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वार्षिक प्रतिवेदन
ANNUAL REPORT
2021

भाकृअनुप
ICAR

भाकृअनुप-कृषि प्रोद्यौगिकी अनुप्रयोग अनुसंधान संस्थान, क्षेत्र-9
ICAR-Agricultural Technology Application Research Institute, Zone IX

जबलपुर, मध्य प्रदेश - 482 004 | Jabalpur, Madhya Pradesh - 482 004

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ICAR-Agricultural Technology Application Research Institute, Zone IX

(Division of Agricultural Extension)

जबलपुर, मध्यप्रदेश - 482004

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CONTENTS

भाकृअनुप
ICAR

सारांश

भा.कृ.अनु.प.–कृषि प्रौद्योगिकी 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 1292 प्रक्षेत्र आंकलन, 12032 परीक्षण के द्वारा आयोजित किये गये। मध्यप्रदेश में 965 एवं छत्तीसगढ़ में 327 प्रक्षेत्र परीक्षणों का आयोजन किया गया। कुल प्रक्षेत्र परीक्षणों (1292) में से 896 प्रक्षेत्र परीक्षण फसलों पर व शेष 396 अन्य उद्यमों पर किये गये।

अग्रिम पंक्ति प्रदर्शन

प्रगति वर्ष के दौरान, कुल 1015 अग्रिम पंक्ति प्रदर्शन विभिन्न फसलों (दलहन, तिलहन, धन धान्य फसलें, सब्जी फसल, मोटे अनाज) पर आयोजित हुए। कुल प्रदर्शन 19773 किसानों के 7983.61 हे. क्षेत्र पर आयोजित हुए। आय सृजन वाले उद्यम पर भी अग्रिम पंक्ति प्रदर्शन आयोजित किये गये। जिसमें क्षेत्रफल की दृष्टि से 265.40 हे., तथा 1335 इकाईयाँ एवं 3001 लाभार्थियों की संख्या रही।

प्रशिक्षण एवम् क्षमता संवहन

कुल आयोजित 7035 प्रशिक्षणों में 201420 लाभार्थीयों (कृषक, महिलायें, ग्रामीण युवक, प्रसार कर्मी) ने भाग लिया। भारतीय कृषि अनुसंधान परिषद् की विभिन्न संस्थाओं के सहयोग से कृषि प्रौद्योगिकी अनुप्रयोग अनुसंधान संस्थान, जबलपुर द्वारा आयोजित 42 क्षमता संवहन कार्यक्रम से मध्यप्रदेश एवं छत्तीसगढ़ के कृषि विज्ञान केन्द्रों के 2168 विषय वस्तु विशेषज्ञ लाभान्वित हुए।

प्रसार गतिविधियाँ

वर्ष 2021 में कुल 60125 प्रसार गतिविधियों (प्रक्षेत्र दिवस, किसान मेला, कृषक सलाहकारी सेवाएं, प्रदर्शनी, फिल्म शो आदि) के माध्यम से विभिन्न तकनीकों के प्रसार से 2595145 किसान एवं प्रसार कर्मी लाभान्वित हुए।

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

कृषि विज्ञान केन्द्रों द्वारा 20999.32 क्विंटल बीज, 54.43 लाख रोपण सामग्री (धन–धान्य फसलें, दलहन, तिलहन, सब्जी, औषधीय पौधे, फलदार पौधे) का उत्पादन किया गया। कृषि विज्ञान केन्द्रों द्वारा 966005.59 क्विंटल जैव उत्पाद एवं 588014.34 पशु उपयोगी सामग्री का भी उत्पादन किया गया।

मृदा, जल एवं पौधों का परीक्षण

क्षेत्र के कृषि विज्ञान केन्द्रों ने 24917 मृदा एवं 122 जल नमूनों का परीक्षण किया जिससे 5711 गांव के 35413 किसान लाभान्वित हुए।

वैज्ञानिक सलाहकार समिति की बैठक

वर्ष 2021 में कुल 113 वैज्ञानिक सलाहकार समिति की बैठकों का आयोजन किया गया। इनमें से म.प्र. के 22 कृषि विज्ञान केन्द्रों द्वारा वर्ष में एक बार, 27 कृषि विज्ञान केन्द्रों द्वारा वर्ष में दो बार, 01 कृषि विज्ञान केन्द्र द्वारा वर्ष में तीन बार एवं 02 कृषि विज्ञान केन्द्र द्वारा वर्ष में चार बार उक्त बैठक आयोजित की गई। छत्तीसगढ़ के 26 कृषि विज्ञान केन्द्रों द्वारा वर्ष में एक बार उक्त बैठक आयोजित की गई।

एटिक वार्षिक प्रगति प्रतिवेदन

अटारी जबलपुर के अधीन 4 एटिक संस्थान हैं। वर्ष में 5781 कृषकों ने एटिक में भ्रमण किये तथा तकनीकी सूचनाओं से 3244 कृषक लाभान्वित हुए। प्रकाशन के अन्तर्गत, 47515 प्रकाशित प्रतियाँ विक्रय की गयी, जिससे कुल 23.24 लाख रुपये अर्जित हुए।

पुरस्कार एवं सम्मान

कृषि विज्ञान केन्द्र धार–1 (म.प्र.) एवं कृषि विज्ञान केन्द्र कोरिया (छ.ग.) को पण्डित दीनदयाल उपाध्याय कृषि विज्ञान प्रोत्साहन पुरस्कार– 2020 राष्ट्रीय स्तर पर प्राप्त हुआ। कृषि विज्ञान केन्द्र कोरिया (छ.ग.) का बेस्ट एग्रीकल्चर अवार्ड प्राप्त हुआ। साथ ही निदेशक अटारी डॉ एस. आर. के. सिंह को एग्री एक्सटेंशन अवार्ड– 2021 से पुरस्कृत किया गया।

कृषि विज्ञान केन्द्रों में आगन्तुको का आगमन

वर्ष 2021 में जोन–9 के कृषि विज्ञान केन्द्रों में 193787 आगन्तुको का आगमन हुआ, जिसमें कुल 176133 किसान, 1223 अधिकारीगण एवं 5438 गणमान्य व्यक्ति शामिल थे।

भाकृअनुप
ICAR

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 2021 year, 1292 technologies were assessed in the Zone through 12032 On-Farm Trials. The highest number of technologies were assessed in the state of Madhya Pradesh (965) followed by Chhattisgarh (327). Out of total technologies assessed, 896 were on crops and remaining 396 technologies on enterprises.

Frontline Demonstrations

During 2021 year, 1015 FLDs were conducted on crops (oilseeds, pulses, cereals, vegetables crops, cash crops, agro-forestry, millets, etc.) covering the total area 7983.61 ha. benefiting 19773 farmers. FLDs were also conducted on important income generating enterprises, covering the 1335 units and 265.40 ha area among 3001 beneficiaries.

Training and Capacity Building

During the year there was a significant increase in the number of training and participants. In 7035 organized courses, 201420 participants (farmers and farm women, rural youth, extension personnel) and those sponsored from different agencies were benefitted. ICAR-ATARI, Jabalpur also organized 42 capacity building programmes in collaboration with ICAR institutes for technical upscaling of 2168 Subject Matter Specialists in the Zone.

Extension Activities

A total of 60125 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 2595145 farmers and extension personnel in the ICAR-ATARI, Zone-IX

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

KVKs of the Zone produced total 20999.32 q of seed and 54.43 lakhs of planting material of different crops (cereals, pulses, oilseeds and vegetables), medicinal plants, fruits, etc. and distributed among farmers. Besides, these KVKs of the Zone also produced 966005.59 q bio-products and 588014.34 livestock products at their farms.

Soil, Water and Plant Analysis

During the year 2021, total 24917 soil samples and 122 water samples were analyzed by KVKs of the Zone touching 35413 farmers of 5711 villages.

Technological backstopping

Technological backstopping were carried out through production of 141337 copies of technical literature, newsletters etc. of which 135764 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, 22 KVK organized SAC meeting once, 27 KVKs organized meeting twice, 1 KVKs organized thrice and 2 KVKs organized four times during the reporting period. In Chhattisgarh, 26 KVKs organized SAC meeting once during the reporting period.

ATIC Progress

In the Zone IX, four ATICs are operational under ATARI, Jabalpur. In these ATICs there were 5781 footfalls during the year 2021. Technological information was provided to 3244 farmers. A total 47515 publications (print & electronic media) were sold and generated revenue of Rs. 23.24 lakh.

Awards and Recognitions

Krishi Vigyan Kendra Dhar-I (M.P.) and KVK Korea(C.G.) has been awarded Pt. Deen Dayal

Upadhyay Krishi Vigyan Protsahan Award–2020. Krishi Vigyan Kendra Korea has been awarded Best Agriculture Award in innovative and improved technological interventions for tribal farmers. Agri Extension Award 2021 has been awarded to Dr. S. R. K Singh, Director (Act.) in the category of Excellence in Dissemination from Lab to Farm.

Footfalls in KVKs

In the KVKs of Zone IX, there was 193787 footfalls (176133 farmers, 1223 officials and 5431 dignitaries/VIPs) during 2021.

1. INTRODUCTION

Agricultural Technology Application Research Institute (ATARI) started in 2015 after upgrading of ZPD which was renamed from 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 Institute coordinates, monitors and evaluates the mandated activities of 82 KVKs spread across two States - Madhya Pradesh and Chhattisgarh.

Major activities of ATARI

- Formulation, implementation, monitoring and evaluation programmes organized by Krishi Vigyan Kendras
- Coordination among 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	28	27	01	0	0	0	28
Madhya Pradesh	52	44	0	01	08	01	54
Total	**80**	**71**	**01**	**01**	**08**	**01**	**82**

SAU - State Agricultural University; **VU-** Veterinary 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
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
Lokmata 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
KVK, Vidisha (non-functional)*	1
Bhausahab Bhuskute Smriti Lok Nyas Sansthan, Bankhedi, Hoshangabad	1
Chhattisgarh	28
Indira Gandhi Krishi Vishwa Vidyalaya, Raipur	27
Dau Shri Vasudev Chandrakar Kamdhenu Vishwavidyalaya , Durg	1

*KVK Vidisha under process of reopening.

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 (FLD's) 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

The current staff position in KVKs of Zone-IX is given in Table 1.3. Out of the total posts, 66.29 per cent are filled while remaining 33.71 per cent are lying vacant. The percentage of vacant posts is comparatively higher in case of technical and administrative categories.

Table1.3. 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	197	162	109	108	63	594	369
Chhattisgarh	28	28	17	168	136	84	70	56	23	308	229
Total	**82**	**82**	**61**	**492**	**333**	**246**	**179**	**164**	**86**	**902**	**598**

The detail of budgetary provision of KVKs under Zone-IX, Jabalpur is given in Table 1.4.

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

S. No.	States & Institute	Rs. in lakh		
		Pre revised Estimate	Revised Estimate	Total Release/ Expenditure
1	Madhya Pradesh	9043.87	9183.30	9183.30
2	Chhattisgarh	4418.01	4478.05	4478.05
4.	ATARI, Zone IX	551.78	228.31	224.48
Total		**14013.66**	**13889.66**	**13885.83**

The details statuses 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 during 2021

S. No.	States	No. of KVKs	Admn. Building			Trainees Hostel			Staff Quarters		
			Comp-leted	In prog-ress	NA	Comp-leted	In prog-ress	NA	Comp-leted	In prog-ress	NA
1	Madhya Pradesh	54	51	2	1	47	2	-	41	1	-
2	Chhattisgarh	28	22	6	-	17	3	-	6	-	-
Total		**82**	**73**	**8**	**1**	**64**	**5**		47	1	-

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

There are 80 rural districts under the jurisdiction of Zone-IX, Jabalpur which is covered by 82 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	Anuppur, Dindori, Mandla, Shahdol, Umaria.	05
	Bundelkhand Region	Chattarpur, Datia, Tikamgarh.	03
	Gird Zone	Ashoknagar, Bhind (lahar), Guna, Gwalior, Morena, Shivpuri, Sheopur.	07
	Kymore Plateau and Satpura Hills	Jabalpur, Katni, Panna, Rewa, Satna, Sidhi, Singarauli, Seoni,	08
	Jhabua Hills	Alirajpur ,Jhabua,	02
	Malwa Plateau	Agar Malwa, Dhar, Dhar-II, Dewas, Indore, Neemach, Mandsaur , Ratlam, Rajgarh, Shajapur, Ujjain.	11
	Nimar Valley	Badwani, Burhanpur, Khandwa, Khargone,	04

State	Agroclimatic Zones (ACZ)	KVKs	No. of KVKs
	Satpura Plateau	Betul, Chhindwara, Chhindwara-II	03
	Vindhya Plateau	Bhopal, Damoh, Raisen,Sehore, Sagar, Sagar-II ,Vidisha	07
	Central Narmada Valley	Narsinghpur, Narmadapuram*(Bankhedi), Harda	03
Total	**11 ACZs**		**54**
CG	Chhattisgarh Plains	Bilaspur, Bemetra, Balod Baloda Bazar (Bhatapara), Dhamtari, Durg, Durg-II, Gariyaband, Janjgir-Champa, Korba, Kanker, Kabirdham, Mahasamund, Mungeli, Raipur, Raigarh, Rajnandgaon,	17
	North Hills of Chhattisgarh	Ambikapur (Surguja I), Balrampur Jashpur, Korea, Surguja(II).	05
	Bastar Plateau	Bastar, Bijapur, Dantewada, Narayanpur, Sukma,	06
Total	**ACZs**		**28**

*New name of Hoshangabad district.

Thrust Areas of the KVKs under Zone-IX, Jabalpur

Nine 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 rain water harvesting, *in-situ* moisture, soil and water conservation including sustainable farm mechanization.
- Development and promotion of crop/enterprise diversification and alternate land use system.
- Integrated pest and disease management for cost reduction and eco friendly environment through supporting practices.
- Promotion of rural entrepreneurship (livestock, goatery, poultry, fishery, mushroom, lac, bee keeping etc. by production, processing, value addition and marketing) for additional income generation.
- Empowerment of farm women and rural youth through income generating activities and drudgery reduction.
- Alternate sustainable livelihood support system in rural areas for marginal and small farmers, landless laborers and farm women to check migration.
- Promoting climate resilient agriculture for sustaining rainfed farming.
- Promotion of Nutrition Sensitive Agriculture through Nutri-Smart Villages.

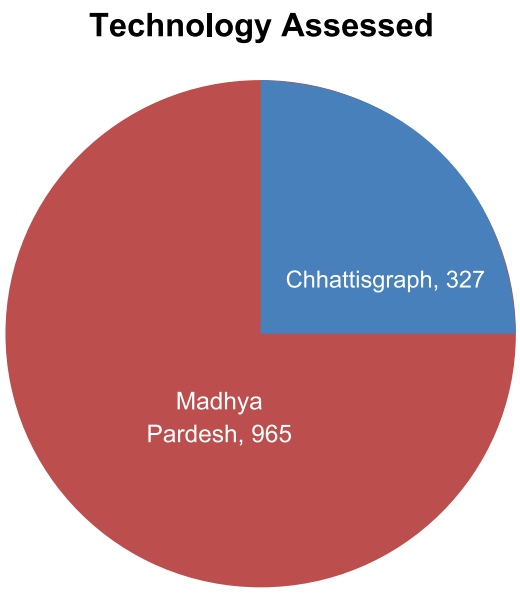
2. TECHNOLOGY ASSESSMENT THROUGH ON-FARM TESTING

The claimed superiority of location-specific technologies were tested by KVKs through On-Farm Testing's (OFTs) and the numbers of technologies tested as well as trials are given in below mentioned tables. Overall 1292 technologies were tested in the zone through 12032 different trials (Table 2.1) of which 896 were on crops, 396 on different enterprises like livestock, fishery, mushroom, etc and 151 on different aspects of women empowerment like drudgery reduction, nutritional security, value addition, etc. The highest number of technologies were tested in the state of Madhya Pradesh (965) followed by Chhattisgarh (327) as the number of KVKs are also in the same order.

Table 2.1: State wise overall technology assessed during 2021

State	No. of technology assessed	No. of Trials
Chhattisgarh	318	1866
Chhattisgarh (ICT)	9	270
Total (Chhattisgarh)	327	2136
Madhya Pradesh	903	6224
Madhya Pradesh (ICT)	62	3672
Total	**965**	**9896**
Total (Madhya Pradesh)	**1292**	**12032**

State wise overall technology assessed and No. of Trials during 2021



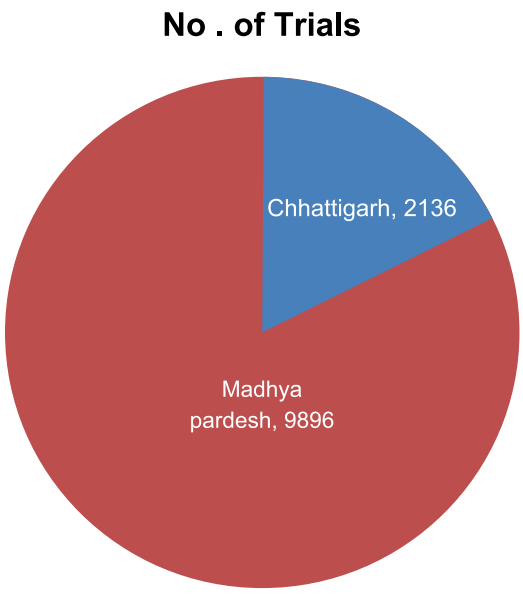


Table 2.2: Category-wise OFTs conducted on crops

Crop Category	Number of technology Assessed			No. of trials		
	CG	MP	Total	CG	MP	Total
Agro Forestry	2	6	8	25	30	55
Cash	1	2	3	4	12	16
Cereal	80	171	251	450	1212	1662
Milets	7	4	11	35	25	60
Oilseed	20	101	121	690	121	810
Pulse	33	119	152	186	784	970
Fodder	2	9	11	7	67	74
Spice	8	46	54	35	323	358
Fibre	1	3	4	4	24	28
Vegetable	51	142	193	288	904	1192
Tuber	11	7	18	60	55	115
Fruits	7	19	26	31	128	159
Flower	5	8	13	33	57	90
Medicinal	-	2	2	-	20	20
Mushroom	1	1	2	5	10	15
Others	8	19	27	45	163	208
Grand Total	**237**	**659**	**896**	**1898**	**3935**	**5832**

Category wise OFTs conducted on crops

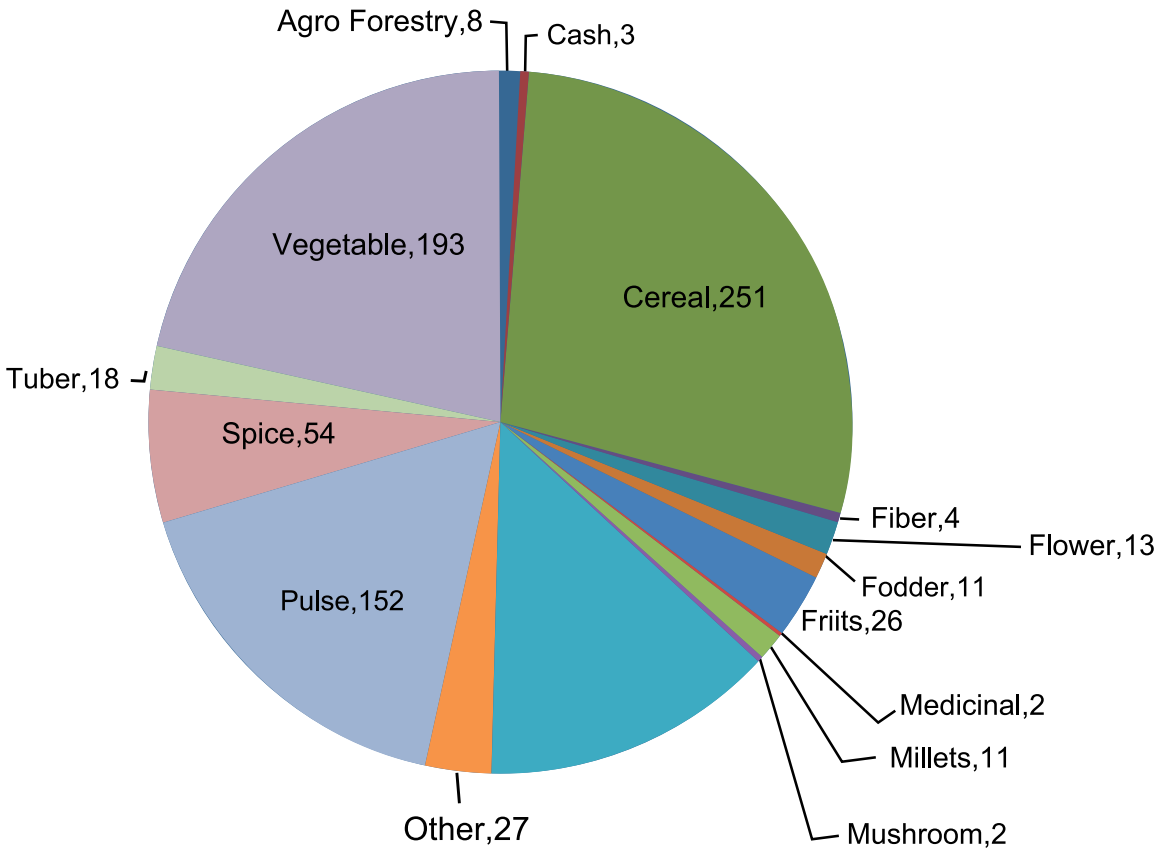


Table 2.2: Thematic area wise OFTs conducted on crops

Thematic Area	Number of technology Assessed			No. of trials		
	CG	MP	Total	CG	MP	Total
Crop Diversification	4	13	17	32	97	129
Feed and Fodder Production	1	5	6	4	37	41
Integrated Crop Management	40	39	79	219	280	499
Integrated Disease Management	17	60	77	75	364	439
Integrated Farming System	-	8	8	-	40	40
Integrated Nutrient Management	41	99	140	216	715	931
Integrated Pest Management	39	107	146	229	751	980
Integrated Plant Nutrient Management	9	3	12	51	22	73
Integrated Weed Management	21	37	58	123	249	372
Intercropping	-	20	20	-	130	130
Nursery Raising	1	4	5	5	25	30
Post Harvest Management	2	3	5	12	30	42
Resource Conservation Technology	3	17	20	16	99	115
Soil Fertility Management	4	31	35	22	271	293
Varietal Evaluation	52	208	260	312	1369	1681
Others	3	5	8	12	25	37
Grand Total	**237**	**659**	**896**	**1328**	**4504**	**5832**

