	**148**	**358**	**95**	**453**	**125**	**20**	**145**	**236**	**70**	**306**	**853**	**199**	**1052**

Area of training	No. of Courses	General			Others			SC			ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
Horticulture (Tuber crops)																
Processing and value addition	1	2	0	2	11	0	11	8	0	8	1	0	1	22	0	22
Production and management technology	16	49	5	54	122	8	130	43	1	44	93	6	99	307	20	327
Others	1	9	1	10	6	1	7	2	0	2	2	2	4	19	4	23
Total	**18**	**60**	**6**	**66**	**139**	**9**	**148**	**53**	**1**	**54**	**96**	**8**	**104**	**348**	**24**	**372**
Horticulture (vegetable crops)																
Exotic vegetables	7	36	5	41	47	9	56	16	2	18	70	2	72	169	18	187
Export potential vegetables	8	19	5	24	54	7	61	27	3	30	167	39	206	267	54	321
Grading and standardization	11	43	28	71	90	10	100	43	13	56	73	39	112	249	90	339
Nursery raising	60	213	122	335	507	150	657	170	268	438	454	195	649	1344	735	2079
Off season vegetables	36	186	87	273	310	119	429	112	39	151	306	75	381	914	320	1234
Production of low volume, high value crops	105	346	56	402	998	206	1204	233	76	309	753	260	1013	2330	598	2928
Protective cultivation	41	160	29	189	182	97	279	95	33	128	529	135	664	966	294	1260
Others	31	91	47	138	225	126	351	78	34	112	169	84	253	563	291	854
Total	**299**	**1094**	**379**	**1473**	**2413**	**724**	**3137**	**774**	**468**	**1242**	**2521**	**829**	**3350**	**6802**	**2400**	**9202**
Horticulture(Medicinal and Aromatic Plants)																
Nursery management	5	8	12	20	19	10	29	7	4	11	56	7	63	90	33	123
Post harvest technology and value addition	2	2	0	2	5		5	18	0	18	18	3	21	43	3	46
Production and management technology	10	42	3	45	78	5	83	23	0	23	76	23	99	219	31	250
Others	4	7	0	7	10	0	10	25	0	25	43	0	43	85	0	85
Total	**21**	**59**	**15**	**74**	**112**	**15**	**127**	**73**	**4**	**77**	**193**	**33**	**226**	**437**	**67**	**504**
Horticulture(Plantation crops)																

Area of training	No. of Courses	General			Others			SC			ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
Processing and value addition	5	8	28	36	33	45	78	17	36	53	16	13	29	74	122	196
Production and management technology	13	70	12	82	77	10	87	39	9	48	208	32	240	394	63	457
Others	4	22	0	22	49	0	49	23	0	23	5	0	5	99	0	99
Total	**22**	**100**	**40**	**140**	**159**	**55**	**214**	**79**	**45**	**124**	**229**	**45**	**274**	**567**	**185**	**752**
Horticulture(spices)																
Processing and value addition	5	7	2	9	55	9	64	10	6	16	12	7	19	84	24	108
Production and management technology	42	223	23	246	370	36	406	92	27	119	245	37	282	930	123	1053
Others	9	79	0	79	83	0	83	16	0	16	18	27	45	196	27	223
Total	**56**	**309**	**25**	**334**	**508**	**45**	**553**	**118**	**33**	**151**	**275**	**71**	**346**	**1210**	**174**	**1384**
Livestock Production and Management																
Animal nutrition management	37	172	10	182	365	54	419	87	9	96	227	40	267	851	113	964
Dairy management	84	376	42	418	622	161	783	152	12	164	660	140	800	1810	355	2165
Disease management	66	295	50	345	1570	145	1715	178	77	255	581	157	738	2624	429	3053
Feed & fodder technologies	66	257	47	304	526	112	638	117	49	166	275	79	354	1175	287	1462
Piggery management	3	5	0	5	15	0	15	27	0	27	11	0	11	58	0	58
Poultry management	53	192	39	231	305	121	426	103	39	142	408	216	624	1008	415	1423
Production of quality animal products	21	33	7	40	189	59	248	33	24	57	234	74	308	489	164	653
Rabbit management	2	21	2	23	7	2	9	3	0	3	14	0	14	45	4	49
Others	3	49	0	49	44	5	49	12	1	13	44	2	46	149	8	157
Total	**335**	**1400**	**197**	**1597**	**3643**	**659**	**4302**	**712**	**211**	**923**	**2454**	**708**	**3162**	**8209**	**1775**	**9984**
Fisheries																
Carp breeding and hatchery management	6	8	0	8	30	16	46	11	2	13	34	0	34	83	18	101
Carp fry and fingerling rearing	12	14	3	17	74	15	89	32	1	33	109	14	123	229	33	262

Area of training	No. of Courses	General			Others			SC			ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
Composite fish culture	49	120	33	153	193	124	317	131	30	161	319	61	380	763	248	1011
Fish processing and value addition	2	4	0	4	17	19	36	13	0	13	11	0	11	45	19	64
Hatchery management and culture of freshwater prawn	4	3	3	6	55	16	71	6	2	8	3	3	6	67	24	91
Integrated fish farming	35	52	11	63	270	56	326	39	19	58	201	46	247	562	132	694
Ornamental fish farming	2	3	1	4	5	2	7	2	3	5	5	0	5	15	6	21
Pearl culture	1	1	0	1	0	8	8	6	0	6		6	6	7	14	21
Pen culture of fish and prawn	2	1	1	2	16	20	36	0	0	0	1	19	20	18	40	58
Portable plastic carp hatchery	5	6	0	6	22	26	48	15	0	15	38	11	49	81	37	118
Shrimp farming	1	0	0	0	0	3	3	23		23	0	0	0	23	3	26
Others	5	17	5	22	4	6	10	29	4	33	24	3	27	74	18	92
Total	**124**	**229**	**57**	**286**	**686**	**311**	**997**	**307**	**61**	**368**	**745**	**163**	**908**	**1967**	**592**	**2559**
Women empowerment																
Design and development of low/minimum cost diet	30	17	138	155	74	273	347	23	124	147	24	166	190	138	701	839
Designing and development for high nutrient efficiency diet	35	16	164	180	23	349	372	6	112	118	15	140	155	60	765	825
Gender mainstreaming through shgs	31	41	132	173	40	291	331	6	104	110	3	150	153	90	677	767
Household food security by kitchen gardening and nutrition gardening	110	68	380	448	188	864	1052	52	376	428	196	698	894	504	2318	2822
Location specific drudgery reduction technologies	37	43	122	165	71	269	340	8	141	149	59	195	254	181	727	908
Minimization of nutrient loss in processing	23	25	83	108	32	157	189	14	107	121	22	71	93	93	418	511
Processing and cooking	38	26	138	164	62	330	392	32	157	189	44	193	237	164	818	982
Rural crafts	11	20	85	105	26	89	115	36	37	73	11	130	141	93	341	434

Area of training	No. of Courses	General			Others			SC			ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
Storage loss minimization techniques	28	69	79	148	74	227	301	30	87	117	23	170	193	196	563	759
Value addition	76	26	269	295	84	587	671	17	204	221	164	437	601	291	1497	1788
Women and child care	89	115	244	359	180	896	1076	74	283	357	75	547	622	444	1970	2414
Others	14	34	16	50	36	161	197	13	52	65	18	36	54	101	265	366
Total	**522**	**500**	**1850**	**2350**	**890**	**4493**	**5383**	**311**	**1784**	**2095**	**654**	**2933**	**3587**	**2355**	**11060**	**13415**
Production of Input at site																
Apiculture	2	21	0	21	0	0	0	0	0	0	17	0	17	38	0	38
Bio agents production	10	33	6	39	16	2	18	37	36	73	101	62	163	187	106	293
Bio fertilizer production	10	36	0	36	50	9	59	33	4	37	115	72	187	234	85	319
Bio pesticides production	3	4	0	4	32	5	37	4	2	6	24	1	25	64	8	72
Organic manures production	14	39	5	44	89	17	106	24	10	34	147	64	211	299	96	395
Planting material production	14	33	4	37	85	39	124	78	4	82	172	37	209	368	84	452
Production of Bee colonies and wax sheets	3	10	6	16	16	6	22	8	2	10	31	7	38	65	21	86
Production of fish feed	1	4	0	4	9	6	15	3	0	3	3	0	3	19	6	25
Production of fry and fingerlings	5	18	11	29	45	17	62	16	8	24	60	6	66	139	42	181
Production of livestock feed and fodder	10	15	2	17	61	6	67	19	5	24	63	32	95	158	45	203
Seed production	24	73	14	87	138	45	183	58	19	77	217	83	300	486	161	647
Vermi compost production	40	67	12	79	152	82	234	64	24	88	355	313	668	638	431	1069
Others	1			0	7	5	12			0	3	2	5	10	7	17
Total	**205**	**552**	**142**	**413**	**813**	**729**	**939**	**411**	**230**	**458**	**1529**	**1030**	**1987**	**3305**	**2131**	**3797**
Soil Health and Fertility Management														0	0	0
Balance use of fertilizer	85	344	63	407	483	112	595	194	64	258	750	323	1073	1771	562	2333
Integrated nutrient management	128	440	58	498	937	155	1092	385	78	463	1091	213	1304	2853	504	3357

Area of training	No. of Courses	General			Others			SC			ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
Integrated water management	15	102	24	126	91	49	140	33	15	48	84	42	126	310	130	440
Management of problematic soils	13	91	14	105	72	7	79	66	11	77	51	6	57	280	38	318
Micro nutrient deficiency in crops	74	345	46	391	641	75	716	232	35	267	457	114	571	1675	270	1945
Nutrient use efficiency	5	6	0	6	34	0	34	10	0	10	75	50	125	125	50	175
Organic farming	94	241	61	302	486	92	578	227	79	306	907	480	1387	1861	712	2573
Production and use of organic inputs	94	284	100	384	511	112	623	199	62	261	1032	615	1647	2026	889	2915
Soil & water testing	74	226	62	288	535	115	650	263	62	325	504	189	693	1528	428	1956
Soil fertility management	104	290	58	348	820	144	964	221	78	299	959	329	1288	2290	609	2899
Others	3	14	0	14	28	5	33	12	2	14	11	2	13	65	9	74
Total	**689**	**2383**	**486**	**2869**	**4638**	**866**	**5504**	**1842**	**486**	**2328**	**5921**	**2363**	**8284**	**14784**	**4201**	**18985**
Grand total	**4705**	**16930**	**5657**	**22587**	**33765**	**13209**	**46974**	**14135**	**6314**	**20449**	**36810**	**16341**	**53151**	**101640**	**41521**	**143161**

Table 4.3: Training for Extension Personnel in Zone IX during 2019

Area of training	No. of Courses	General			Others			SC			ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
Capacity building for ICT application	22	137	95	232	137	114	251	112	66	178	181	56	237	567	331	898
Care and maintenance of farm machinery and implements	22	96	73	169	180	28	208	77	73	150	149	78	227	502	252	754
Formation and Management of SHGs	9	3	10	13	19	56	75	7	36	43	22	121	143	51	223	274
Gender mainstreaming through SHGs	14	4	12	16	21	17	38	14	74	88	6	60	66	45	163	208
Group Dynamics and farmers organization	9	52	22	74	113	22	135	25	13	38	48	17	65	238	74	312
Household food security	22	19	152	171	15	103	118	13	101	114	64	55	119	111	411	522
Information networking among farmers	5	82	1	83	39	0	39	6	2	8	40	8	48	167	11	178
Integrated nutrient management	51	280	65	345	300	101	401	123	42	165	220	84	304	923	292	1215

Area of training	No. of Courses	General			Others			SC			ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
Integrated pest management	77	358	36	394	652	92	744	286	52	338	399	63	462	1695	243	1938
Livestock feed and fodder production	19	152	37	189	150	62	212	88	43	131	147	45	192	537	187	724
Low cost and nutrient efficient diet designing	11	16	109	125	10	118	128	13	49	62	11	42	53	50	318	368
Management in farm animals	28	112	110	222	90	14	104	50	40	90	69	38	107	321	202	523
Production and use of organic inputs	27	69	23	92	122	64	186	40	18	58	117	55	172	348	160	508
Productivity enhancement in field crops	85	459	72	531	617	141	758	225	98	323	445	132	577	1746	443	2189
Protected cultivation technology	33	174	77	251	220	85	305	129	61	190	157	67	224	680	290	970
Rejuvenation of old orchards	11	82	19	101	69	34	103	41	24	65	62	19	81	254	96	350
Women and Child care	21	33	75	108	24	191	215	15	80	95	38	97	135	110	443	553
Others	51	229	43	272	630	76	706	160	53	213	282	68	350	1301	240	1541
Grand Total	**517**	**2357**	**1031**	**3388**	**3408**	**1318**	**4726**	**1424**	**925**	**2349**	**2457**	**1105**	**3562**	**9646**	**4379**	**14025**

Table 4.4: Training for Rural Youth in Zone IX during 2019

Area of training	No. of Courses	General			Others			SC			ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
Bee keeping	23	65	1	66	158	20	178	32	3	35	149	96	245	404	120	524
Commercial fruit production	8	29	12	41	26	12	38	12	10	22	78	12	90	145	46	191
Composite fish culture	13	18	4	22	74	22	96	12	6	18	69	25	94	173	57	230
Dairying	15	70	19	89	93	59	152	17	6	23	99	39	138	279	123	402
Fish harvest and processing technology	11	19	7	26	66	63	129	6	9	15	40	31	71	131	110	241
Freshwater prawn culture	4	5	1	6	39	4	43	2	1	3	4	4	8	50	10	60
Fry and fingerling rearing	8	10	2	12	25	6	31	12	2	14	88	30	118	135	40	175
Integrated farming	32	88	25	113	244	22	266	43	16	59	119	59	178	494	122	616
Mushroom production	65	100	101	201	185	295	480	106	134	240	217	369	586	608	899	1507
Nursery management of horticulture crops	37	313	20	333	295	76	371	87	46	133	254	124	378	949	266	1215
Ornamental fisheries	14	34	1	35	21	43	64	7	0	7	4	0	4	66	44	110
Pearl culture	1	0	0	0	40	0	40	0	0	0	0	0	0	40	0	40
Piggery	3	0	0	0	44	0	44	2	0	2	1	0	1	47	0	47
Planting material production	12	31	12	43	145	65	210	35	9	44	25	16	41	236	102	338
Post harvest technology	13	21	11	32	49	16	65	31	10	41	94	27	121	195	64	259
Poultry production	33	80	5	85	312	75	387	108	85	193	279	150	429	779	315	1094
Production of organic inputs	30	55	14	69	284	81	365	79	10	89	253	48	301	671	153	824
Production of quality animal products	6	4	0	4	110	0	110	2	0	2	23	3	26	139	3	142
Protected cultivation of vegetable crops	25	96	12	108	245	57	302	75	24	99	157	30	187	573	123	696
Quail farming	6	3	0	3	96	0	96	7	0	7	0	0	0	106	0	106
Rabbit farming	1	0	0		30	0	30	0	0	0	0	0	0	30	0	30
Repair and maintenance of farm machinery and implements	16	70	9	79	195	54	249	54	0	54	84	3	87	403	66	469
Rural crafts	5	0	2	2	49	47	96	28	6	34	41	1	42	118	56	174
Seed production	30	130	9	139	170	48	218	91	19	110	227	45	272	618	121	739
Sericulture	1	0	0	0	6	0	6	1	0	1	9	0	9	16	0	16
Sheep and goat rearing	11	44	2	46	101	24	125	40	13	53	104	33	137	289	72	361
Shrimp farming	3				50		50							50	0	50
Small scale processing	15	9	19	28	72	34	106	8	19	27	75	84	159	164	156	320
Tailoring and stitching	4	3	5	8	7	83	90	4	6	10	3	2	5	17	96	113
Training and pruning of orchards	18	127	23	150	217	80	297	79	23	102	168	41	209	591	167	758

Area of training	No. of Courses	General			Others			SC			ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
Value addition	45	34	84	118	211	211	422	41	115	156	153	179	332	439	589	1028
Vermi culture	38	131	38	169	250	113	363	68	12	80	235	61	296	684	224	908
Others	100	142	47	189	1372	326	1698	141	84	225	303	194	497	1958	651	2609
Grand Total	**646**	**1731**	**485**	**2216**	**5281**	**1936**	**7217**	**1230**	**668**	**1898**	**3355**	**1706**	**5061**	**11597**	**4795**	**16392**

Table 4.5: VocationalTraining in Zone IX during 2019

Area of training	Sum of No. of Courses	General			Other			SC			ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
Crop production and management																
Commercial floriculture	3	15	15	30	12	16	28	17	13	30	20	11	31	64	55	119
Commercial fruit production	11	27	4	31	77	11	88	43	5	48	59	5	64	206	25	231
Commercial vegetable production	9	31	23	54	48	26	74	22	28	50	114	14	128	215	91	306
Integrated crop management	12	38	9	47	127	18	145	54	10	64	75	18	93	294	55	349
Organic farming	11	25	18	43	43	8	51	38	0	38	72	7	79	178	33	211
Others	4	23	5	28	30	2	32	11	13	24	8	4	12	72	24	96
Post harvest technology and value addition																
Value addition	25	42	113	155	108	175	283	47	124	171	29	112	141	226	524	750
Livestock and fisheries																
Composite fish culture	3	8	4	12	17	8	25	1	1	2	0	17	17	26	30	56
Dairy farming	6	30	11	41	51	2	53	16	14	30	57	3	60	154	30	184
Piggery	1	0	0	0	0	0	0	2	1	3	18	2	20	20	3	23
Poultry farming	22	77	25	102	141	45	186	72	38	110	145	162	307	435	270	705
Sheep and goat rearing	6	33	0	33	6	1	7	40	13	53	35	3	38	114	17	131
Income generation activities																
Mushroom cultivation	40	62	80	142	137	180	317	60	80	140	47	199	246	306	539	845
Nursery, grafting etc.	16	30	8	38	90	22	112	47	14	61	38	11	49	205	55	260
Production of bio-agents, bio-pesticides	3	23	0	23	61	0	61	7	0	7	3	20	23	94	20	114
Repair and maintenance of farm machinery & implements	5	14	3	17	41	0	41	22	4	26	33	4	37	110	11	121

Area of training	Sum of No. of Courses	General			Other			SC			ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
Rural Crafts	1	0	3	3	0	15	15	0	2	2	0	0	0	0	20	20
Seed production	9	36	4	40	60	8	68	28	0	28	41	21	62	165	33	198
Tailoring, stitching, embroidery, dying etc.	2	0	0	0	0	4	4	0	30	30	0	1	1	0	35	35
Vermi-composting	21	91	14	105	195	39	234	56	8	64	114	25	139	456	86	542
Bio fertilizers etc.	6	8	2	10	25	30	55	4	0	4	7	11	18	44	43	87
Others	22	29	10	39	128	48	176	37	28	65	24	23	47	218	109	327
Agricultural Extension																
Capacity building and group dynamics	8	31	13	44	68	13	81	19	20	39	21	45	66	139	91	230
Others	6	24	1	25	17	4	21	16	0	16	70	17	87	127	22	149
Grand Total	**252**	**697**	**365**	**1062**	**1482**	**675**	**2157**	**659**	**446**	**1105**	**1030**	**735**	**1765**	**3868**	**2221**	**6089**