Thematic Area wise OFTs conducted on crops

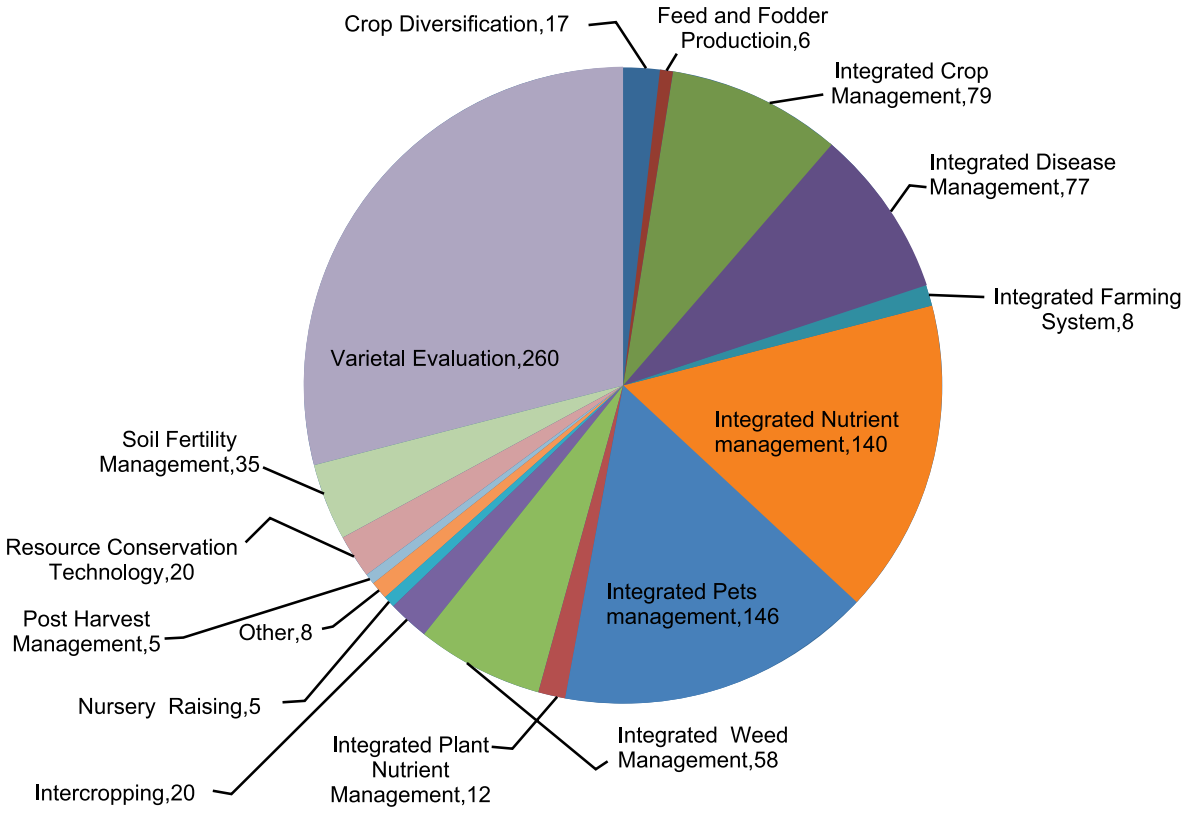
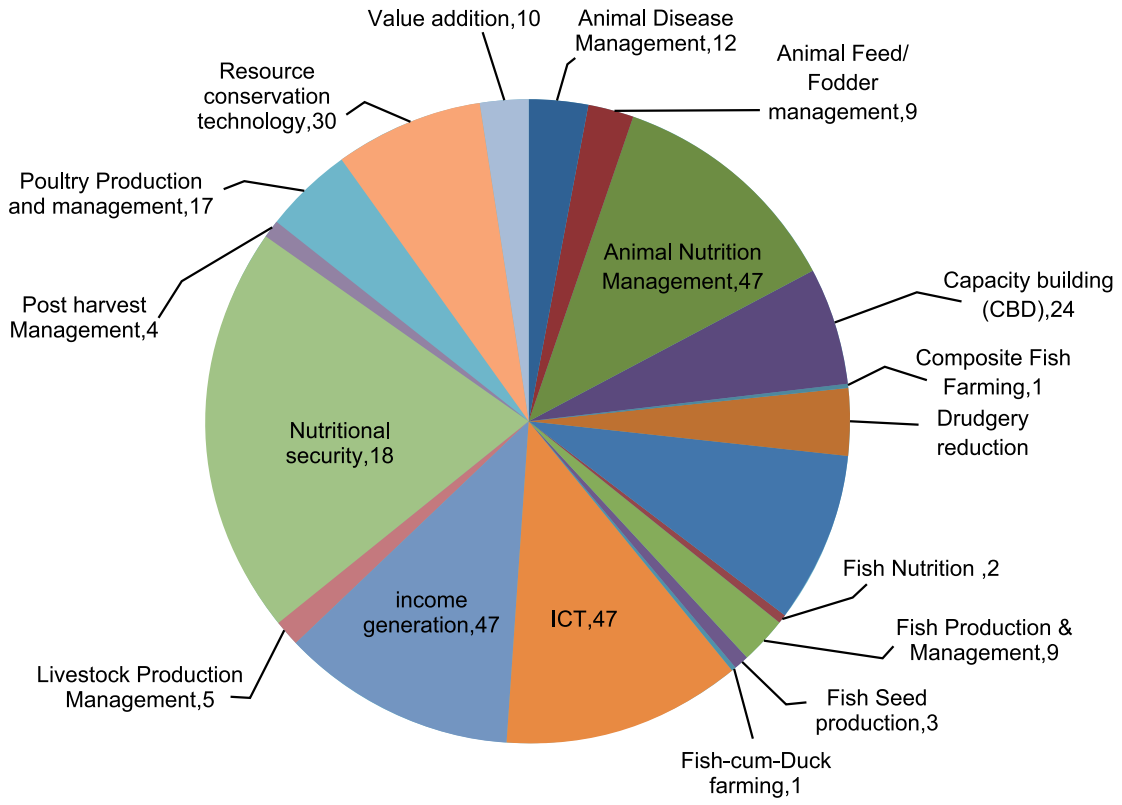


Table 2.3: Thematic area wise number of technologies assessed on enterprises

Thematic Area	No of technology assessed			No of Trials		
	CG	MP	Total	CG	MP	Total
Farm Mechanization	22	12	34	120	65	185
Post Harvest Management	4	-	4	18	-	18
Resource Conservation Technology	8	22	30	42	136	178
Animal Disease Management	2	10	12	8	65	73
Animal Feed / Fodder Management	3	6	9	21	40	61
Animal Nutrition Management	4	43	47	45	331	376
Livestock Production Management	2	3	5	9	12	21
Poultry Production and management	8	9	17	39	72	111
Composite Fish Farming	-	1	1	-	4	4
Fish Nutrition	1	1	2	4	3	7
Fish Production & Management	6	3	9	23	9	32
Fish Seed Production	3	-	3	21	-	21
Fish-cum-Duck Farming	1	-	1	5	-	5
Drudgery reduction	-	13	13	-	97	97
Income generation	5	42	47	54	294	348
Nutritional security	9	72	81	85	532	617
Value addition	3	7	10	44	60	104
Capacity building (CBD)	6	18	24	165	523	688
ICT	3	44	47	105	3149	3254
Grand Total	**90**	**306**	**396**	**808**	**5392**	**6200**



TECHNOLOGIES ASSESSED FOR MAJOR CROPS/ENTERPRISES

Varietal Assessment

SOYBEAN

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

Technology Assessed: Assessment of soybean improved varieties (RVS 2001-4, JS 20-98, JS 20-69)

Soybean is a major Kharif oilseed crop grown by the farmers of Madhya Pradesh and some districts of Chhattisgarh. Use of old varieties by the farmers due to non availability of quality seeds of improved varieties results in low productivity of soybean at farmers' field. Keeping this in view 83 trials were conducted by 12 KVK's i.e Betul, Burhanpur, Chhindwara, Dhar, Khargone, Sheopur, Shivpuri, Ujjain, Umaria, Tikamgarh of Madhya Pradesh and Kawardha and Rajnandgoan of Chhattisgarh to assess the performance of the improved varieties of Soybean. The results reveal that the yield of improved varieties under treatment T2 attained higher yield over the farmers' practices.

The results of the assessment revealed that the variety RVS 2001-04 (T_2) and JS 20-69 (T_2) gave 22.44 % and 22.61 % higher yield over traditional variety JS 335 in T_1. The incremental net return was Rs. 47606 and Rs. 46346 per ha over T_1 respectively along with 3.20 and 3.14 B: C ratio. The variety assessment of JS 20-98 (T_3) yields 32.24 % higher yield over T_1 with net returns of Rs. 57854 per ha along with 3.30 B:C ratio. The assessed trials suggest that cultivation of high yielding improved varieties of soybean with proper package of practices will prove more promising and economically viable for the farmers.

Table 2.4: Performance of improved varieties of Soybean

Details	No. of trials	Yield (q/ha)	Net Return (Rs/ha)	B:C Ratio
Soybean variety JS 335 (Farmers' practice) T1	83	10.78	32709	2.55
Soybean variety RVS 2001-04 (Recommended practice)		13.90	47606	3.20
Soybean variety JS 20-69 (Recommended practice)		13.93	46346	3.14
Soybean variety JS 20-98 (Recommended practice) T3		15.91	57854	3.30

Varietal assessment of soybean

Plant Protection

Problem Identified: Low yield of chickpea due to heavy infestation of pod borer

Technology assessed: Integrated Pest Management module for pod borer in Chickpea

Pod borer is a major pest of chickpea, which is responsible for heavy reduction (20-35%) in yield. KVK Khandwa, Neemuch, Sehore, Seoni, Singrauli, Ujjain from Madhya Pradesh and Anjora-Durg, Bastar, Bilaspur, Kanker from Chhattisgarh conducted 53 On-Farm Trials on integrated pod borer management in chickpea. The technology for pod borer management assessed were T_3- deep summer ploughing+ resistant variety + optimum seed rate (75kg/ha) + mix 5g rabi sorghum seed with chickpea seed/bird percher 50/ha+light trap 5/ha + pheromone trap 10/ha+ *Bacillus thuringiensis* var. Kurstaki 1kg/ha+ need based application of emamectin benzoate 5 SG 220 g/ha., Results of the OFTs showed that the yield of chickpea increased in T_3 by 3.00 per cent in comparison to T_1 and T_2, while Insect infestation per cent decreased by 52.82 and 40.44 per cent respectively over T_1 and T_2. The net return increased as Rs. 9111.55 and 6391 per ha, while B:C ratio increased by 0.32 and 0.22 units respectively over T_1 and T_2. 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 insecticides only.

Table 2.5: Performance of IPM for Management of Pod borer in Chickpea

Details of Technology	No. of trials	Insect infestation (%)	Yield (q/ ha)	Net return (Rs/ ha)	B:C ratio
Spray of Profenophos 50 EC @1 litre/ha. at pre flowering stage. (Farmers' practice T_1)	53	19.12	10.35	29965	2.46
Spray of Profenophos 50 EC @ 1 litre /ha. at flowering stage followed by Flubendamide 48 SC @ 150 ml./ha. at pod formation stage + 20-30 "T" bird percher /ha + one row of marigold on border (T_2)		9.02	12.48	39077	2.78
Deep Summer Ploughing + Resistant variety+ Optimum seed rate (75kg/ha)+Mix 5g rabi sorghum seed with chickpea seed/bird percher 50/ha+light trap 5/ha + pheromone trap 10/ha+*Bacillus thuringiensis* var. Kurstaki 1kg/ha+ Need based application of emamectin benzoate 5 SG 220 g/ha. (T_3)		5.02	12.93	45468	3.00

Integrated pest management for pod borer in chickpea

Soil Science

Integrated Nutrient Management in Rice

Recommended dose of NPK along with Biofertilizers and organic manure 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 Biofertilizers and organic manure in Rice.

Deficiencies of primary, secondary and micronutrients have been observed in intensive cultivated area. KVKs have been tested the judicious use of balance dose of fertilizers (100:60:40 NPK kg/ha) along with biofertilizers (PSB, Azospirillum and KSB @ 10gm/seed and organic manures (FYM and Vermicompost @3 t/ha against farmers practice (80:50:0 NPK Kg/ha). In this regards, 22 OFTs were conducted by KVKs Balod, Dhamtari, Bhatapara, Korba, Rajnandgaon, Mahasamund, Surguja of Chhattisgarh and Datia, Narmadapuram, Mandla, Rewa, Jabalpur, Lahar (Bhind), Raisen, Seoni of Madhya Pradesh. The results showed that yield and yield attributes was directly influenced by the use of 50 % of RDF (NPK @100:60:40 Kg/ha based on STV) +25% NPK through vermicompost and FYM + Biofertilizer (PSB, Azospirillum, and KSB) through inorganic fertilizers(T_2) and use of Green manuring + 75% of RDF (NPK @100:60:40 Kg/ha based on STV) through inorganic fertilizers (T_3). The results showed that the seed yield was obtained 46.78 and 45.40 per cent higher under treatment T_2 and T_3, respectively over the farmers' practice. The number of effective tillers/hill was also 17 and 16 over farmer's practices, respectively. Similarly the incremental net return and B: C ratio was observed under the treatment T_2 (Rs. 57080 and 2.58 unit} over farmer's practice. The assessed technology in T_3 also performed well and gave Rs. 48421/ha net income with 2.23 unit over farmer's practice. On the basis of the above findings it may be concluded that the assessed technology under T_2 are more effective as these increases the crop yield vis-a-vis maintains the soil health and fertility.

Table 2.6: Response of integration of Recommended dose of NPK based on soil test value along with biofertilizers and organic manure in Rice

Details	No. of trials	Yield (q/ha)	Percent increase Yield	No. of effective tillers/ hill	Net Return (Rs/ha)	B:C Ratio
NPK @ 80:50:0 kg/ha (Farmers' practice-T_1)	22	39.35		11	43356	2.32
50% of RDF (NPK @100:60:40 Kg/ha) +25% NPK through vermicompost and FYM + Biofertilizer (PSB, Azospirillum, and KSB) through inorganic fertilizers (Recommended practice-T_2)		46.78	18.68	17	57080	2.58
Green manuring + 75% of RDF (NPK @100:60:40 Kg/ha) through inorganic fertilizers (Recommended practice-T_3)		45.40	15.37	16	48421	2.23

Assessment of recommended dose of NPK along with biofertilizers and organic manure in rice

Horticulture

Varietal Assessment of Onion

Problem identified: Low yield due to lack of awareness about improved variety

Technology Assessed: Assessment of high yielding Kharif onion varieties *viz*. Bhima Super and Red-3

Onion is one of the important vegetable widely used in all households around the year. Farmers used to low yielding variety and lack knowledge of scientific production technology are responsible for lowering the yield of kharif onion. There was 22 OFTs on Bhima Super variety and 19 OFTs on Red-3 variety were conducted by KVKs *viz*. Agar Malwa, Dewas, Indore, Jhabua, Khargone, Ratlam, Sagar, Tikamgarh and Jabalpur in MP and Bijapur, Kawardha, Mainpat, Rajnandgaon, Surguja and Balrampur in CG to assess the performance of the improved kharif varieties Bhima Super and Red-3. Results revealed that the yield of varieties Bhima Super and Red-3 were increased by 100.89 per cent and 40.32 per cent, respectively over farmer's practice. Economic analysis shows that for Bhima Super, net return and B:C ratio increased by Rs. 96640 per ha and 5.79, respectively over farmers practice. Similarly in Red-3 variety, net return and B:C ratio increased by Rs. 79979 per ha and 4.21, respectively over farmers' practice. Higher yield of onion was obtained from both HYV and improved package of practices.

Table 2.7: Performance of HYV varieties of onion

Details	No. of trials	Variety	Yield (q/ha)	Cost of cultivation (Rs/ha)	Net Return (Rs/ha)	B:C Ratio
Farmers' practices (T_1)	41	Bhima Super	159.34	82216	233097	4.46
Recommended practice (T_2)			320.10	86901	329737	5.79
Farmers' practices (T_1)		Red-3	173.41	74800	151927	3.43
Recommended practice (T_2)			243.33	78690	231906	4.21

Onion variety Red-3

Agriculture Engineering

Resource Conservation Technology

Furrow Irrigated Raised Bed Planting

Problem identified: One of the major concerns for successful crop production is water management – be it water saving or draining of excess rain water from the field. There is an ardent need to address both the issues.

Technology Assessed: Furrow irrigated raised bed planting

Application of water to crops is a crucial activity. If not managed well it ultimately results in low crop production. During monsoons, due to heavy rains and field conditions, water logging situations arise. Similarly while irrigating there may be scarcity of irrigation water. The furrow irrigated raised bed planting provides a better opportunity to address both the situations. On one hand the excess rainwater can be well managed, and on the other hand the irrigation water can be utilized more efficiently. In this technique, the crop is grown on raised beds and irrigation water is applied to the furrows. Lesser amount of water is required for irrigation as the furrows collect the water efficiently rather spreading it over the whole surface as in the case of other flood irrigation method. The technique provides a better micro-environment for the crops resulting in higher productivity.

KVK Katni, Kawardha, Mandsaur, Shajapur, Shivpuri and Umaria conducted 40 OFTs on raised bed planting of maize, pigeonpea, and chickpea. In case of Maize the incremental increase in yield, net return and B:C ratio over the conventional system were 4.92 q/ha, Rs. 7600.00 per ha and 0.16 respectively. In case of pigeonpea the incremental increase in yield, net return and B:C ratio over the conventional system were 2.69 q per ha, Rs. 15547.00 per ha and 0.52 respectively. In case of chickpea the incremental increase in yield, net return and B:C ratio over the conventional system were 4.36 q/ha, Rs. 11700.00 per ha and 0.61 respectively. Similar trends were observed in the 14 trials in the OFTs on Broad Bed & Furrow System on soybean and chickpea crops conducted by KVK Bhatapara, Bhopal and Kawardha. Overall the furrow irrigated raised bed concept proved to be better than the conventional planting technique.

Table 2.8: Furrow irrigated raised bed sowing

Details	No. of trials	Crop	Yield (q/ha)	Net Return (Rs/ha)	B:C Ratio
Conventional sowing after field preparation (Farmers' practices)T_1	40	Maize	35.63	27428	1.69
		Pigeonpea	12.56	57328	3.62
		Chickpea	14.24	55300	2.96
Furrow irrigated raised bed sowing (Recommended practice) T_2		Maize	40.55	35028	1.85
		Pigeon pea	15.25	72875	4.14
		Chickpea	18.6	67000	3.57

Raised bed planter

Raised bed planting of soybean

Animal Science

Animal Feed/Fodder Management

Cultivation and feeding of Azolla in buffaloes

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

Technology assessed: Assessment of Azolla feeding as a green fodder supplement in lean period on milk production in buffalo

Azolla is an aquatic fern that belongs to the Azollaceae family and its diameter ranges from 2.5 to 15 cm. The optimum temperature for growing Azolla is 18–28 °C with a pH of 4.5–7.0. Azolla has a symbiotic relationship with the nitrogen-fixing blue-green algae *Anabaena azollae*, which increases the protein content of Azolla and contains almost all amino acids specially lysine, pro-vitamins and vitamins cobalamin (B12). Also, because Azolla has low lignin content, it is easily digested by livestock and is being utilized as a green feed supplement for buffaloes.

Four KVKs Shahdol, Singrauli, Sagar I and Raisen from Madhya Pradesh conducted 40 trials to assess the effect of Azolla as green fodder for sustaining milk production. In recommended practice 1 to 1.5 kg Azolla 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 23.03% and 37.31%, respectively; indicates that supplementing existing feed with Azolla regularly at appropriate amount is beneficial in improving milk production of an animal.

Table 2.9: Assessment of feeding Azolla as green fodder supplement in scarcity period on milk production in dairy buffalo

Details	No. of trials	Avg. milk yield (Lit/day)	Avg. Net Returns (Rs.) in three month	B:C ratio
Feeding only dry fodder (Farmers' practices) T_1	40	5.675	974.25	1.65
Feeding dry fodder along with Azolla @ 1 to 1.5 kg /animal/day (Recommended practice) T_2		6.982	1337.82	1.86

Azolla production demonstration unit

Feeding azolla to the buffalo

Fisheries

Fish Seed Production

Problem Identified: High mortality and low survival rate of fish seed due to poor management of ponds, lack of feeding material, harmful insect, predatory fish & weed fishes in pond

Technology Assessed: Fish seed production in seasonal pond, nursery pond, and eradication of aquatic insect and predatory fishes

Quality fish seeds are the essential components for the fish growth. Pre-stocking management, proper management practices of seasonal as well as nursery pond depends on growth rate & survivality of fish seed. Because quality fish seed production is a key factor of aquaculture. Most of the farmer is using traditional practices. They are not using proper manuring, and poor quality supplementary feeding but increase survivality and growth rate of fish seed there is highly demand to floating feed vitamin mineral mixture, pre-stocking management like eradication of aquatic insect, predatory & weed fishes, supplementary feed, mahua oil cake and oil soap emulsion, post stocking management proper care & feeding of fish seed.

KVK Dhamtari conducted 2 trials on assessment of fish seed (fingerling) production at seasonal pond , KVK Dhamtari conducted 4 trials on assessment of pre stocking management of carp fry for its survivality and KVK Korba conducted 3 trials on assessment on fingerling production in seasonal pond through application of mahua oil cake while, KVK Korba conducted 3 trials on assessment on growth of stunted fingerling in farmer pond and KVK Raipur conducted 4 trials for increased rate of fry at nursery ponds through control of aquatic insects and gains maximum survival rate of 72.40 per cent .The same results were obtained by KVK Dhamtari.

Table 2.10: Performance of fish seed production

Details	No. of trials	Survival %	Cost of cultivation (Rs.)	Net Return (Rs.)	B:C Ratio
No use of supplementary feed, non-removal of aquatic insect and predatory and weed fishes (T1)	16	40.2	60,800	66450	1.7
Stocking of fish spawn catla, rohu, mrigala (10 Lac) application of mustard oil cake + Rice bran (1:1) application of lime @ 200-250 kg/ha. Use of oil soap emulsion @56 kg oil with 18 kg of any cheap soap/ha. (T2)		72.4	93282	129668	2.2

Seed inoculation

Collection of fish fingerlings

Home Science

Nutritional Security through Bio-fortified variety of Wheat

Problem identified- Malnutrition among the farm families due to low nutrient diet

Technology Assessed -Supplementation of Bio-fortified varieties for nutritional security

Biofortified crops can complement existing micronutrients interventions and have significant impact on health of children, adolescents and women. Looking above, KVK Chhindwara, Jabalpur, Khandwa , Umaria, Morena, Neemuch , Guna and Ratlam from Madhya Pradesh conducted 117 on-farm trials on different Bio fortified variety of Wheat like HI-1633 (Pusa Vani) , HI-1634 (Pusa Ahilya), Pusha Tejas (Hi 9759) , HI 8713 (Pusa Mangal), HI 8663 , WB-02 and Black wheat to conjume in meal of farm family for improvement of the nutritional status. The consumption of the same variety was ensured by the Aganwadi to the women in the concerned KVKs.

Table 2.11: Bio fortified varieties of wheat for Nutritional Security

Detail of Technology	No. of trials	Nutrient /100gm		
		Protein (%)	Iron (ppm)	Zn (ppm)
Lok-1 (Farmers Practices T_1)	117	10.57	-	-
HI-1633 (Pusa Vani) (Recommended Practices T_2)		12.4	41.6	41.1
Pusha Tejas (HI 9759) (Recommended Practices T_3)		12.0	42.1	42.8
WB-2 (Recommended Practices T_4)		12.4	40.0	42.0
HI-8663 (Poshan (Recommended Practices T_5)		11.7	47.0	-

Biofortified variety Pusha Tejas (HI 9759)

Biofortified variety WB-2

Drudgery Reduction of Farm Women

Problem identified: High drudgery and low efficiency of farm women during manual plucking of okra

Technology Assessed: Use of okra plucker for harvesting

During the plucking of okra the farm women who harvest okra have wrist pain, itching & discomfort on skin. During manual harvesting farm women suffers wrist pain due to force applied in the hands resulting in low harvesting efficiency. KVKs Sidhi and Guna of Madhya Pradesh conducted 12 trials on assessment of okra plucker for farm women to address the problem of manual plucking in okra. Results revealed that use of okra plucker showed increased work efficiency of 42.11 per cent and 51.82 per cent reduction in drudgery.

Table 2.12: Performance of Okra Plucker for farm women

Detail of Technology	No. of trials	Output (unit)	Est. Energy Expenditure kj/ min	WHR beat/min	% reduction in drudgery	% increase in efficiency
Manual plucking (Farmers Practices-T_1)	12	5.5	8.15	102	-	-
Use of okra plucker (Recommended Practices-T_2)		9.5	6.75	98	51.82	42.11

Bhindi picking

Okra plucking with the plucker

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 2021, 1015 FLDs were conducted on oilseeds, pulses, cereals, vegetables crops, cash crops, agro-forestry, millets, etc.; covering the total area 7983.61 ha and benefitting 19773 farmers. FLDs were also conducted on important income generating enterprises, covering the total area of 265.4 ha in Zone IX including 1335 units and 3001 beneficiaries (Table -3).

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

State	Categories	No. of Technology Demonstrated	Area (ha)	Unit (no.)	No. of FLDs (Beneficiaries)
Chhattisgarh	Crops	150	648.69	-	1789
	CFLD (Oilseed)	88	1466	-	3075
	CFLD (Pulses)	99	1128	-	2702
	Enterprises	69	119.8	83	802
Total		406	3362.49	83	8368
Madhya Pradesh	Crops	426	1617.92	-	4412
	CFLD (Oilseed)	105	1414.8	-	3527
	CFLD (Pulses)	147	1708.20	-	4268
	Enterprises	207	145.6	1252	2199
Total		885	4886.52	1252	14406
Total	Crops	576	2266.61	-	6201
	CFLD (Oilseed)	193	2880.8	-	6602
	CFLD (Pulses)	246	2836.2	-	6970
	Total	1015	7983.61	-	19773
	Enterprises	276	265.4	1335	3001
Grand Total	-	**1291**	**8249.01**	**1335**	**22774**

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

Categories	No. of FLDs	Area (ha)	Unit (no.)	Beneficiaries
Cereals	165	676.9	-	1700
Fodder	1	20	-	24
Medicinal	4	42	-	91
Cash	2	6	-	28
Millets	8	42	-	101

Categories	No. of FLDs	Area (ha)	Unit (no.)	Beneficiaries
Oilseeds	103	458.6	-	1104
Pulses	116	574.6	-	1526
Spices	39	100.4	-	343
Tuber	15	25.144	-	115
Vegetables	98	232.28	-	919
Fibres	9	44.9	-	116
Flowers	5	12.64	-	51
Fruits	11	31.15	-	83
Grand Total	576	2266.61	-	6201
Enterprises (ha/Units)				
Agriculture Engineering	58	229.4	-	542
Animal Science (ha/unit)	67	16	1335	660
Fisheries	8	20	-	44
Women Empowerment	120	-	-	1490
Other enterprises	23	-	-	265
Total	**276**	**265.4**	**1335**	**3001**
Grand Total	**852**	**2532.009**	**1335**	**9202**

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

Categories	No. of FLDs	Area (ha)	Unit (no.)	Beneficiaries
Cereals	116	429.6	-	1101
Medicinal	1	2	-	5
Millets	2	9	-	15
Oilseeds	86	375.8	-	907
Pulses	91	458.8	-	1235
Spices	30	78	-	251
Tuber	7	12	-	50
Vegetables	69	166.025	-	603
Fibres	9	44.9	-	116
Flowers	5	12.64	-	51
Fruits	10	29.15	-	78
Grand Total	426	1617.915	-	4412
Enterprises (ha/Units)				
Agriculture Engineering	35	123.6	-	251
Fisheries	2	14	-	10
Animal Science (ha/unit)	52	8	1252	512
Women Empowerment (ha/unit)	102	-	-	1218
Other enterprises	16	-	-	208
Total	**207**	**145.6**	**1252**	**2199**
Grand Total	**642**	**1812.915**	**1252**	**6743**

Table 3.3: Summary of FLDs conducted by KVKs of Chhattisgarh

Categories	No. of FLDs	Area (ha)	Unit (no.)	Beneficiaries
Cash	2	6		28
Cereals	49	247.3		599
Fodder	1	20		24
Medicinal	3	40		86
Millets	6	33		86
Oilseeds	17	82.8		197
Pulses	25	115.8		291
Spices	9	22.4		92
Tuber	8	13.144		65
Vegetables	29	66.25		316
Fruits	1	2		5
Grand Total	150	648.694		1789
Enterprises (ha/Units)				
Agriculture Engineering	23	105.8		291
Fisheries	06	06		34
Animal Science (ha/unit)	15	8	83	148
Women Empowerment (ha/unit)	18	-	-	272
Other enterprises	07	-	-	57
Total	**69**	**119.8**	**83**	**802**
Grand Total	**203**	**704.08**	**83**	**2270**

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* (T2)	FP** (T_1)		FP (T_1)	RP (T_2)
Cereals								
Maize	5	25	65	36.69	28.35	29.41	25481	40022
Paddy	5	30.2	65	44.77	40.83	9.64	53512	69232
Wheat	4	42	102	37.8	30.79	22.78	41690	56564
Fiber								
Cotton	1	16	40	18.5	14.26	29.73	37800	57850
Fodder								
Napier	1	20	24	480	300.00	60.00	41000	79000
Fruits								
Banana	1	2	5	735	710.00	3.52	552000	573000
Watermelon	1	2	5	378	277.00	36.46	117600	167400
Medicinal								
Citronella	1	5	9	0.96	0.58	65.52	13040	30420
Lemon grass	2	32	72	14.73	10.97	34.33	11525	39838
Vetiver	1	5	10	30	12.00	150.00	50000	136000
Millets								

Crops	No. of FLDs	Area (ha)	No. of farmers	yield (q/ha)		% Change	Net Return (Rs/ha)	
				RP* (T2)	FP** (T_1)		FP (T_1)	RP (T_2)
Finger Millet	1	5	12	9.8	5.50	78.18	6223	21195
Oilseeds								
Groundnut	1	5	12	7	0.00	0.00	0.00	24350
Linseed	1	10	25	9.3	6.80	36.76	17400	23400
Mustard	5	44	117	11.59	8.95	29.55	21096	29948
Niger	1	4	10	4.5	3.00	50.00	8300	14700
Sesame	3	8	20	5.69	4.17	36.37	18150	30767
Soybean	6	31	82	12.72	10.18	24.94	23362	34316
Pulses								
Black gram	8	65	169	7.78	5.90	32.00	15465.92	25759.89
Chickpea	8	90	232	12.95	9.70	33.53	26240.27	39723.07
Green gram	1	10	25	8.48	6.02	40.86	10396	27440
Lentil	1	10	25	11.4	9.20	23.91	41200	53400
Pigeon pea	4	25.8	67	12.63	8.69	45.29	36191.43	57414.23
Spices								
Chilli	3	5	32	288.29	194.90	47.92	89126	122261
Tuber								
Elephant foot yam	3	4.12	23	514.07	356.67	44.13	317315.80	589230.60
Vegetables								
Brinjal	4	6	41	164.85	129.35	27.45	96792	157856.20
Cauliflower	1	2	14	188.84	41.25	357.79	88044	123588
Cucumber	1	2	5	482.5	262.50	83.81	248700	295000
Okra (Bhindi)	1	2	5	108	70.00	54.29	105000	176000
Onion	2	3	15	214.93	177.86	20.84	94361.67	120924
Tomato	4	5.1	31	653.94	433.59	50.82	280328.70	486578.20
Seasonal vegetable	7	30.25	124	185.92	131.22	41.69	45091.93	95516.98
Grand Total	**88**	**546.47**	**1483**	**65.25**	**45.78**	**42.54**	**37694.00**	**60674.18**

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

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* (T2)	FP** (T_1)		FP (T_1)	RP (T_2)
Cash								
Sugarcane	1	5	12	910	729.2	24.79	156320	216500
Cereals								
Paddy	10	35.8	97	40.84	35.13	16.23	38142.91	48060.17
Wheat	1	2	5	43.96	35.47	23.94	46840	61420
Fiber								
Cotton	1	2.85	7	17.85	13.4	33.21	17000	37250

Crops	No. of FLDs	Area (ha)	No. of farmers	yield (q/ha)		% Change	Net Return (Rs/ha)	
				RP* (T2)	FP** (T_1)		FP (T_1)	RP (T_2)
Oilseeds								
Mustard	4	11	37	29.25	18.25	60.34	77117.27	98062.36
Soybean	4	14	34	16.61	13.80	20.40	44587.86	57647.86
Pulses								
Black gram	4	12	35	8.13	5.68	43.05	18749.92	32395.25
Chickpea	8	28.8	71	16.85	13.95	20.79	47080.29	60124.86
Green gram	2	4	15	15.66	12.41	26.19	67449.86	91295.78
Pigeon pea	1	2	5	16.2	12.8	26.56	60300	78700
Spices								
Chilli	1	4	10	235	189	24.34	158000	229500
Garlic	1	2.5	10	106.2	96.77	9.74	205722	238615
Ginger	1	2.4	12	172.45	135.25	27.50	215200	298930
Tuber								
Potato	1	2	10	111.6	95.9	16.37	312840	452900
Vegetables								
Onion	3	11	29	161.95	143.23	13.07	217607.5	245014.3
Tomato	4	8.8	32	364.57	299.33	21.79	220909.8	276375.9
Grand Total	**47**	**148.15**	**421**	**95.95**	**78.81156**	**21.75**	**83423.76**	**106822.6**

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

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* (T2)	FP** (T_1)		FP (T_1)	RP (T_2)
Cereals								
Maize	9	29	82	45.81	36.83	24.37	36368.14	49487.72
Paddy	12	41	102	43.24	35.81	20.76	46736.99	60972.93
Sorghum	1	4	10	32.8	26.5	23.77	48075	62140
Wheat	12	42.2	114	40.98	33.33	22.96	40589.51	55304.71
Fiber								
Cotton	1	4	7	20.78	18.58	11.84	78116	89635
Fruits								
Banana	1	2	5	735	711	3.38	556000	577000
Guava	1	4	10	304.8	251.8	21.05	152000	214000
Millets								
Finger Millet	1	1	12	10.9	7.5	45.33	11327.5	20009
Oilseeds								
Linseed	1	4	10	11.45	9.15	25.14	24438	31663
Mustard	5	18.2	51	12.12	9.09	33.19	25965.63	37148.71
Soybean	7	26	57	25.81	20.98	43.8	49746.46	68803
Pulses								
Black gram	2	4.4	17	7.58	5.94	27.53	22782.55	30513.09

Crops	No. of FLDs	Area (ha)	No. of farmers	yield (q/ha)		% Change	Net Return (Rs/ha)	
				RP* (T2)	FP** (T_1)		FP (T_1)	RP (T_2)
Chickpea	14	50.8	128	15.02	11.26	33.42	31881.18	48893.9
Field pea	1	8	20	10.6	9.12	16.23	33520	40200
Pigeon pea	3	11	33	13.07	10.3	26.91	30530.91	42626.64
Spices								
Chilli	3	8	25	153.43	127.59	20.24	198129	245740
Coriander	2	4.2	18	17.7	16.09	9.97	56828.99	64467.46
Garlic	2	4	10	107.77	87.65	22.95	305347.5	426804.5
Ginger	1	2	5	188.55	136.51	38.12	376840	567263
Tuber								
Potato	3	4	15	241.28	186.46	29.39	112508.8	159737.5
Vegetables								
Cabbage	2	2	20	266.53	223.69	19.15	103040	127854.5
Cauliflower	5	12.9	42	242.33	237.28	2.13	126248.3	178137.6
Cucumber	1	1	5	126.3	92.82	36.07	114410	173560
Onion	4	5	35	250.05	186.67	33.96	126077.2	213738.4
Tomato	3	14	35	348.5	335.04	4.02	150171.4	217292.9
Grand Total	**97**	**306.7**	**868**	**73.17**	**63.83**	**14.64**	**64255.88**	**88006.69**

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

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* (T2)	FP** (T_1)		FP (T_1)	RP (T_2)
Cash								
Lac	1	1	16	2.73	1.99	37.19	23330	35110
Cereals								
Maize	4	14	32	42.25	29.5	43.22	32066.43	52742.86
Paddy	21	70.8	183	42.69	35.80	19.23	44224.12	53098.54
Wheat	2	6	12	42.6	38.65	10.24	45538.00	45763.33
Fiber								
Cotton	3	10	32	17.81	14.7	21.17	53808	72286
Fruits								
Papaya	1	1	12	210	132	59.09	525000	862000
Oilseeds								
Mustard	6	17.8	50	12.28	9.98	23.06	29003.31	39108.37
Sesame	2	4	10	6.29	3.985	57.84	17048.5	31425
Soybean	8	32.6	75	23.54	19.19	45.88	109340.8	146663.9
Pulses								
Black gram	2	6.8	17	8.37	5.92	41.29	17206.35	31480.24
Chickpea	10	30.6	89	15.23	12.04	26.49	34575.87	47899.05
Pigeon pea	2	4	11	14.28	10.32	38.39	42445	63553
Spices								

Crops	No. of FLDs	Area (ha)	No. of farmers	yield (q/ha)		% Change	Net Return (Rs/ha)	
				RP* (T2)	FP** (T_1)		FP (T_1)	RP (T_2)
Chilli	4	7	25	184.99	156.24	18.40	189450	240228.6
Garlic	3	9.6	35	103.51	86.75	19.32	181447.7	212574.5
Tuber								
Potato	1	2	5	380	320	18.75	185000	228000
Vegetables								
Brinjal	6	12.05	42	337.52	284.41	18.67	148016.1	196676.4
Cabbage	1	2	5	340.8	310.7	9.69	163240	183585
Cowpea	1	2	5	139.4	102.5	36	111700	162670
Okra (Bhindi)	1	1	5	89.2	65.63	35.91	90624	128464
Onion	4	13.6	40	301.97	262.37	15.10	195900.4	246499
Tomato	1	1	12	457	275	66.18182	230000	402000
Grand Total	**84**	**247.85**	**713**	**73.95**	**61.55**	**20.15**	**76050.49**	**98985.96**

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

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* (T2)	FP** (T_1)		FP (T_1)	RP (T_2)
Cereals								
Maize	3	10	28	32.06	24.04	33.38	11782	48567.2
Paddy	3	14	35	46.16	30.28	52.46	30466.4	54577.03
Pearl millet	1	2	10	24.27	21.13	14.86	28650	33873
Wheat	13	48	127	38.31	29.79	28.58	44279.55	58989.94
Oilseeds								
Groundnut	1	12	12	15.3	10.2	50	24400	47000
Soybean	8	25	67	14.65	12.34	18.70	35012.96	44893.84
Pulses								
Black gram	2	7	17	9.45	7.67	23.12	29683.71	40283.14
Chickpea	2	6	15	13.95	11.36	22.83	28584	38613.33
Field pea	1	2	10	22.61	19.81	14.13	25030	30913
Green gram	1	2	10	8.1	6.72	20.54	15990	21550
Horsegram	1	5	12	6.88	4.72	45.76	15180	26020
Pigeon pea	2	6	15	13.52	9.64	40.30	41945	64320
Spices								
Chilli	1	5	13	189	134.2	40.83	115430	172620
Coriander	1	3.2	8	23	21.11	8.95	75288	83699
Garlic	1	5	12	115.69	104.07	11.17	360380	402260
Vegetables								
Okra (Bhindi)	1	1	5	145	115	26.09	80000	102000
Onion	2	10	25	176.96	144.36	22.58	84779.2	120397.6
Pea	1	2	12	115.4	72.8	58.52	111000	185200
Grand Total	**45**	**165.2**	**433**	**45.24**	**35.03**	**29.14**	**51173.46**	**71359.44**

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* (T2)	FP** (T_1)		FP (T_1)	RP (T_2)
Cereals								
Barley	2	3.2	8	27.48	21.41	28.35	17531.25	29437.5
Maize	3	10.2	28	40.82	32.5	25.61	27870.59	38313.73
Paddy	18	105.3	244	33.65	28.35	18.70	35507.79	48053.05
Pearl millet	1	2	5	22.5	18.6	20.97	13000	19400
Sorghum	2	24	60	27.36	19.77	38.43	53102.5	71411
Wheat	25	86.4	210	42.16	32.68	29.03	44190.75	58339.54
Fibres								
Cotton	1	5.2	13	26.5	18.5	43.24	229100	247000
Flowers								
Gladiya	1	5	5	105	65	61.54	145000	255000
Marigold	4	7.64	46	128.32	103.30	24.21	84659.69	131889.4
Fruits								
Papaya	5	19.15	36	395.79	255.22	55.08	172050.7	302396.9
Watrmelon	1	1	10	175	105	66.67	41500	147500
Millets								
Finger Millet	3	15	32	11	7.71	42.73	13811.5	23237.87
Kodo	2	17	35	10.12	8.05	25.64	8390.88	12097.65
Small millet	1	4	10	11.25	5.5	104.55	10228	25746
Oilseeds								
Groundnut	2	15	37	18.68	14.93	25.09	33198.67	46594
Linseed	2	14	20	18.5	13.81	33.92	46288.57	57177.14
Mustard	8	46.2	118	14.87	11.74	26.59	54980.11	70833.72
Niger	3	14	34	4.07	2.34	73.89	7342.5	16631.64
Sesame	9	38	65	5.27	3.78	39.45	12377.53	21522.44
Soybean	13	51.8	132	15.22	12.28	23.974	34632.83	46614.68
Pulses								
Black gram	5	25	62	7.98	5.80	37.52	19224.24	31091.79
Chickpea	17	85.6	209	14.45	11.23	28.58	36596.34	48937.51
Green gram	2	12	30	8.63	7.375	16.95	10411.67	19611.67
Lathyrus	1	5	12	11.5	9.35	22.99	10025	14600
Lentil	3	25	100	12.86	9.22	39.48	33737.8	50700
Pigeon pea	5	21.6	52	12.46	10.16	22.62	145449.1	49623.84
Spices								
Ajwain	2	7.4	22	10.64	6.90	54.24	46263.24	78698.35
Chilli	2	6	15	86.13	67.68	27.25	89646.67	127003.3
Coriander	3	6.2	27	13.3	9.65	37.81	99345.16	145177.4
Garlic	2	2	10	115.02	91.56	25.63	162606	218751.5
Ginger	3	5.4	24	126.13	102.78	22.72	288425.9	374437
Nigella	1	5	10	11.34	7.64	48.43	79546	143449

Crops	No. of FLDs	Area (ha)	No. of farmers	yield (q/ha)		% Change	Net Return (Rs/ha)	
				RP* (T2)	FP** (T_1)		FP (T_1)	RP (T_2)
Turmeric	1	6	15	98	84	16.67	39685	64050
Tuber								
Colocasia	1	1	12	23.6	18.36	28.54	136987	199329
Elephant foot yam	1	0.31	5	316	164	92.68	220000	580000
Potato	5	11.71	45	244.4	190.80	28.09	181692.6	232581.1
Vegetables								
Amorph-ophallus	1	1	12	512	430.5	18.93	217460	350300
Ash gourd	1	2	10	306.56	209.78	46.13	59640	102795
Brinjal	3	4	34	357.14	267.05	33.73	200960.5	280636
Broccoli	1	1	10	165	120	37.5	110500	178000
Cabbage	1	2	10	194	144	34.72	60200	104600
Carrot	1	1	10	248.79	176.45	41.00	84845	141532
Cowpea	3	8.4	30	69.58	57.52	20.96	25372.62	37166.67
Drumstick	2	3	22	59.07	19.67	200.34	38600	106266.7
Onion	10	21.15	77	224.4	160.92	39.45	107708.2	171243.7
Pea	1	2	8	85	79	7.59	66000	74000
Pointed Guord	1	1	9	125	69	81.16	149500	292000
Sponge gourd	1	2	12	270.8	188.2	43.89	156700	231000
Tomato	8	28	64	381.77	281.49	35.62	180285.9	254638.9
Dolichos bean (sem)	1	1	5	18.85	15.9	18.55	162700	206550
Grand Total	**195**	**786.864**	**2111**	**61.33**	**45.39**	**35.13**	**57865.04**	**78743.37**

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

Table 3.10: Summary of FLDs on Resource Conservation Technology

Crops	No. of FLDs	Area (ha)	No. of farmers	yield (q/ha)		% Change	Net Return (Rs/ha)	
				RP* (T2)	FP** (T_1)		FP (T_1)	RP (T_2)
Cereals								
Maize	1	5	12	38	25	52	18110	39480
Wheat	2	8.8	22	48.64	39.39	23.46	48962.91	69089.36
Oilseeds								
Mustard	1	5	12	7.6	3.5	117.14	9695	27660
Soybean	2	4	10	14.1	11.15	26.46	51150	64900
Pulses								
Chickpea	1	5.2	13	19.5	15.2	28.29	56500	75500
Spices								
Turmeric	1	0.5	5	104.2	81.4	28.01	155100	201800
Grand Total	**8**	**28.5**	**74**	**30.38**	**22.93**	**32.50**	**40205.21**	**59536.36**

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* (T2)	FP** (T_1)		FP (T_1)	RP (T_2)
Cereals								
Maize	1	4	10	52.3	44.7	17.00	48144	54228
Paddy	1	4	10	42	32	31.25	43752	54634
Pearl millet	1	2	10	29	23	26.09	37520	49450
Wheat	2	6	12	28.71	25.01	14.81	52895.2	63973.2
Fibres								
Cotton	2	6.85	17	19.75	15.89	24.29	50798.25	70257.59
Oilseeds								
Soybean	2	8	17	27.58	23.695	16.37	33861	40503.5
Vegetables								
Onion	2	5	12	268.53	238.59	12.55	124878.6	144922
Grand Total	**11**	**35.85**	**88**	**64.33**	**55.63**	**15.64**	**55878.5**	**68287.02**

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

Table 3.12: Summary of FLDs on Farm Mechanization

Category	Name of the implement	Crops	No. of FLDs	Area (ha)	No. of farmers
Sowing and planting tools and machineries	MB Plough	Chickpea	1	2.6	13
	Broad bed furrow (BBF) seed drill	Maize	1	2	5
		Soybean	1	2.6	13
	Disc harrow in paddy straw decomposition	Paddy	1	4	10
	Eight Row paddy Drum Seeder	Paddy	1	5	10
	Garlic planter	Garlic	2	7	15
	Happy seeder	Wheat	2	6	15
	Modified Duck Foot Cultivator	Soybean	1	4	10
	Potato planter	Potato	1	5	5
	Rotavator	Chickpea	1	2	5
	Seed cum fertilizer drill	Chickpea	5	20.4	44
		Kodo Millet	1	12	30
		Lathyrus	1	5	12
		Mustard	1	5	12
		Paddy	9	36.4	84
		Soybean	1	2	5
		Wheat	4	21	47
	Tractor drawn ridger	Maize	1	2.4	13
Intercultural operation tools and machineries	Power weeder	Paddy	3	9	24

Category	Name of the implement	Crops	No. of FLDs	Area (ha)	No. of farmers
Irrigation management tools and machineries	Drip Irrigation	Cabbage	1	1	5
		Chilli	1	1	5
		Tomato	1	2	5
	Raised bed planting system	Soybean	1	2	5
	Zero till seed cum fertilizer drill	Chickpea	1	5	5
		Linseed	1	5	12
		Wheat	2	7	18
Plant protection tools and machineries	Wheel sprayers	Soybean	1	2	5
Harvesting tools and machineries	Reaper cum binder	Paddy	1	2	5
		Wheat	4	12	35
	Tractor driven Axial Flow Thresher	Paddy	3	22	45
Postharvest processing tools and machineries	Baler machine	Paddy	1	10	10
Postharvest processing tools and machineries	Sieves for minor millets	Finger millet	1	0	10
	Spiral grain separator	Soybean	1	5	5
Grand Total			**58**	**229.4**	**542**

Table 3.13: Summary of FLDs on Livestock and Poultry Production

Category	No. of FLDs	No. of Farmers	No. of units
Dairy and cattle			
Buffalo	8	66	35
Cattle (Cow)	4	37	46
Cattle Calf	1	10	10
Nutrition management	16	139	182
Others	13	121	11
Total Dairy and cattle	42	373	284
Sheep and goats			
Goat	1	5	5
Nutrition management	3	25	9
Disease management	2	99	695
Others	2	10	10
Total Sheep and Goat	8	139	719
Poultry			
Poultry - Chicken	5	48	237
Quail	3	36	36
Poultry management	9	64	59
Total Poultry	17	148	332
Grand Total	**67**	**660**	**1335**