Table 4.6: Sponsored Training Programme in Zone IX during 2019

Area of training	Sum of No. of Courses	General			Other			SC			ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
Crop production and management																
Commercial production of vegetables	13	58	10	68	83	28	111	84	5	89	190	177	367	415	220	635
Fruit Plants	8	31	19	50	82	22	104	27	9	36	120	30	150	260	80	340
Increasing production and productivity of crops	59	453	53	506	597	114	711	156	34	190	902	179	1081	2108	380	2488
Methods of protective cultivation	14	153	11	164	476	33	509	140	15	155	191	16	207	960	75	1035
Ornamental plants	2	5	1	6	6	1	7	5	1	6	61	43	104	77	46	123
Production and value addition	12	25	6	31	40	30	70	27	11	38	127	68	195	219	115	334
Production of Inputs at site	26	119	35	154	121	47	168	36	138	174	182	100	282	458	320	778
Soil health and fertility management	20	167	23		222	68	290	71	26	97	362	179		822	296	1118
Spices crops	1	5	0	5	2	2	4	2	8	10	5	1	6	14	11	25

Area of training	Sum of No. of Courses	General			Other			SC			ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
Others	32	371	46	417	477	119	596	142	22	164	534	93	627	1524	280	1804
Post-harvest technology and value addition																
Processing and value addition	12	18	26	44	24	10	34	9	9	18	77	378	455	128	423	551
Others	7	31	0	31	54	3	57	15	0	15	23	32	55	123	35	158
Farm machinery																
Farm machinery, tools and implements	16	162	8	170	257	14	271	155	7	162	36	3	39	610	32	642
Others	2	8	3	11	14	6	20	26	2	28	15	9	24	63	20	83
Livestock and fisheries																
Animal nutrition management	5	1	0	1	23	2	25	17	0	17	140	146	286	181	148	329
Animal disease management	4	21	3	24	171	25	196	12	2	14	168	37	205	372	67	439
Livestock production and management	34	48	39		81	26	107	4	23	27	201	174		334	262	596
Fisheries management	14	21	12	33	60	6	66	18	11	29	26	4	30	125	33	158
Others	5	6	0	6	33	16	49	2	2	4	118	61	179	159	79	238
Home Science																
Drudgery reduction of women	2	0	20	20	0	18	18	0	9	9	0	4	4	0	51	51
Economic empowerment of women	8	4	21	25	34	39	73	16	10	26	11	23	34	65	93	158
Household nutritional security	5	87	28	115	20	15	35	0	8	8	23	106	129	130	157	287
Others	2	5	1	6	12	0	12	2	0	2	0	0	0	19	1	20
Agricultural Extension																
Capacity building and group dynamics	66	342	49	391	450	142	592	113	48	161	233	83	316	1138	322	1460
Others	12	75	2	77	120	39	159	99	30	129	81	9	90	375	80	455
Grand Total	**381**	**2216**	**416**	**2355**	**3459**	**825**	**4284**	**1178**	**430**	**1608**	**3826**	**1955**	**5781**	**10679**	**3626**	**14305**

Capacity Building programmes

B. Capacity Building programmes by DES and ATARI

Table 4.7: Capacity bulding activities organized in identified area for KVK Staff by the Directorate of Extension Services 2019

Training Title	Date	Venue	No. of Participants
Directorate of Extension Servces, Jabalpur, M.P.			
Pre- Zonal Workshop of KVKs	30 April, 2019 to 1 May, 2019	JNKVV, Jabalpur	24
Technology back stopping on organic farming	13-May-19	JNKVV, Jabalpur	26
KVK review meeting cum technologies backstopping	24-May-19	JNKVV, Jabalpur	32
KVK review meeting cum technologies backstopping Krishi Mahotsav-2014	30-31 August, 2019	JNKVV, Jabalpur	28
Review of KVKs activities	August 13-14, 2019	JNKVV, Jabalpur	20
KVK review meeting cum technologies backstopping Finance and Instructional Farm	18 November, 2019	JNKVV, Jabalpur	20
KVK review meeting cum technologies backstopping Finance and Instructional Farm	6 December, 2019	JNKVV, Jabalpur	20
Review of KVKs activities	January 4-5, 2020	JNKVV, Jabalpur	20
Review of KVKs activities	February 23, 2020	JNKVV, Jabalpur	21
Total			**211**
Directorate of Extension Servces, Gwalior, M.P.			
Honey Bee Keeping - An Entrepreneur for Enhancing Farm Income	February 1-3, 2019	KVK Morena	33
Training on Process of e-Tendering	March 12-13, 2019	RVSKVV, Gwalior	23
Capacity Building Programme on Zero Budget Natural & Organic Farming	November 14-15, 2019	KVK Khandwa	32
Total			**88**
Directorate of Extension Servces, Raipur, C.G.			
Training on Mass Multiplication of Trichoderma on broken grains and vermi compost and demonstration off composting Technique	October 23-24, 2019	DES, IGKV, Raipur	30
Knowledge Up gradation of newly appointed SMS	12 April, 2019	DES, IGKV, Raipur	20
Review Meeting of KVKs regarding progress on Seed hub programme	July 12-13, 2019	DES, IGKV, Raipur	30
Review Meeting of KVKs on Status of seed production of O.P. vegetables and seed hub programme	13 November, 2019	DES, IGKV, Raipur	30
Total			**110**
Grand Total Zone-IX			**409**

Table 4.8: Capacity building activities organized by ATARI in collaboration with ICAR Institutes in identified areas for KVK staff during January to December, 2019

ICAR-ATARI, Jabalpur organized 16 capacity building programmes in participatory mode for KVK scientists and programme assistants working in the KVKs for farming community. ATARI organized

Action Plan Workshops for finalization of the action plan of the KVKs for 2019. This is very important activity as it gives direction to each KVK to move further for planned change through scheduled work plan. Review workshop of ICAR flagship programmes like ARYA and Seed hub was organized to discuss the previous progress as well as future action plan to the concerned KVKs.

S. No.	Training/Workshop Title	Date	Venue	No. of Participants
1	Kadaknath outreach Pathway	January 10, 2019	ATARI, Jabalpur	30
2	Experts consultation workshop on Technology application and impact by KVKs	January 28, 2019	ATARI, Jabalpur	70
3	Review workshop on large scale technology adoption and impact	February 04, 2019	ATARI, Jabalpur	90
4	International Women's Day	March 08, 2019	ATARI, Jabalpur	150
5	Review Workshop on Nutri- SMART Village for nutritional security	April 08, 2019	ATARI, Jabalpur	25
6	Review Workshop on Farmer FIRST programme	May 01, 2019	ATARI, Jabalpur	29
7	Action Plan of Chhattisgarh KVKs on Doubling Farmers Income	May 02-03, 2019	ATARI, Jabalpur	64
8	Interface of Stakeholders on project proposal finalization for NITI Aayog	May 22, 2019	ATARI, Jabalpur	24
9	Review workshop of NICRA, ARYA & Seed Hub Project	May 27-28, 2019	ATARI, Jabalpur	45
10	Meeting of KSHAMATA & Nutri-SMART initiative in KVKs	June 01, 2019	ATARI, Jabalpur	12
11	Annual Action Plan workshop of JNKVV KVKs	June 13-14, 2019	ATARI, Jabalpur	38
12	Action Plan meeting of JNKVV KVKs	June 29, 2019	ATARI, Jabalpur	10
13	Action Plan Review Meeting of KVK Jabalpur	July 01, 2019	ATARI, Jabalpur	14
14	Action Plan Review Meeting of KVK	July 08, 2019	ATARI, Jabalpur	35
15	Quinquennial Review Team Meeting of ICAR-ATARI, Jabalpur and Kanpur	September 21-22, 2019	ATARI, Jabalpur	50
16	Preparation and dissemination of Agromet Advisories at block level under Gramin Krishi Mausam Seva (GKMS) scheme for SMS (Agromet) of KVKs	November 20-25, 2019	ATARI, Jabalpur	35
	Total			**721**




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

S. No.	Particulars	No. of Programmes
1	Trainings	3
2	Workshops	16
3	Conferences	3
4	Seminars	-
5	KVK Visits	17
6	Any other (Review Meetings, Interface)	44
Total		**83**

Table 4.10: HRD fund Allocation and Utilization

Particulars	Budget RE (Rs in lakhs) allocated	Actual expenditure (Rs in lakhs)	Utilization (%)
ATARI	25.00	17.48	69.92
Total	**25.00**	**17.48**	**69.92**

Table 4.11: Footfall in KVKs of Zone IX

State	No. of KVKs	No. of Footfalls			
		Farmers	Officials	VIPs	Total
Madhya Pradesh	49	177946	5648	621	182185
Chhattisgarh	26	180136	2963	3159	186257
Zone-IX	**75**	**358082**	**8611**	**3780**	**368442**

Glimpses of activities

5. 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 a 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 18224.68 q of seed and 50.23 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: Summary of State- wise seed and planting material produced by the KVKs in Zone-IX

State	Jan-Dec-2019	
	Seed (q)	Planting material (in lakhs)
Chhattisgarh	5777.49	24.92
Madhya Pradesh	12447.19	25.31
Total	**18224.68**	**50.23**

Table 5.2: State- wise details of seeds produced by the KVKs in Zone-IX

State	Quantity (q)	Value (Rs)	Provided to no. of Farmers	Expected area coverage (ha)
Chhattisgarh	5777.49	19269925	2679	6140.81
Madhya Pradesh	12447.19	99888380	21954	21050.67
Zone-IX	**18224.68**	**119158305**	**24633**	**27191.48**

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	2492159	8205300	58713	128.183
Madhya Pradesh	2530505	3393540	44322	69663.27
Zone-IX	**5022664**	**11598840**	**103035**	**69791.46**

Table 5.4: Status of seed production in Zone-IX

Crop	Variety	Quantity (q.)	Value (Rs.)	Beneficiaries
Cereal				
Barley	BH 959	0.83	1630	1
Barley	JB-58	24.12	148338	0
Finger Millet	C.G-02	10	30000	1
Finger Millet	Chhattisgarh Ragi 1	14.32	37960	78
Finger Millet	ML-365	1.23	3075	0
Kodo	JK 137	13.6	70720	0
Kodo	JK 41	1.8	9360	0
Kodo	--	0.96	9600	39

Crop	Variety	Quantity (q.)	Value (Rs.)	Beneficiaries
Kutki	JK 4	4.8	24960	0
Kutki	JK 8	1.6	8320	0
Kutki	Local	15	30000	1
Oat	Kent	20	123600	6
Paddy	Badshah Bhog Sel. -1	7.019	15441	0
Paddy	Chandrahasini	130	295757.5	235
Paddy	CR-310	11.6	19350	0
Paddy	Dubraj	96.85	257695	64
Paddy	Durgeshwari	64	196800	1
Paddy	IGKV R-1	841.08	2010117	182
Paddy	Indira aerobic	17	36550	1
Paddy	IR 36	270	1215000	0
Paddy	IR-64	336.9	2066862	16
Paddy	JR-767	30	184500	0
Paddy	JR-81	923.3	5672390	2598
Paddy	Kranti	183	433815	1
Paddy	Mahamaya	17	42500	10
Paddy	Maheshwari	165.6	331200	0
Paddy	Pusa Sugandha-4	125	400000	0
Paddy	PUSA-1637	14	161700	0
Paddy	Rajeshwari	915.9	1840390	1
Paddy	Samleshwari	196.94	443502	17
Paddy	Unnat Jeerasankar	60.15	711382	1250
Paddy	UnnatChhinor	42	504000	1000
Paddy	JR-767	3.7	14800	12
Paddy	Swarna shreya	1.65	6600	5
Paddy	MTU-1010	746.73	2635918.75	1760
Paddy	Pant Dhan 10	5.7	22800	17
Paddy	Pant sungandh -27	5.47	38290	52
Paddy	Pant Basmati 1	3.89	27230	32
Paddy	IGKV-R2	36	127300	47
Paddy	Mukul-311	4	16000	10
Paddy	C.G Sugandhi Dhan-1	42	92400	12
Paddy	Vishanubhog	8.14	19908	2
Wheat	C- 306	50.34	326339.8	0
Wheat	GW322	13.46	53840	18
Wheat	GW-366	267.45	669582	25
Wheat	GW-451	10	30000	0
Wheat	HI- 3787	14.79	35860	17
Wheat	HI-1531	190	567620	8
Wheat	HI-1605	40.9	124360	34
Wheat	JW- 3211	544.78	3152652	0
Wheat	JW-3288	979.22	6944345.4	26
Wheat	JW -3382	377.96	2008683	143
Wheat	Lok-1	10	12600	5
Wheat	MP-1203	60.76	373000	50
Wheat	HI- 8663 (Poshan)	56.2	138571	34
Wheat	Purna	19.75	73035	17

Crop	Variety	Quantity (q.)	Value (Rs.)	Beneficiaries
Wheat	Pusa Tejas	56.4	244600	45
Wheat	Ratan	214.16	403967	44
Wheat	HD-2932	1.2	4800	3
Wheat	JW 3173	2.69	10760	7
Wheat	HI 1544	2.4	9600	3
Wheat	JW 17	3.6	14400	6
Wheat	MP- 3211	4.8	19200	9
Wheat	Sujata	10	30000	6
Maize	Africon Tall	3	9000	20
Jowar	COFS- 29	2	6000	10
Commercial Crop				
Potato	Kufri Jyoti	33.42	41888	1
Fibre				
Sunhemp	Local	163	17380	5
Sunhemp	M-19	9.16	47300	45
Flower				
Marigold	Pusa Basanti	1.7	8500	350
Marigold	Pusa Basanti & Pusa Narangi	0.005	2500	300
Fodder				
Deenanath Grass	Local	0.5	4000	0
Medicinal Crop				
Tulsi	Ocimum(Rama tulsi)	10	180000	0
Oilseed				
Linseed	Indira Alsi-32	0.34	1870	
Linseed	JLS 66	2.4	18907	0
Linseed	JLS 79	15.6	123240	
Linseed	JLS-27	20.66	149054	80
Linseed	RLC-92	22.35	127570	100
Linseed	RLC-132	60	360000	30
Mustard	Giriraj	2.3	23000	44
Mustard	Pusa Mustard- 28	1.72	17200	136
Mustard	Pusa Tarak	1.3	13000	53
Mustard	Pusa Mustard- 30	0.52	5200	11
Mustard	PM-25	8.5	35700	392
Mustard	CG Sarson	47.52	220421	260
Mustard	IJ- 31	10.87	50382	45
Mustard	NRCHB - 101	4.38	33157	14
Mustard	RH- 749	8.47	40322	54
Mustard	RVM-2	25.41	161231	419
Niger	JNC 9	4.9	67620	0
Sesamum	TKG-306	0.07	336	0
Sesamum	TKG-308	0.8	8640	25
Sesamum	RT 351	1.12	22400	29
Sesamum	RT 346	0.5	1000	16
Sesamum	TKG-21	0.93	18600	28
Soybean	JS 20-116	4.5	52312.5	0
Soybean	JS 20-29	154.36	1526081	85
Soybean	JS 2029 &JS 20-98	20	220000	0

Crop	Variety	Quantity (q.)	Value (Rs.)	Beneficiaries
Soybean	JS 20-98	135.8	1578675	0
Soybean	JS 335	90	1001250	0
Soybean	JS 93-05	21	115500	0
Soybean	JS 95-60	484.4	4723150	257
Soybean	JS-2034	251.69	2101231.5	36
Soybean	JS-2069	272.05	3084111.5	50
Soybean	JS-97-52	157.92	861873	0
Soybean	RVS 2001-4	858.77	7645087	502
Soybean	RVS-24	185	2077125	2
Soybean	RVS-18	18	209250	0
Soybean	RVS-24, RVS-2001-04	160	1840000	210
Soybean	J.S-20-29	34	360000	60
Soybean	CG SOYA-1	12	132000	20
Groundnut	Dhrani	10	60000	20
Pulses				
Black gram	Indira urd -1	18.58	101360	257
Black gram	Mash-479	3	16800	25
Black gram	Pratap Urd 1	254	2023000	2000
Black gram	PU-1	83.92	1085792	0
Black gram	PU-31	10.66	214920	10
Black gram	IPU 94-1	2.26	27120	28
Black gram	Azad-1	0.56	10800	18
Black gram	PU-40	1.16	13920	23
Black gram	Birsa urd	2	11400	25
Chickpea	JAKI -9218	229	2726800	38
Chickpea	JAKI-9218 (CI),JAKI-9218 (CII),JG-14	1034	5480000	0
Chickpea	JG – 130	8.05	40250	0
Chickpea	JG 11	26	926880	0
Chickpea	JG 12	1915.55	15763488	4676
Chickpea	JG 12, RVG 201	175.8	1133910	200
Chickpea	JG-14	394.63	2258007.2	520
Chickpea	JG-16	14.21	153468	0
Chickpea	JG-6	6.81	40860	7
Chickpea	Kripa	6.3	56700	13
Chickpea	PKV-4	5.15	46350	13
Chickpea	RVG 201	18	189000	8
Chickpea	RVG 201. RVG-202	148	1835200	195
Chickpea	RVG- 202	974.2	10905703	646
Chickpea	RVG 203	341.4	4095200	0
Chickpea	Vaibhav	240.6	683640	161
Fieldpea	Paras	67.32	473520	0
Green gram	HUM-16	11.38	72710	89
Green gram	IPM 2-3	0.9	10800	18
Lathyrus	Mahatiwda	7.37	0	0
Lathyrus	Prateek	14.3		0
Lentil	IPL 316	3	16000	12
Lentil	RVL 11-6	4.55	52894	91

Crop	Variety	Quantity (q.)	Value (Rs.)	Beneficiaries
Pigeon Pea	Asha	3	18144	1
Pigeon Pea	ICPH-151	12.17	200805	0
Pigeon Pea	JKM 189	7	115200	700
Pigeon Pea	P-992	2	17480	
Pigeon Pea	Rajeev Lochan	19.2	131760	60
Pigeon Pea	TJT-501	263.43	2310260	1011
Spice				
Coriander	CG-1	8.04	2650	0
Coriander	Pant Haritma	0.31	7816.5	50
Fennel	AF-2	5	75000	7
Fenugreek	RMT-1	1.45	435	2
Fenugreek	PEB, Kasuri methi	0.03	300	3
Garlic	G-282	3.5	55750	3
Garlic	G 282, G 313	0.61	6100	44
Ginger	Suprabha	50	200000	10
Turmeric	Roma	90	360000	12
Turmeric	Pant Pitambh	0.37	3700	6
Chillies	Kashi Anmol 2, Pusa Sada Bahar	0.047	14100	129
Vegetables				
Bottle Guard	Narendra Rashmi	3.1	6050	320
Bottle Guard	Pusa naveen/Smridhi/ Narendra Shivani	0.0072	720	35
Broccoli	Hybrid	1.5	3000	125
Capsicum	Indira	3.17	14145	0
Cucumber	Pusa Barkha	2.75	8250	80
Cucumber	Rijwan	2.52	2500	100
Dolichos Bean	Ganesh, Pawan	20.784	1566.1	42
Drumstick	PKM-1	0.154	30800	15
Fenugreek	RMT-305	0.2	66	2
Okra	VRO-6	14.8	19325	20
Okra	Kashi Pragati,	0.64	19200	126
Pea	Arkel	0.15	49.5	1
Pumpkin	Pusa Samrat	0.083	141	20
Pumpkin	Azad Harit	0.003	300	30
Spinach	All Green	1.28	7215	123
Sponge guard	Pusa Sneh	0.533	916	100
Sponge guard	Vasundhara	0.8	3000	100
Sponge guard	S-1	0.005	500	50
Tomato	Him Shiikhar	5.955	9338	0
Tomato	Kashi Anmol	0.036	10770	270
Brinjal	NB 2	0.014	4170	138
Radish	Japanese white/VRR-1	0.23	8050	117
Onion	Agri Found Light Red	0.48	33600	48
Grand Total		**18224.69**	**119158305.3**	**24633**

Table 5.4.1: Status of seed production in Chhattisgarh

Crop	Variety	Quantity (q.)	Value (Rs.)	Beneficiaries
Cereal				
Finger Millet	C.G-02	10	30000	1
Finger Millet	Chhattisgarh Ragi 1	14.32	37960	78
Finger Millet	ML-365	1.23	3075	0
Kutki	Local	15	30000	1
Oat	Kent	20	123600	6
Paddy	Badshah Bhog Sel. -1	7.019	15441	0
Paddy	Chandrahasini	130	295757.5	235
Paddy	CR-310	11.6	19350	0
Paddy	Dubraj	96.85	257695	64
Paddy	Durgeshwari	64	196800	1
Paddy	IGKV R-1	841.08	2010117	182
Paddy	Indira aerobic	17	36550	1
Paddy	Mahamaya	17	42500	10
Paddy	Maheshwari	165.6	331200	0
Paddy	Rajeshwari	915.9	1840390	1
Paddy	Samleshwari	196.94	443502	17
Paddy	MTU-1010	554.15	1313548.75	258
Paddy	IGKV-R2	36	127300	47
Paddy	Mukul-311	4	16000	10
Paddy	C.G Sugandhi Dhan-1	42	92400	12
Paddy	Vishanubhog	8.14	19908	2
Wheat	GW-366	250.05	618150	1
Wheat	MP 1203	5.76	14400	18
Wheat	Ratan	214.16	403967	44
Wheat	Sujata	10	30000	6
Maize	African Tall	3	9000	20
Jowar	COFS- 29	2	6000	10
Commercial Crop				
Potato	Kufri Jyoti	33.42	41888	1
Fodder				
Deenanath Grass	Local	0.5	4000	0
Oilseed				
Linseed	Indira Alsi-32	0.34	1870	
Linseed	RLC-92	22.35	127570	100
Linseed	RLC-132	60	360000	30
Mustard	PM-25	8.5	35700	392
Mustard	CG Sarson	47.52	220421	260
Sesamum	TKG-306	0.07	336	0
Sesamum	TKG-308	0.8	8640	25
Soybean	JS 20-29	58.72	601880	75
Soybean	JS 93-05	21	115500	0
Soybean	JS-97-52	157.92	861873	0
Soybean	RVS 2001-4	10.97	43800	20
Soybean	J.S-20-29	34	360000	60
Soybean	CG SOYA-1	12	132000	20
Groundnut	Dhrani	10	60000	20

Crop	Variety	Quantity (q.)	Value (Rs.)	Beneficiaries
Pulses				
Black gram	Indira Urd -1	18.58	101360	257
Black gram	Mash-479	3	16800	25
Black gram	Birsa urd	2	11400	25
Chickpea	JAKI-9218 (CI),JAKI-9218 (CII),JG-14	1034	5480000	0
Chickpea	JG-14	70.4	302720	0
Chickpea	Vaibhav	240.6	683640	161
Fieldpea	Paras	67.32	473520	0
Green gram	HUM-16	11.38	72710	89
Lathyrus	Mahatiwda	7.37	0	0
Lathyrus	Prateek	14.3		0
Pigeonpea	Asha	3	18144	1
Pigeonpea	Rajeev Lochan	19.2	131760	60
Pigeonpea	TJT-501	1.99	0	0
Spice				
Coriander	CG-1	8.04	2650	0
Coriander	Pant Haritma	0.05	16.5	1
Fennel	AF-2	5	75000	7
Ginger	Suprabha	50	200000	10
Turmeric	Roma	90	360000	12
Vegetables				
Methi	RMT-305	0.2	66	2
Pea	Arkel	0.15	49.5	1
Grand Total		**5777.49**	**19269925.25**	**2679**

Table 5.4.2: Status of seed production in Madhya Pradesh

Crop	Variety	Quantity (q.)	Value (Rs.)	Beneficiaries
Cereal				
Barley	BH 959	0.83	1630	1
Barley	JB-58	24.12	148338	0
Kodo	JK 137	13.6	70720	0
Kodo	JK 41	1.8	9360	0
Kodo	-	0.96	9600	39
Kutki	JK 4	4.8	24960	0
Kutki	JK 8	1.6	8320	0
Paddy	IR 36	270	1215000	0
Paddy	IR-64	336.9	2066862	16
Paddy	JR-767	30	184500	0
Paddy	JR-81	923.3	5672390	2598
Paddy	Kranti	183	433815	1
Paddy	Pusa Sugandha-4	125	400000	0
Paddy	PUSA-1637	14	161700	0
Paddy	Unnat Jeerasankar	60.15	711382	1250
Paddy	UnnatChhinor	42	504000	1000
Paddy	JR-767	3.7	14800	12
Paddy	Swarna shreya	1.65	6600	5
Paddy	MTU-1010	192.58	1322370	1502

Crop	Variety	Quantity (q.)	Value (Rs.)	Beneficiaries
Paddy	Pant Dhan 10	5.7	22800	17
Paddy	Pant sungandh -27	5.47	38290	52
Paddy	Pant Basmati 1	3.89	27230	32
Wheat	C- 306	50.34	326339.8	0
Wheat	GW322	13.46	53840	18
Wheat	GW-366	17.4	51432	24
Wheat	GW-451	10	30000	0
Wheat	HI- 3787	14.79	35860	17
Wheat	HI1531	190	567620	8
Wheat	HI-1605	40.9	124360	34
Wheat	JW 3211	544.78	3152652	0
Wheat	JW 3288	979.22	6944345.4	26
Wheat	JW 3382	377.96	2008683	143
Wheat	Lok-1	10	12600	5
Wheat	MP 1203	55	358600	32
Wheat	Poshan	56.2	138571	34
Wheat	Purna	19.75	73035	17
Wheat	Pusa Tejas	56.4	244600	45
Wheat	HD-2932	1.2	4800	3
Wheat	JW 3173	2.69	10760	7
Wheat	HI 1544	2.4	9600	3
Wheat	JW 17	3.6	14400	6
Wheat	MP 3211	4.8	19200	9
Fibre				
Sumhemp	Local	163	17380	5
sumhemp	M-19	9.16	47300	45
Flower				
Marigold	Pusa Basanti	1.7	8500	350
Marigold	Pusa Basanti & Pusa Narangi	0.005	2500	300
Medicinal Crop				
Tulsi	Ocimum (Rama Tulsi)	10	180000	0
Oilseed				
Linseed	JLS 66	2.4	18907	0
Linseed	JLS 79	15.6	123240	
Linseed	JLS-27	20.66	149054	80
Mustard	Giriraj	2.3	23000	44
Mustard	Pusa Mustard- 28	1.72	17200	136
Mustard	Pusa Tarak	1.3	13000	53
Mustard	Pusa Mustard- 30	0.52	5200	11
Mustard	IJ- 31	10.87	50382	45
Mustard	NRCHB - 101	4.38	33157	14
Mustard	RH- 749	8.47	40322	54
Mustard	RVM-2	25.41	161231	419
Niger	JNC 9	4.9	67620	0
Sesamum	RT 351	1.12	22400	29
Sesamum	RT 346	0.5	1000	16
Sesamum	TKG-21	0.93	18600	28
Soybean	JS 20-116	4.5	52312.5	0

Crop	Variety	Quantity (q.)	Value (Rs.)	Beneficiaries
Soybean	JS 20-29	95.64	924201	10
Soybean	JS 2029 & JS 20-98	20	220000	0
Soybean	JS 20-98	135.8	1578675	0
Soybean	JS 335	90	1001250	0
Soybean	JS 95-60	484.4	4723150	257
Soybean	JS-2034	251.69	2101231.5	36
Soybean	JS-2069	272.05	3084111.5	50
Soybean	RVS 2001-4	847.8	7601287	482
Soybean	RVS 24	185	2077125	2
Soybean	RVS-18	18	209250	0
Soybean	RVS-24, RVS-2001-04	160	1840000	210
Pulses				
Black gram	Pratap Urd 1	254	2023000	2000
Black gram	PU-1	83.92	1085792	0
Black gram	PU-31	10.66	214920	10
Black gram	IPU 94-1	2.26	27120	28
Black gram	Azad-1	0.56	10800	18
Black gram	PU-40	1.16	13920	23
Chickpea	JAKI -9218	229	2726800	38
Chickpea	JG – 130	8.05	40250	0
Chickpea	JG 11	26	926880	0
Chickpea	JG 12	1915.55	15763488	4676
Chickpea	JG 12, RVG 201	175.8	1133910	200
Chickpea	JG-14	324.23	1955287.2	520
Chickpea	JG-16	14.21	153468	0
Chickpea	JG-6	6.81	40860	7
Chickpea	Kripa	6.3	56700	13
Chickpea	PKV-4	5.15	46350	13
Chickpea	RVG 201	18	189000	8
Chickpea	RVG 201. RVG-202	148	1835200	195
Chickpea	RVG- 202	974.2	10905703	646
Chickpea	RVG 203	341.4	4095200	0
Green gram	IPM 2-3	0.9	10800	18
Lentil	IPL 316	3	16000	12
Lentil	RVL 11-6	4.55	52894	91
Pigeonpea	ICPH-151	12.17	200805	0
Pigeonpea	JKM 189	7	115200	700
Pigeonpea	P-992	2	17480	
Pigeonpea	TJT-501	261.44	2310260	1011
Spice				
Coriander	Pant Haritma	0.26	7800	49
Fenugreek	RMT-1	1.45	435	2
Fenugreek	PEB, Kasuri methi	0.03	300	3
Garlic	G-282	3.5	55750	3
Garlic	G 282, G 313	0.61	6100	44
Turmeric	Pant Pitambh	0.37	3700	6
Chillies	Kashi Anmol 2, Pusa Sada Bahar	0.047	14100	129

Crop	Variety	Quantity (q.)	Value (Rs.)	Beneficiaries
Vegetables				
Bottle Guard	Narendra Rashmi	3.1	6050	320
Bottle Guard	Pusa naveen/Smridhi/ Narendra Shivani	0.0072	720	35
Broccoli	Hybrid	1.5	3000	125
Capsicum	Indira	3.17	14145	0
Cucumber	Pusa Barkha	2.75	8250	80
Cucumber	Rijwan	2.52	2500	100
Dolichos Bean	Ganesh, Pawan	20.784	1566.1	42
Drumstick	PKM-1	0.154	30800	15
Okra	VRO-6	14.8	19325	20
Okra	Kashi Pragati,	0.64	19200	126
Pumpkin	Pusa Samrat	0.083	141	20
Pumpkin	Azad Harit	0.003	300	30
Spinach	All Green	1.28	7215	123
Sponge guard	Pusa Sneh	0.533	916	100
Sponge guard	Vasundhara	0.8	3000	100
Sponge guard	S-1	0.005	500	50
Tomato	Him Shiikhar	5.955	9338	0
Tomato	Kashi Anmol	0.036	10770	270
Brinjal	NB 2	0.014	4170	138
Radish	Japanese white/VRR-1	0.23	8050	117
Onion	Agri Found Light Red	0.48	33600	48
Grand Total		**12447.196**	**99888380**	**21954**

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

Crop Category	Crop	Nos.	Value (Rs.)	Provided to no. of Farmers
Aquatic crop	Makhana	32000	32000	14
Aquatic crop	Waterchest nut	40000	40000	11
Fruits	Almond	2	20	1
Fruits	Aonla	666	13560	194
Fruits	Banana	105	2100	7
Fruits	Bael	37	925	
Fruits	Ber	200	4000	40
Fruits	Citrus	2242	70200	150
Fruits	Custard apple	6638	99587	530
Fruits	Dragon fruit	32	640	4
Fruits	Fig	1000	40000	35
Fruits	Guava	9020	259695	986
Fruits	Jack fruit	51202	2024285	5981
Fruits	Jamun	2474	40340	194
Fruits	Karonda	57435	567910	5961
Fruits	Lemon	1404	50480	280
Fruits	Lime	1664	72250	50
Fruits	Litchi	1100	45000	33
Fruits	Mango	6801	249230	1429
Fruits	Orange	1046	41150	48
Fruits	Papaya	132129	2407067	8682
Fruits	Pear	5000	10000	
Fruits	Pomegranate	701	25680	111

Crop Category	Crop	Nos.	Value (Rs.)	Provided to no. of Farmers
Fruits	Straw Berry	500	40000	22
Fruits	Sweet Orange	150	6000	
Fruits	Jamun, Sitaphal,Jackfruit, Lemon, Karonda,, Forest Plants	6472	176045	54
Fruits	Mango graft	27	1050	7
Fruits	Lemon Budded	298	11920	206
Flower & Fruits	Tulsi, Gulab, gudhal, chandni, mogra, anola, anjir, Karonda Sitafal, Neem, Bel, Badam, Lime, Jamun, Mango, Guava, Papita, Drumstic, etc.	3441	44630	450
Fruits	Bael	20	400	18
Fruits	Date, palm	3	120	3
Other	Mushroom spawn	2.1	210	
Spice	Turmeric (in kg)	175	17500	10
Spice	Curry Leaf	58	1165	36
Vegetable	Bittergourd	3050	6500	60
Vegetable	Bottelgourd	4050	8500	60
Vegetable	Brinjal	463880	279048	9497
Vegetable	Broccoli	51400	53800	93
Vegetable	Cabbage	168192	115198	2283
Vegetable	Cauliflower	624886	107814	2027
Vegetable	Chili, Tomato, Cabbage, Knolkhol	83500	41750	111
Vegetable	Chilli	456775	354755	11711
Vegetable	Cucumber	2050	4500	60
Vegetable	Cucurbits	1699	7695	300
Vegetable	Drumstick	20975	24550	2468
Vegetable	Fenugreek (Green Leaf)	40	200	
Vegetable	Knolkhol	10500	7250	470
Vegetable	Okra	2000	4000	50
Vegetable	Onion	612141	313818.5	502
Vegetable	Potato	286	1430	
Vegetable	Tomato	1181105	525887	13644
Vegetable	Tomato, Brinjal and marigold	2000	2000	100
Vegetable	Watermelon	10000	16000	20
Vegetable	Tomato, Brinjal, Chilli, Onion, Cabbage, Cauliflower, Bottle Gourd,lady finger	414982	314982	478
Vegetable	Red Cabbage	1800	1800	202
Vegetable	Capsicum	660	3300	150
Plantation	Coconut	25	500	5
Plantation	Drumstick	139695	2406420	8842
Plantation	Karanj	454	6640	197
Plantation	Kesij Sama	314	3140	182
Plantation	Neem	333	3765	162
Plantation	Teak	176	2250	76
Forest Species	Amaltas	4	40	3
Forest Species	Bamboo	520	5200	118
Forest Species	Bargad	5	125	
Forest Species	Gulmohar	245	2450	102
Forest Species	Neem	710	160	35
Forest Species	Sesam	537	10740	261
Forest Species	Shami	37	1270	

Crop Category	Crop	Nos.	Value (Rs.)	Provided to no. of Farmers
Forest Species	Silver Oak	3000	6000	
Forest Species	Sulagana fali	600	12000	120
Forest Species	Peepal (Ficus)	58	1200	25
Forest Species	Acacia senegal(Kumut)	5	130	
Forest Species	Eucalyptus	12	240	3
Forest Species	Chironjee	12	300	12
Forest Species	Shisham	38	570	16
Ornamental plants	Ashok	364	5280	140
Ornamental plants	Bamboo	2000	20000	200
Ornamental plants	Duranta	3416	17080	232
Ornamental plants	Eklipha	1000	5000	11
Ornamental plants	Gaillardia	8000	1200	810
Ornamental plants	Gladiolus	2500	7500	8
Ornamental plants	Gudhal	4	85	1
Ornamental plants	Gulmohar	240	4800	22
Ornamental plants	Har Shringar	6	60	2
Ornamental plants	Marigold	157055	199855.5	979
Ornamental plants	Rajnigandha	580	1700	9
Ornamental plants	Rose	59	1243	22
Ornamental plants	Seasonal	2000	20000	100
Ornamental plants	Zinia	5000	2500	25
Ornamental plants	Mongra	1	5	1
Ornamental plants	Manokamani	41	820	21
Ornamental plants	Chandani	110	2200	76
Ornamental plants	Chameli	96	1920	40
Ornamental plants	Croton	239	5975	161
Ornamental plants	Bottle palm	38	1140	20
Ornamental plants	Gurhal	90	1800	52
Ornamental plants	Kanair	17	340	13
Ornamental plants	Jasmin	13	260	13
Fodder	Napier Grass	213000	245000	20085
Grand Total		**5022664**	**11598840**	**103035**

Table 5.7.1: Status of Planting Material production in Chhattisgarh

Crop Category	Crop	Nos.	Value (Rs)	Provided to no. of Farmers
Aquatic crop	Makhana	32000	32000	14
Aquatic crop	Waterchest nut	40000	40000	11
Fruits	Banana	105	2100	7
Fruits	Citrus	1400	52000	41
Fruits	Custard apple	300	6000	20
Fruits	Dragon fruit	32	640	4
Fruits	Fig	1000	40000	35
Fruits	Guava	4815	169300	233
Fruits	Jackfruit	50302	2003540	5637
Fruits	Jamun	400	9500	15
Fruits	Karonda	57000	560000	5651
Fruits	Lemon	1000	40000	16
Fruits	Lime	300	6000	
Fruits	Litchi	1100	45000	33
Fruits	Mango	5450	215100	855

Crop Category	Crop	Nos.	Value (Rs)	Provided to no. of Farmers
Fruits	Orange	1000	40000	18
Fruits	Papaya	107750	2129500	7148
Fruits	Pear	5000	10000	-
Fruits	Pomegranate	500	19000	50
Fruits	Straw berry	500	40000	22
Vegetable	Bittergourd	3000	6000	50
Vegetable	Bottlegourd	4000	8000	50
Vegetable	Brinjal	277500	136750	8104
Vegetable	Cabbage	79000	25750	1370
Vegetable	Cauliflower	523000	15500	944
Vegetable	Chilli	155300	107850	7895
Vegetable	Cucumber	2000	4000	50
Vegetable	Drumstick	20000	0	2000
Vegetable	Knolkhol	10500	7250	470
Vegetable	Okra	2000	4000	50
Vegetable	Onion	60000	30000	29
Vegetable	Tomato	666000	132250	9833
Vegetable	Tomato, Brinjal, Chilli, Onion, Cabbage, Cauliflower, Bottle Gourd,lady finger	200000	100000	271
Plantation	Coconut	25	500	5
Plantation	Drumstick	104130	2070460	7466
Plantation	Karanj	210	4200	31
Forest Species	Silver Oak	3000	6000	-
Forest Species	Neem	700	10	32
Ornamental plants	Ashok	200	2000	50
Ornamental plants	Duranta	2500	12500	15
Ornamental plants	Eklipha	1000	5000	11
Ornamental plants	Gulmohar	240	4800	22
Ornamental plants	Marigold	62500	59500	122
Ornamental plants	Rajnigandha	400	800	8
Ornamental plants	Zinia	5000	2500	25
Grand Total		**2492159**	**8205300**	**58713**