Table 3.14: Summary of FLDs on Fisheries

Thematic area	No. of FLD	Area (ha)	No. of farmers	Results		
				RP(T_2)	FP(T_1)	% Change
Composite Fish Farming	1	1	3	10	18	80
Fish Production & Management	5	17	33	101.67	148.56	46.12
Integrated Farming System	1	1	4	10	18.75	87.5
Fish Nutrition (Survival rate (%))	1	1	4	45	81	80
Grand Total	**8**	**20**	**44**			

Table 3.15: Summary of FLDs on Women Empowerment

Name of technology demonstrated	No. of FLDs	No of farm women	Output (m^2/kg/hr)		Av. % reduction in drudgery	Av. % increase in efficiency
			*FP (T_1)	**RP (T_2)		
Drudgery Reduction						
Ambika cono weeder	1	10	30	50	27.94	43.63
Bhindi plucker	1	20	5.4	16.88	16.44	79.34
Naveen Seed Dibbler	1	10	120	150	65.62	34.39
Pedal operated potato slicer	1	5	5.86	16.5	75	70
Pedal operated grain cleaner	2	10	60	468	9.67	85.09
Revolving stool	1	8	4.3	4.4	51.4	2.3
Ring cutter	1	5	47.9	61.9	8.7	18.5
Seed grading	1	5	28	107	30.37	59.7
Total	9	73				
Value Addition						
Name of Technology demonstrated	**No. of FLDs**	**No of farm women**	**Production per unit (kg)**	**Cost of input (Rs.)**	**Gross income (Rs.)**	**Net Return (Rs.)**
Bamboo-shoot pickle	1	10	26	1300	7800	6500
Ginger candy (Gatagat)	1	10	2	400	1000	500
Mushroom Products(kg/bag)	2	21	4.6	12650	27000	14250
Quinoa Flour and Dalia	1	5	273	361.9	488.9	127
Vegetable and fruit preservation	1	12	150	20250	52500	16500
Anola products	1	10	8	1550	2550	1000
Drumstick dry leaf powder	1	10	1	180	400	220
Total	8	78				
Income Generation						
Name of Technology demonstrated	**No. of FLDs**	**No of farm women**	**Cost of input(Rs)**		**Gross income(Rs.)**	**Net Return (Rs.)**
			***FP (T1)**	****RP (T2)**		
Backyard poultry	3	30	3600	18520	64520	46000
Beekeeping	1	5	100	210	224000	89600
Flower Production	4	42	147000	242000	915261	918261
Fruit & vegetable processing	4	80	13565	79685	300145	218455
Grain pro super bag	3	32	330	430	5753.5	6336.33

Name of technology demonstrated	No. of FLDs	No of farm women	Output (m^2/kg/hr)		Av. % reduction in drudgery	Av. % increase in efficiency
			*FP (T_1)	**RP (T_2)		
Lac production Technology	2	25	2370	2950	11010	8040
Mushroom Production	11	143	10896	85086	252360	168274
Nursery Management	3	22	4220	4560	11982	7422
Onion dehydration	1	10	59716.6	66068.71	260310.7	194242
Vermi compost production	8	93	30200	47050	148668	99618
Processing of rice through mini rice mill	1	36	-	10000	15000	5000
Total	41	518				
Nutritional Security						
Name of Technology demonstrated	**No. of FLDs**	**No of farm women**	**Average of per capita consumption (gm/ day)**		**Iron (mg)**	**Calcium (mg)**
			***FP (T_1)**	****RP (T_2)**		
Dry drumstick leaf powder	3	30	-	10.00	2.8	200.3
Finger millet / Multi Grain porridge	4	35	0	100	3.9	350
General diet+ sprouted cowpea	1	10	-	435	12.4	577.8
Multigrain biscuits/ laddu	2	130	50	50	3.46	40.05
Nutritional Kitchen Garden	52	616	122.6	350	23.4	322.7
Total	**62**	**821**				
Grand Total	**120**	**1490**				

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

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 2021, 7021 courses benefitted 201420 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 2021

Training	No. of Courses			No. of Participants		
	CG	MP	Total	CG	MP	Total
Farmers & Farm Women	1888	3304	5192	59295	92249	151544
Extension Personnel	136	322	458	4417	8370	12787
Rural Youth	369	276	645	9522	7700	17222
Sponsored	247	145	392	7217	5906	13123
Vocational	168	180	348	3002	3742	6744
Total	**2808**	**4227**	**7035**	**83453**	**117967**	**201420**

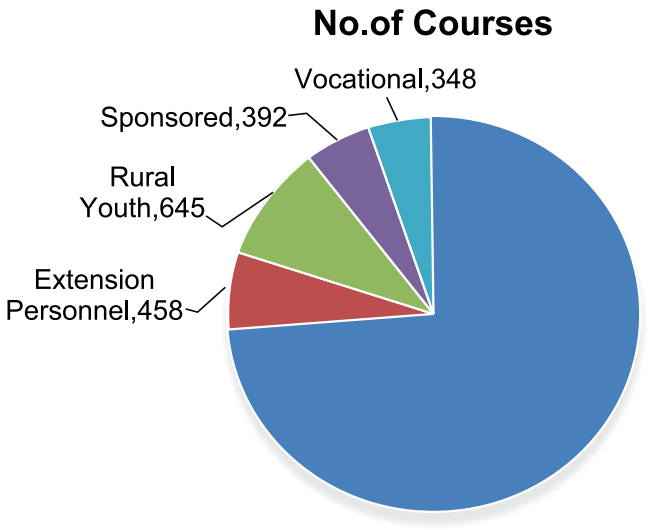


Figure- No. of courses

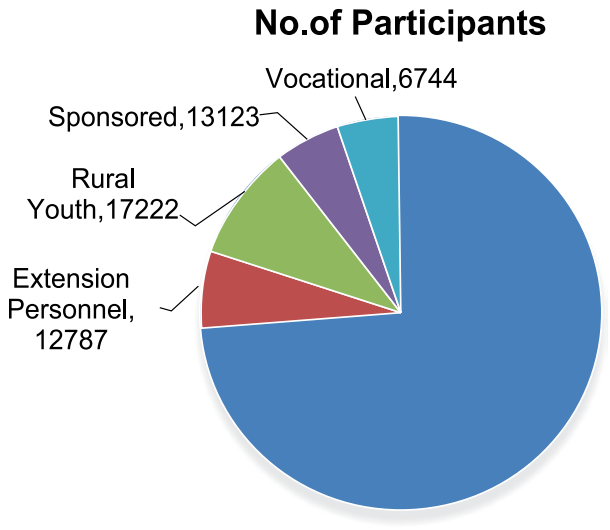


Figure- No. of participants

Table 4.2: Training programmes for farmers and farm women by the KVKs in Zone IX

Major Theme	No. of Courses	Gen & Other		SC		ST		Total		Grand Total
		M	F	M	F	M	F	M	F	
Agri. Engineering	235	3159	1137	561	236	935	499	4655	1872	6527
Agro forestry	84	807	198	180	73	858	331	1845	602	2447

Major Theme	No. of Courses	Gen & Other		SC		ST		Total		Grand Total
		M	F	M	F	M	F	M	F	
Capacity Building and Group Dynamics	352	4578	1064	1135	655	1814	619	7527	2338	9865
Crop Production	1318	16317	3143	3506	1384	10034	4008	29857	8535	38392
Plant Protection	637	9507	2399	1325	442	3790	1277	14622	4118	18740
Production of Input at site	224	2499	1399	411	677	1326	1132	4236	3208	7444
Women empowerment	575	2078	5950	549	1973	1644	4311	4271	12234	16505
Horticulture (Vegetable Crops)	379	4446	1306	928	338	2477	1045	7851	2689	10540
Horticulture (Spices)	61	790	124	162	30	421	97	1373	251	1624
Horticulture (Fruits)	183	2093	528	468	183	1383	521	3944	1232	5176
Horticulture (Ornamental Plants)	38	458	79	81	28	283	130	822	237	1059
Horticulture (Medicinal and Aromatic Plants)	48	506	130	115	27	455	200	1076	357	1433
Horticulture (Plantation crops)	27	202	191	52	30	82	95	336	316	652
Horticulture (Tuber crops)	41	456	174	113	54	219	114	788	342	1130
Livestock Production and Management	346	4537	862	839	273	2270	1087	7646	2222	9868
Fisheries	98	2326	1034	171	46	612	122	3109	1202	4311
Soil Health and Fertility Management	546	6513	1530	1332	540	4050	1866	11895	3936	15831
Grand Total	**5192**	**61272**	**21248**	**11928**	**6989**	**32653**	**17454**	**105853**	**45691**	**151544**

Table 4.3: Training progammes for rural youth by the KVKs in Zone IX

Major Theme	No. of Courses	Gen & Other		SC		ST		Total		Grand Total
		M	F	M	F	M	F	M	F	
Bee keeping	29	327	48	55	7	155	84	537	139	676
Commercial fruit production	4	91	49	7	9	11	13	109	71	180
Composite fish culture	3	69	13	5	9	1	2	75	24	99
Dairying	20	224	71	49	32	57	42	330	145	475
Fish harvest and processing technology	7	131	34		12	24		155	46	201
Fry and fingerling rearing	3	40	9	8	2	16	2	64	13	77
Integrated farming	35	449	192	110	75	165	89	724	356	1080

Major Theme	No. of Courses	Gen & Other		SC		ST		Total		Grand Total
		M	F	M	F	M	F	M	F	
Mushroom production	84	621	457	116	177	246	572	983	1206	2189
Nursery Management of Horticulture crops	44	482	129	106	32	293	118	881	279	1160
Ornamental fisheries	3	44	12	9	6	9	2	62	20	82
Piggery	2	14	9	4	2	10	4	28	15	43
Plant Protection management	1	27	8	1	1	4	1	32	10	42
Planting material production	12	204	54	22	6	46	150	272	210	482
Post Harvest Technology	7	58	64	9	11	16	26	83	101	184
Poultry production	23	196	66	32	6	212	105	440	177	617
Production of organic inputs	58	404	221	114	116	345	201	863	538	1401
Production of quality animal products	3	17	32	4	8	49	36	70	76	146
Protected cultivation of vegetable crops	27	341	105	63	29	228	86	632	220	852
Quail farming	7	58	43	5	5	32	20	95	68	163
Repair & maintenance of farm machinery & implements	15	209	64	35	2	57	5	301	71	372
Rural Crafts	6	0	74				184	0	258	258
Seed production	37	451	124	96	45	252	69	799	238	1037
Sericulture	1	3	0	1		11		15	0	15
Sheep and goat rearing	17	164	58	54	9	191	65	409	132	541
Small scale processing	17	182	94	8	19	101	75	291	188	479
Tailoring and Stitching	1	0	11		7			0	18	18
Training and pruning of orchards	46	210	90	53	34	99	30	362	154	516
Value addition	50	189	474	77	84	177	324	443	882	1325
Vermiculture	38	444	187	77	46	277	94	798	327	1125
Others	45	626	125	105	50	294	187	1025	362	1387
Grand Total	**645**	**6275**	**2917**	**1225**	**841**	**3378**	**2586**	**10878**	**6344**	**17222**

Table 4.4: Training programmes for extension personnel by the KVKs in Zone IX

Major Theme	No. of Courses	Gen & Other		SC		ST		Total		Grand Total
		M	F	M	F	M	F	M	F	
Capacity building for ICT application	20	243	55	53	18	68	33	364	106	470
Care and maintenance of farm machinery and implements	8	158	13	25	1	52	15	235	29	264

Major Theme	No. of Courses	Gen & Other		SC		ST		Total		Grand Total
		M	F	M	F	M	F	M	F	
Formation and Management of SHGs	7	78	18	10	1	24	8	112	27	139
Gender mainstreaming through SHGs	2	9	7	3	1	4	3	16	11	27
Group Dynamics and farmers organization	9	94	18	16	5	55	19	165	42	207
Information networking among farmers	10	110	28	32	16	69	32	211	76	287
Integrated Nutrient management	40	488	102	148	17	260	58	896	177	1073
Integrated Pest Management	55	811	115	184	31	318	70	1313	216	1529
Livestock feed and fodder production	26	432	90	110	38	154	45	696	173	869
Low cost and nutrient efficient diet designing	9	21	117	5	18	13	9	39	144	183
Management in farm animals	15	190	27	11	30	74	89	275	146	421
Production and use of organic inputs	34	377	115	76	19	169	61	622	195	817
Productivity enhancement in field crops	92	1373	153	267	62	409	84	2049	299	2348
Protected cultivation technology	35	478	66	131	12	166	33	775	111	886
Rejuvenation of old orchards	10	155	17	24	7	46	11	225	35	260
Household food security	34	147	658	40	182	57	333	244	1173	1417
Women and Child care	26	19	367	6	126	45	247	70	740	810
Others	26	372	93	66	34	143	72	581	199	780
Grand Total	**458**	**5555**	**2059**	**1207**	**618**	**2126**	**1222**	**8888**	**3899**	**12787**

Table 4.5: Training programmes sponsored to the KVKs in Zone IX during 2021.

Major Theme	No. of Courses	Gen & Other		SC		ST		Total		Grand Total
		M	F	M	F	M	F	M	F	
Agricultural Extension	32	447	193	82	19	51	32	580	244	824
Crop production and management	235	3717	1361	684	544	1315	1036	5716	2941	8657
Farm machinery	6	78	43	5	26	20	65	103	134	237
Home Science	22	50	78	4	105	44	205	98	388	486
Livestock and fisheries	81	1043	558	236	66	275	389	1554	1013	2567
Post harvest technology and value addition	2	8	23	8	6	8	3	24	32	56

Major Theme	No. of Courses	Gen & Other		SC		ST		Total		Grand Total
		M	F	M	F	M	F	M	F	
Production and value addition	14	83	49	56	13	80	15	219	77	296
Grand Total	**392**	**5426**	**2305**	**1075**	**779**	**1793**	**1745**	**8294**	**4829**	**13123**

Table 4.6: Vocational training programmes organised by the KVKs in Zone IX during 2021.

Major Theme	No. of Courses	Gen & Other		SC		ST		Total		Grand Total
		M	F	M	F	M	F	M	F	
Agricultural Extension	11	86	27	19	10	27	35	132	72	204
Crop production and management	110	467	167	149	100	321	160	937	427	1364
Income generation activities	150	985	466	257	173	481	323	1723	962	2685
Livestock and fisheries	51	393	195	85	53	699	334	1177	582	1759
Post harvest technology and value addition	26	184	192	25	82	56	193	265	467	732
Grand Total	**348**	**2115**	**1047**	**535**	**418**	**1584**	**1045**	**4234**	**2510**	**6744**

CAPACITY BUILDING PROGRAMMES

B. Capacity Building programmes by DES and ATARI

Table 4.7: Capacity building activities organized in identified area for KVK Staff by the Directorate of Extension Services 2021

Training Title	Date	Venue	No. of Participants KVKs	Collaborating Institute
Directorate of Extension Services, JNKVV, M.P.				
Review meeting for preparation of Kharif 2021	04.06.2021	ICAR-ATARI, Zone-IX	42	ICAR-ATARI, Zone-IX
Review meeting for review of KVKs financial matters	10.06.2021	online	22	ICAR-ATARI, Zone-IX
Review cum technology backstopping of CFLD Oilseed & Pulses programme	12.07.2021	online	8	ICAR-ATARI, Zone-IX
Review cum technology backstopping of CFLD Oilseed & Pulses programme	13.07.2021	online	9	ICAR-ATARI, Zone-IX
Review cum technology backstopping of CFLD Oilseed & Pulses programme	14.07.2021	online	8	ICAR-ATARI, Zone-IX
Knowledge Empowerment and Technological Backstopping for KVKs	4 to 5-10-2021	DES, JNKVV, Jabalpur	26	ICAR-ATARI, Zone-IX

Training Title	Date	Venue	No. of Participants KVKs	Collaborating Institute
Interface on export potential of agricultural commodities with chairman of APEDA	17.12.2021	JNKVV, Jabalpur	17	JNKVV, Jabalpur
Financial review of KVKs	28.12.2021	DES, JNKVV, Jabalpur	22	ICAR-ATARI, Zone-IX
Review meeting of KVK	9 to 10-03-2022	DES, JNKVV, Jabalpur	26	ICAR-ATARI, Zone-IX
Total			**180**	
Directorate of Extension Services, Gwalior, M.P.				
Opportunities for rural empowerment for Atmanirbhar Bharat in M.P.	Feb 23-25, 2021	RVSKVV, Gwalior	26	
Refresher training for Kharif crops technologies	Aug 3-4, 2021	Online	42	SIAET BHOPAL
Refresher training for Rabi crops technologies	Sep. 6-7, 2021	Online	38	SIAET BHOPAL
Recent extension approaches for effective transfer of technology	Sep. 22-24, 2021	Online	23	KVK, Jhabua & EEI, ANAND
Presentation skills for professional excellence	Nov 30- Dec 1, 2021	KVK, Jhabua	29	KVK, Jhabua & EEI, ANAND
Use of Mass Media for transfer to technology	Dec 3-4, 2021	KVK, Ujjain	30	KVK, Ujjain & EEI, ANAND
Leadership Development & Team Building Skills for Extension Functionary	Dec. 6-7, 2021	KVK, Khandwa	28	KVK, Khandwa & EEI, ANAND
Total			**216**	
Directorate of Extension Servces, Raipur, C.G.				
Orientation programme for finalization the action plan and package of practices of crops	1-2 February, 2021	DES Meeting Hall, IGKV, Raipur	32	-
Orientation programme of KVK Farms of IGKV for operationalization of Seed Hubs & Seed production	03-Feb-21	DES Meeting Hall, IGKV, Raipur	38	-
Training cum Workshop of proposals for sanction and approval, budget, cashbook writing, accounts and official procedures	04-Feb-21	DES Meeting Hall, IGKV, Raipur	60	-
Orientation cum Review meeting of KVKs	2-3 September, 2021	DES Meeting Hall, IGKV, Raipur	102	-
Training on Socio-economic upliftment of rural women through KVKs	4-5 October, 2021	DES Meeting Hall, IGKV, Raipur	63	-
Review meeting of Seed Hub, CFLDs and organization of World Soil Health Day on 5th Dec. 2021	30-Nov-21	DES Meeting Hall, IGKV, Raipur	30	-
Total			**325**	
Grand Total			**779**	

Capacity building activities organized by ATARI Jabalpur in collaboration with ICAR Institutes in identified areas for KVK staff during January to December, 2021

ICAR-ATARI, Jabalpur organized 42 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 2021. 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.

Table 4.8: Capacity building activities organized by ATARI in collaboration with ICAR Institutes in identified areas for KVK staff during January to December, 2021

S.No	Title of Meeting	Date	Venue	Participants
1	Review meeting on ARYA KVKs	06/01/2021	ATARI Jabalpur	33
2	Review workshop of agronomy discipline of CG KVKs	10/02/2021	ATARI Jabalpur	41
3	Review workshop of seed hub	12/02/2021	ATARI Jabalpur	33
4	Meeting on 7CPC RVSKVV	25-26/02/2021	ATARI Jabalpur	56
5	Meeting for MPR revised Performa fill in the KVK Portal	02/03/2021	ATARI Jabalpur	100
6	Meeting on video film of NICRA and Financial progress of NICRA and ARYA project	03/03/2021	ATARI Jabalpur	31
7	Meeting for MPR revised preforma fill in the KVK Portal	06/03/2021	ATARI Jabalpur	27
8	Review workshop for International Women's Day 2021 preparation and financial progress of KVKs	06/03/2021	ATARI Jabalpur	100
9	Meeting of International Women's Day 2021	08/03/2021	ATARI Jabalpur	33
10	Review meeting of NICRA KVKs	25/05/2021	ATARI Jabalpur	38
11	Concluding workshop on NICRA KVKs	29/05/2021	ATARI Jabalpur	35
12	Review workshop of FFP	03/06/2021	ATARI Jabalpur	
13	Programme of Kharif 2021	04/06/2021	ATARI Jabalpur	100
14	Kisan Sarthi Meeting	14/07/2021	ATARI Jabalpur	61
15	Meeting with TSP KVKs	23/07/2021	ATARI Jabalpur	17
16	Meeting with DAMU Phase I KVKs	23/07/2021	ATARI Jabalpur	26
17	28th Zonal Workshop of 2021	26-28/07/2021	ATARI Jabalpur	259
18	Review workshop of DAMU Programme at KVKs	02/08/2021	ATARI Jabalpur	18
19	Interaction workshop on Gender and Nutrition network Project	03/08/2021	ATARI Jabalpur	166
20	Interaction of DFI case study	04/08/2021	ATARI Jabalpur	-
21	Interface with KVK Scientists for Recent Advances in Farm Mechanization and value addition in Agriculture	18/08/2021	ATARI Jabalpur	128
22	ICAR Mega Project on DFI	25/08/2021	ATARI Jabalpur	27
23	Interaction workshop on gender and nutrition	31/08/2021	ATARI Jabalpur	-
24	Interaction workshop on gender and nutrition network project	07/09/2021	ATARI Jabalpur	-
25	Interaction with FFP centers	09/09/2021	ATARI Jabalpur	28
26	DFI success stories	09/09/2021	ATARI Jabalpur	72

S.No	Title of Meeting	Date	Venue	Participants
27	National campaign in Poshan abhyan and tree plantation	14/09/2021	ATARI Jabalpur	97
28	Meeting with KVK's for preparation of Hon'ble PM programme	24/09/2021	ATARI Jabalpur	55
29	ICAR mega project in aspirational district	05/10/2021	ATARI Jabalpur	8
30	ICAR-mega project on DFI	05/10/2021	ATARI Jabalpur	23
31	DFI success stories meeting	07/10/2021	ATARI Jabalpur	100
32	Review meeting of DFI success story	25/10/2021	ATARI Jabalpur	62
33	DFI success story status review meeting	08/11/2021	ATARI Jabalpur	100
34	ICAR Mega project in aspirational district	09/11/2021	ATARI Jabalpur	4
35	Review meeting of DFI success stories	17/11/2021	ATARI Jabalpur	100
36	DFI project meeting	25/11/2021	ATARI Jabalpur	31
37	Review meeting of ICAR mega project on aspirational district	25/11/2021	ATARI Jabalpur	5
38	Meeting with honorable DDG on NITI aayog	26/11/2021	ATARI Jabalpur	13
39	ICAR mega project on DFI	08/12/2021	ATARI Jabalpur	-
40	Success stories of DFI	08/12/2021	ATARI Jabalpur	57
41	TSP network project meeting	10/12/2021	ATARI Jabalpur	-
42	Virtual meeting to discuss the programme of honorable PM and DFI stories	14/12/2021	ATARI Jabalpur	84

Capacity building programme organized by ATARI Jabalpur

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

S. No.	Particulars	No. of Programmes
1	Trainings	01
2	Workshops	02
3	Conferences	-
4	Seminars/Webinar	07
5	KVK Visits	-
6	Any other (Review Meetings, Interface)	-
Total		

Table 4.10: Capacity building of ATARI Staff

S. No	Name of Employee	Designation	Discipline/ section	Name of training programme attended	Duration (days)	Organizing institution
1	Shri S.K. Gupta	AAO	Administration	e-Tendering procedures	01	ISTM, New Delhi
2	Shri S.K. Gupta	AAO	Administration	cppp & Gem	03	ISTM, New Delhi
3	Shri S.K. Gupta	AAO	Administration	Public Procurement through Gem Portal	02	NPC, New Delhi
4	Shri R.K. Soni	Tech. Off	Administration	e-Tendering procedures	01	ISTM, New Delhi
5	Shri R.K. Soni	Tech. Off	Administration	cppp & Gem	03	ISTM, New Delhi
6	Shri R.K. Soni	Tech. Off	Administration	Public Procurement through Gem Portal	02	NPC, New Delhi
7	Shri Ram Sandesh Gupta	LDC	Finance & Account	Accrual Accounting	05	NRRI
8	Shri Ram Sandesh Gupta	LDC	Finance & Account	Budget utilization procedure	03	NAARM
Total					**20**	

Table 4.11: HRD fund Allocation and Utilization

Particulars	Budget RE (Rs in lakhs) allocated	Actual expenditure (Rs in lakhs)	Utilization (%)
ATARI	0.35	0.35	100
Total	**0.35**	**0.35**	**100**

Table 4.12: Footfall in KVKs of Zone IX

State	No. of KVKs	No. of Footfalls			
		Farmers	Officials	VIPs	Total
Madhya Pradesh	54	118845	3932	410	123187
Chhattisgarh	28	57288	8291	5021	70600
Zone-IX	**82**	**176133**	**12223**	**5431**	**193787**

Farmers present in KVK Datia during demonstration of drone working process

Visit of Hon'ble Horticulture Minister and Agriculture Minister of MP Govt. at KVK

Farm women visit at KVK Kanker

5. EXTENSION ACTIVITIES

Transfer of technology holds the key to rapid development and transformation of rural society. Krishi Vigyan Kendras, in their jurisdiction districts are playing crucial role in showing of technology and thereby enhancing productivity and income of the farming community. The various extension activities include demonstration for farmers group and exhibition to reach 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. Total 60125 activities were conducted and 2595145 farmers, farm women, rural youth and extension workers were benefited (Table 7.1).