Table 5.7.2: Status of Planting Material production in Madhya Pradesh

Crop Category	Crop	Nos.	Value (Rs)	Provided to no. of Farmers
Fruits	Almond	2	20	1
Fruits	Aonla	666	13560	194
Fruits	Bael	37	925	
Fruits	Ber	200	4000	40
Fruits	Citrus	842	18200	109
Fruits	Custard apple	6338	93587	510
Fruits	Guava	4205	90395	753
Fruits	Jack Fruit	900	20745	344
Fruits	Jamun	2074	30840	179
Fruits	Karonda	435	7910	310
Fruits	Lemon	404	10480	264
Fruits	Lime	1364	66250	50
Fruits	Mango	1351	34130	574
Fruits	Orange	46	1150	30
Fruits	Papaya	24379	277567	1534

Crop Category	Crop	Nos.	Value (Rs)	Provided to no. of Farmers
Fruits	Pomegranate	201	6680	61
Fruits	Sweet Orange	150	6000	
Fruits	Jamun, Sitaphal,Jackfruit, Lemon, Karonda	6472	176045	54
Fruits	Mango graft	27	1050	7
Fruits	Lemon Budded	298	11920	206
Fruits	Bael	20	400	18
Fruits	Date, palm	3	120	3
Flower &Fruits	Tulsi, gulab, gudhal, chandni, mogra, anola, anjir, karonda sitafal, neem, bael, badam, lime, jamun, mango, guava, papita, drumstic, etc.	3441	44630	450
Other	Mushroom Spawn	2	210	
Spice	Turmeric (in kg)	175	17500	10
Spice	Curry Leaf	58	1165	36
Vegetable	Bittergourd	50	500	10
Vegetable	Bottelgourd	50	500	10
Vegetable	Brinjal	186380	142298	1393
Vegetable	Broccoli	51400	53800	93
Vegetable	Cabbage	89192	89448	913
Vegetable	Cauliflower	101886	92314	1083
Vegetable	Chili, tomato, cabbage, knolkhol	83500	41750	111
Vegetable	Chilli	301475	246905	3816
Vegetable	Cucumber	50	500	10
Vegetable	Cucurbits	1699	7695	300
Vegetable	Drumstick	975	24550	468
Vegetable	Fenugreek (Green Leaf)	40	200	
Vegetable	Onion	552141	283818.5	473
Vegetable	Potato	286	1430	
Vegetable	Tomato	515105	393637	3811
Vegetable	Tomato, Brinjal,Marigold	2000	2000	100
Vegetable	Watermelon	10000	16000	20
Vegetable	Tomato, brinjal, chilli, onion, cabbage, cauliflower, bottle gourd, okra	214982	214982	207
Vegetable	Red cabbage	1800	1800	202
Vegetable	Capsicum	660	3300	150
Plantation	Drumstick	35565	335960	1376
Plantation	Karanj	244	2440	166
Plantation	Kesij Sama	314	3140	182
Plantation	Neem	333	3765	162
Plantation	Teak	176	2250	76
Forest Species	Amaltas	4	40	3
Forest Species	Bamboo	520	5200	118
Forest Species	Bargad	5	125	
Forest Species	Gulmohar	245	2450	102
Forest Species	Neem	10	150	3
Forest Species	Sesam	537	10740	261
Forest Species	Shami	37	1270	
Forest Species	Sulagana fali	600	12000	120

Crop Category	Crop	Nos.	Value (Rs)	Provided to no. of Farmers
Forest Species	Peepal (Ficus)	58	1200	25
Forest Species	Acacia senegal(Kumut)	5	130	
Forest Species	Eucalyptus	12	240	3
Forest Species	Chironjee	12	300	12
Forest Species	Shisham	38	570	16
Ornamental plants	Ashok	164	3280	90
Ornamental plants	Bamboo	2000	20000	200
Ornamental plants	Duranta	916	4580	217
Ornamental plants	Gaillardia	8000	1200	810
Ornamental plants	Gladiolus	2500	7500	8
Ornamental plants	Gudhal	4	85	1
Ornamental plants	Har Shringar	6	60	2
Ornamental plants	Marigold	94555	140355.5	857
Ornamental plants	Rajnigandha	180	900	1
Ornamental plants	Rose	59	1243	22
Ornamental plants	Seasonal	2000	20000	100
Ornamental plants	Mongra	1	5	1
Ornamental plants	Manokamani	41	820	21
Ornamental plants	Chandani	110	2200	76
Ornamental plants	Chameli	96	1920	40
Ornamental plants	Croton	239	5975	161
Ornamental plants	Bottle palm	38	1140	20
Ornamental plants	Gurhal	90	1800	52
Ornamental plants	Kanair	17	340	13
Ornamental plants	Jasmin	13	260	13
Fodder	Napier Grass	213000	245000	20085
Grand Total		**2530505**	**3393540**	**44322**

Production of Bio-products

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

Category	Name of the Product	Qty (in Kg)	Qty (in No)	Value (Rs)	Provided to no. of Farmers
Bio Agents	Bio digestor	110	-	32340	100
Bio Agents (Tricho card)	Trichoderma viride	63	6	7560	25
Earthworms	Earthworms	618	0	467500	27
Earthworms	Eisenia foetida	395	22	75600	20104
Bio Fertilizers	Acetobactor	269	150	286900	1362
Bio Fertilizers	Aspergillius	90	90	18000	90
Bio Fertilizers	Azatobactor	735	315	157900	528
Bio Fertilizers	Azolla	4148.5	238	198930	632
Bio Fertilizers	Azospirillum	140	140	31300	115
Bio Fertilizers	Biofertisol	37	37	11877	37
Bio Fertilizers	Compost	59700		293500	61
Bio Fertilizers	Earthworms	1954.83	-	800537	582
Bio Fertilizers	NADEP	155700	42	579500	20
Bio Fertilizers	Phosphate solublizing Bacteria (PSB)	6142	1255	1069478	4020
Bio Fertilizers	Potash solublizing Bacteria (KSB)	412	412	106428	227

Category	Name of the Product	Qty (in Kg)	Qty (in No)	Value (Rs)	Provided to no. of Farmers
Bio Fertilizers	Rhizobium	1599	779	580792	2870
Bio Fertilizers	VAM	25	25	5000	10
Bio Fertilizers	Rhizobium, PSB, Azotobacter	110	120	0	0
Bio Fertilizers	Vermicompost	976129	9328	2841436	488350
Bio Fertilizers	Zinc solublizing Bacteria (ZSB)	412	412	121128	217
Bio Fertilizers	Other (Jiwamrut + waste dicomposer)	800	0	8000	0
Bio Fertilizers	Other(bio decomposer)	609	36	166124	91
Bio Pesticides	Beauveria bassiana	1325	1315	420500	850
Bio Pesticides	Metarhizium anisopliae	744	744	520800	895
Bio Pesticides	Neem extract	140		21000	110
Bio Pesticides	Panchagavya	100		10000	30
Bio Pesticides	Pseudomonas fluorescens	1275	1275	409275	734
Bio Pesticides	Trichoderma viride	18771	2832	2562508	4865
Bio Pesticides	Verticillium	32	32	22400	32
Bio Pesticides	Tobacco extract	40		110	110
Bio Pesticides	Trichoderma viride (mixed with vermicompost)	342	0	20520	24
Bio-Food	Honey	270	250	1005200	25
Others	Cow dung (dry)	314750	0	107900	13
Others	Mineral Mixture	15500		31000	
Others	Mushroom spawn	1382.7	232	190699	532
Grand Total		**1564870**	**20242**	**13181742**	**527688**

Table 5.10.1: Production of bio-agents, pesticides, fertilizers by KVKs in Chhattishgarh

Category	Name of the Product	Qty (in Kg)	Qty (in No)	Value (Rs)	Provided to no. of Farmers
Bio Agents (Tricho card)	Trichoderma viride	63	6	7560	25
Earthworms	Earthworms	568	0	442500	7
Earthworms	Eisenia foetida	130	18	13200	20040
Bio Fertilizers	Azatobactor	20	0	5000	10
Bio Fertilizers	Azolla	2140.5	17	82180	6
Bio Fertilizers	Compost	2200	0	32500	45
Bio Fertilizers	Earthworms	1245.68	0	627997	380
Bio Fertilizers	NADEP	112000	36	453000	20
Bio Fertilizers	Vermicompost	372981.5	2508	847150	486601
Bio Pesticides	Panchagavya	50		10000	
Bio Pesticides	Trichoderma viride	14789	720	1710740	2021
Bio Pesticides	Trichoderma viride (mixed with vermicompost)	342	0	20520	24
Bio-Food	Honey	270	250	1005200	25
Others	Cow dung (dry)	255600		25000	13
Others	Mineral Mixture	15500		31000	
Others	Mushroom spawn	721.7	232	96699	309
Grand Total		**778621.38**	**3787**	**5410246**	**509526**

Table 5.10.2: Production of bio-agents, pesticides, fertilizers by KVKs in Madhya Pradesh

Category	Name of the Product	Qty (in Kg)	Qty (in No)	Value (Rs)	Provided to no. of Farmers
Bio Agents	Bio digestor	110	110	32340	100
Earthworms	Earthworms	50		25000	20
Earthworms	Eisenia foetida	265	4	62400	64
Bio Fertilizers	Acetobactor	269	150	286900	1362
Bio Fertilizers	Aspergillius	90	90	18000	90
Bio Fertilizers	Azatobactor	715	315	152900	518
Bio Fertilizers	Azolla	2008	221	116750	626
Bio Fertilizers	Azospirillum	140	140	31300	115
Bio Fertilizers	Biofertisol	37	37	11877	37
Bio Fertilizers	Compost	57500	0	261000	16
Bio Fertilizers	Earthworms	709.15	45	172540	202
Bio Fertilizers	NADEP	43700	6	126500	0
Bio Fertilizers	Phosphate solublizing Bacteria (PSB)	6142	1255	1069478	4020
Bio Fertilizers	Potash solublizing Bacteria (KSB)	412	412	106428	227
Bio Fertilizers	Rhizobium	1599	779	580792	2870
Bio Fertilizers	VAM	25	25	5000	10
Bio Fertilizers	Rhizobium, PSB, Azotobacter	110	120	0	0
Bio Fertilizers	Vermicompost	603147.5	6820	1994286	1749
Bio Fertilizers	Zinc solublizing Bacteria (ZSB)	412	412	121128	217
Bio Fertilizers	Other (Jiwamrut + waste dicomposer)	800	0	8000	0
Bio Fertilizers	Other(bio decomposer)	609	36	166124	91
Bio Pesticides	Beauveria bassiana	1325	1315	420500	850
Bio Pesticides	Metarhizium anisopliae	744	744	520800	895
Bio Pesticides	Neem extract	140		21000	110
Bio Pesticides	Panchagavya	50			30
Bio Pesticides	Pseudomonas fluorescens	1275	1275	409275	734
Bio Pesticides	Trichoderma viride	3982	2112	851768	2844
Bio Pesticides	Verticillium	32	32	22400	32
Bio Pesticides	Tobacco extract	40		110	110
Others	Cow dung (dry)	59150	0	82900	0
Others	Mushroom spawn	661	0	94000	223
Grand Total		**786248.65**	**16455**	**7771496**	**18162**

Production of Livestock Materials

Table 5.13: Status of Livestock Production in KVKs in Zone-IX during 2019

Thematic Area	Name of the animal / bird / aquatics	Breed	Type of Produce	Qty. (Number /kg/liter)	Value (Rs)	No. of Beneficiaries
Dairy animals	Breeding bull	Gir	Bull (no.)	2	61000	1
Dairy animals	Breeding bull	Sahiwal	Bull (no.)	4	72000	0
Dairy animals	Buffaloes	Murrah	Milk (Liter)	3615	138507	54
Dairy animals	Calves	Gir	Breeding and selling (no.)	2	7000	1
Dairy animals	Calves	Gir	Calf (no.)	2	5000	

Thematic Area	Name of the animal / bird / aquatics	Breed	Type of Produce	Qty. (Number /kg/liter)	Value (Rs)	No. of Beneficiaries
Dairy animals	Calves	Gir & Frieswal	Calf (no.)	8	40000	
Dairy animals	Calves	H.F Cross	Calf (no.)	6	180000	
Dairy animals	Calves	Sahiwal	Calves (no.)	12	40000	5
Dairy animals	Calves	Sahiwal	Dunk (no.)	14	35000	8
Dairy animals	Calves	Frieswal	Calf (no.)	1	10000	0
Dairy animals	Cow	Desi	Cow Urine (Liter)	510	1530	5
Dairy animals	Cow	Gir	Cow (no.)	6	331000	6
Dairy animals	Cow	Gir	Milk (Liter)	31615.65	1181579	355
Dairy animals	Cow	Gir	Milk, Urine and cow dung (Liter)	3121.9	106726	15
Dairy animals	Cow	Gir & Frieswal	Milk (Liter)	8298.25	223752	48
Dairy animals	Cow	Sahiwal	Cow (no.)	2	40000	2
Dairy animals	Cow	Sahiwal	Milk (Liter)	55060	2234034	774
Dairy animals	Cow	Sahiwal, HF	Milk (Liter)	8074.25	322970	243
Dairy animals	Cow	Sahiwal, HF	Milk product (kg)	37.823	9223	70
Dairy animals	Cow	Holstein Friesian	Milk (Liter)	14751.95	521107	86
Dairy animals	Cow	Holstein Friesian	Vermin Compost (kg)	9000	45000	45
Dairy animals	Cow	Frieshwal	Milk (Liter)	9303.5	250458.5	79
Dairy animals	Cow	Gir & Sahiwal	Milk (Liter)	5270	210800	22
Dairy animals	Goats	Barbari	Buck (kg)	29.6	9765	2
Dairy animals	Goats	Barbari	Meat (kg)	207.44	37340	5
Dairy animals	Goats	Barbari	Kids (no.)	22	198000	5
Dairy animals	Goats	Barbari & Sirohi	Kid (no.)	21	110000	
Dairy animals	Goats	Black bengal	Meat (kg)	110.9	29330	35
Dairy animals	Goats	Jamanapari & Barbari	Adult & Kid (no.)	12	120000	40
Dairy animals	Goats	Jamunapari	Kid (no.)	1	2000	
Dairy animals	Goats	Osmanabadi	Buck (no.)	2	8200	2
Dairy animals	Goats	Osmanabadi	Meat & breeding (kg)	12	2664	0
Dairy animals	Goats	Sirohi	Breeding and selling (no.)	11	86400	11
Dairy animals	Goats	Sirohi	Buck (mail goat) (no.)	5	75000	5
Dairy animals	Goats	Sirohi	Doe and buck (no.)	6	36000	2
Dairy animals	Goats	Sirohi	Dual purpose (no.)	10	100000	0
Dairy animals	Goats	Sirohi	Kid (no.)	23	92000	0
Dairy animals	Goats	Sirohi	Meat (kg)	69	18300	2
Dairy animals	Goats	Sirohi	Urine (Liter)	1450	8700	6
Poultry	Ducks	White pekin	Chick (no.)	4	400	4
Poultry	Ducks	White pekin	Duckligs (no.)	36	1800	0
Poultry	Ducks	White pekin	Meat (kg)	21	6300	16
Poultry	Ducks	White pekin, khakhi campbell	Duckligs (no.)	45	2250	

Thematic Area	Name of the animal / bird / aquatics	Breed	Type of Produce	Qty. (Number /kg/liter)	Value (Rs)	No. of Beneficiaries
Poultry	Ducks	White Cambel	Ckicks (no.)	10	1000	2
Poultry	Japanese quail	Japanese quail	Bird meat (no.)	8600	8600	13
Poultry	Japanese quail	Japanese quail	Chicken (kg)	43	2150	35
Poultry	Japanese quail	Japanese quail	Chicks (no.)	8431	84310	141
Poultry	Japanese quail	Japanese quail	Eggs (no.)	2929	10130	42
Poultry	Poultry	Asil	Chicks (no.)	100	7500	1
Poultry	Poultry	Black Rock	Chicken (kg)	63.2	18960	53
Poultry	Poultry	Desi	Chicks (no.)	680	22500	30
Poultry	Poultry	Kadaknath	Adult (no.)	80	47400	
Poultry	Poultry	Kadaknath	Birds (no.)	3537	2413824	842
Poultry	Poultry	Kadaknath	Breeder, Chicks & Eggs (no.)	5476	566980	245
Poultry	Poultry	Kadaknath	Broiler (no.)	80	5200	50
Poultry	Poultry	Kadaknath	Chicken (kg)	392.743	125260	202
Poultry	Poultry	Kadaknath	Chicks (no.)	87433	5153720	784
Poultry	Poultry	Kadaknath	Chicks & Chicken (no.)	600	76820	325
Poultry	Poultry	Kadaknath	Eggs (no.)	1199	10708	4
Poultry	Poultry	Kadaknath	Meat/ Adult (no.)	80	46740	32
Poultry	Poultry	Kadaknath	Chick & Meat (no.)	700	42000	140
Poultry	Poultry	Vanraja	Birds (no.)	832	67200	22
Poultry	Poultry	Vanraja	Chicken (kg)	53.03	15909	38
Poultry	Turkey	White pekin	Meat (no.)	320	320000	250
Fisheries	Indian major carp	Catla, Rohu, Mrigal	Fingerling (kg)	50	10000	
Fisheries	Indian major carp	Catla, Rohu, Mrigal	Fingerling (no.)	123000	73800	45
Fisheries	Indian major carp	Catla, Rohu, Mrigal	Fish (kg)	126.6	9477	0
Fisheries	Indian major carp	Catla, Rohu, Mrigal	FRY (kg)	100	6000	31
Fisheries	Indian major carp	Rohu, Catla	Fingerling (no.)	5000	2500	0
Fisheries	Indian major carp	Rohu, Catla	Fish (kg)	240	34000	5
Fisheries	Indian major carp	Rohu, Catla	FRY (kg)	22.96	2296	15
Grand Total				**400993.8**	**16196120**	**5301**

Table 5.14: Status of Livestock Production in KVKs under Chhattishgarh during 2019

Thematic Area	Name of the animal / bird / aquatics	Breed	Type of Produce	Qty. (kg/qt/litre)	Value (Rs)	No. of Beneficiaries
Dairy animals	Breeding bull	Gir	Bull (no.)	2	61000	1
Dairy animals	Breeding bull	Sahiwal	Bull (no.)	4	72000	0

Thematic Area	Name of the animal / bird / aquatics	Breed	Type of Produce	Qty. (kg/qt/litre)	Value (Rs)	No. of Beneficiaries
Dairy animals	Cow	Sahiwal	Calves (no.)	8	40000	2
Dairy animals	Cow	Sahiwal/HF	Calves (no.)	4	120000	0
Dairy animals	Cow	Gir	Milk (Liter)	9433.4	365147	125
Dairy animals	Cow	Sahiwal	Cow (no.)	2	40000	2
Dairy animals	Cow	Sahiwal	Milk (Liter)	35230	1458994	336
Dairy animals	Cow	Sahiwal, HF	Milk (Liter)	8074.25	322970	243
Dairy animals	Cow	Sahiwal, HF	Milk product (kg)	37.823	9223	70
Dairy animals	Cow	Gir & Sahiwal	Milk (Liter)	5270	210800	22
Dairy animals	Goats	Barbari	Buck (kg)	29.6	9765	2
Dairy animals	Goats	Barbari	Meat (kg)	207.44	37340	5
Dairy animals	Goats	Black Bengal	Meat (kg)	110.9	29330	35
Dairy animals	Goats	Osmanabadi	Meat & breeding (kg)	12	2664	0
Dairy animals	Goats	Sirohi	Doe and buck (no.)	6	36000	2
Dairy animals	Goats	Sirohi	Kid (no.)	23	92000	0
Dairy animals	Goats	Sirohi	Meat (kg)	69	18300	2
Poultry	Ducks	White pekin	chick (no.)	4	400	4
Poultry	Ducks	White pekin	Duckligs (no.)	36	1800	0
Poultry	Ducks	White pekin	Meat (kg)	21	6300	16
Poultry	Ducks	White pekin, khakhi campbell	Duckligs (no.)	45	2250	
Poultry	Ducks	White Cambel	Ckicks (no.)	10	1000	2
Poultry	Japanese quail	Japanese quail	Bird Meat (no.)	8600	8600	13
Poultry	Japanese quail	Japanese quail	Chicken (kg)	43	2150	35
Poultry	Japanese quail	Japanese quail	Chicks (no.)	8431	84310	141
Poultry	Japanese quail	Japanese quail	Eggs (no.)	2550	2550	5
Poultry	Poultry	Asil	Chicks (no.)	100	7500	1
Poultry	Poultry	Black Rock	Chicken (kg)	63.2	18960	53
Poultry	Poultry	Kadaknath	Birds (no.)	3000	2100000	490
Poultry	Poultry	Kadaknath	Chicken (kg)	359.743	105310	202
Poultry	Poultry	Kadaknath	Chicks (no.)	59041	3202780	639
Poultry	Poultry	Kadaknath	Chicks & Chicken (no.)	600	76820	325
Poultry	Poultry	Kadaknath	Eggs (no.)	641	5128	4
Poultry	Poultry	Kadaknath	Chick & Meat (no.)	700	42000	140
Poultry	Poultry	Vanraja	Chicken (kg)	53.03	15909	38
Poultry	Turkey	White pekin	Meat (no.)	320	320000	250
Fisheries	Indian major carp	Catla, Rohu, Mrigal	Fingerling (kg)	50	10000	
Fisheries	Indian major carp	Catla, Rohu, Mrigal	Fingerling (no.)	123000	73800	45
Fisheries	Indian major carp	Catla, Rohu, Mrigal	Fish (kg)	126.6	9477	0
Fisheries	Indian major carp	Catla, Rohu, Mrigal	FRY (kg)	100	6000	31
Fisheries	Indian major carp	Rohu, Catla	Fingerling (no.)	5000	2500	0

Thematic Area	Name of the animal / bird / aquatics	Breed	Type of Produce	Qty. (kg/qt/litre)	Value (Rs)	No. of Beneficiaries
Fisheries	Indian major carp	Rohu, Catla	Fish (kg)	240	34000	5
Fisheries	Indian major carp	Rohu, Catla	FRY (kg)	22.96	2296	15
Grand Total				**271680.95**	**9067373**	**3301**

Table 5.15: Status of Livestock Production in KVKs under Madhya Pradesh during 2019

Thematic Area	Name of the animal / bird / aquatics	Breed	Type of Produce	Qty. (kg/qt/litre)	Value (Rs)	No. of Beneficiaries
Dairy animals	Buffaloes	Murrah	Milk (Liter)	3615	138507	54
Dairy animals	Cow	Gir	Breeding and selling (no.)	2	7000	1
Dairy animals	Cow	Gir	Calf (no.)	2	5000	
Dairy animals	Cow	Gir & Frieswal	Calf (no.)	8	40000	
Dairy animals	Cow	H.F Cross	Calf (no.)	2	60000	
Dairy animals	Cow	Sahiwal	Calves (no.)	4		3
Dairy animals	Cow	Sahiwal	Dunk (no.)	14	35000	8
Dairy animals	Cow	Frieswal	Calf (no.)	1	10000	0
Dairy animals	Cow	Desi	Cow Urine (Liter)	510	1530	5
Dairy animals	Cow	Gir	Cow (no.)	6	331000	6
Dairy animals	Cow	Gir	Milk (Liter)	22182.25	816432	230
Dairy animals	Cow	Gir	Milk, Urine and cow dung (Liter)	3121.9	106726	15
Dairy animals	Cow	Gir & Frieswal	Milk (Liter)	8298.25	223752	48
Dairy animals	Cow	Sahiwal	Milk (Liter)	19830	775040	438
Dairy animals	Cow	Holstein Friesian	Milk (Liter)	14751.95	521107	86
Dairy animals	Cow	Holstein Friesian	Vermin Compost (kg)	9000	45000	45
Dairy animals	Cow	Frieshwal	Milk (Liter)	9303.5	250458.5	79
Dairy animals	Goats	Barbari	Kids (no.)	22	198000	5
Dairy animals	Goats	Barbari & Sirohi	Kid (no.)	21	110000	
Dairy animals	Goats	Jamanapari & Barbari	Adult & Kid (no.)	12	120000	40
Dairy animals	Goats	Jamunapari	Kid (no.)	1	2000	
Dairy animals	Goats	Osmanabadi	Buck (no.)	2	8200	2
Dairy animals	Goats	Sirohi	Breeding and selling (no.)	11	86400	11
Dairy animals	Goats	Sirohi	Buck (mail goat) (no.)	5	75000	5
Dairy animals	Goats	Sirohi	Dual purpose (no.)	10	100000	0
Dairy animals	Goats	Sirohi	Urine (Liter)	1450	8700	6
Poultry	Japanese quail	Japanese quail	Eggs (no.)	379	7580	37
Poultry	Hen	Desi	Chicks (no.)	680	22500	30
Poultry	Hen	Kadaknath	Adult (no.)	80	47400	
Poultry	Hen	Kadaknath	Birds (no.)	537	313824	352

Thematic Area	Name of the animal / bird / aquatics	Breed	Type of Produce	Qty. (kg/qt/litre)	Value (Rs)	No. of Beneficiaries
Poultry	Hen	Kadaknath	Breeder, Chicks & Eggs (no.)	5476	566980	245
Poultry	Hen	Kadaknath	Broiler (no.)	80	5200	50
Poultry	Hen	Kadaknath	Chicken (kg)	33	19950	
Poultry	Hen	Kadaknath	Chicks (no.)	28392	1950940	145
Poultry	Hen	Kadaknath	Eggs (no.)	558	5580	
Poultry	Hen	Kadaknath	Meat/ Adult (no.)	80	46740	32
Poultry	Hen	Vanraja	Birds (no.)	832	67200	22
Grand Total				**129312.9**	**7128747**	**2000**

6. 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 of Madhya Pradesh and Chhattisgarh analyzed 45206 soil samples benefitting 54554 farmers of 4912 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 samples tested are given in Table 6.

Table 6: Summary of soil samples tested by the KVKs in Zone-IX during 2019

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 benefitted		Total	Village Covered
			Through Mini Soil Testing kit/labs	Through Soil testing laboratory		Through Mini Soil Testing kit/labs	Through Soil testing laboratory		Mini Soil Testing kit	Soil testing laboratory		
CG	36	36	6201	674	6875	16607	4231	20838	10419	2699	13118	1514
MP	78	75	21148	17183	38331	22166	22135	44301	23894	17542	41436	3398
Zone-IX	**114**	**111**	**27349**	**17857**	**45206**	**38773**	**26366**	**65139**	**34313**	**20241**	**54554**	**4912**

KVKs of Madhya Pradesh analyzed 75 water samples benefitting 75 farmers of 20 villages (Table 6.1). The KVK wise details of soil and water samples tested are given in Table 6& Table 6.1.

Table 6.1: Summary of water samples tested by the KVKs in Zone-IX during 2019

State	Details	No. of Samples	No. of Farmers	No. of Villages covered
Chhattisgarh	Water Samples	0	0	0
Madhya Pradesh	Water samples	75	75	20
	Total	**75**	**75**	**20**

7. Extension Activities

Transfer of technology holds the key to rapid development and transformation of rural society. Krishi Vigyan Kendras, having districts as their 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 include– (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 field. In all**73565**activities were conducted and **26,59,679** 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 2019

Activity	No. of activities	Details of participants										
		Farmers (Other)		Farmers (SC)		Farmers (ST)		Extension Officials		Total Farmers & Extension personnel		
		M	F	M	F	M	F	M	F	M	F	Total
Agri mobile clinic	137	54198	213	6675	77	536	162	181	36	61590	488	62078
Animal Health Camp	113	7843	473	3190	767	1509	393	348	66	12890	1699	14589
Awareness programme	563	11063	2293	2833	1114	4324	2174	2045	273	20265	5854	26119
Celebration of important days	1019	15628	5948	4553	1928	5915	3174	1142	408	27238	11458	38696
Diagnostic visits	2172	7484	1447	3130	951	3376	1011	803	183	14793	3592	18385
Exhibition	404	41650	9210	12395	3863	16213	7441	2061	628	72319	21142	93461
Exposure visits	328	3914	1576	1960	655	2079	709	343	114	8296	3054	11350
Extension literature	409	28187	3939	13753	2772	9505	3792	1145	253	52590	10756	63346
Ex-trainees Sammelan	136	10546	305	983	211	904	218	187	37	12620	771	13391
Farm advisory Services	2089	32015	8489	5773	1064	17565	3851	481	169	55834	13573	69407
Farmers Seminar/Workshop	13	533	145	490	209	799	111	57	248	1879	713	2592
Farmers visit to KVK	48478	68629	8768	15954	4163	25632	7182	2675	807	112890	20920	133810
Field Day	470	7142	1242	1918	610	4267	1219	602	172	13929	3243	17172
Film Show	773	15662	5086	6712	3191	3733	2793	955	303	27062	11373	38435
Group meetings	518	2849	1169	2150	652	2552	1022	625	186	8176	3029	11205
Interface	3	115	3	25	3	18	0	12	3	170	9	179
Kisan Ghosthi/Sammelan	974	24448	26635	8967	2644	15842	10912	2072	476	51329	40667	91996
Kisan Mela	257	49336	8198	12511	4278	18694	6093	2082	690	82623	19259	101882
Krishi Mahotsav	34	460	606	746	316	1313	440	169	55	2688	1417	4105
Lectures delivered as resource persons	2191	36005	7708	14421	7253	9017	3732	1462	458	60905	19151	80056
Mahila Mandals conveners meetings	240	274	882	126	793	254	693	66	181	720	2549	3269

Activity	No. of activities	Details of participants										
		Farmers (Other)		Farmers (SC)		Farmers (ST)		Extension Officials		Total Farmers & Extension personnel		
		M	F	M	F	M	F	M	F	M	F	Total
Method Demonstrations	467	3400	1006	1429	660	1842	891	370	187	7041	2744	9785
Pradhanmantri phasal beema yojana	160	1522	472	576	308	1691	384	257	69	4046	1233	5279
Scientific visit to farmers field	4690	14498	2745	4779	1338	6817	1875	676	227	26770	6185	32955
Self Help Group conveners meetings	218	1740	951	673	918	803	896	147	82	3363	2847	6210
Soil health Camp	188	2336	472	2061	486	1659	474	487	63	6543	1495	8038
Soil test campaigns	263	4502	672	1788	708	2863	612	292	88	9445	2080	11525
Summer deep ploughing campaigning	17	31	59	25	28	26	0	0	0	82	87	169
Technology Week	5092	6215	1057	2200	769	1689	626	213	83	10317	2535	12852
Advisory Services (KMA)	861	1255457	30502	132822	23736	194838	20434	2012	203	1585129	74875	1660004
Others	288	7858	2756	2777	796	1849	855	336	112	12820	4519	17339
Grand Total	**73565**	**1715540**	**135027**	**268395**	**67261**	**358124**	**84169**	**24303**	**6860**	**2366362**	**293317**	**2659679**

Note: M-Male, F-Female

Table 7.2: Details of extension activities organized by the KVKs of Chhattisgarh during 2019

Activity	No. of activities (Achieved)	Details of participants										
		Farmers (Other)		Farmers (SC)		Farmers (ST)		Extension Officials		Total Farmers & Extension personnel		
		M	F	M	F	M	F	M	F	M	F	Total
Agri mobile clinic	29	147	107	103	32	265	136	76	24	591	299	890
Animal Health Camp	38	594	179	135	44	663	180	128	36	1520	439	1959
Awareness programme	235	1947	703	835	430	808	784	411	92	4001	2009	6010
Celebration of important days	649	1936	851	801	353	2199	1046	348	131	5284	2381	7665
Diagnostic visits	1074	1468	779	1040	502	2126	593	446	127	5080	2001	7081
Exhibition	182	3733	1077	2023	602	5123	2808	449	166	11328	4653	15981
Exposure visits	169	1739	460	584	155	1051	443	99	35	3473	1093	4566
Extension literature	162	4014	1556	5445	1540	6325	2860	364	119	16148	6075	22223
Ex-trainees Sammelan	34	343	104	127	42	276	79	110	14	856	239	1095
Farm advisory Services	308	3377	7345	2314	597	8571	1899	172	84	14434	9925	24359
Farmers visit to KVK	20943	19389	3575	6427	1257	11226	4263	1235	328	38277	9423	47700
Field Day	125	1297	486	622	226	1516	518	308	98	3743	1328	5071
Film Show	201	1553	783	663	219	1256	1665	425	109	3897	2776	6673
Group meetings	210	825	265	461	223	1405	662	463	120	3154	1270	4424
Kisan Ghosthi/Sammelan	510	11453	24450	5176	1783	10578	8952	1137	309	28344	35494	63838
Kisan Mela	169	12867	1781	2214	973	7076	4668	997	487	23154	7909	31063
Krishi Mahotsav	8	152	72	215	146	928	326	107	31	1402	575	1977
Lectures delivered as resource persons	456	2110	690	1605	1664	4889	1642	450	108	9054	4104	13158
Mahila Mandals conveners meetings	39	11	158	8	131	95	172	40	32	154	493	647
Method Demonstrations	224	757	472	621	299	1105	604	233	115	2716	1490	4206

Activity	No. of activities (Achieved)	Details of participants										
		Farmers (Other)		Farmers (SC)		Farmers (ST)		Extension Officials		Total Farmers & Extension personnel		
		M	F	M	F	M	F	M	F	M	F	Total
Pradhanmantri phasal beema yojana	53	169	78	145	60	674	125	131	31	1119	294	1413
Scientific visit to farmers field	2402	1696	542	1371	431	2331	957	286	95	5684	2025	7709
Self Help Group conveners meetings	91	104	383	103	164	208	365	44	34	459	946	1405
Soil health Camp	29	321	78	192	86	462	126	105	19	1080	309	1389
Soil test campaigns	106	240	105	345	232	814	150	118	33	1517	520	2037
Technology Week	32	279	68	105	64	394	174	36	13	814	319	1133
Advisory Services (KMA)	114	325697	25789	28495	12417	36169	12144	496	50	390857	50400	441257
Others	43	819	345	268	128	519	282	101	48	1707	803	2510
Grand Total	**28635**	**399037**	**73281**	**62443**	**24800**	**109052**	**48623**	**9315**	**2888**	**579847**	**149592**	**729439**

Note: M-Male, F-Female

Table 7.3: Details of extension activities organized by the KVKs of Madhya Pradesh during 2019

Activity	No. of activities (Achieved)	Details of participants										
		Farmers (Other)		Farmers (SC)		Farmers (ST)		Extension Officials		Total Farmers & Extension personnel		
		M	F	M	F	M	F	M	F	M	F	Total
Agri mobile clinic	108	54051	106	6572	45	271	26	105	12	60999	189	61188
Animal Health Camp	75	7249	294	3055	723	846	213	220	30	11370	1260	12630
Awareness programme	328	9116	1590	1998	684	3516	1390	1634	181	16264	3845	20109
Celebration of important days	370	13692	5097	3752	1575	3716	2128	794	277	21954	9077	31031
Diagnostic visits	1098	6016	668	2090	449	1250	418	357	56	9713	1591	11304
Exhibition	222	37917	8133	10372	3261	11090	4633	1612	462	60991	16489	77480
Exposure visits	159	2175	1116	1376	500	1028	266	244	79	4823	1961	6784
Extension literature	247	24173	2383	8308	1232	3180	932	781	134	36442	4681	41123
Ex-trainees Sammelan	102	10203	201	856	169	628	139	77	23	11764	532	12296
Farm advisory Services	1781	28638	1144	3459	467	8994	1952	309	85	41400	3648	45048
Farmers Seminar/Workshop	13	533	145	490	209	799	111	57	248	1879	713	2592
Farmers visit to KVK	27535	49240	5193	9527	2906	14406	2919	1440	479	74613	11497	86110
Field Day	345	5845	756	1296	384	2751	701	294	74	10186	1915	12101
Film Show	572	14109	4303	6049	2972	2477	1128	530	194	23165	8597	31762
Group meetings	308	2024	904	1689	429	1147	360	162	66	5022	1759	6781
Interface	3	115	3	25	3	18	0	12	3	170	9	179
Kisan Ghosthi/Sammelan	464	12995	2185	3791	861	5264	1960	935	167	22985	5173	28158
Kisan Mela	88	36469	6417	10297	3305	11618	1425	1085	203	59469	11350	70819
Krishi Mahotsav	26	308	534	531	170	385	114	62	24	1286	842	2128
Lectures delivered as resource persons	1735	33895	7018	12816	5589	4128	2090	1012	350	51851	15047	66898
Mahila Mandals conveners meetings	201	263	724	118	662	159	521	26	149	566	2056	2622
Method Demonstrations	243	2643	534	808	361	737	287	137	72	4325	1254	5579
Pradhanmantri phasal beema yojana	107	1353	394	431	248	1017	259	126	38	2927	939	3866
Scientific visit to farmers field	2288	12802	2203	3408	907	4486	918	390	132	21086	4160	25246

Activity	No. of activities (Achieved)	Details of participants										
		Farmers (Other)		Farmers (SC)		Farmers (ST)		Extension Officials		Total Farmers & Extension personnel		
		M	F	M	F	M	F	M	F	M	F	Total
Self Help Group conveners meetings	127	1636	568	570	754	595	531	103	48	2904	1901	4805
Soil health Camp	159	2015	394	1869	400	1197	348	382	44	5463	1186	6649
Soil test campaigns	157	4262	567	1443	476	2049	462	174	55	7928	1560	9488
Summer deep ploughing campaigning	17	31	59	25	28	26	0	0	0	82	87	169
Technology Week	5060	5936	989	2095	705	1295	452	177	70	9503	2216	11719
Advisory Services (KMA)	747	929760	4713	104327	11319	158669	8290	1516	153	1194272	24475	1218747
Others	245	7039	2411	2509	668	1330	573	235	64	11113	3716	14829
Grand Total	**44930**	**1316503**	**61746**	**205952**	**42461**	**249072**	**35546**	**14988**	**3972**	**1786515**	**143725**	**1930240**