Table 7.1 : Extension activities organized by the KVKs of Zone-IX

State	No. of activities Achieved	Others		SC		ST		Extension Officials		Grand Total		
		M	F	M	F	M	F	M	F	M	F	Total
CG	19141	273634	68687	58933	22446	168282	65517	8789	5272	509638	161922	671560
MP	40984	1371373	76226	104931	26963	266632	53143	18197	6120	1761133	162452	1923585
Grand Total	**60125**	**1645007**	**144913**	**163864**	**49409**	**434914**	**118660**	**26986**	**11392**	**2270771**	**324374**	**2595145**

Table 7.2 : Details of extension activities organized by the KVKs of Zone-IX

Activity	No. of activities Achieved	Details of participants										
		Others		SC		ST		Extension Officials		Grand Total		
		M	F	M	F	M	F	M	F	M	F	Total
Agri mobile clinic	436	38080	1106	1644	270	3305	116	246	59	43275	1551	44826
Awareness programme	1028	16942	4434	3596	1423	8593	4147	1206	363	30337	10367	40704
Advisory Services (includes KMA)	6777	1120605	28324	45922	4457	177082	23573	4126	3275	1347735	59629	1407364
Plant/Animal Health Camp	480	137436	44513	39731	16721	53944	14763	555	123	231666	76120	307786
Diagnostic visits	2016	8502	1372	2926	861	4901	1586	1133	284	17462	4103	21565
Exhibition	267	26560	5294	4460	2231	21691	13033	1060	391	53771	20949	74720
Ex-trainees Sammelan	127	3031	1016	1089	481	2022	1013	516	215	6658	2725	9383

Activity	No. of activities Achieved	Details of participants										
		Others		SC		ST		Extension Officials		Grand Total		
		M	F	M	F	M	F	M	F	M	F	Total
Exposure visits	1023	3747	1028	2257	452	10372	3013	523	157	16899	4650	21549
Extension literature	1658	27777	7743	8407	2106	14089	9708	1922	675	52195	20232	72427
Farmers visit to KVK	29507	60973	7667	8969	3386	27254	12004	2575	685	99771	23742	123513
Field Day	477	6619	1210	1961	609	3540	1337	1072	234	13192	3390	16582
Farm Science Club	5388	6190	1365	2266	586	2698	1623	606	177	11760	3751	15511
Farmers Seminar/ Workshop	217	4401	537	607	471	1352	912	683	286	7043	2206	9249
Group Meetings/ Discussion	526	4855	871	1402	428	2722	1362	513	210	9492	2871	12363
Kisan Ghosthi/ Sammelan	653	11699	2675	2844	1391	5912	2578	1406	427	21861	7071	28932
Kisan Mela	98	19991	1892	3769	974	17344	4150	656	225	41760	7241	49001
Krishi Mahotsav	50	1034	333	423	232	704	637	158	86	2319	1288	3607
Lectures delivered as resource persons	1676	25214	3769	6934	2343	23259	6469	1377	382	56784	12963	69747
Film Show	395	8054	2187	2114	1228	4424	1598	362	208	14954	5221	20175
Mahila Mandals conveners meetings	146	690	614	145	567	131	604	132	167	1098	1952	3050
Method Demonstrations	453	3342	1080	760	462	1511	767	302	129	5915	2438	8353
Pradhanmantri Fasal Beema Yojana	222	2888	779	909	385	1784	784	295	206	5876	2154	8030
Scientist visit to farmers field	3283	13713	2622	4803	1377	6346	2317	1224	305	26086	6621	32707
Self Help Group conveners meetings	231	1085	661	534	347	1010	1075	229	110	2858	2193	5051
Soil health Camp	445	4090	479	1245	352	1994	1087	305	104	7634	2022	9656
Soil test campaigns	132	3957	634	1494	527	2091	644	205	75	7747	1880	9627
Jal Shakti Abhiyan	76	1291	389	285	140	365	201	32	11	1973	741	2714
Celebration of important days	551	15486	13378	4445	1736	6078	3060	1128	492	27137	18666	45803
Special day celebration	767	13599	4340	2915	1802	5294	3068	1599	1002	23407	10212	33619
Others	1020	53156	2601	5008	1064	23102	1431	840	329	82106	5425	87531
Grand Total	**60125**	**1645007**	**144913**	**163864**	**49409**	**434914**	**118660**	**26986**	**11392**	**2270771**	**324374**	**2595145**

Table 7.3 : Mass Media based activities organized by the KVKs of Zone-IX

Name of media	Number of events/activities		
	Chhattisgarh	Madhya Pradesh	Total
CD/DVD	41	45	86
Newspaper coverage	1546	1773	3319
Radio talks	124	155	279
TV talks	84	170	254
Social media (Whats App, Facebook, Instagram, Twitter etc.)	6143	4184	10327
Internet (Youtube)	345	191	536
Grand Total	**8283**	**6518**	**14801**

6. PRODUCTION OF QUALITY SEED AND PLANTING MATERIALS

Availability of the quality seeds timely and adequate happened to be the major constraints to the farmers. Therefore, it was taken as challenge and appropriate steps were taken at the KVKs for helping the farmers in this regard. With industrious efforts, a considerable progress has been made and there is increase in seed quantity as well as other planting materials as shown in the following tables. The KVKs of the zone produced 20999.32 q of seed and 54.43 lakhs of planting material of different crops like cereals, pulses, oilseeds, vegetables, medicinal plants, fruits, etc. and distributed among farmers. Besides, KVKs of the zone also produced bio-products and livestock products at their farms.

Table 5.1: Seed and planting material produced by the KVKs in Zone-IX

State	2021	
	Seed (q)	Planting material (no)
Chhattisgarh	6224.64	2860590
Madhya Pradesh	14773.676	2582834
Total	**20998.32**	**5443424**

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

State	Quantity (q)	Value (Rs)	Provided to no. of Farmers	Expected area coverage (ha)
Chhattisgarh	6224.64	34684642	8234	6869.97
Madhya Pradesh	14773.68	125998715.5	11977	26678.38
Zone-IX	**20998.32**	**160683357.5**	**20211**	**33548.35**

Table 5.3: State- wise details of planting material produced by the KVKs

State	Nos.	Value (Rs)	Provided to no. of Farmers
Chhattisgarh	2860590	12374372	19370
Madhya Pradesh	2582834	3926522	42689
Zone-IX	**5443424**	**16300894**	**62059**

Table 5.3: State- wise details of Livestock strains and fingerlings production produced by the KVKs

State	Quantity (no./ lit/kg)	Value (Rs)	No. of Beneficiaries
Chhattisgarh	348632.62	5604879	1646
Madhya Pradesh	244291.72	6216396	2000
Zone-IX	**592924.3**	**11821275**	**3646**

Seed Production

Table 5.4: Status of Seed production (q) in Zone-IX

Crop Category	Crop	Quantity (q)	Value (Rs)	Provided to No of Farmers
Cereal	Paddy	4775.42	25529855.46	3306
Cereal	Wheat	3660.05	18511323.04	3162
Cereal	Barley	24.12	148338	0
Minor Millets	Finger Millet	42.9	253353	936
Minor Millets	Kodo	1.5	15000	5
Minor Millets	Kutki	0.24	1056	6
Minor Millets	Little Millet	1.4	9800	-
Minor Millets	Oats	5.5	16500	-
Oilseeds	Groundnut	11.6	123500	25
Oilseeds	Linseed	100.86	691639	175
Oilseeds	Mustard	71.77	777429	727
Oilseeds	Niger	17.4	147804	80
Oilseeds	Rapeseed	2.75	18090	-
Oilseeds	Safflower	0.64	3200	-
Oilseeds	Sesame	9.42	188467	90
Oilseeds	Soybean	3861.05	39660525	1503
Others	Mushroom	17.435	32520	23
Pulses	Blackgram	123.98	1002157	806
Pulses	Chickpea	5657.9	50349392	2882
Pulses	Fieldpea	141.58	1074800	-
Pulses	Greengram	464.6	4820300	132
Pulses	Horse gram	7	231000	-
Pulses	Lentil	29.11	510660	40
Pulses	Pigeonpea	1563.62	13308218	4118
Spices	Chilli	0.05	15000	129
Spices	Coriander	23.82	413560	126
Spices	Fennel	25	250000	-
Spices	Fenugreek	1.32	29638	3
Spices	Garlic	2.5	25000	44
Spices	Ginger	26.1	517200	21
Spices	Kasuri Maithi	0.009	340	-
Spices	Turmeric	199.4	1217200	92
Tuber	Elephant Foot yam	37.72	37720	42
Tuber	Colocasia	7	28000	7
Tuber	Potato	15.2	38800	5
Vegetables	Bottle gourd	1.011	30150	35
Vegetables	Brinjal	0.491	100200	339
Vegetables	Amaranths	0.59	5900	-
Vegetables	Cowpea	1.155	18448	4

Crop Category	Crop	Quantity (q)	Value (Rs)	Provided to No of Farmers
Vegetables	Cucumber	0.002	400	-
Vegetables	Okra	1.94	70410	136
Vegetables	Onion	0.4	80000	48
Vegetables	Pumpkin	0.01	1000	30
Vegetables	Radish	0.1	3500	117
Vegetables	Dolichos (Sem)	0.007	1030	-
Vegetables	Spinach	3.057	66535	167
Vegetables	Sponge gourd	0.01	1000	50
Vegetables	Tomato	0.251	76400	270
Commercial Crop	Sugarcane	15	6000	10
Fibre	Sunhemp	13	65000	200
Flower	Marigold	0.02	12000	300
Fodder	Azolla	0.05	1000	20
Fodder	Napier Grass	10	50000	-
Fodder	Sorghum	6	60000	-
Fruits	Mango	7.5	30000	-
Fruits	Papaya	7.76	7000	-
Others	Mushroom (span)	17.435	32520	23
Grand Total		**20998.32**	**160683357.5**	**20211**

Table 5.5: Status of seed production (q) in Madhya Pradesh

Crop Category	Crop	Quantity (q)	Value (Rs)	Provided to No of Farmers
Cereal	Paddy	1504.08	13445995.46	689
Cereal	Wheat	3426.95	17846045.04	3121
Cereal	Barley	24.12	148338	-
Minor Millets	Kodo	1.5	15000	5
Oilseeds	Groundnut	10	115000	25
Oilseeds	Linseed	48.44	367219	0
Oilseeds	Mustard	19.85	297750	127
Oilseeds	Niger	6.8	55000	-
Oilseeds	Rapeseed	2.75	18090	-
Oilseeds	Sesame	7.18	89160	40
Oilseeds	Soybean	3597.63	37404149	1243
Pulses	Blackgram	112.74	907219	806
Pulses	Chickpea	5018.37	45464742	2782
Pulses	Fieldpea	73.68	260000	-
Pulses	Greengram	380.7	3841500	32
Pulses	Lentil	22.4	470400	-
Pulses	Pigeonpea	430.07	4350255	1328
Spices	Chilli	0.05	15000	129
Spices	Coriander	9.99	145700	99

Crop Category	Crop	Quantity (q)	Value (Rs)	Provided to No of Farmers
Spices	Fenugreek	1.32	29638	3
Spices	Garlic	2.5	25000	44
Spices	Ginger	7.1	81200	20
Spices	Kasuri Maithi	0.009	340	-
Spices	Turmeric	41.2	266000	30
Tuber	Colocasia	7	28000	7
Vegetables	Bottlegourd	0.011	1150	35
Vegetables	Brinjal	0.02	6000	138
Vegetables	Amaranths	0.59	5900	-
Vegetables	Cowpea	0.04	1400	-
Vegetables	Cucumber	0.002	400	-
Vegetables	Okra	0.99	66160	126
Vegetables	Onion	0.4	80000	48
Vegetables	Pumpkin	0.01	1000	30
Vegetables	Radish	0.1	3500	117
Vegetables	Dolichos (Sem)	0.007	1030	-
Vegetables	Spinach	0.457	12935	113
Vegetables	Sponge gourd	0.01	1000	50
Vegetables	Tomato	0.04	16000	270
Fibre	Sunhemp	13	65000	200
Flower	Marigold	0.02	12000	300
Fodder	Azolla	0.05	1000	20
Fodder	Sorghum	1.5	37500	-
Grand Total		**14773.68**	**125998715.5**	**11977**

Table 5.6: Status of Seed production (q) in Chhattisgarh

Crop Category	Crop	Quantity (q)	Value (Rs)	Provided to No of Farmers
Cereal	Paddy	3271.34	12083860	2617
Cereal	Wheat	233.1	665278	41
Minor Millets	Finger Millet	42.9	253353	936
Minor Millets	Kutki	0.24	1056	6
Minor Millets	Little Millet	1.4	9800	-
Minor Millets	Oats	5.5	16500	-
Oilseeds	Groundnut	1.6	8500	-
Oilseeds	Linseed	52.42	324420	175
Oilseeds	Mustard	51.92	479679	600
Oilseeds	Niger	10.6	92804	80
Oilseeds	Safflower	0.64	3200	-
Oilseeds	Sesame	2.24	99307	50
Oilseeds	Soybean	263.42	2256376	260
Pulses	Black gram	11.24	94938	-

Crop Category	Crop	Quantity (q)	Value (Rs)	Provided to No of Farmers
Pulses	Chickpea	639.53	4884650	100
Pulses	Field pea	67.9	814800	-
Pulses	Green gram	83.9	978800	100
Pulses	Horse gram	7	231000	-
Pulses	Lentil	6.71	40260	40
Pulses	Pigeon pea	1133.55	8957963	2790
Spices	Coriander	13.83	267860	27
Spices	Fennel	25	250000	-
Spices	Ginger	19	436000	1
Spices	Turmeric	158.2	951200	62
Vegetables	Bottle gourd	1	29000	-
Vegetables	Brinjal	0.471	94200	201
Vegetables	Cowpea	1.115	17048	4
Vegetables	Okra	0.95	4250	10
Vegetables	Spinach	2.6	53600	54
Vegetables	Tomato	0.211	60400	-
Fruits	Mango	7.5	30000	-
Fruits	Papaya	7.76	7000	-
Commercial Crop	Sugarcane	15	6000	10
Fodder	Sorghum	4.5	22500	-
Fodder	Napier grass	10	50000	-
Tuber	Potato	15.2	38800	5
Tuber	Elephant Foot yam	37.72	37720	42
Others	Mushroom (span)	17.435	32520	23
Grand Total		**6224.64**	**34684642**	**8234**

Planting Material

Table 5.7: Status of planting material production (no) in Zone-IX

Crop Category	Crop	Quantity (nos)	Value (Rs)
Aquatic Crop	Lotus	10000	12500
Aquatic Crop	Makhana	51760	64700
Aquatic Crop	Water chestnut	21840	27300
Commercial	Sweet potato	167700	187100
Forest species	Arjun	7	210
Forest species	Ashok	1598	17820
Forest species	Badam	522	15390
Forest species	Bamboo	2356	126760
Forest species	Behdda	255	5100
Forest species	Chironjee	12	300
Forest species	Eucalyptus	18	240
Forest species	Gular	1	340

Crop Category	Crop	Quantity (nos)	Value (Rs)
Forest species	Gulmohar	239	1210
Forest species	Kachnar	1000	10000
Forest species	Karanj	999	2750
Forest species	Khamer	63	1575
Forest species	Mahua	595	11900
Forest species	Neem	3385	57465
Forest species	Peepal	104	2080
Forest species	Semilata	3000	20000
Forest species	Shisham	179	910
Forest species	Subabul	30	340
Forest species	Tamarind	4042	113515
Forest species	Teek	72	980
Fruits	Acid lime	500	17500
Fruits	Anar	75	340
Fruits	Aonla Budded	406	480
Fruits	Aonla	4422	60955
Fruits	Bael	32	760
Fruits	Banana	1500	36160
Fruits	Ber	2000	60000
Fruits	Black bery	1200	12000
Fruits	Cashewnut	3000	120000
Fruits	Citrus	1483	50250
Fruits	Coconut	1000	50000
Fruits	Custard Apple	21886	418672
Fruits	Datepalm	3	120
Fruits	Dragon fruit	100	3000
Fruits	Fig	2000	60000
Fruits	Guava (Grafted)	9307	258140
Fruits	Guava	33711	1693695
Fruits	Gulmohar	1500	15000
Fruits	Elephant foot yam (Jack Fruit)	9184	131140
Fruits	Jamun	2409	29155
Fruits	Karonda	53816	626565
Fruits	Lemon Budded	320	11920
Fruits	Lemon	18979	342785
Fruits	Lime	4296	165295
Fruits	Litchi	6000	310000
Fruits	Mango graft	1327	60050
Fruits	Mango	93736	3578305
Fruits	Orange	1046	11150
Fruits	Papaya	89300	2010357
Fruits	Pear	1000	10000

Crop Category	Crop	Quantity (nos)	Value (Rs)
Fruits	Pomegranate	5092	123335
Fruits	Salfi	800	8000
Fruits	Sapota	617	25000
Fruits	Watermelon	15256	21480
Medicinal and Aromatic	Aloevera	5000	50000
Medicinal and Aromatic	Butch	3000	30000
Medicinal and Aromatic	Citronella	120500	125000
Medicinal and Aromatic	Gilloy	506	7640
Medicinal and Aromatic	Lemon grass	254000	783500
Medicinal and Aromatic	Mentha	3000	30000
Medicinal and Aromatic	Others	3000	30000
Medicinal and Aromatic	Pamaroja	25000	25000
Medicinal and Aromatic	Satawer	3000	20000
Medicinal and Aromatic	Tulsi	3	55
Medicinal and Aromatic	Vetiver (Khus)	56000	56000
Medicinal and Aromatic	Ashwagandha	20000	200000
Ornamental plants	Acalifa	2315	2315
Ornamental plants	Bottle palm	35	1140
Ornamental plants	Chameli	221	1920
Ornamental plants	Chandni	840	2900
Ornamental plants	China Palm	400	400
Ornamental plants	Chrysenthemum	500	500
Ornamental plants	Croton	450	5975
Ornamental plants	Daheliya	276	960
Ornamental plants	Duranta	4296	6360
Ornamental plants	Exocaria	200	200
Ornamental plants	Gaillardia	4400	4400
Ornamental plants	Gladiolus	6341	5990
Ornamental plants	Gudhal	136	3175
Ornamental plants	Gulmohar	338	8350
Ornamental plants	Jasmine	30	670
Ornamental plants	Lilly	400	400
Ornamental plants	Manokamani	352	820
Ornamental plants	Marigold	570017	106540
Ornamental plants	Ornamental	1088	10000
Ornamental plants	Rajanigandha	1000	1000
Ornamental plants	Rat rani, Champa etc.	204	2080
Ornamental plants	Rose	554	14405
Ornamental plants	Satparni	132	6235
Ornamental plants	Tikoma	3	60
Ornamental plants	Vidya	16	960
Ornamental plants	Sewanti	12	240

Crop Category	Crop	Quantity (nos)	Value (Rs)
Ornamental plants	Zinia	3200	3200
Plantation	Bargad	1	25
Plantation	Kaner	58	340
Plantation	Kumut	11	330
Plantation	Shami	27	1080
Plantation	Shisham	27	675
Plantation	Siris	712	17800
Plantation	Sita Ashok	100	2000
Spice	Chilli	465554	426636
Spice	Turmeric	56000	56000
Spice	Coriander	49	7880
Tuber	Potato	40	4000
Tuber	Elephant Foot Yam	100	2000
Vegetable Seedling	Bell Pepper	2500	2500
Vegetable Seedling	Bitter gourd	5953	12515
Vegetable Seedling	Bottle Gourd	5348	6980
Vegetable Seedling	Brinjal	437218	285832
Vegetable Seedling	Broccoli	13682	13520
Vegetable Seedling	Cabbage	67712	63176
Vegetable Seedling	Capsicum	3852	6800
Vegetable Seedling	Cauliflower	108480	87440
Vegetable Seedling	Cucumber	5000	5000
Vegetable Seedling	Cucurbits	18650	18650
Vegetable Seedling	Curry leaf	544	22695
Vegetable Seedling	Drumstick	57213	725919
Vegetable Seedling	Ivy guard (Kundru)	7000	7000
Vegetable Seedling	Knol-khol	3000	3000
Vegetable Seedling	Molshree	102	2040
Vegetable Seedling	Onion	753113	376515
Vegetable Seedling	Others	7307	135174
Vegetable Seedling	Pointed Guard (Parwal)	2500	2500
Vegetable Seedling	Pumpkin	1445	3225
Vegetable Seedling	Red Cabbage	559	1800
Vegetable Seedling	Ridgegourd	2000	2000
Vegetable Seedling	Spong gound	350	2080
Vegetable Seedling	Tomato	829846	701741
Vegetable Seedling	Tomato, Chilli, Brinjal,	68766	78150
Vegetable Seedling	Vegetables, Flower & Fruit	3215	7815
Vegetable Seedling	Lablab (Sem) Seedling	44	22475
Fodder	Napier	767500	635102
Grand Total		**5443423**	**16300894**