Note: M-Male, F-Female

8. 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 2019

Types of Activities	No. of Activities	Number of Participants
Gosthies	318	13560
Lectures organized	382	10418
Exhibition	184	23459
Film show	370	12956
Fair	49	24259
Farm/ Field Visit	718	33539
Diagnostic Practical's	243	2331
Distribution of Literature (No.)	14685	75905
Distribution of Seed (q)	1034.53	11601
Distribution of Planting materials (No.)	105276	23698
Bio Product distribution (Kg)	99716	10241
Distribution of Bio Fertilizers (q)	482.11	7807
Distribution of fingerlings	630	30105
Distribution of Livestock specimen (No.)	5033	626
Total number of farmers visited the technology week	5178	18841
Animal health camp	85	4348
Awareness programme	141	20741
Demonstration	1103	6587
Exposure visit	156	4402
Ex-trainees Meet	238	5222
Farmer scientist interaction	514	4368
Farmers Training	790	20481
Gajarghans Unmulan Pakhwada	132	6154
Group Meeting	156	3605
Jai Kisan Jai Vigyan Sangoshthi	68	2334
Plant Protection Week	41	1397
Seed treatment campaign	72	2553
Self Help Group convener meet	148	1796
Soil health Camp	52	2517
Swachha Bharat Abhiyan	632	23211
Other Activities		
Cashless Transaction Week	49	3766
Celebration of important days (Parthenium eradication week, Swachhata Abhiyan, International Women Day, National Integrity Day,World Soil Health Day, World environment day, World forestry day, World Water Day)	134	15162
Extension activity	157	3922
Field Day	77	2459
Hindi diwas pakhwada	84	3216
News Paper/Mass Media	275	5347
Scientists visits in farmers field	613	1444
Others	33	2051
Total	**240048.64**	**446429**

Table 8.1 : Details of Technology week organized by the Chhattisgarh KVKs during 2019

Types of Activities	No. of Activities	Number of Participants
Gosthies	156	4920
Lectures organized	119	2899
Exhibition	88	7473
Film show	137	3660
Fair	22	5970
Farm/ Field Visit	434	8048
Diagnostic Practical's	104	1102
Distribution of Literature (No.)	7960	51119
Distribution of Seed (q)	413.85	2913
Distribution of Planting materials (No.)	97687	6230
Bio Product distribution (Kg)	11650	1050
Distribution of Bio Fertilizers (q)	79.15	791
Distribution of fingerlings	602	30029
Distribution of Livestock specimen (No.)	4773	586
Total number of farmers visited the technology week	1927	5923
Animal health camp	36	2393
Awareness programme	37	9908
Demonstration	76	1866
Exposure visit	127	3825
Ex-trainees Meet	189	3624
Farmer scientist interaction	446	2049
Farmers Training	347	9032
Gajarghans Unmulan Pakhwada	95	4362
Group Meeting	93	2383
Jai Kisan Jai Vigyan Sangoshthi	48	1436
Plant Protection Week	18	615
Seed treatment campaign	47	1254
Self Help Group convener meet	131	1147
Soil health Camp	25	1223
Swachha Bharat Abhiyan	347	8146
Other Activities		
Cashless Transaction Week	29	1749
Celebration of important days (Parthenium eradication week, Swachhata Abhiyan, International Women Day, National Integrity Day,World Soil Health Day, World environment day, World forestry day, World Water Day	66	2276
Extension activity	74	2028
Field Day	27	1023
Hindi diwas pakhwada	78	3113
News Paper/Mass Media	110	4673
Scientists visits in farmers field	301	1168
Others	4	341
Total	**128903**	**201297**

Table 8.2 : Details of Technology week organized by the Madhya Pradesh KVKs during 2019

Types of Activities	No. of Activities	Number of Participants
Gosthies	162	8640
Lectures organized	263	7519
Exhibition	96	15986
Film show	233	9296

Types of Activities	No. of Activities	Number of Participants
Fair	27	18289
Farm/ Field Visit	284	25491
Diagnostic Practical's	139	1229
Distribution of Literature (No.)	6725	24786
Distribution of Seed (q)	620.68	8688
Distribution of Planting materials (No.)	7589	17468
Bio Product distribution (Kg)	88066	9191
Distribution of Bio Fertilizers (q)	402.96	7016
Distribution of fingerlings	28	76
Distribution of Livestock specimen (No.)	260	40
Total number of farmers visited the technology week	3251	12918
Animal health camp	49	1955
Awareness programme	104	10833
Demonstration	1027	4721
Exposure visit	29	577
Ex-trainees Meet	49	1598
Farmer scientist interaction	68	2319
Farmers Training	443	11449
Gajarghans Unmulan Pakhwada	37	1792
Group Meeting	63	1222
Jai Kisan Jai Vigyan Sangoshthi	20	898
Plant Protection Week	23	782
Seed treatment campaign	25	1299
Self Help Group convener meet	17	649
Soil health Camp	27	1294
Swachha Bharat Abhiyan	285	15065
Other Activities		
Cashless Transaction Week	20	2017
Celebration of important days (Parthenium eradication week, Swachhata Abhiyan, International Women Day, National Integrity Day,World Soil Health Day, World environment day, World forestry day, World Water Day	68	12886
Extension activity	83	1894
Field Day	50	1436
Hindi diwas pakhwada	6	103
News Paper/Mass Media	165	674
Scientists visits in farmers field	312	276
Others	29	1710
Total	**111145.64**	**244082**

9. TECHNOLOGICAL BACKSTOPPING THROUGH LITERATURE AND MEDIA

9.1 Newsletter

Table 9.1: State wise Newsletter published by the KVKs during 2019

State	No. of KVKs	No. of issues	Number of copies printed	Number of copies distributed
Chhatisgarh	28	4	44200	43007
Madhya Pradesh	52	4	**133600**	**128513**
Grand Total	**80**	**-**	**177800**	**171520**

9.2. Publications

Table 9.2: Category wise literature published and distributed by the KVKs of Zone IX during 2019

S. No.	Type	Number	No. of KVKs
1.	Abstract	262	42
2.	Book	15	11
3.	Book Chapter	79	17
4.	Booklet	11900	25
5.	Leaflets/ Folder/ Pamphlet	129967	64
6.	Popular article	478	59
7.	Research Paper	163	42
8.	Training Manual/Technical Bulletin/Technical Report	49850	57
9.	Year Planner	61	61
10.	Others (District Profile, Crop Cafeteria Result, Contingent Plan, Nutri Village-APR, Sansad Gram-APR, Satellite Village-APR, CFLD-APR, DFI-AAP)	3196	11
	Grand Total	**195971**	

10. 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 and Chhattisgarh. This ICT-based alternate agricultural information and rural delivery mechanism through mobile phone was initiated during 2007 in ATARI, Zone IX, Jabalpur and promoted at national level in 2010. It is based on the linear model of communication. This is the unique programme for making linkages between different stakeholders who are the 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 and during 2019, total 4356 text messages were sent which benefitted 42,54,534 users in 65,535villages by the operational KVKs in the Zone.

Table 10.1: Details of KMA during 2019 by KVKs of Zone IX

State	No. of KVK	No. of Villages covered	No. of messages sent	No. of Farmers	No. of Ext. Pers.	Beneficiaries
CG	26	16752	1523	1803779	4137	1807916
MP	52	48783	2833	2439320	7298	2446618
Total	**78**	**65535**	**4356**	**4112067**	**11435**	**4254534**

2. Climate Resilience Agriculture through KVKs under NICRA

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

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

NICRA is operational in 12 KVKs in the states of Madhya Pradesh and Chhattisgarh under ATARI, Jabalpur, which monitors the performance of NICRA KVKs namely Balaghat, Chhattarpur, Datia, Guna, Jhabua, Morena, Ratlam, Satna and Tikamgarh in Madhya Pradesh; Bhatapara, Bilaspur and Dantewada in Chhattisgarh. During 2019-20, through various planned activities, total 16078 farmers were benefitted including 9774 farmers by technological interventions and 6304 farmers by capacity building and extension activities.

Under Natural Resource Management Module, total 2665 farmers were benefited covering 1018.23 ha area. Demonstrations were focused on in-situ moisture conservation, water harvesting and recycling for supplemental irrigation, water saving irrigation method, conservation tillage, etc.

In Crop Production Module, a total of 2800 farmers were benefitted through demonstrations conducted in 1134.52 ha area focused on drought tolerant varieties, advancement of planting dates of *rabi* crops to escape for terminal heat stress etc. of chickpea, wheat, barley, green gram, pigeonpea and vegetable crops.

In Livestock and Fisheries Module, a total of 5044 animals of 2775 farmers were benefitted by the demonstrations conducted focusing on preventive vaccination, de-

worming of animals, animal health camp and nutrition management.

Glimpses of NICRA activities by concerned KVKs

3. Cluster Frontline Demonstrations of Oilseeds 2019

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

Cluster Frontline Demonstration on Oilseeds 2019-20 under the "National Food Security Mission" was implemented by ICAR ATARI Jabalpur in Madhya Pradesh and Chhattisgarh. Under the project major crops taken under were soybean, niger, sesame, rapeseed & mustard, linseed and groundnut in Kharif and Rabi seasons in Madhya Pradesh and Chhattisgarh states.

In Kharif season during 2019-20 niger, groundnut, sesame and soybean major crops were taken in Madhya Pradesh and Chhattisgarh. In Madhya Pradesh, 942 demonstration were conducted in 380 ha area by 33 KVKs under soybean crop and obtained productivity was 11.94 q/ha with net return 22301 Rs/ha, whereas in niger crop 129 demonstrations were conducted in 60 ha area by 4 KVKs with obtained productivity 4.78 q/ha and net return 20509 Rs/ha. Sesame was demonstrated in 70 ha area by 7 KVK through 164 demonstrations and obtained productivity was 4.43 q/ha with net return 16694 Rs/ha and groundnut was conducted in 10 ha with 25 demonstrations by one KVK at farmers' field with obtained yield 13.5 q/ha and net return 35200. Similarly in Chhattisgarh, 70 ha area covered with 121 demonstration in soybean crop by 7 KVKs which obtained productivity 13.36 q/ha and net return 31732 Rs/ha, In niger 90 ha area covered with 184 demonstration by obtaining yield of 4.04 q/ha and net return 12399 Rs/ha by 9 KVKs whereas sesame crop was laid out in 6 KVKs covering 66 ha area through 128 demonstration and obtained productivity 4.54 q/ha with net return 19206 Rs/ha and groundnut crop laid out in 80 ha area in 8 KVKs through 171 demonstration with 12.01 q/ha, 31793 Rs/ha obtained yield and net return respectively.

The season wise of each crop given in below table

State	Season	Crop	No of KVK	Conducted		
				Area (ha)	Demo (No.)	Yield q/ha
MP	Kharif 2019-20	Soybean	33	380	942	11.94
		Niger	4	60	129	4.82
		Sesame	7	70	164	4.43
		Groundnut	1	10	25	13.50

State	Season	Crop	No of KVK	Conducted		
				Area (ha)	Demo (No.)	Yield q/ha
		Sub Total		**520**	**1260**	
CG		Soybean	7	70	121	13.36
		Niger	9	90	184	4.04
		Sesame	6	66	128	4.54
		Groundnut	8	80	171	11.86
		Sub Total		**306**	**604**	
	Total Kharif 2019-20			**826**	**1864**	
MP	***Rabi* 2019-20**	Mustard	26	333	812	15.73
		Linseed	10	190	475	12.08
		Sub Total		**523**	**1287**	
CG		Mustard	18	180	373	7.75
		Linseed	14	180	353	5.86
		Safflower	3	30	52	5.03
		Sunflower	1	20	50	7.45
		Sub Total		**410**	**828**	
	Total Rabi 2019-20			**933**	**2115**	
	Grand Total			**1759**	**3979**	




During rabi 2019-20 season mustard, linseed and safflower were demonstrated as major crop in Madhya Pradesh and Chhattisgarh. In Madhya Pradesh, mustard laid out in 333 ha area with 812 demonstrations by 26 KVKs and linseed in 190 ha with 475 demonstrationsby 10 KVKs. Similarly in Chhattisgarh, mustard crop was laid out in 180 ha area with 373 demonstrations by 18 KVKs, linseed crop laid out in 180 ha area through 353 demonstrations in 14 KVKs whereas safflower covered 30 ha area with 52 demonstrations in 3 KVKs and sunflower in 20 ha area with 50 demonstrationsby one KVK.

On the 150th Birth Anniversary of Mahatma Gandhi the additional allotment of mustard crop 3527

ha covered with 8391 demonstration in 30 KVKs in Madhya Pradesh and in Chhattisgarh 2360 haarea with 4206 demonstrations in 19 KVKs under SAP.

Performance of Rabi 2018-19

In rabi 2018-19 the obtained productivity under major crops was 16.32 q/ha with net return 44516 Rs./ha in mustard, 11.91 q/ha with 32365 Rs./ha in linseed, 5.8 q/ha with 21231 Rs./ha net return in sesame and in safflower 14.6 q/ha with 32530 Rs./ha net return in Madhya Pradesh and in Chhattisgarh 8.17 q/ha with 18357 Rs./ha in mustard, 7.31 q/ha with 17349 Rs./ha net return in linseed, 4.08 q/ha with 16202 Rs./ha net return in sesame and 13.05 q/ha with 44725 Rs./ha in safflower and 13.04 with 36851 Rs./ha in groundnut respectively.

4. Cluster Frontline Demonstration on Pulses 2019-20

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

Cluster Frontline Demonstration on pulses under "National Food Security Mission" was implemented by ICAR-ATARI, Jabalpur in state of Madhya Pradesh and Chhattisgarh. Under the project, major crops demonstrated in *Kharif* season were blackgram, greengram, pigeonpea and horsegram in Madhya Pradesh and Chhattisgarh.

In Madhya Pradesh, 978 demonstration of crop blackgram were conducted in 409.20 ha area by 21 KVKs with productivity of 6.54 qha-1. Whereas, 78.40 ha area was covered under greengram by 6 KVKs with 192 number of demonstrations with productivity of 7.39 qha^{-1} respectively. Also, crop pigeonpea was demonstrated in 320.80 ha area by 23 KVKs through 769 demonstrations with 12.64 qha^{-1} productivity.

Similarly, in the state of Chhattisgarh, 20 KVKs covered 250 ha area under crop blackgram with 594 demonstrations and the average productivity obtained was 7.75 qha-1. Whereas 141 demonstrations of greengram were conducted in 60 ha area by 6 KVKs with 7.57 qha-1 productivity. Crop pigeonpea was demonstrated by 17 KVKs covering 200 ha area through 474 demonstrations, with productivity 9.67 qha^{-1}, respectively. Also, 5 KVKs of Chhattisgarh conducted 110 demonstrations in 50 ha area under horsegram. The average productivity was 5.01 qha^{-1} respectively.

During *rabi* 2019-20, chickpea, fieldpea and lentil were the major crops demonstrated in Madhya Pradesh. Under crop chickpea, 966 ha area with 2297 demonstrations were conducted by 45 KVKs in Madhya Pradesh. Whereas, crops fieldpea and lentil were demonstratedin 60.20 ha area by 5 KVKs, in 130 ha area by 9 KVKs with 151 and 300 number of demonstrations, respectively.

Similarly, in Chhattisgarh, chickpea, fieldpea, lentil and pigeonpea were laid out in 235 ha, 145 ha, 30 ha, and 30 ha area with 467, 314, 71, and 52 number of demonstrations by 16, 12, 03, and 03 KVK's respectively. Unlike state Madhya Pradesh, crop lathyrus was demonstrated in Chhattisgarh by 09 KVK's covering total area of 100 ha with 235 number of demonstrations.

State-wise & Season-wise outcome of Cluster Frontline Demonstrations on Pulses 2019-20

State	Season	Crop	No of KVK	Conducted		
				Area (ha)	Demo (No.)	Yield q/ha
MP	*Kharif* 2019-20	Blackgram	21	409.20	978	6.54
		Greengram	6	78.40	192	7.39
		Pigeonpea	23	320.80	769	12.64

State	Season	Crop	No of KVK	Conducted		
				Area (ha)	Demo (No.)	Yield q/ha
		Sub Total		**808.4**	**1939**	
CG		Blackgram	20	250	594	7.75
		Greengram	6	60	141	8.12
		Pigeonpea	17	200	474	9.67
		Horsegram	5	50	110	5.01
		Sub Total		**560**	**1319**	
Total Kharif 2019				**1368.40**	**3258**	
MP	***Rabi* 2019-20**	Chickpea	45	966	2297	16.60
		Fieldpea	5	60.20	151	17.51
		Lentil	9	130	300	12.73
		Sub Total		**1156.2**	**2748**	
CG		Chickpea	16	235	467	6.46
		Fieldpea	12	145	314	7.57
		Lentil	3	30	71	6.04
		Laythrus	09	100	235	5.66
		Pigeonpea	03	30	52	6.25
		Sub Total		**540**	**1139**	
Total Rabi 2019-20				**1696.20**	**3887**	

Performance of *rabi* and summer 2018-19

In rabi season during 2018-19, chickpea, fieldpea, lentil, lathyrus and pigeonpea were the major crops demonstrated in Madhya Pradesh and Chhattisgarh. In Madhya Pradesh, the productivity obtained under chickpeacovering 1188.80 ha area was 16.60qha^{-1} with net return ofRs. 51297/ha.Whereas, productivity obtainedby fieldpea covering 60 ha area was 16.55 qha-1 with net return of Rs 43938. Also,200.4 ha area was covered under lentil, which provided 13.07qha-1 productivity with net return of Rs 37989/ha.Whereas, in Chhattisgarh,chickpea and fieldpea were demonstrated in 546 ha and 172.40 ha area respectively. The productivity obtained from the crops were 12.44qha-1 with net return of Rs 38086 and 9.34qha-1 with net return of Rs 28235, respectively. Also, productivity obtained from crops lathyrus, lentil and pigeonpea were 9.46 qha-1 with net return of Rs 30198 in 90 ha area, 7.77qha-1 with net return of Rs 20481 in 79 ha area and 9.75 qha-1 with net return of Rs 37085 in 40 ha area, respectively.

Similarly, during Summer 2018-19, in Madhya Pradesh andChhattisgarh, crops blackgram andgreengram were demonstrated. Productivity obtained by blackgram andgreengram in Madhya Pradesh were 10.29 q/ha (with net return Rs. 37419 in 30 ha area) and 11.17 q/ha (with net return of Rs 42227 in 260 ha area)respectively. Whereas, in Chhattisgarh productivity obtained in blackgram and greengram were 6.22 q/ha (with net return Rs. 19357 in 30 ha) and 8.17 q/ha (with net return Rs 33624 in 120 ha area) respectively.

State	Season	Crop	No of KVK	Conducted			
				Area (ha)	Demo (No.)	Yield q/ha	Net return/ha
MP	*Rabi 2018-19*	Chickpea	41	1188.80	2834	16.60	51297
		Fieldpea	4	60	148	16.55	43938
		Lentil	11	200.4	429	13.07	37989
		Sub Total		**1449.20**	**3411**		
CG		Chickpea	22	546	1070	12.44	38086
		Fieldpea	9	172.40	386	9.34	28235
		Laythrus	4	90	174	9.46	30198
		Lentil	5	79	127	7.77	20481
		Pigeonpea	2	40	66	9.75	37085
		Sub Total		**927.40**	**1823**		
Total Rabi 2018-19				**2376.60**	**5234**		
MP	*Summer 2018-19*	Blackgram	2	30	74	10.29	37419
		Greengram	11	260	583	11.17	42227
		Sub Total		**290**	**657**		
CG		Blackgram	2	30	84	6.22	19357
		Greengram	7	120	202	8.17	33624
		Sub Total		**150**	**286**		
Total Summer 2018-19				**440**	**943**		

Blackgram, variety PU 31 at KVK Anjora durg

Greengram, variety Shikha at KVK Chhattarpur

Pigeonpea, variety Rajeev lochan at KVK Kawardha

Chickpea, variety JG 12 at KVK Sidhi

11. 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 various 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* (MGMG)

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

Mera Gaon Mera Gaurav is operational in 10 institutions including ICAR institutes (6) and SAU's (04) 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.

ICAR institutes and SAUs activities:

During 2019-20, total 39 groups were formed by involving 144 scientists under ICAR institutes and SAUs. Through training, demonstration, literature distribution, general awareness and linkages created with other Departments/ Organizations total of 82275 farmers of 401 villages were benefited under MGMG programme.

Two groups involving 10 scientists of the ICAR- DWR, Jabalpur conducted total 91 demonstrations, trainings and field activities by covering 12 villages. Training, demonstration, literature distribution, general awareness and linkages created with other Departments/ Organizations benefited total 14890 farmers.

NIBSM, Raipur laid out 14 demonstrations, two training programme and conducted other extension activities and involving 3 groups of 15 scientists in 15 villages and total 1175 farmers were benefited.

In CIAE, Bhopal, 16 groups were formed in which 66 scientists were involved covering 28 villages. Total 3528 farmers were benefitted through 56 extension activities conducted by different groups.

JNKVV, Jabalpur conducted total 245 demonstration and other extension activities in 340 adopted villages by which 62087 farmers were benefited under MGMG programme.

NDVSU, Jabalpur made 6 visits to different villages and conducted Ghoshties and training programme by which, total 595 farmers of 6 villages were benefited in involving 01 group of six scientists.

In IISS- Bhopal, IISR,-Indore, IGKV-Raipur, CGKV- Durg and RVSKVV-Gwalior report not submitted during the year.

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	12	91	20	14890
2	ICAR- National Institute of Biotic Stresses Management , Raipur (CG)	3	15	15	14	0	1175
3	ICAR- Central Institute of Agriculture Engineering, Bhopal (MP)	16	66	28	56	6	3528
4	Jawaharlal Nehru Krishi Vishwa Vidhyalaya, Jabalpur(MP)	17	47	340	245	285	62087
5	Nanaji Deshmukh Veterinary Science University, Jabalpur (MP)	1	6	6	18	112	595
	Total	**39**	**144**	**401**	**424**	**423**	**82275**

Monitoring team visit to Kodo Millet FLD field

Herbicide application in field

Training organized on Women day

b. Attracting and Retaining Youth in Agriculture (ARYA)

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

ARYA project is being implemented in 10 KVKs in Madhya Pradesh and Chhattisgarh. ARYA project is aimed towards entrepreneurship skill development among rural youth. Each KVK has Agro-Technology Park having different demonstration units viz. vermi-compost unit, poultry unit, shednet house, mushroom unit, hatchery unit, and Blue Green Algae 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.

Selection of youths: KVK has selected 200 rural youths in different villages of district under related entrepreneurship i. e. vermi-composting, nursery management, mushroom production and poultry production, value addition of aonla products, spices and medicinal processing, Processing and Value addition of NTFPs, Biofortified Rice Seed Production and Promotion and Ornamental Fish Production etc.

Selection of Villages: KVK has selected villages having rural youths having age less than 35 years, the selection of the youth made on the basis of gender and social status in cluster form

Activities and youth selected under ARYA

Name of State	Name of KVKs	Number of Enterprises	No. of Beneficiary/Youths	No. of beneficiaries started enterprises (Unit established)
MP	Gwalior	4	200	152
	Dhar	4	200	65
	Jhabua	4	200	85
	Morena	3	185	17
	Neemuch	4	197	67
	Satna	3	200	63
CG	Dantewada	5	200	19
	Kanker	4	200	14
	Raipur	4	150	6
	Sarguja	4	200	59
Total		**39**	**1932**	**547**

Investment wise return potential of ARYA enterprises

Parameter	Enterprises	Unit size	Cost involved Rs./year	Net Return Rs./year
Low investment high return (LIHR)	Nursery management	500 sq mt	17270	95000
	Goatry	27 goats	42000	145500
Medium investment moderate return (MIMR)	Mushroom production	10x15 sq ft	17500	55000
	Processing of Organic Rice and Minor Millets	1.5 qt/hr	35000	105200
	Processing and value addition of scented rice	1.25 qt/hr	25900	78100
	Kadaknath Poultry	600 birds	185000	355000
High investment high return (HIHR)	Entrepreneurship on Lac production and processing	6 acre	93750	693750

Non timber forest produce – KVK Dhar

Processing of Organic Rice and Minor Millets – KVK Dantewada

Bee Keeping – KVK Morena

Kadaknath – KVK Jhabua

Aonla value addition – KVK Satna

Scented Rice Poha – KVK Raipur

Lac production and Processing – KVK Kanker

Goatry – KVK Gwalior

Value Addition in Seed Spices & medicinal Crops – KVK Neemuch

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 smallholders 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 institutes and 04 SAUs 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 College of Agriculture and Research Station, Rajnanadgaon (C.G.) are institutes working under Farmer FIRST programme and covered total 32 villages.

Modules	Particulars	ICAR-IISS Bhopal	ICAR-DWR Jabalpur	ICAR-NIBSM Raipur	JNKVV, Balaghat	RVSKVV Gwalior	IGKV, Rajnand-goan	NDVSU Jabalpur	Total
Crop module	Area (ha)	77.7	108	77.5	232.8	693	384.41	24.2	**1596.98**
	No. of household	310	270	464	627	2306	843	47	**4867**
Horti-culture module	Area (ha)	10.7	0	66.05	14.3	56.4	24.212	-	**171.66**
	No. of houshold	302	99	586	86	293	340	1782	**3488**
Livestock module	No. of household	-	165	470	266	128	280	512	**1821**
	No. of animal	-	100	85	1245	357	186	786	**2759**
	No. of chicks	-	345	4872	-	-	10335	1056	**16608**
NRM module	Area (ha)	228.73	36	5	84	855.6	86.1	-	**1295.43**
	No. of household	250	60	242	270	2125	197	-	**3144**
Enterprize module	Vermi-compost unit/Bee keeping unit/other unit	149	14	23	3	52	40	80	**361**
	No. of household	149	40	322	135	133	654	41	**1474**
IFS module	Area (ha)	40	-	-	-	-	18.87	-	**58.87**
	No. of household	40	-	-	-	120	60	-	**220**

d. World Soil Health Day Celebration

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

World Soil Health Day was celebrated on December 5, 2019 in 80 KVKs of Zone IX in Madhya Pradesh and Chhattisgarh. Exhibitions were organized by KVKs on this occasion including distribution of soil health cards, displaying seeds, planting materials and various soil health conservation technologies, etc. KVKs received support from other line departments of state governments in organizing of World Soil Health Day Programme.

Summary Report of World Soil Health Day

State	No. of KVK	No. of Farmers/Participants	No. of Soil Health Cards distributed on this occasion
Madhya Pradesh	52	4536	1976
Chhattisgarh	28	2164	372
Total	**80**	**6700**	**2348**

e. Seed hub for increasing production of pulses

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

Under ATARI, Zone-IX, Seed Hub on pulses programme is implemented in 15 KVKs Betul, Damoh, Narsinghpur, Harda, Tikamgarh, Morena, Datia, Dewas, Ujjain in Madhya Pradesh and Bhatapara, Surguja, Rajnandgaon, Kawardha, Kanker, Janjgir Champa in Chhattisgarh. During *Kharif* 2019 major crop taken in kharif season were blackgram, pigeonpea and horsegram and the programme was implemented in 536.10 ha area with 982.96q seed production.

State	No. of KVKs	Area (ha.)	Production (q)
Madhya Pradesh	09	369.40	236.3
Chhattisgarh	06	166.70	746.66
Total	**15**	**536.10**	**982.96**

During *Rabi*and summer 2019, Seed Hub Project on pulses 1016.86 ha area with total seed production of 7315.99 q, covering major crops chickpea, fieldpea and laythrus.Similarly, crops blackgram and greengram in summerseason, covering 143.58 ha area with 613.42 q of seed production. Under this Project, seed godown with processing unit were established inKVKs ofboth

the states Madhya Pradesh and Chhattisgarh.

State	No. of KVKs	Rabi 2018-19		Summer 2018-19	
		Area (ha.)	Production (q)	Area (ha.)	Production (q)
Madhya Pradesh	09	412.30	3785.23	44	491.78
Chhattisgarh	06	604.60	3530.76	99.58	121.64
Total	**15**	**1016.90**	**7315.99**	**143.58**	**613.42**

Pigeonpea, variety 291 at KVK Morena

Fieldpea, variety IPD 10-12 at KVK Surguja

Pigeonpea, variety Rajeevlochan at KVK Kawardha

Blackgram, variety Pratap Urd 1 at KVK Tikamgarh

f. Skill development programme

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

Skill development programme is the flagship scheme of ICAR being implemented at ICAR Institutes, SAUsand KVKs. The Agriculture Skill Council of India (ASCI) have prepared 146 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 63Krishi Vigyan Kendras, 5 SAUs and two ICAR Institutes namely, IISS Bhopal and NIHSAD in Madhya Pradesh and Chhattisgarh under ATARI, Jabalpur. The orientation programme of master trainers at KVK was held at ATARI Jabalpur, ATARI Kanpur and ATARI Jodhpur and the assessment of master trainers in respective QPs was conducted by ASCI.

During 2019 the skill training proramme was provided in various QPs viz. Micro Irrigation Technician, Freshwater Aquaculture Farmer, Mushroom Grower, Aquaculture Worker, Supply Chain Field Assistant and Small poultry farmerwere the identified job roles by KVKs and institutes 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.

Skill Training Programme under ATARI Zone IX:

Name of state	No of KVK/SAU/ICAR Institute	Number of Job Role/QPs of trainings	Number of farmers trained
Madhya Pradesh	34	96	1943
Chhattisgarh	22	22	831
Total	**56**	**118**	**2774**

g. Nutrition Sensitive Agriculture through Nutri-SMART Village

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

The initiative in this regard was taken by ICAR-ATARI, Jabalpur in Madhya Pradesh and Chhattisgarh through a novel concept of Nutri-SMART village establishment in 2016 by KVKs for building Nutrition Sensitive Agriculture in India. The activities under Nutri-SMART village intensified by KVKs for evolving new extension methodologies and approaches for long lasting effect of the efforts in this direction. Nutri-SMART village (NSV) is Scientific approach based on concept "Grow what you eat and eat what you grow" for meeting nutrient requirement for making nutrient sufficient and healthy citizen.

NSV nutritional security concept to reduce nutritional gap by minor adjustment in the dietary plan and advocates traditional recipe based "PoshanThali" to address nutrition deficiency. NSV unique architect for nutrition-sensitive agriculture through homestead nutrition garden. NSV as "minilab" for showcasing precise nutritional security using available resources, nutritional literacy, motivation & attitudinal change. Nutri-SMARTvillage established in 42 villages 42 blocks in Madhya Pradesh and 15 villages in 15 blocks Chhattisgarh.

KVKs of Madhya Pradesh and Chhattisgarh have demonstrated nutritional garden at backyard level for anemic and underweight women's and adolescent girls in household level. Total **1241** Nutrition Garden have been established in Nutri Smart village by KVKs of Madhya Pradesh and Chhattisgarh. Out of which **1057** backyards kitchen garden, **80** community gardens, **43** terrace gardens and **61** vertical gardens were established.

Table: Nutrition Garden established in Madhya Pradesh and Chhattisgarh during 2019

Type of Nutrition Garden	Established during 2019 (No)	No of Beneficiaries
Backyard Garden	1057	1516
Community Garden	80	1190
Terrace Garden	43	69
Vertical Garden	61	55
Total	**1241**	**2830**



Table: Activities performed in Nutri Smart Villages

Name of activity	No. of activity	No. of farmers/ beneficiaries
Technology Assessment	109	748
Technology Demonstrated	152	1382
Training	414	10570
Extension Activities	390	11191

Table: Activities performed in Nutri Smart Village

State	No of KVKs	No of activity	No. of farmers/ beneficiaries
Technology Assessment			
Madhya Pradesh	28	100	679
Chhattisgarh	6	9	69
Total	**34**	**109**	**748**
Technology Demonstrated			
Madhya Pradesh			
Nutrition Garden	25	47	511
Bio-fortified Crops	5	6	66
Drudgery reduction	7	8	66
Income generation	18	29	256
Value addition	5	5	45
Other Enterprises	6	6	59

State	No of KVKs	No of activity	No. of farmers/ beneficiaries
Total	**66**	**101**	**1003**
Chhattisgarh			
Nutrition Garden	5	43	244
Income generation	3	7	130
Other Enterprises	1	1	5
Total	**9**	**51**	**379**
Grand Total	**75**	**152**	**1382**
Training			
Madhya Pradesh	29	323	8396
Chhattisgarh	10	91	2174
Total	**39**	**414**	**10570**
Extension Activities			
Madhya Pradesh	30	350	9716
Chhattisgarh	9	40	1475
Total	**39**	**390**	**11191**

Backyard kitchen garden

Community Garden

Extension Activities

Traning programme

12. Institute Projects and Publications

Papers in research journals (National /International)

1. S.R.K. Singh, Anupam Mishra, S. Agrawal, A.A.Raut, P. Chand and A.K.Dixit (2019). Impact of Better Management Practices on Performance of Soybean in Madhya Pradesh. *Soybean Research,* 17 (1 & 2): 54-61 (2019).
2. S.R.K.Singh, A.Mishra, V.Shrivastava, V.P.Chahal (2019). Analyzing Economic Gains in Zero Tillage Method of Wheat Cultivation under Farmer FIRST Programme in Madhya Pradesh. *Journal of Community Mobilization and Sustainable Development,* Vol. 14 (3), 430-434, Sept. – Dec., 2019.
3. S.R.K.Singh, Anupam Mishra, Alok Suryawanshi and A.A. Raut (2019). Impact of Varietal Intervention on Mustard Yield across Agro-climatic Zones in Madhya Pradesh- A Cluster Approach. *Journal of Community Mobilization and Sustainable Development,* Vol. 14 (2), 329-333, May-August, 2019.
4. S.R.K. Singh, A.Mishra, V.Jallaraph, S.Kumar (2019). Efficacy of Kisan Mobile advisory Service for dissemination of agricultural information in Madhya Pradesh. *Indian Journal of Extension Education,* Vol. 55, No. 4, 2019 (223-225).
5. Parvez Rajan, Nalin Khare and S.R.K. Singh (2019). Socio-economic Attributes and Crop Productivity of Tribal Farmers in Madhya Pradesh. *Indian Journal of Extension Education,* Vol. 55, No. 2, 2019 (148-151).
6. V.Shrivastava, Nalin Khare and S.R.K. Singh (2019). Barriers to adaptation strategies towards the climate change in Madhya Pradesh. *Indian Journal of Extension Education,* Vol. 55, No. 4, 2019 (162-165).
7. R. Sharma, S.R.K.Singh, K. N. Pathak, Y. D. Mishra, Abhilasha Sharma (2019). Factors encouraging information and communication technologies (ICTs) usage to KVKs scientists of Madhya Pradesh and Chhattisgarh. *Journal of Community Mobilization and Sustainable Development* Vol. 14 (3), 497-500, Sept. – Dec., 2019.
8. S.R.K.Singh, A. Mishra, Alok Suryavanshi, V.Shrivastava (2019). Effect of varietal intervention on the yield of soybean crop across agro-climatic zones in Madhya Pradesh – A cluster approach. *Journal of Pharmacognosy and Phytochemistry,* Vol. 8 (2), 408-410.

Books (Authored/edited)

1. A. Mishra, S.R.K.Singh, A.K.Singh and A.A.Raut (2019). Nutrition Sensitive Agriculture and Nutrition Literacy. ICAR-ATARI, Jabalpur, M.P. Pp. 218.
2. V.Meshram, S.Rai and S.R.K.Singh (2019). A study on technological gap in adoption of SRI technology in rice. Lambert Academic Publishing. ISBN: 978-3-659-64590-7. Pp. 115.
3. C.R.Kantwa, S.R.K.Singh, D.Padhiyar, S.R. Kantwa, S.C.Kantwa (2019). Concise Agriculture Social Science. New Vishal Publication.
4. A. Mishra and S.R.K.Singh (2019). Facilitated in - Technology Demonstrations enabling communities to cope up with climate variability and to enhance adaptive capacity and resilience. Edited by- Ravindra Chary, G., Prasad, JVNS, Osman, M., Ramana, DBV, Nagasree, K., Rejani, R. Subbarao, A.V.M., Srinivas, I., Rama Rao, C.A., Prabhakar, M., Bhaskar, S., Singh A.K., Alagusundaran, K. Pp. 121. ICAR-CRIDA, Hyderabad.

Book chapters/technical bulletins/manuals

1. A. Mishra, S.R.K.Singh, Moni Thomas and A.A.Raut (2019). Nutrition Sensitive Agriculture through Nutri-SMART Village. In: Nutrition Sensitive Agriculture and Nutrition Literacy, Eds. A. Mishra, S.R.K.Singh , A.K.Singh and A.A.Raut, ICAR-ATARI, Jabalpur, M.P. Pp. 218.
2. S.R.K.Singh, A.Mishra, R.L.Triapthi, S.Singh and S.Gour (2019). Promoting Nutrition Literacy for

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3. A. Mishra, S.R.K. Singh, M. Thomas and A.A. Raut (2019). Farm Innovators for Reinventing Agriculture. ICAR-ATARI, Jabalpur.
4. A. Mishra, S.R.K. Singh and A.A. Raut (2019). Cluster Frontline Demonstration in Oilseeds in Madhya Pradesh & Chhattisgarh KVKs Progress Report 2018-19. ICAR-ATARI, Jabalpur.
5. A. Mishra, S.R.K. Singh and A.A. Raut (2019). Status Report XXV Meeting of ICAR Regional Committee No. VII at Nagpur (Madhya Pradesh and Chhattisgarh). ICAR-ATARI, Jabalpur.
6. A. Mishra, S.R.K. Singh, R.K. Singh, A.K. Singh, A.A. Raut (2019). Agri-waste Recycling through Bio-waste Decomposer. ICAR-ATARI, Jabalpur.