Production of Livestock materials

Table 5.8: Status of Livestock Production in KVKs under Zone-IX during 2021

Category	Name of the animal / bird / aquatics	Breed	Type of Produce	unit (no./ lit/ kg)	Quantity	Value (Rs.)	No. of Beneficiaries
Dairy animals	Breeding bull	Gir	Bull	no.	1	25000	0
Dairy animals	Breeding bull	Sahiwal	Bull	no.	1	-	-
Dairy animals	Breeding bull	Holstein Friesian & Sahiwal	Bull	no.	7	-	-
Dairy animals	Buffaloes	Murrah	Buffaloes	no.	8	68425	8
Dairy animals	Buffaloes	Murrah	Milk	Liter	1465	65947	45
Dairy animals	Calves	Gir	Calves	no.	13	48000	7
Dairy animals	Calves	Gir	Paneer	kg	36.53	13151	5
Dairy animals	Calves	Gir & Frieshwal	Calves	no.	10	70000	
Dairy animals	Calves	Sahiwal	Calves	no.	16	169000	5
Dairy animals	Calves	Sahiwal	Cowdung, Urine	kg	49000	95000	-
Dairy animals	Calves	Frieshwal	Calves	no.	2	-	-
Dairy animals	Cow	Desi	Dung	Trolly	3	12000	1
Dairy animals	Cow	Desi	Urine	Liter	100	400	2
Dairy animals	Cow	Gir	Cow	no.	4	291630	55
Dairy animals	Cow	Gir	Heifers	no.	7	30000	7
Dairy animals	Cow	Gir	Milk	Liter	19732.69	681362	175
Dairy animals	Cow	Gir & Sahiwal	Milk	Liter	7722.75	104710	11
Dairy animals	Cow	Sahiwal	Cow	no.	11	79800	0
Dairy animals	Cow	Sahiwal	Milk	Liter	61500	1214060	136
Dairy animals	Cow	Sahiwal	Milk, Urine Cowdung,	Liter	3245	154450	-
Dairy animals	Cow	Holstein Friesians(HF)	Milk	Liter	3159.5	79970	15
Dairy animals	Cow	Holstein Friesian & Sahiwal	Milk	Liter	7751	310040	32
Dairy animals	Cow	Frieswal (HFxSahiwal)	Cow	no.	5	-	-
Dairy animals	Cow	Frieswal (HFxSahiwal)	Milk	Liter	5629	79512	21
Dairy animals	Cow	Gir & Frieswal	Milk	Liter	7601	207846	-
Dairy animals	Goats	Barbari	Kids	no.	12	135000	-
Dairy animals	Goats	Barbari	Meat	kg	6	-	-
Dairy animals	Goats	Black Bengal	Adult & Kid	no.	15	90000	-
Dairy animals	Goats	Black Bengal	Meat	kg	20	-	-
Dairy animals	Goats	Bundelkhandi	Adult & Kid	no.	2	11000	1
Dairy animals	Goats	Osmanabadi	buck (meat)	kg	23	78000	19
Dairy animals	Goats	Sirohi	Adult	no.	5	8000	-
Dairy animals	Goats	Sirohi	Adult & Kid	no.	40	201000	1
Dairy animals	Goats	Sirohi	Buck (mail goat)	no.	3	60000	3

Category	Name of the animal / bird / aquatics	Breed	Type of Produce	unit (no./ lit/ kg)	Quantity	Value (Rs.)	No. of Beneficiaries
Dairy animals	Goats	Sirohi	Kid	no.	13	120000	-
Dairy animals	Goats	Sirohi & Burberi	Adult & Kid	no.	12	100000	-
Dairy animals	Goats	Sirohi & Jamunapari	Doe & buck	no.	2	14000	-
Dairy animals	Goats	Sirohi & Osmanabadi	Adult & Kid	no.	9	22600	9
Dairy animals	Goats	Barbari & Jamanapari	Adult & Kid	no.	22	120000	40
Poultry	Ducks	White pekin	Birds	no.	450	189000	12
Poultry	Ducks	White pekin, Khaki Campbell	Chicks	no.	50	6350	20
Poultry	Ducks	White pekin, Khaki Campbell	Duck	no.	105	8400	-
Poultry	Ducks	White pekin, Khaki Campbell	Dukling	no.	395		-
Poultry	Ducks	White pekin, Khaki Campbell	Meat	no.	29	7250	29
Poultry	Ducks	Khaki Campbell	Meat, Egg, Chicks	no.	26	5200	-
Poultry	Japanese quail	Japanese quail	Adult	no.	11312	309195	266
Poultry	Japanese quail	Japanese quail	Chicks	no.	32898	255237	225
Poultry	Japanese quail	Japanese quail	Egg	no.	6812	8515	89
Poultry	Japanese quail	Japanese quail	Meat	kg	95	6200	8
Poultry	Japanese quail	Japanese quail	Meat, Chicks	no.	683	39350	-
Poultry	Poultry	Aseel	Chicks	no.	1000	100000	10
Poultry	Poultry	Bundelkhandi	Cocks & Eggs	no.	110	5150	25
Poultry	Poultry	Gramapriya	Birds	no.	80	20000	35
Poultry	Poultry	Kadaknath	Birds	no.	229	114500	19
Poultry	Poultry	Kadaknath	Chicken	kg	130	68000	105
Poultry	Poultry	Kadaknath	Chicks	no.	122588	4107365	1098
Poultry	Poultry	Kadaknath	Eggs	no.	2629	27198	201
Poultry	Poultry	Kadaknath	Meat	kg	402.872	198644	63
Poultry	Poultry	Kadaknath	Meat, Egg, Chicks	no.	14719	882385	321
Poultry	Poultry	Kadaknath	Adults	no.	1052	248620	167
Poultry	Poultry	Kadaknath	Chicks & Adults	no.	85	22000	21
Poultry	Poultry	Kadaknath, Narmada Nidhi, Chebro	Broiler	no.	100	30000	5
Poultry	Poultry	Kaveri	Birds	no.	55	11550	15
Poultry	Poultry	Kaveri	Chicks	no.	1912	88558	36
Poultry	Poultry	Narmada Nidhi	Chicken	kg	23	6900	15
Poultry	Narmada Nidhi	Vanraja	Birds	no.	832	-	22
Fisheries	Indian carp	Rohu, Katla, Mrigal	Fish	kg	1908	291905	94
Fisheries	Indian carp	Rohu, Katla, Mrigal	Fry	no.	225000	3900	147
Grand Total					**588014.34**	**11821275**	**3646**

Production of Bio-products

Table 5.9: Production of bio-agents, pesticides, fertilizers by KVKs under Zone-IX during 2021

Category	Name of the Product	Qty (kg/lit)	Qty (No.)	Value (Rs.)	Provided to no. of Farmers
Bio Agents (Pyrilla parasitoids)	*Epiricania melanolauca*	135		31265	0
Bio Agents (Tricho card)	Tricho card	20		10000	20
	Others	2		1400	2
Bio Agents (Worms)	*Eisenia fetida*	5949	428	454400	961
	Eudrilus eugeniae	20	4	100	4
Bio Fertilizers	Acetobactor	220		64680	72
	Azatobactor	160		26000	150
	Azolla	4470.5	306	71050	899
	Azospirillum	352		77732	232
	Beejamruth	1000		12000	40
	Bio fertisol	228		73188	112
	Compost	35850	2000	196000	30
	Earthworms	4519.95	260	660950	622
	Ghanjeevamruth	1000		20000	124
	KSB	26		7644	12
	NADEP	33750	5	281000	5
	Non Symbiotic Azotobacter	350	230	61180	175
	Phosphate solublizing Bacteria	470		107630	220
	Rhizobium	510.51	563	92822	436
	Sanjeewani Khad	2000		100000	
	Taraljeevamruth	1000		32000	153
	Vermicompost	782911.5	23969	3949891	3052
	Vermiwash	200		10000	36
	ZSB	225		66150	92
	Others	345	80	44800	345
Bio Pesticides	Agniastra	1000		60000	204
	Beauveria bassiana	190.5	180.5	126350	75
	Bio decomposer	296	296	87024	112
	Bramastra	1000		60000	189
	Leucin Lures	50		2500	17
	Metarhizium anisopliae	122.4		85680	66
	Neem extract	6050	50	75000	197
	Neem powder	20			
	Panchagavya	1300		22000	41
	Pseudomonas fluorescens	219		66249	107
	Tobacco extract	50			

Category	Name of the Product	Qty (kg/lit)	Qty (No.)	Value (Rs.)	Provided to no. of Farmers
	Trichoderma harjinum	20	4	100	4
	Trichoderma viride	2102	807	392658	1471
	Trichogramma chilonis	30	98	0	98
	Verticillium	20		14000	18
Bio-Food	Honey	89.43		22768	85
Others	Cow dung (dry)	74500		114500	25
	Fresh Oyster Mushroom	350		30000	
	Mushroom spawn	2681.8	1215	346798	734
	Others	200		0	0
Grand Total		**966005.59**	**30495.5**	**7957509**	**11237**

7. 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.

Soil Samples:

During the reporting year, KVKs of Madhya Pradesh and Chhattisgarh analyzed 24917 soil samples benefitting 35291 farmers of 5661 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

State	Soil Samples analyzed				
	No. of Soil Samples analyzed	No. of Farmers benefitted	No. of Villages covered	Amount realized (Rs.)	No. of Soil Health Cards issued
Chhattisgarh	6925	9775	357	0.00	9358
Madhya Pradesh	17992	25516	5304	499750	26152
Total	**24917**	**35291**	**5661**	**499750**	**35510**

Water Samples:

KVKs of Chhattisgarh analyzed 40 water samples benefitting 40 farmers of 33 villages and KVKs of Madhya Pradesh analyzed 82 water samples benefitting 82 farmers of 17 villages (Table 6.1). Total 122 water samples analyze by KVKs.

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

State	Water Samples analyzed			
	No. of Water Samples analyzed	No. of Farmers benefitted	No. of Villages covered	Amount realized (Rs.)
Chhattisgarh	40	40	33	Nil
Madhya Pradesh	82	82	17	Nil
Total	**122**	**122**	**50**	**Nil**

8. TECHNOLOGICAL BACKSTOPPING THROUGH LITERATURE AND MEDIA

8.1 Newsletter

Table 8.1: State wise Newsletter published by the KVKs

State	No. of KVKs	No. of issues	Number of copies printed	Number of copies distributed
Chhattisgarh	21	4	**32925**	**32863**
Madhya Pradesh	44	4	**104455**	**102173**
Grand Total	**65**		**141337**	**135764**

8.2. Publications

Table 8.2: Category wise literature published and distributed by the KVKs of Zone IX

Type	No. of KVKs	Number
Abstract	48	181
Research Paper	58	223
Book	16	35
Book Chapter	24	63
Booklet	26	103
Leaflets/ Folder/ Pamphlet	64	880
Popular article	56	526
Technical Bulletin	32	122
Technical Report	46	338
Training Manual	23	74
Year Planner	52	52
CD/DVD	19	39
Others (District Profile, Crop Cafeteria Result, Contingent Plan, Nutri Village-APR, Sansad Gram-APR, Satellite Village-APR, CFLD-APR, DFI-AAP etc)	10	33
Grand Total		**2669**

9. FLAGSHIP PROGRAMMES

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 11 KVKs in the states of Madhya Pradesh and Chhattisgarh under ATARI, Jabalpur, which monitors the performance of NICRA KVKs namely Chhattarpur, Datia, Jhabua, Morena, Ratlam, Dindori, Lahar and Tikamgarh in Madhya Pradesh; Durg II, Mahasamund and Raigarh in Chhattisgarh.

During 2021-22, through various planned activities, total 13342 farmers were benefitted including 4700 farmers by technological interventions in 2039.9 ha and including 8642 farmers by capacity building (3249 farmers) and extension activities (5393 farmers).

Under NRM Module, total 1632 farmers were benefited by covering 813.1 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 911 farmers were benefitted through demonstrations conducted in 388.2 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 2240 animals, 1500 poultry birds' of 1022 farmers were benefitted by the demonstrations conducted focusing on preventive vaccination, de-worming of animals, animal health camp and nutrition management. Besides, farmers were also supported by CHC, Seed bank and fodder bank.

In-situ moisture conservation in soybean by Ridge and furrow

Vegetable production with drip irrigation

Drought tolerant variety (Pusa 992) of pigeon pea

Temperature tolerant wheat (HI-1544)

2. Attracting and Retaining Youth in Agriculture (ARYA)

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

ARYA project is operational in 12 KVKs viz Gwalior, Morena, Dhar, Jhabua, Neemuch, Satna, Sheopur and Narmadapuram (Hoshangabad) in Madhya Pradesh and Dantewada, Raipur, Kanker, Surguja in Chhattisgarh under ICAR-ATARI, Jabalpur. Under ARYA project, rural youths are trained in different agricultural and allied enterprises.

During 2021-22, under ARYA programme total 114 trainings were organized in different agricultural and allied enterprises and 2172 youths were trained. After training under close monitoring by the KVK staff 792 youth were established various agricultural and allied enterprises viz poultry farming, mushroom cultivation, goatery, vermicompost production, beekeeping and processing and value addition etc. Total 1848 youths from other villages visited ARYA demonstration unit and total 80 new groups were established under different agricultural and allied enterprises.

Table 9.1: Performance of KVKs under ARYA Project

State	KVK	Training programs	No. of youth trained			No. of Youth involved in established units			Entrepreneurial units established
		(No.)	Male	Female	Total	Male	Female	Total	(No.)
M.P.	Gwalior	19	128	72	200	52	19	71	68
	Morena	10	215	25	240	6	3	9	14
	Dhar	4	146	54	200	72	18	90	90
	Jhabua	6	180	20	200	109	12	121	82
	Neemuch	3	82	1	83	9	0	9	9
	Satna	8	141	59	200	42	21	63	9
	Sheopur	4	73	22	95	25	10	35	35
	Narmadapuram (Hoshangabad)	7	142	38	180	15	11	26	18
C.G.	Dantewada	17	45	121	166	31	109	140	22
	Kanker	8	109	131	240	6	31	37	10
	Raipur	24	112	56	168	112	56	168	7
	Surguja	4	100	100	200	19	4	23	21
	12 KVKs	**114**	**1473**	**699**	**2172**	**498**	**294**	**792**	**385**

Bee keeping

Kadaknath farming

Mushroom production

3. Farmer FIRST Programme (FFP)

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 small holder's 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.

- Under this programme, total 1668.26 ha area covered, 6517 animal/poultry and 14601 farm households benefitted including 5446 farm households in extension activities and 2856 farm households in capacity building programmes. The module wise progress is as follows:
- Under crop based module 873.77 ha covered and benefitted 2676 farm households.
- In horticultural based module 120.18 ha area covered and 1030 farm households benefitted and 800 plants distributed.
- Under livestock based module 6517 animal/poultry and 524 farm households benefitted.
- Under enterprise based module seven mushroom production units, 75 vermi-compost unit, 4 bee keeping unit and 12 units of *kadaknath* farming were established, 1.23 lakh fingerlings provided and 137 plants brooded with lac and in total 326 farm households benefitted.
- Under IFS module 108.65 ha area covered and 69 farm households benefitted.
- Under NRM module 565.66 ha area covered and 1687 farm households benefited.
- A total of 183 extension activities were organized that benefitted 5446 farm households.
- A total of 110 capacity building programmes were organized that benefitted 2865 farm households.

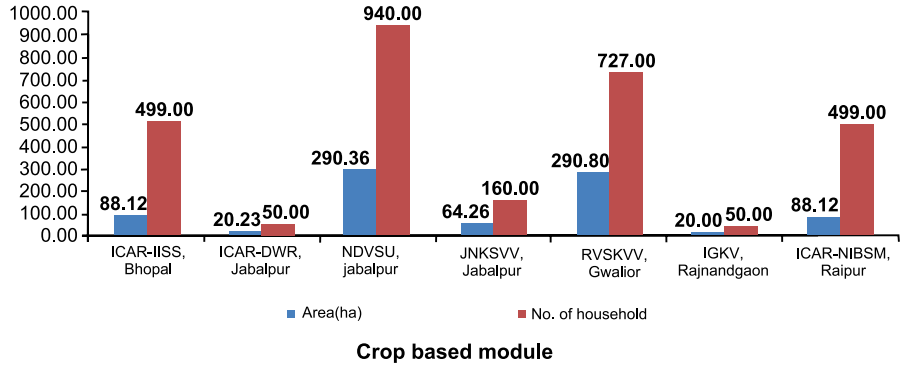


Fig: Area covered in ha and number of farm households benefitted under crop based module

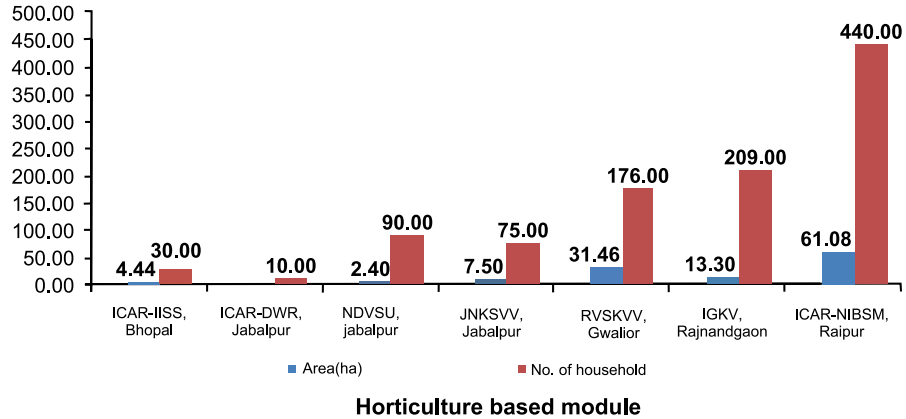


Fig: Area covered in ha and number of farm households benefitted under horticulture based module

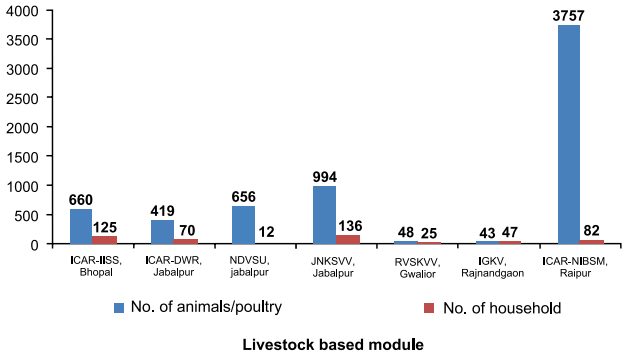


Fig: Number of farm householdsand animals/poultry benefitted under Livestock based module

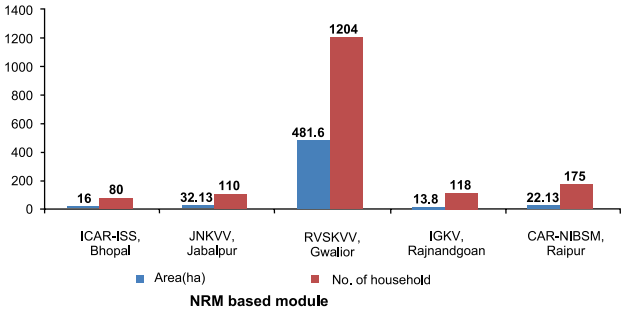


Fig: Area covered in ha and number of farm households benefitted under NRM based module

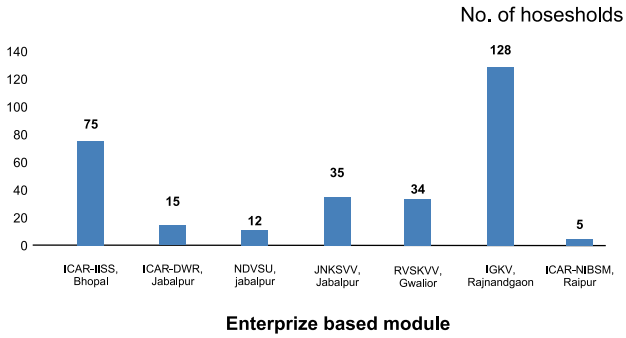


Fig: Number of farm householdsbenefitted under Enterprise based module

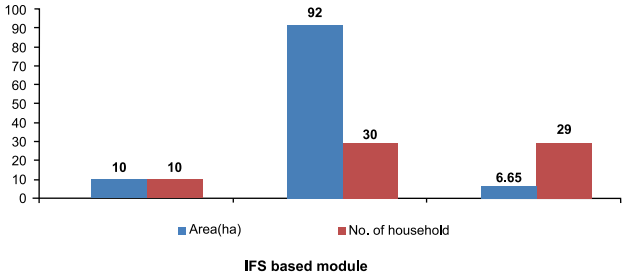


Fig: Area covered in ha and number of farm householdsbenefitted under IFS based module

Digging new pond for rain water conservation

Pigeon pea in bed planting

Vermicompost production

4. 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 Durg, RVSKVV Gwalior are institutes working under MGMG programme.

ICAR institutes and SAUs activities:

During 2021-22, total 10 groups were formed by involving 40 scientists under ICAR institutes and SAUs. Through training, demonstration, literature distribution, message advisories, general awareness and linkage created with other Departments/Organization benefitted total of 28505 farmers of 28 villages under this programme.

In ICAR-DWR, Jabalpur, two groups involving 15 scientists conducted total 133 demonstrations, trainings and field activities by covering 11 villages. Training, demonstration, literature distribution, general awareness and linkages created with other Departments/ Organizations benefited total 23341 farmers.

JNKVV, Jabalpur conducted total 229 field activities in 17 adopted villages by which 5164 farmers were benefited under the programme.

Table 9.2: Institute-wise progress under *Mera Gaon Mera Gaurav*

S. No.	Name of Institute	Total Number 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	15	11	133	26	23341
2	Jawaharlal Nehru Krishi Vishwa Vidhyalaya, Jabalpur (MP)	8	25	17	229	48	5164
	Total	**10**	**40**	**28**	**362**	**74**	**28505**

5. Cluster Frontline Demonstrations (CFLD) of Oilseeds

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

Cluster Frontline Demonstration on Oilseeds 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.The programmes were implemented by 81 KVKs with major oilseed crops of *kharif, rabi* and summer season through 6520 demonstrations covering 2890.8 ha area including 1324.8 ha with 2988 demo. in kharif; 1376.0 ha with 3169 demonstrations in *rabi* and 190.0 ha with 363 demonstrations in summer season, respectively during 2021-22.

Rice sowing with Happy seeder

Discussion in Farmer's field

Seed treatment of chickpea

In *kharif* season, soybean, sesame, niger and groundnut were demonstrated in CFLD. In Madhya Pradesh, 950 demonstrations were conducted in 380.8 ha area by 34 KVKs under soybean and obtained yield was 14.79 q/ha, whereas in niger 200 demonstrations were conducted in 80 ha area by 7 KVKs with obtained yield 4.43 q/ha. Sesame was demonstrated in 110 ha area by 10 KVK through 272 demonstrations and obtained yield was 5.27 q/ha and groundnut were demonstrated in 60 ha with 149 demonstrations by 6 KVKs at farmers' field with obtained yield 14.31 q/ha. Similarly, in Chhattisgarh, 140 ha area covered through 247 demonstrations in soybean crop by 8 KVKs which obtained yield was 15.26 q/ha. In niger, 190 ha area was covered with 452 demonstrations by 10 KVKs and obtained yield was 4.62 q/ha. Sesame crop was demonstrated in 160 ha area in 5 KVKs through 297 demonstration and 4.72 q/ha yield obtained, whereas, groundnut demonstration was laid out in 204 ha area by 13 KVKs through 421 demonstrations with 15.27 q/ha, average yield.

During *rabi* season, mustard, linseed, sunflower and safflower were demonstrated. In Madhya Pradesh, mustard covered 478.8 ha area with 1193 demonstrations by 31 KVKs with avg. yield of 16.07 q/ha and linseed was demonstrated in 265.2 ha with 663 demonstrations by 15 KVKs with average yield obtained as 12.47 q/ha. Similarly, in Chhattisgarh, mustard was demonstrated in 347.0 ha area with 722 demonstrations by 23 KVKs with yield obtained 8.23 q/ha and linseed was there in 205.0 ha area through 442 demonstrations in 13 KVKs with average yield of 7.0 q/ha. Safflower covered 60.0 ha area with 99 demonstrations by three KVKs and average yield obtained as 11.38 q/ha. Sunflower was demonstrated in 10 ha area with 25 demonstrations and average yield was 7.3 q/ha.

Besides, during Summer (2020-21), 190.0 ha area covered with 363 demonstrations in groundnut and sesame, results shown that in Madhya Pradesh, sesame was demonstrated in 20 ha (50 demo) with yield advantage of 24.44 % over check. However, in Chhattisgarh, groundnut was demonstrated in 60 ha (130 demo) with yield enhancement of 34.37 % over check and sesame was demonstrated in 110 ha (183 demo) with yield advantage of 56.32 % over farmer practice.

Table 9.3: State-wise & Season-wise outcome of CFLD on Oilseed

State	Crop	No. of KVK	Conducted		Average Yield (q/ha)		Yield increase (%)
			Area (ha)	Demo	Check	Demo	
Madhya Pradesh	Soybean	34	380.8	950	10.78	14.79	37.2
	Sesame	10	110	262	3.64	5.27	44.78
	Niger	7	80	200	2.89	4.43	53.29
	Groundnut	6	60	149	10.76	14.31	32.99
Chhattisgarh	Soybean	8	140	247	9.5	15.26	60.63
	Sesame	12	160	297	3.5	4.72	34.86
	Niger	10	190	452	3.27	4.62	41.28
	Groundnut	13	204	421	12.3	15.27	24.15
Total Kharif (2021)			**1324.8**	**2988**	**7.08**	**9.83**	**38.84**
Madhya Pradesh	Mustard	31	478.8	1193	12.1	16.07	32.81
	Linseed	15	265.2	663	8.26	12.47	50.97
Chhattisgarh	Mustard	23	347	722	5.66	8.23	45.41
	Linseed	13	205	442	4.92	7	42.28
	Safflower	3	60	99	8.1	11.38	40.49
	Sunflower	1	20	50	6.2	7.3	17.74
Total Rabi (2021-22)			**1376**	**3169**	**7.54**	**10.40833**	**37.93**
Madhya Pradesh	Sesame	1	20	50	3.95	5.1	24.44
Chhattisgarh	Groundnut	3	60	130	9.6	12.3	34.37
	Sesame	5	110	183	4.03	6.3	56.32
Total Summer (2020-21)			**190.00**	**363.00**	**5.86**	**7.90**	**34.81**
Grand Total			**2890.80**	**6520.00**	**6.83**	**9.38**	**37.39**

6. Cluster Frontline Demonstration (CFLD) on Pulses

Incharge: Dr. A.A. Raut, Scientist (AE)

Cluster Frontline Demonstration on pulses under "National Food Security Mission" was implemented by ICAR-ATARI, Zone-IX, Jabalpur in state Madhya Pradesh and Chhattisgarh. Under the project, major crops taken in *Kharif* season were blackgram, greengram, pigeonpea and horsegram and in *rabi* season major crops werechickpea, fieldpea, laythrus, lentil and pigeonpea.

Soybean

Sesame

Linseed

Mustard

Under CFLD pulses, during *Kharif* 2021-22, major crops demonstrated in states Madhya Pradesh and Chhattisgarh were blackgram, greengram, horsegram and pigeonpea and covered total 1073.20 ha area with total 2683 number of demonstrations. In Madhya Pradesh, under blackgram 255.20 ha area was conducted with 638 number of demonstration by 25 KVKs and yield obtained was 8.04 qha^{-1} with net return of Rs 29510/ha**.** Whereas, crop greengram was covered in 70 ha area with 175 number of demonstrations by seven KVKs with 5.04qha^{-1} average yield and net return Rs 27653/ha. Also, pigeonpea was demonstrated in 280 ha area by 25 KVKs through 700 demonstrations with productivity of 13.93 qha^{-1} and net return of Rs 58438/ha. While, crop horsegram was grown by only one KVK in 10 ha area with 25 number of demonstration with 5.17qha^{-1}average yield and 7910/ha net return.

Similarly, in state Chhattisgarh, total 525 numbers of demonstrations were conducted by 19 KVKs in 210 ha area under crop blackgram and the average yield was obtained 6.95 qha^{-1} with net return of Rs 26796/ha. Whereas, 30 ha area with 75 demonstrations was covered under crop greengram by four KVKs, resultedaverage yield 8.89 qha^{-1} and net return of Rs 36434/ha. Crop Pigeonpea was demonstrated by 17 KVKs covering 188 ha area through 470 demonstrations, with productivity and net return 10.66 qha^{-1} and Rs 46958/ha, respectively. Also, six KVKs conducted 100 demonstrations in 40 ha area under horsegram and the average yield and net return obtained was 4.55 qha^{-1} and Rs. 15298/ha respectively.

Table 9.4: State-wise & Season-wise outcome of CFLD Pulses of Kharif 2021-22

State	Season	Crop	No of KVK	Conducted			
				Area (ha)	Demo (No.)	Yield q/ha	Net return/ha
MP	***Kharif* 2021-22**	Blackgram	25	255.2	638	8.04	29510
		Greengram	07	70	175	5.04	27653
		Pigeonpea	25	280	700	13.93	58438
		Horsegram	01	10	25	5.17	7910
		Sub Total		605.2	1513		
CG		Blackgram	19	210	525	6.95	26796
		Greengram	4	30	75	8.89	36434
		Pigeonpea	17	188	470	10.66	46958
		Horsegram	6	40	100	4.55	15298
		Sub Total		468	1170		
Total Kharif 2021-22				**1073.20**	**2683.00**		

During *Rabi* 2021-22, chickpea, fieldpea, lentil, laythrus and pigeonpea were the major crops demonstrated in 1388 ha area with total 3350 number of demonstrations in states Madhya Pradesh and Chhattisgarh. Under chickpea, 658 ha area with 1643 number of demonstrations were demonstrated by 49 KVKs in state Madhya Pradesh. Whereas, crops fieldpea and lentil were laid out in 40ha by four KVKs and 160 ha area by 14 KVKs with 100 and 400 number of demonstrations, respectively.

Similarly, crop chickpea and field pea were demonstrated in 285 ha and 120 ha with 647 and 277 number of demonstrations by 14 and 10KVK's respectively in state Chhattisgarh. Also, demonstrations of crops. laythrus, lentil and pigeonpea were conducted in 60ha, 45 ha and 20 ha area with 136 by six KVKs,97 by five KVKs and 50 number of demonstrations by three KVKs, respectively.

Table 9.5: State-wise & Season-wise area covered and demo under CFLD pulses in *Rabi* 2021-22

State	Season	Crop	No of KVK	Area (ha)	Demo (No.)
MP	***Rabi* 2021-22**	Chickpea	49	658	1643
		Fieldpea	4	40	100
		Lentil	14	160	400
		Sub Total		**858**	**2143**
CG		Chickpea	14	285	647
		Fieldpea	10	120	277
		Laythrus	06	60	136
		Lentil	05	45	97
		Pigeonpea	03	20	50
		Sub Total		530	1207
Total Rabi 2021-22				**1388**	**3350**

Performance of *Rabi* and Summer 2020-21

In *Rabi* season, chickpea, fieldpea, lentil, laythrus and pigeonpea were the major crops demonstrated in Madhya Pradesh and Chhattisgarh during 2020-21. In state Madhya Pradesh, under chickpea crop 768 ha area were covered with 1934 demonstrations and obtained average yield16.23 qha^{-1} with net return of Rs. 55442/ha. Whereas, in field pea crop total 50 ha area covered through 123 demonstrations and obtained average yield 18.95qha^{-1} with net return of Rs 64585/ha. Also, 100 ha area with 247 demonstrations was covered under lentil and obtained yield was 13.13 qha-1 with net return of Rs 44702/ha.

Whereas, in Chhattisgarh, crops chickpea and fieldpeawere demonstrated in 255 ha and 145 ha area with 539 and 309 number of demonstrations respectively. The average yield obtained from these crops were 11.15 qha^{-1} with net return of Rs 32650/ha and 7.75 qha^{-1} with net return of Rs 20296/ha, respectively. Also, crops lathyrus, lentil and pigeonpea were demonstrated in 90 ha, 20 ha and 10 ha area with total 150,46 and 13 demonstrations, respectively. The obtained yield from crops lathyrus, lentil and pigeonpea were 6.4 qha^{-1} with net return of Rs 14755/ha, 6.78qha^{-1} with net return of Rs 15305/ha and 6.75 qha^{-1} with net return of Rs 15850 /ha, respectively.

Similarly, during summer 2021, greengram was demonstrated in total 160 ha area with total 400 number of demonstrationsand obtained yield was 11.93qha^{-1} with net return Rs. 65942/ hain Madhya Pradesh.

Whereas, blackgram and greengram covered 30 ha and 70 ha areawith 43 and 159 number of demonstrations, respectivelyin state Chhattisgarh. Further, obtained average yield of these crops were 7.55qha^{-1} with net return Rs. 30102/ha and 7.42 qha^{-1} with net return Rs 42425/ha,respectively.

Table 9.6: State-wise & Season-wise performance Pulses under CFLD in*Rabi* and Summer 2020-21

State	Season	Crop	No of KVK	Conducted			
				Area (ha)	Demo (No.)	Yield q/ha	Net return/ha
MP	Rabi 2020-21	Chickpea	45	768	1934	16.23	55442
		Fieldpea	04	50	123	18.95	64585
		Lentil	09	100	247	13.13	44702
		Sub Total		918	2304		
CG		Chickpea	18	255	539	11.15	32650
		Fieldpea	11	145	309	7.75	20296
		Laythrus	08	90	150	6.4	15305
		Lentil	02	20	46	6.78	14755
		Pigeonpea	01	10	13	6.75	15850
		Sub Total		520	1057		
Total Rabi 2020-21				1438	3361		
MP	***Summer 2021***	Greengram	14	160	400	11.93	65942
		Sub Total		160	400		
CG		Blackgram	02	30	43	7.55	30102
		Greengram	07	70	159	7.58	42425
		Sub Total		100	202		
Total Summer 2020-21				**260**	**602**		

Blackgram (Pratap Urd 1)

Greengram (MH 421)

Chickpea (RVG 202)

Pigeonpea (Rajeshwari)

7. Tribal Sub Plan (TSP) on Pulses

Incharge: Dr. A.A. Raut, Scientist (AE)

Tribal Sub Plan (TSP) scheme is aimed for 'Enhancing Pulses Production for Food, Nutritional Security and livelihoods of Tribal Community through Demonstration and Training'. Participatory demonstration programme on pulses under TSP pulses was implemented by ICAR-ATARI, Jabalpur in collaboration with IIPR Kanpur. Under ICAR-ATARI, Jabalpur seven KVKs namely Anuppur, Mandla, Barwani, Dhar, Jhabua, Dindori and Shahdol in Madhya Pradesh and eight KVKs viz., Balrampur, Bastar, Narayanpur, Surguja, Jashpur, Kanker, Dantewada and Bijapur in Chhattisgarh were located in the tribal region.

Under Tribal Sub Plan, blackgram, greengram and pigeonpea were the major crops demonstrated by 15 KVKS in total 206 ha area with 515 number of demonstrationsin states Madhya Pradesh and Chhattisgarh during *Kharif* 2021. In state Madhya Pradesh, total 95 demonstration on blackgram were conducted in 38 ha area by two KVKs and obtained yield was 7.69qha^{-1} with net return of Rs 22630/ha. Whereas, greengram and pigeonpea were demonstrated by only two &four KVKs in 34 ha and 70 ha area through 85 and 175 demonstrations, respectively. Average yield and net return obtained under greengram and pigeonpea were 7.36 qha-1 with net return of Rs 28160 /ha and 12.23 qha-1 with net return of Rs 56533 q/ha, respectively.

Similarly, in state Chhattisgarh, major crops blackgram, greengram and pigeonpea covered total 64 ha area with 160 demonstrations. Individually, blackgram was demonstrated by four KVKs in 46 ha area with 115 numbers of demonstrations and the average yield obtained was 8 qha^{-1} with net return of Rs 27274/ha. Whereas, greengram and pigeonpea were demonstrated by only one KVK in 12 ha and 6 ha area through 30 and 15 demonstrations, respectively. Average yield and net return obtained under greengram and pigeonpea were 6.37 q ha-1 with net return of Rs 27241 /ha and 8.80 qha-1 with net return of Rs 37635 q/ha respectively.

Table 9.7: Performance of demonstrations under different crops during Kharif 2021

State	Season	Crop	No of KVK	Conducted			
				Area (ha)	Demo (No.)	Yield q/ha	Net return/ha
MP	*Kharif* 2021	Blackgram	02	38	95	7.69	22630
		Greengram	02	34	85	7.36	28160
		Pigeonpea	04	70	175	12.23	56533
		Sub Total	**8**	**142**	**355**		

State	Season	Crop	No of KVK	Conducted			
				Area (ha)	Demo (No.)	Yield q/ha	Net return/ha
CG		Blackgram	04	46	115	8	27274
		Greengram	01	12	30	6.37	27241
		Pigeonpea	01	6	15	8.80	37635
		Sub Total	**6**	**64**	**160**		
***Total Kharif* 2020-21**			**14**	**206**	**515**		

During Rabi 2020-21, under Tribal Sub Plan, major crop demonstrated in both the states Madhya Pradesh and Chhattisgarh was only Chickpea, which covered total 56 ha area with 140 demonstrations. In Madhya Pradesh, crop chickpea was laid out in 42 ha area with 105 number of demonstrations by three KVKs, resulting 12.89 qha^{-1} average yield with net return of Rs. 40546/ha.

Whereas, in Chhattisgarh, crop Chickpea was demonstrated in 14 ha area with 35 demonstrations and obtained yieldwas 13.45 qha^{-1} Rs 31032/ha.

Table 9.8: Performance of demonstrations under different crops (Rabi 2020-21)

State	Season	Crop	No of KVK	Conducted			
				Area (ha)	Demo (No.)	Yield q/ha	Net return/ha
MP	***Rabi* 2020-21**	Chickpea	03	42	105	12.89	40546
		Sub Total	**03**	**42**	**105**	**12.89**	**40546**
CG		Chickpea	01	14	35	13.45	31032
		Sub Total	**01**	**14**	**35**	**13.45**	**31032**
Total Rabi 2020-21			**04**	**56**	**140**		

Pigeonpea var. Rajeshwari

Blackgram Greengram IPM 410-3 (Shikha)

Chickpea var. RVG 202

8. Seed Hub for increasing production of Pulses

Incharge: Dr. A.A Raut, Scientist (AE)

Seed Hub Project on pulses was functional in 14 KVKs of states Madhya Pradesh and Chhattisgarh under ICAR-ATARI, Jabalpur during *Kharif 2021*. Major crop taken under this project in *kharif* season were blackgram, pigeonpea and horsegram and the programme was implemented in 222.32 ha area with 913.66 q seed production.

Table 9.9: Seed production in Kharif

State	No. of KVKs	Area (ha.)	Production (q)
Madhya Pradesh	08	111.8	338.41
Chhattisgarh	06	110.52	575.25

State	No. of KVKs	Area (ha.)	Production (q)
Total	**14**	**222.32**	**913.66**

On the other hand, during *Rabi 2020-21*, this project was functional in total 15 KVKs of Madhya Pradesh and Chhattisgarh. In *Rabi season,*767.2 ha area was demonstrated under this project with total seed production of 6386.48 q, covering major crops chickpea, fieldpea and laythrus.

Table 9.10: Seed production in Rabi

State	No. of KVKs	Area (ha.)	Production (q)
Madhya Pradesh	09	485.2	4000.48
Chhattisgarh	06	282	2386
Total	**15**	**767.2**	**6386.48**

Similarly, crops blackgram and greengram were demonstrated in *summer season 2021***,** covering 122.8 ha area with 556.85 q of seed production. Under this Project, seed godown with processing unit were established inKVKs of both the states Madhya Pradesh and Chhattisgarh.

Table 9.11: Seed production in Summer

State	No. of KVKs	Area (ha.)	Production (q)
Madhya Pradesh	08	87.8	446.85
Chhattisgarh	06	35	110
Total	**14**	**122.8**	**556.85**

Pigeonpea (BDN 716)

Chickpea (RVG 202)

Blackgram (Pratap Urd 1)

9. Nutrition Sensitive Agriculture through Nutri-SMART Village

Nodal Scientist: Dr. S. R. K. Sing, 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 promoting 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 established in 42 blocks in Madhya Pradesh and 15 blocks of Chhattisgarh. Therefore this programme will result into following specific outcome addressing the ultimate goal of health and well-being of farm women, adolescent girls and children (0-5 year):

(i) Increased availability, accessibility and utilization of nutritious crops/vegetables/fruits etc, through Nutrition gardens.

(ii) Crop diversification along with cultivation of Boifortified varieties will result improvement in nutritional and health status of farm family in Nutri-SMART Villages.

(iii) Improving dietary diversity by standardizing traditional recipes incorporating locally available food materials through value addition.

(iv) To enhance the economic status of farm family through income generation activities.

State	No of KVKs	No of activity	No. of farmers/ beneficiaries
Technology Assessment on			
Madhya Pradesh			
Nutrition Garden	16	21	454
Bio-fortified Crops	22	38	240
Drudgery reduction	10	14	81
Income generation	18	25	187
Value addition	13	19	137
Other Enterprises	10	19	146
Total		136	1245
Chhattisgarh			
Nutrition Garden	4	16	73
Bio-fortified Crops	3	9	70
Income generation	4	11	109
Value addition	4	9	32
Other Enterprises	3	10	61
Total		55	345
Grand Total		191	1590
Technology Demonstrated			
Madhya Pradesh			
Nutrition Garden	35	62	752
Bio-fortified Crops	18	12	82
Drudgery reduction	14	5	25
Income generation	21	23	159
Value addition	18	10	216
Other Enterprises	22	23	256
Total		135	1490
Chhattisgarh			
Nutrition Garden	11	84	499
Bio-fortified Crops	6	14	51
Drudgery reduction	4	1	2
Income generation	7	8	81
Value addition	6	4	52
Other Enterprises	7	6	72
Total		117	757
Grand Total		252	2247
Training			
Madhya Pradesh	36	72	7791
Chhattisgarh	16	135	3061
Total		207	10852

State	No of KVKs	No of activity	No. of farmers/ beneficiaries
Extension Activities			
Madhya Pradesh	35	544	15355
Chhattisgarh	16	90	2301
Total		**634**	**17656**

Training for income generation

Nutritional garden

Mahua seed decortication by Mahua seed Decorticator

Value addition

Paushtik Chapati for nutritional security

Mushroom cultivation

10. 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. KVKs are working hard to enhance the productivity and profitability at farmers' condition through its various activities under the guidance of Division of Agricultural Extension and monitoring system of the ICAR-ATARI with Director of Extension of SAUs. As a result, KVK efforts are being recognized and appreciated at various platforms.

Some of the important initiatives taken/continued during the period 2020-21 are being presented here.

District Agro-Met Units (DAMU)

Nodal Scientist: *Dr. D. B. Bardhan, Principal Scientist (Vet. Economics)*

IMD and ICAR signed MOU to establish District Agro Met Units (DAMU) under which DAMU established in 23 KVKs (14 in Madhya Pradesh and 09 in Chhattisgarh) under Gramin Krishi Mausam Sewa. Agromet observatories as well as Automated Weather Stations (AWS) record agromet observations to generate agro-meteorological information for use in studies on crops, pests & diseases, soil, agro-forestry, livestock, horticulture, agricultural physics, soil science etc. Each District Agro-Met Unit utilizes the relevant output products including weather data to generate specific advisories for agricultural management for the respective districts in Agro-climatic Zones identified under the area of its jurisdiction and disseminate the same to the farming community. Such data help to study crop-weather relationship, relationship between crop-weather and pest/disease and develop region/location specific agromet predictive models. During 2020, total 72 training programmes were organised under DAMU at KVKs with participation of 5020 participants.

Table 10.1: Details of advisories sent by DAMU staff at KVK

Details	No. of advisory sent	No. of farmers
Weather Advisory on KMA	61	270112
General Advisory on KMA	95	360821
Crop Specific Advisory on KMA	51	406713
Horticulture Specific Advisory on KMA	39	121252
Other agril related advisory on KMA	85	166777
Social media /Whats app advisories on Weather	844	23060
Social media /Whats app advisories on agriculture	826	23778
Horticulture Specific Advisory on Whats app/ Social media	818	36790
Other agril related advisory on Whats app/ Social media	818	36778

Table 10.2: DAMU Outreach: Extension and farmer outreach programmes organized by DAMU staff

Details	No. programme organized	No of participants / farmers benefited
Awareness programme on DAMU	182	6395
Field Day/ Exhibition / Mela	24	1283
Visit to farmers field	80	653

Capacity Building

Knowledge management happened to be the important aspects for the scientists as well as policy makers in the agriculture for the farming community. As Indian agriculture is transforming from primary, secondary agriculture, knowledge management will play a key it has presumed to that knowledge exchange could be one of the effective way for managing the knowledge of all stakeholders of agriculture production system. Keeping in view the importance of knowledge management, ICAR-ATARI, Zone IX has initiate knowledge exchange meet of the KVK Subject Matter Specialists with commodity specific ICAR Institutes to enhance the average income of the farming community.

Beekeeping

Department of Agriculture and Farmers Welfare Ministry of Agriculture and Government of India initiated training programs in 2020 within States through ICAR to promote Beekeeping under Mini Mission I and revised National Beekeeping and Honey Mission (NBHM). The trainings of scientific beekeeping are provided through KVKs of each district and enhancing the income of farmers and beekeepers for yield improvement & honey production.

Table 10.3: Training conducted on Beekeeping

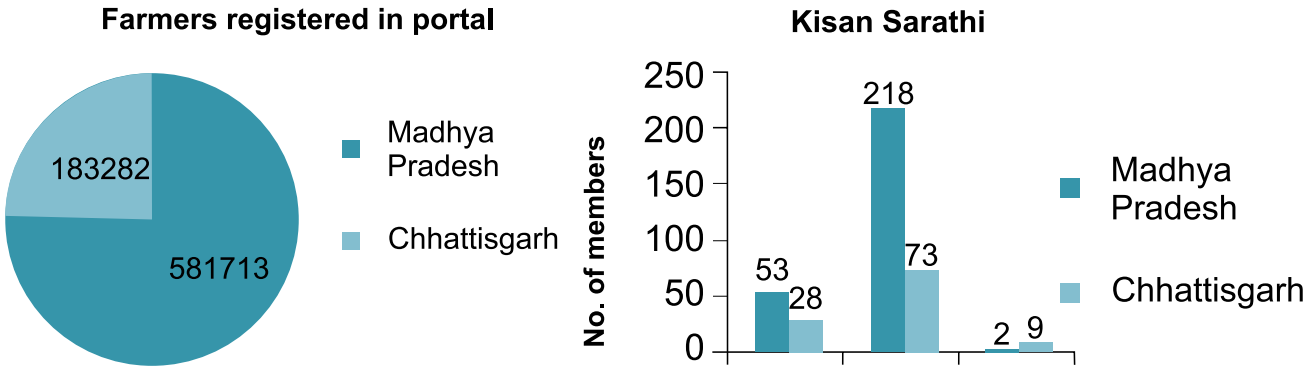
S. No	State	KVK	Physical training		Online training	
			No. of training	No. of total participants	No. of training	No. of total participants
1	CG	Surguja-I	4	100	1	30
2	MP	Damoh	3	103	0	0
3	MP	Chhatarpur	2	50	0	0
4	MP	Singrauli	3	75	0	0
5	MP	Umaria	1	30	0	0

S. No	State	KVK	Physical training		Online training	
			No. of training	No. of total participants	No. of training	No. of total participants
6	MP	Sheopur	4	100	1	25
7	MP	Morena	3	75	1	25
8	MP	Khandwa	2	67	1	25
9	MP	Barwani	4	100	1	25
10	MP	Raisen	2	50	0	0
11	MP	Ratlam	4	104	0	0
		Total	**32**	**854**	**5**	**130**

Kisan Sarathi

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

"Kisan Sarathi" an Information Communication and Technology (ICT) based interface solution was launched on pilot basis in Bihar, Madhya Pradesh, Maharashtra and Uttar Pradesh to provide a seamless, multimedia, multi-ways connectivity to the farmers with the latest agricultural technologies, knowledge base and the pool of large number of the subject matter experts. Major activities undertaken are onboarding of KVK Scientist, farmers, enhancement/customization of system, sensitization and capacity building of the farming community. It provides multi lingual support to farmers (22 languages) in seeking advisory services. In Madhya Pradesh 54 KVK Heads and 226 KVK experts are engaged in the amalgamation of 581172 farmers on the Kisan Sarathi portal.