Compilation/ documentation

1. A. Mishra, S. R. K. Singh, A.A. Raut and S.D. Upadhyay (2019). Annual Report 2018-19, ICAR-ATARI, Jabalpur.
2. A.Mishra, S.R.K.Singh A.A.Raut (2018). Zonal Agri-News, Vol.11, No. 1-4. ICAR-ATARI, Jabalpur.
3. A.Mishra, S.R.K.Singh, A.A.Raut, Shashi Gaur (2019). Annual Action Plan 2019-20 compilation for KVKs in MP & CG under ATARI, Zone IX.
4. Proceedings of 26th Zonal Workshop 2019 organized at Khajuraho, KVK Chhattarpur, M.P.
5. Progress Report of Cluster Frontline Demonstration on Oilseeds 2018-19.
6. Progress Report of Cluster Frontline Demonstration on Pulses 2018-19.
7. Annual Progress Report 2018-19 Farmer FIRST Programme. ICAR-ATARI, Jabalpur.
8. Annual Progress Report 2018-19 NICRA Project. ICAR-ATARI, Jabalpur.
9. Progress Report 2018-19 for NEMA Project. ICAR-ATARI, Jabalpur.
10. Compilation of Pradhan Mantri Kisan Samman Nidhi Programme organized on February, 24, 2019 in 77 KVKs of Zone IX.
11. International Women's Day 2019 at KVKs in Zone
12. Annual Action Plan 2019-20 of KVKs under NICRA Project.
13. Annual Action Plan 2019-20 of KVKs under Farmer FIRST Project.
14. Annual Action Plan 2019-20 of KVKs under CFLD Oilseeds Project.
15. Compilation of DARE Report 2019-20

13. 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 113SAC meetings were conducted during 2019 in a80 functional KVKs (Table 13.1)

Table 13.1: Status of SAC conducted by KVKs during 2019

S. No.	Name of KVKs	No. of SACs conducted	Name of KVKs	No. of SACs conducted	Name of KVKs	No. of SACs conducted
	IGKV, Raipur , C.G.		**JNKVV, Jabalpur, M.P.**		**RVSKVV, Gwalior, M.P.**	
1	Balrampur	-	Anuppur	1	Agarmalwa	2
2	Bastar	2	Balaghat	1	Alirajpur	3
3	Balod	1	Betul	2	Ashoknagar	3
4	Bemetara	1	Chhatarpur	1	Barwani	2
5	Bhatapara	1	Chhindwara	2	Bhind	3
6	Bijapur	1	Damoh	1	Datia	2
7	Bilaspur	1	Dindori	1	Dewas	2
8	Dantewada	1	Harda	1	Dhar	2
9	Dhamtari	2	Jabalpur	1	Guna	4
10	Durg-I	1	Katni	1	Gwalior	2
11	Durg-II	1	Mandla	2	Jhabua	3
12	Gariyaband	1	Narsinghpur	2	Khandwa	2
13	Janjgir-Champa	1	Panna	1	Khargone	2
14	Jashpur	1	Rewa	1	Manawar	2
15	Kanker	1	Sagar	1	Mandsaur	2
16	Kawardha	1	Seoni	1	Morena	2
17	Korba	1	Shahdol	1	Neemuch	2
18	Korea	1	Sidhi	1	Rajgarh	2
19	Mainpat	1	Singrauli	2	Shajapur	2
20	Mahasamund	2	Tikamgarh	2	Sheopur	2
21	Mungeli	1	Umaria	1	Shivpuri	2
22	Narayanpur	2	Tamia (Chhindwara-II)	-	Ujjain	2
23	Raigarh	1	Hoshangabad (NGO)	1	Bhopal (ICAR)	1
24	Raipur	2	Raisen (NGO)	1	Burhanpur (NGO)	1
25	Rajnandgaon	1	Satna (NGO)	1	Indore (NGO)	1
26	Surguja	1			Ratlam (NGO)	2
27	Kondagaon	-			Sehore (NGO)	2
28	Sukma	-				
	Total	**26**		**30**		**57**
		Grand Total- 113				

14. Awards and Recognitions

Pandit Deen Dayal Upadhyay Krishi Vigyan Protshahan Puraskar (Zonal) 2018

Krishi Vigyan Kendra Kawardha has been awarded Pt. Deen Dayal Upadhyay Krishi Vigyan Protsahan Award – 2018(Zonal) for Zone IX, Jabalpur by Indian Council of Agricultural Research, during ICAR Foundation day on 16.07.2019 towards their outstanding contribution in promoting agricultural for the welfare of farming Community.

Krishi Vigyan Kendra Kawardha demonstrated the latest agricultural technologies, which have beneficial for the farmers of the district. KVK Kawardha is promoting IFS models. KVK Kawardha also works for the production, processing and marketing of the latest varieties of pulses and oilseed crops; as a result, production of pulses and oilseeds has increased. KVK Kawardha also provides the improved variety of sugarcane to the farmers which have beneficial for the farmers. The award was given by Shri Narendra Singh Tomar Ji, Minister of Agriculture and farmers welfare, Govt. of India.


Indian Council of Agricultural Research

Certificate

PANDIT DEENDAYAL UPADHYAY RASHTRIYA KRISHI VIGYAN PROTSHAHAN PURASKAR-2018

(Zone IX)

is presented to

Krishi Vigyan Kendra, Kawardha

Indira Gandhi Krishi Vishwavidyalaya, Raipur, Chhattisgarh

Jagjivan Ram Abhinav Kisan Puraskar/Jagjivan Ram Innovative Farmer Award 2018

Sh. Ashwini Singh, Progressive Farmer and Member of BoM of JNKVV, Jablapur recieved “Jagjivan Ram Abhinav Kisan Puraskar/Jagjivan Ram Innovative Farmer Award 2018” druing the foundation day of ICAR i.e. 16-7-2019 for wooden Log Tractor Drawn Blade Harrow to save the time and moisture during field preparation which is crucial drought prone area of Ujjain and Malwa regien. The award was presented by Dr. T.Mohapatra, Hon’ble DG, ICAR, New Delhi and Dr. Panjab Singh, VC, Rani Laxmi Bai Central Agri. University, Jhansi, U.P. He also received the cheque of 50,000 rupees.


Sh. Ashwini Singh, Farmer receiving Jag Jeevan Ram Farmer Innovative Award 2018 from Dr. T.Mohapatra, DG, ICAR and Secretary, DARE, New Delhi and Dr. Panjab Singh, VC, Maharani Laxmi Bai Central Agri. University, Jhansi, U.P on 16-7-2019


Awardees and Delegates at the ocassion of 91 Foundation Day of ICAR on 16-7-2019

Mahindra Samriddhi India Agri Award 2019 (KVK Ratlam)

Mr. Arvind Kankar to started hi-tech farming with emerging technology namely hydroponic cultivation (vertical farming) during the year of 2015 that time he also trained to many farmers with the technology in Ratlam district. He delivered a message to farmers regarding above technology aboutsoil less high production in small area.Some of trained farmers were growing vegetable on roof of house in Ratlam city. He is awarded him for breaking the established stereotype and being instrumental is driving sustainable & scalable innovative farming technology by Mahindra Samriddhi India Agri Award 2019.

Mahindra Krishak Samriddhi Award-2019 (KVK Mahasamund)

Mr. Milan Vishwakarma,innovative farmer of Mahasamund received Mahendra Samridhi Award on dated 19.7.19 at Raipur forcommercial lac cultivation in semilata,kusum,palash. He is innovative farmer and growing crops in drip irrigation.

Fakhruddin Ali Ahmed Award For Outstanding Research in Tribal Farming Systems-2018

KVK Dhar has earned credibility and visibility with the stakeholders and tribal farming community working with more than 55.9% tribal population and about 62% small and marginal farmers in various agro-ecological situations and soil conditions. During the last five years, the KVK had done conceptualization, development and extension of the crops diversification especially through polyculture, multilayer high value horticultural management, fishery and varietal replacement in major crops like soybean, wheat and chickpea etc. through "Planting on Slope Area under Furrow Irrigated and Raised Bed" (FIRBS). The KVK also replicated suitable IFS models and benefited more than 55000 farmers and generated employment for about 17500 farmers. More than 122400 farmers are linked for Kisan Mobile Advisory service (KMA). Through various skills oriented vocational training and convergence programme, animal &kadaknath poultry birds and horticulture crops have been promoted. With the impact of all these programmes, Dhar district clocked highest growth rate 22.18% in agriculture. This prestigious award is given due to KVKs above

achievements.

Best NICRA-KVK of the ATARI Zone-IX for the year 2019

Krishi Vigyan Kendra, Datia (M.P.) adjudged as the Best NICRA-KVK of the ATARI Zone IX for the year 2019 for it's best efforts in implementing the NICRA Technology Demonstration Component of Indian Council of Agricultural Research at ICAR-CRIDA, Hyderabad on 4-6 June 2019.

Krishi Karman Award 2016-17

Progressive Farmer Smt. Aditi Kashyap, W/o. Shri Manak Ram Kashyap, Village – Paliguda, Block – Kawardha, District- Kabridham (C. G.) has been awarded with Krishi Karman Award by Hon'ble Prime Minister of India, Shri Narendra Modi and Agriculture Minister Shri Narendra Singh Tomar on 02nd January 2020 at Tumkur, Karnatakafor her excellent performance in rice production. In this programme Hon'ble Union Minister of Agriculture & Farmers Welfare, Shri Narendra Singh Tomar, Hon'ble Agriculture Minister of Chhattisgarh, Shri RavindraChoubey and Hon'ble Chief Minister of Karnataka, Shri B. S. Yediurappa also participated.

15. Distinguished Visitors

KVK Indore: Hon'ble Loksabha Speaker and Minister of Higher Education, Sports & Youth Affairs, Govt. of M.P. visit KVK Indore

Rabi Kisan Mela was organized at KVK, Kasturbagram, Indore on 23-24 February 2019. During this mela, Smt. Sumitra Mahajan, Hon'ble Loksabha Speaker inaugurated the newly constructed KVK administrative building in presence of Shri Jitu Patwari,Hon'ble Minister of Higher Education, Sports & Youth Affairs, Govt. of M.P. Director of ATARI, Dr. Anupam Mishra and Zila Panchyat Adhyaksh, Indore Sushri Kavita Patidar were also present on this occasion. In the Mela approx 2500 farmers participated.

Smt. Sumitra Mahajan, Loksabha Speaker visited KVK during inauguration of New Admin. Building of KVK and Rabi Kisan Mela on 23.02.2019

Shri Jitu Patwari, Hon'ble Minister of Higher Education, Sports & Youth Affairs, Govt. of M.P. visited KVK during inauguration of New Admin. Building of KVK

KVK ICAR-CIAE, Bhopal - Hon'ble Minister for Social Justice & Empowerment, Govt. of India visit KVK Bhopal

PradhanMantriKIsanSammanNidhi (PM-KISAN) Live telecast programme was organized on 24 February, 2019 in the collaboration of three ICAR institutes viz. ICAR-CIAE, ICAR-IISS, ICAR-NISHAD, including KVK Bhopal. In this programme Dr. ThawarchandGahlot, Minister for Social Justice & Empowerment, Govt. of India invited and delivered massage to the farmers about afforests of central government in their favour. In this programme, 300 farmers (male & female) from villages (Sagonia, Kachibarkheda, Raipur, Bhaironpura, Mugaliya hat, Parwaliya Sadak, Khamkheda, Dangroli, Kachbawali, Chaan) participated.

KVK ICAR-CIAE, Bhopal - Ex. Secretary DARE & DG ICAR as Chief Guest visited KVK Bhopal

KVK (ICAR-CIAE), Bhopal celebrated its 44th Foundation Day programme of ICAR-CIAE Bhopal organized on 15.02.2019 at Silver Jubilee Hall of the institute. In this programme, Dr.

Punjab Singh, Ex Secretary DARE & DG ICAR was the Chief Guest and foundation day lecture was delivered by Dr. Nawab Ali, Ex-DDG (Engineering) ICAR New Delhi.


KVK Burhanpur - Hon'ble Health Minister, Govt. of M.P.and Hon'ble Agriculture Minister, Govt. of M.P visited KVK Burhanpur

KVK, Burhanpur with ATMA organized two days KrishiMela on 8-9-Feb.,2019 at KVK, Burhanpur Sandaskala premises. Hon'ble Health Minister M.P. Govt. Shri Tulsi Silawat Ji, Hon'ble Agriculture Minister M.P. Govt. Shri Sachin Yadav Ji, Hon'ble MLA Burhanpur Shri. Thakur Surendra Singh Ji, Hon'ble MLA Nepanagar Smt. Sumitradevi KasdekarJi, Chairman KVK Shri Hamid KaziJi, Secretary KVK Shri Noor Kazi Ji, Janpad Adyaksh Shri Kishore Rajaram Patil Ji, Krishi Isthai Samiti Adyaksh Shri. Gulchand Singh Burne Ji, Collector Burhanpur Shri Umesh Kumar Ji, SP Shri Ajay Singh Ji, KVK Head, Scientists, Staff, other Line dept. officials and approx 2500 farmers were participated in the programme. There were 15 departmental stalls & 25 private company stalls which showcase their technologies & products. Scientists from other KVKs and ICAR institutes delivered lecture on different topics in the interest of the district farmers.

Hon'ble Health Minister M.P. Govt. Shri Tulsi Silawat Ji addressing farmers

Hon'ble Agriculture Minister M.P. Govt. Shri Sachin Yadav Ji addressing farmers

KVK Jabalpur - QRT Teamvisited KVK Jabalpur

QRT team members Dr. Gaya Prasad, Ex-VC, SVPAU, Meerut, Dr. O.P. Singh , EX-DEC, SVPAU, Meerut, Dr. Y.P.S. Dabhas , DES, GBPU, Pantnagar , Dr. P.K. Bisen, Vice Chancellor , JNKVV Jabalpur, Dr. Anupam Mishra, Director , ATARI Jabalpur, Dr. P.K. Singh, Director , DWR Jabalpur visited at KVK Jabalpur and Farmers fields of KVK adopted villages on 22.09.2019.



QRT Team member visit at KVK Crop Cafeteria

KVK Mandla - Hon'ble Cabinet Minister, Govt of India visited KVK Mandla

Hardware kit distribution programme under GIZ project has been conducted on 6.02.2019 at KVK mandla in presence of Hon'bleShriFaggan Singh Kulaste, Cabinet Minister, Govt of India,Mr. Dirk Walther, GIZ, Dr. Pradeep Kumar Bisen, Vice Chancellor, JNKVV Jabalpur and Dr. (Smt.) Om Gupta, Director Extension Services, JNKVV Jabalpur. The project is being running in Mandla in convergence with FES NGO, Mandla. The hardware kit was distributed to the resource person of villages.

Hardware kit distribution **Dignitaries in Hardware kit distribution**

KVK Dhar: Hon'ble Member of Parliament, Dhar and Hon'ble Vice chancellor, RVSKVV Gwalior visited KVK Dhar

Hon'ble Member of Parliament Shri Chhatar Singh Darbar, Hon'ble Vice chancellorRVSKVV Gwalior, Dr. S.K. Rao, Shri Shrikant Banoth, Collector Dhar visited at KVK Dhar on 24.08.2019 during Krishak Sangoshthi cum Kisan Mela under Jal Shakti Abhiyanwas organized by KVK Dhar to create awareness among the farmers of the district. On this event 510 farmers and dignitaries participated. All dignitaries visited to KVK Demo units and transplanted plants in KVK campus.


Hon'ble MP Shri Chhatar Shingh Darbar, Hon'ble Vice chancellor Prof. Dr. S.K. Rao, Shri Shrikant Banoth, Collector Dhar, Shri Santosh Verma, Shri Aaditya Prtap Singh, Superintendent of Police, Dhar CEO, Zila Panchayat, Dhar visited to KVK Dhar

KVK Anjora- Durg: Hon'ble Agriculture and Animal Husbandry Minister, Govt. of C.G.visited KVK Anjora- Durg

On dated 11.12.19, various units operated under the University were inspected by Agriculture and Animal Husbandry Minister Shri Ravindra Choubey, in which value added products were displayed by the Women Self Help Group of Krishi Vigyan Kendra Anjora Durg, which was appreciated and encouraged by the Minister.

Agriculture Minister's visit

16. ATIC ProgressReport

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. Neeta Khare
3.	ATIC, CIAE, Bhopal	Central Institute of Agricultural Engineering, Bhopal, M.P.	Dr. Umesh Chandra Dubey

B. Details of farmers visit

S. No	Purpose of visit	Number of farmers visited
1	Technology information	13287
2	Technology products	1193
3	Diagnostic services	504
4	Others, if any (Lac production on Pigeonpea)	219
	Total	**15203**

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 benefitted	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	10634	87	151	127	39	71	38	27
2	Kisan Call Centre / other Phone calls from farmers	881	10	14	10	16	2	829	0
3	Training to farmers / technocrats / students	7005	2	277	1	2	0	6669	0
4	Video shows	5840	1200	1100	900	1500	0	1160	0
	Total	24360	1299	1542	1038	1557	73	8696	27

D.2. Publications (Print & Electronic media)

S. No	Particulars	Numbers sold	Revenue generated (in Rs. lakh)	Number of farmers benefited
1	Books & Technical Bulletins	6186	148570	Mass
2	**Others** • Feed, different Seedlings, prototype, agro products, maize sheller, DVDs, drawings) etc. • KrishiPanchang • Krishi Darshika • IGKV Telephone Directory • Diary and Calendars of JNKVV • DVDs (Video film of different technologies)	- 50000 5950 1803 - 20	206000 1250000 505750 45075 750000 500	- Mass Mass Mass 1270 Mass
	Total	**63959**	**2905895**	

E. Technology Products provided

Particulars	Unit of quantity	Quantity	Value in Rs.	Number of farmers benefited
Farm implements	Numbers	150	1500000	2800
Processed products	Numbers	Different products (Seedlings, prototype, agro products tec.)	206000	4500
Total			**1706000**	**7300**

E. Technology services provided

S. No	Particulars	Number of farmers benefited
1	Details about the services to line Departments	102
2	Farmers' visited ATIC	15203
3	Mechanization Planning Advisory	2732
4	Plant diagnostics	183
5	Soil and water testing	0
6	Soil Health Cards issued & Farmers' training conducted in KVKs & NGOs	1271
7	Technologies on freshwater aquaculture (hatchery management, grow out culture and post harvest technology)	1145
8	Through Kisan Call Centre	823
9	Through Letters	0
10	Others (Krishi Gyan Portal)	2613
	Total	**24072**

17. List of Scientific, Technical and Adminstrative 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) (On study leave)

PME Cell

Dr. S.R.K.Singh, Principal Scientist (Agrl. Extension)

Technical
Sh. Ashok Kumar Dubey, Driver

Adminstration

Assistant Adminstrative Officer
Sh. Sunil Kumar Gupta

Finance and Accounts Section
Sh. Rajeev Kulshrestha, Assistant Finance and Account Officer
Shri Ram Sandesh Gupta, LDC

PS to Director
Sh. A.K.Bhowal

Programme Assistant
Sh. R.K.Soni

Supporting
Sh. Sukhchain Das


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