Kisan Sarathi portal

Capacity Building of Farmers on Profitable Dairy Farming & Livestock Management

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

Ministry of Fisheries, Animal Husbandry & Dairy, GOI initiated the project to enhance capacity building through training on profitable dairy farming and livestock management. The project aims at enhancing the productivity and achieving the potential capacity of livestock through short term trainings imparted by the KVK experts and knowledge up gradation in the field of livestock management and dairy farming with the primarily two objectives: To impart knowledge and develop skill of the farmers in the field of livestock management and dairy farming and to enhance the income and generate employability among the farmers through adoption of scientific livestock management and dairy farming.

Table 10.4: Training Programmes on Profitable Dairying Farming and Livestock Management.

S. No	State	Training Conducted	Participants Trained
1	Madhya Pradesh	71	3189
2	Chhattisgarh	65	2546
	Total	**136**	**5735**

Cluster Based Business Organization (CBBOs)

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

An online orientation workshop was organized by NCDC on 05.03.2021 at for creating awareness of modalities of Central Sector Scheme on Formation and Promotion of 10,000 FPOs to all ICAR-KVK personnel. CBBOs have an important role to play and stressed that formation of FPOs will help farmers to attain economy of scale towards better price realization. NCDC has allotted 116 blocks to ICAR-ATARI-KVKs who will work as a CBBO. The roles and responsibilities of CBBOs are baseline survey, cluster finalization, value chain study, formation of groups and FPO, assisting & registration of FPOs and training of BODs on roles, responsibilities & management. In MP 3 KVK viz Hoshangabad, Chhatarpur, Morena and in Chhattisgarh 2KVKs Bhatapara and Raipur are working for promoting CBBOs.

Table 10.5: Formation of CBBOs in MP and CG

State	KVK	Block	Application Submitted for Registration	No. of share-holding farmer members	Equity Amount Collected (Rs.)
Madhya Pradesh	Hoshangabad	Siwni Malwa	Applied	150	42000
	Hoshangabad	Pipariya	Applied	280	80000
	Chhatarpur	Naugaon	Applied	306	45000
	Chhatarpur	Rajnagar	Registered	308	304000
	Morena	Jaura	Registered	300	300000
	Morena	Pahadgarh	Registered	300	300000
Chhattisgarh	Bhatapara	Baloda Bazar	Registered	170	100000
	Raipur	Dharsiwa	Registered	322	0
	Raipur	Tilda	Registered	243	0

Jal Shakti Abhiyan

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

Jal Shakti Abhiyan is a collaborative effort of various ministries of Govt. of India, State Governments, ICAR-KVKs, coordinated by the Department of Drinking Water and Sanitation, Ministry of Jal Sakti. The Ministry has taken up a nation-wide campaign focusing on saving and conserving rainwater with the theme "Catch the rain" .The JSA: CTR had five focused interventions-

- Rainwater harvesting & water conservation.
- Enumerating, geo-tagging & making inventory of all water bodies; preparation of scientific plans for water conservation.
- Setting up the Jal Shakti Kendra in all districts.
- Intensive aforestation.
- Awareness generation.

Table 10.6: Training and Awareness programmes conducted by the KVKs

State	Training Programs (Water Use Efficiency and Appropriate Crops)		Awareness Programs	
	Number	Participants	Number	Participants
Madhya Pradesh	1565	45166	1174	54718
Chhattisgarh	663	19266	601	27924

Training and Awareness programme

11. INSTITUTIONAL RESEARCH PROJECTS AND PUBLICATIONS

S No.	Title of the Project	Name of PI/Co-PI/ CCPI	Nature of Project	Year of start
A.	**National**			
1.	Assessing dietary diversity, consumption pattern and nutritional security in Nutri-SMART Villages- A step towards vocal for local (Gender & Nutrition theme)	Dr. S.R.K.Singh, PI	ICAR Network National Project	2020-21
2.	Impact of climate resilient technology interventions implemented through NICRA across different agro-ecological regions of India	Dr. S.R.K.Singh, Co-PI	ICAR Network National Project	2020-21
3.	Impact assessment of KVKs interventions on Doubling Farmers' Income (DFI)	Dr. D.Bardhan, Co-PI	ICAR Network National Project	2020-21
4.	Network project on analysis on agriculture and micro-irrigation programmes in Aspirational districts in India	Dr. D.Bardhan, Co-PI	ICAR Network National Project	2020-21
5.	Impact of ARYA on promotion of agri-preneurship, alternate livelihoods and spinoff effect	Dr. A.A.Raut, Co-PI	ICAR Network National Project	2020-21
6.	Impact assessment of popular pulse varieties and technologies disseminated through Cluster frontline demonstration of pulses (CFLD-P) in India	Dr. A.A.Raut, Co-PI	ICAR Network National Project	2020-21
7.	Indigenous Technical Knowledge (ITK) of tribal farmers and their effectiveness in Sustainable Agricultural Development: An Exploratory study in Indian Context	Dr. A.A.Raut, Co-PI	ICAR Network National Project	2020-21
8.	ICAR-NIAP-Network Project on Production Systems, Agribusiness and Institutions: Component 1 - Impactassessment of Agricultural Technologies	Dr. D.Bardhan, CCPI	ICAR Network Project(Lead Centre: ICAR-NIAP, New Delhi)	2021-22
B.	**International (CGIAR collaborative)**			
9.	ICAR-ILRI Collaborative research project on "Assessment of the economic impact of priority animal diseases (PPR, HS and Brucellosis) and the cost-effectiveness of their control strategies in India"	Dr. D.Bardhan, PI	ILRI-ICAR collaborative project	2019-20

Brief progress report of Research Project

National

Project: Assessing dietary diversity, consumption pattern and nutritional security in Nutri-SMART Villages- A step towards vocal for local

This project is operational in 173 KVKs having Nutri-SMART Village operational under ten ATARIs. Project team finalized respondents from selected Nutri-SMART and control villages at all ATARIs. A survey schedule

was prepared to collect information on attributes of the respondents, dietary diversity, food consumption, traditional and packed food items preference, knowledge on nutritional aspects and anthropometric indicators as well as biological indicators. Data collection of first phase including knowledge on nutrition related aspects, dietary diversity, dietary pattern, consumption pattern, preferences of traditional and packed food items completed. Data tabulation and correction is under progress.

Data collection in Nutri-SMART Village

Further, RCT sampling plan for each selected ATARIs has finalized under which three treatments- A (three hands-on training on nutri rich food of ATARIs); B (nutrition literature); C (treatment A + B) are being performed by the samples KVKs. Nutrition literature in english and hindi prepared and provided to ATARIs. Total 12 interaction workshops were organized with all selected ATARIs and respective KVKs selected for this project to solve various issues related to data collection and RCT plan implementation.

Project: Impact of climate resilient technology interventions implemented through NICRA across different agro-ecological regions of India

This project is operational in 12 NICRA KVKs under ICAR-ATARI, Jabalpur in Madhya Pradesh and Chhattisgarh states in different agro-climatic zones. These KVKs have made technological interventions at the farmers fields in the well-defined modules using best-bet technologies suitable for the climate resilience not only in the NICRA villages but also nearby villages to protect farmers crop and enterprises from climatic vulnerability. At present data collection and compilation is under progress from the selected KVKs under the project.

Project: Impact Assessment of Selected Interventions by KVK under Doubling Farmers' Income for Enhancing Farmers' Income

The project was initiated on network mode at ICAR-ATARI, Zone IX, Jabalpur with the major objective of assessment of impact of selected KVK interventions under various agro-ecological conditions across the country under Doubling Farmers' Income. Total 27 Krishi Vigyan Kendras (KVKs) (18 in Madhya Pradesh and 9 in Chhattisgarh) were selected for impact assessment of Doubling Farmers' Income (DFI) initiatives at farm household level as per the mandate of ICAR-ATARI, Zone IX, Jabalpur. The selection of KVKs was based on the criteria of minimum 25 per cent of KVKs from each agro-climatic region of the states of Madhya Pradesh and Chhattisgarh. The final selection of KVKs was done randomly. Two DFI and two non-DFI villages were selected under each KVK. Forty farm households each from DFI and non-DFI villages (80 farm households) were selected randomly. Household survey has been completed for all selected villages across all collaborating KVKs. Data have been entered in excel file and data smoothing, data cleaning and final compilation of data base have been completed for 20 KVKs. Several virtual progress review meetings have been organized with all participating KVKs.

Project: Network project on analysis of agricultural programmes conducted in Aspirational Districts in India

The project was initiated in network mode from 1st January, 2021 at ICAR-ATARI, Zone IX, Jabalpur with the broad objective of quantifying the impact of various agricultural programmes conducted in Aspirational Districts; the impact parameters being agricultural production, productivity, income and employment generation. Total 4 KVKs were selected, viz. Barwani, and Khandwa (from Madhya Pradesh) and Mahsumund and Kanker from Chhattisgarh. As per the approved research of the project, 12 farm households were to be selected for each of the four technological interventions considered for impact assessment, viz. Minikits

distribution of Pulses and Oilseeds, NADEP/ Vermi-compost pit, Artificial insemination programme and Training on Bee keeping, mushroom cultivation, kitchen gardening. Thus, if one household is observed with all four interventions, selection of 12 such households will be required for survey. Otherwise, the number of households for survey will go up to 48 in case of households with only on intervention. Similar number of control households, based upon number of treatment households for different KVKs were also selected. In this way, total of 12, 43, 20 and 29 treatment households were surveyed by KVKs, Kahndwa, Kanker, Mahsumund and Barwani, respectively. Data have been entered in excel file and data smoothing, data cleaning and final compilation of data base have been completed for 3 KVKs. The comipled data set has been sent to lead centre of the project, i.e. ICAR-ATARI, Kolkata. Several virtual progress review meetings have been organized with all participating KVKs.

Project: Impact of ARYA on promotion of agri-preneurship, alternate livelihoods and spinoff effect

For assessment of impact of ARYA project on promotion of agri-preneurship, alternative livelihoods and spinoff effect KVKs in first phase of implementation viz., KVK Dantewada from Chhattisgarh and KVK Gwalior from Madhya Pradesh were selected. ARYA is operation in these KVKs since 2015-16, under ARYA, KVK Dantewada has five enterprises which include Mushroom production, Processing and value addition of Lac, Processing and Value addition of NTFPs, Backyard Poultry of Kadaknath Poultry, Processing of Organic Rice and Minor Millets. KVK Gwalior has five enterprises which includeVermi-compost, Nursery Management, Mushroom Production, Poultry Production, Goat farming.

Finalization of the sampling plan in consultation with the project team. Preparation of interview schedule for poultry enterprise. Pretesting of the interview schedule and finalization of the interview schedule for various enterprises under ARYA. Collection of the data on functional enterprises under ARYA from KVK Dantewada and Gwalior was completed during 2021.

Project: Impact assessment of popular pulses varieties and technologies disseminated by KVKs through Cluster frontline demonstration of pulses (CFLD-P) in India

Finalization of the sampling plan for selection Identified Agro-ecological zone and districts for impact assessment of popular pulses varieties and technologies disseminated by KVKs through CFLD pulses. Three Agro-ecological zone viz., Malwa Plateau, Vindya plateau, Kymore Plateau and Satpura Hills were selected from Madhya Pradesh.

For chickpea crop Ujjain and Shajapur districts from Malwa Plateau and Sagar and Damoh districts from Vindya plateau were selected. While Rewa and Satna districts from Kymore Plateau and Satpura Hills and Sagar district Vindya Plateau were selected from lentil crop on the basis of allocation under CFLD Pulses programme. During 2021 finalization of the interview schedule was completed. After the finalization of locale for study, secondary data on the production trends chickpea and lentil crops on time series basis for Madya Pradesh was collected. Compilation of technologies focused for chickpea under CFLD pulses and comparative yield performance of chickpea between 2015-16 and 2018-19 was done.

Project: Impact of Technological Interventions of KVKs on Socio-Economic Empowerment and Sustainable Livelihood Security of Tribal Farmers

The project aims to document the changes that have happened in the overall farming systems among the tribal farmers due to various interventions by KVKs in TSP districts across different states of India. Role of technological interventions made by KVKs for agricultural development in tribal areas contributed to the overall socio-economic development of tribal farmers.

During 2021 sampling plan for the project was finalized using multistage sampling technique and on the basis of the tribal population in the districts eight districts were selected which included five districts from Chhattisgarh viz.,Bastar,Dantewada, Bijapur, Kanker, Surguja and three districts from Madhya Pradesh viz., Dhar, Barwani, Mandla. Information on Intervention done by the KVKs and list of the intervened villages

was compiled for finalization of subdivision, blocks and villages for Impact of Technological Interventions of KVKs on Socio-Economic Empowerment and Sustainable Livelihood Security of Tribal Farmers. The interview schedule was developed in consultation with the project team and pretesting of the interview schedule was done for validation and interview schedule was finalized after incorporation of suitable changes.

FGD in progress with goat farmers of Nanou village at ICAR-CIRG, Makhdoom, Mathura

Project: ICAR-NIAP-Network Project on Production Systems, Agribusiness and Institutions: Component 1 - Impact assessment of Agricultural Technologies

Under this project, four categories of technologies were identified in the meeting for their impact assessment, viz.: Area-specific mineral mixture (NIANP); Improved germplasm - cattle (CIRC) & buffalo (CIRB); sheep (CSWRI) & goat (CIRG); pig (NRCP), poultry (DPR/CARI); Vaccine technologies - FMD (DFMD); Goat pox (IVRI) and NDV (IVRI) and Disease surveillance by diagnostics developed by ICAR institutes against Avian Influenza and preventive strategies (NIHSAD).

The approach for impact assessment will be Economic Surplus Method (ESM) which provides a measure of societal welfare due to technology adoption in monetary terms. Checklists for conducting focussed group discussions (FGDs) have been developed to generate relevant data pertaining to impact assessment of said technologies. There were total of 26 participants divided into two groups based on number of buffaloes owned. Personal interviews were held with two beneficiary entrepreneurs of improved goat germplasm (Barbari breed) disseminated by ICAR-CIRG, Makhdoom, Mathura, viz. Mr. Devkinandan (in Khumber, Bhratpur) and Mr. Rashid (in Vrindavan, Mathura) to elicit information of required parameters for impact assessment.

International

Project: ICAR-ILRI Collaborative research project on 'Assessment of the economic impact of priority animal diseases (PPR, HS and Brucellosis) and the cost-effectiveness of their control strategies in India'

Sample collection survey was carried out in two districts of Madhya Pradesh, viz. Jabalpur and Mandla (based on cattle & buffalo population density per sq. km). A multi-stage random sampling technique was followed to conduct the primary survey. A total of 69 and 81 sample farmers were surveyed from Jabalpur and Mandla districts of the state, respectively.

The serum sample collected from cattle and buffalo were analysed using iELISA and diagnostic test report was prepared. Over all the prevalence rate of brucellosis in the state was observed at 0.53%, 0.42% and 0.64 % for indigenous cattle, crossbred cattle and buffaloes, respectively. Thereafter, comprehensive household survey administering detailed interview schedule on farmers covered in the earlier sample collection survey has been conducted. Work is ongoing on economic impact assessment of brucellosis in dairy animals using data collected during the survey. System dynamic modelling on Sheep and goat PPR value chains, by using Stella Architect, for surveyed states, is in progress. The objective is to analyze quantitatively the impact of different intervention scenarios made in different actors node and on the overall value chain as such.

Serum sample collection from dairy animals in Mandla district

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Research Paper

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2. Kumar S., Gupta I.D., Sharma N., DeginalR., Singh M., Singh A., Singh S.R.K., Verma Archana & Singh R. 2022. Effect of non-genetic factors on linear type traits in Karan fries (Bos taurus × Bos indicus) and Sahiwal (Bos indicus) cows in sub-tropical climatic conditions of India. *Animal Biotechnology,* Vol. 33, Issue 2, 2022. DOI: 10.1080/10495398.2022.2036175. Taylor & Francis Group LLC.
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4. Singh R.K., Singh S.R.K., Kumar N. and Singh A.K.2021. Maximization of nutrient use efficiency and yield through application of biofertilizers in field pea (*Pisum sativum* L.). *Legume Research, 4.2.2021*. LR -4453. DOI: 10.18805/LR-4453.
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9. Tripathi A.K., Singh A.K., Singh S.R.K. and KhareY.R. 2021. Growth, yield, disease and pest incidence in soybean under different sowing methods and IPM practices in Vindhya plateau of Madhya Pradesh. *The Pharma Innovation Journal 2021;* SP-10(12): 664-667.
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11. Sharma, C., Khare, N. K., Naberia, S., & Raut, A. (2022). Identification and Documentation of Organic Farming Practices in Wheat Crop in Jabalpur District. *Asian Journal of Agricultural Extension, Economics & Sociology,* 40(4), 47-53. https://doi.org/10.9734/ajaees/2022/v40i430869.
12. Malik P., Shrivastava S., Saxena S.,Bardhan D., Yadav M.P. And Singh R.K. 2021. 'Mass vaccination programs reduce the antimicrobial use and help in controlling antimicrobial resistance'. *Indian Journal of Comparative Microbiology, Immunology and Infectious Diseases.* 42 (spl.): 62-67

Book Chapters

1. Singh, S.R.K., Mishra A., Raut A.A., Deshmukh A., Singh A.K. and Kumar N. 2021. Deploying contingency measures in drought situation for sustaining of pulses productivity in Central India. In Narendra Kumar, Nath CP, Sah U and Singh NP. (Eds) Sustainable Production of Pulses in Diverse Agro-ecosystems, Vol. 2. Stress management and livelihood security. (pp.165–184) (ISBN: 978-93-90749-19-5) Scientific Publisher, Jodhpur- 342 001, India.
2. Raut A.A., Singh, S.R.K., Bilaiya Shrishti and Mishra A. 2021. Emerging technologies for sustainable pulses production in Madhya Pradesh. In Narendra Kumar, Nath CP, Sah U and Singh NP. (Eds) Sustainable Production of Pulses in Diverse Agro-ecosystems, Vol. 2. Stress management and livelihood security. (pp.201–216) (ISBN: 978-93-90749-19-5) Scientific Publisher, Jodhpur- 342 001, India.
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Technical Bulletins

1. Singh, S.R.K., Mishra, A., Raut, A.A., Chahal V.P. and Shrivastava V. (2022). Household Based Technological Interventions for Enhancing Farmers Income- Farmer FIRST Experiences. ICAR-ATARI, Zone IX, Jabalpur. Pp.40.

Progress Reports

1. Singh, S.R.K., Raut, A.A., Bardhan, D., Chahal V.P. and Shrivastava V. 2021. Farmer FIRST Programme Annual Progress Report, 2020-21. ICAR-ATARI, Zone IX, Jabalpur. Pp 70.
2. Singh, S.R.K., Mishra, Anupam, Raut, A.A. TDC-NICRA Annual Report, 2019-20. ICAR-ATARI, Jabalpur. Pp 37.
3. Singh, A.K., Chahal, V. P., Singh, S.R.K., Mishra, Anupam, Raut, A.A. 2022. Cluster Frontline Demonstrations in Oilseeds in India Progress Report 2019-20. Pp. 71.
4. Singh, A.K., Chahal, V. P., Singh, S.R.K., Mishra, Anupam, Raut, A.A. 2022. Cluster Frontline Demonstrations in Oilseeds in India Progress Report 2020-21. Pp. 73.

12. 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 113 SAC meetings were conducted during 2021 in 81 functional KVKs (Table 13.1)

Table 13.1: Status of SAC conducted by KVKs

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	1	Anuppur	1	Agarmalwa	3
2	Bastar	1	Balaghat	1	Alirajpur	2
3	Balod	1	Betul	1	Ashoknagar	2
4	Bemetara	1	Chhatarpur	1	Barwani	2
5	Bhatapara	1	Chhindwara	2	Bhind	2
6	Bijapur	1	Damoh	1	Datia	2
7	Bilaspur	1	Dindori	1	Dewas	4
8	Dantewada	-	Harda	1	Dhar	2
9	Dhamtari	1	Jabalpur	1	Guna	2
10	Durg-I	1	Katni	1	Gwalior	2
11	Durg-II	1	Mandla	2	Jhabua	2
12	Gariyaband	1	Narsinghpur	1	Khandwa	2
13	Janjgir-Champa	1	Panna	1	Khargone	2
14	Jashpur	1	Rewa	1	Manawar	4
15	Kanker	1	Sagar	1	Mandsaur	2
16	Kawardha	1	Sagar-II	1	Morena	2
17	Korba	1	Seoni	1	Neemuch	2
18	Korea	1	Shahdol	1	Rajgarh	2
19	Mainpat	1	Sidhi	1	Shajapur	2
20	Mahasamund	1	Singrauli	1	Sheopur	2
21	Mungeli	1	Tikamgarh	2	Shivpuri	2
22	Narayanpur	-	Umaria	1	Ujjain	2
23	Raigarh	1	Tamia (Chhindwara-II)	-	Bhopal (ICAR)	2

S. No.	Name of KVKs	No. of SACs conducted	Name of KVKs	No. of SACs conducted	Name of KVKs	No. of SACs conducted
24	Raipur	1	Narmadapuram (NGO)	1	Burhanpur (NGO)	2
25	Rajnandgaon	1	Raisen (NGO)	1	Indore (NGO)	2
26	Surguja	1	Satna (NGO)	1	Ratlam (NGO)	2
27	Kondagaon	1			Sehore (NGO)	2
28	Sukma	1				
	Total	**26**		**28**		**59**
		Grand Total- 113				

13. AWARDS AND RECOGNITIONS

Pandit Deen Dayal Upadhyay Rashtriya Krishi Vigyan Protshahan Puraskar-2020

KVK Korea, Chhattisgarh received Pandit Deen Dayal Upadhyay Rashtriya Krishi Vigyan Protshahan Puraskar-2020. KVK, Korea has mainly focused its activities in tribal villages. The interventions were made in terms of improved package and practices, crop diversification, livestock production and natural resource management.

KVK Dhar I, Madhya Pradesh received ICAR Prestigious Award "Pandit Deendayal Upadhyay Rashtriya Krishi Vigyan Protsahan Puraskar 2020". The Award was given for their contribution in the field technology dissemination among the tribal community. interventions for tribal farmers with the establishment of various infrastructures in collaboration with the district administration.

Best Agriculture Award

Under the joint aegis of Public Relations Department and New Indian Express, KVK, Korea received best research work by Honorable Chief Minister Shri Bhupesh Baghel in the field of agriculture in 2021. KVK, Korea implemented innovative and improved technological

चेक प्रदान करते मुख्यमंत्री भूपेश बघेल।

कृषि विज्ञान केन्द्र को मिला सर्वश्रेष्ठ शोध पुरस्कार

हरिभूमि न्यूज ▶▶ बैकुण्ठपुर

जनसंपर्क विभाग एवं न्यू इंडियन एक्सप्रेस के संयुक्त तत्वाधान में राज्य स्तर पर कृषि एवं संबंधित क्षेत्र के उन्नत एवं प्रगतिशील शोध संस्थाओं, प्रगतिशील कृषकों एवं स्व. सहायता समूहों का सम्मेलन एवं सम्मान समारोह का आयोजन 6 दिसंबर को बेबीलॉन कैपिटल, रायपुर में किया गया।

कार्यक्रम में शोध एवं अनुसंधान संस्थाओं, प्रगतिशील कृषकों एवं स्व.सहायता समूह को सम्मानित किया गया। कृषि विज्ञान केन्द्र कोरिया को कृषि के क्षेत्र में उन्नत शोध एवं अनुसंधान कार्य के लिए मुख्यमंत्री भूपेश बघेल द्वारा सर्वश्रेष्ठ शोध एवं अनुसंधान कार्य के लिए पुरस्कृत किया गया। इस दौरान इंदिरा गांधी कृषि विश्वविद्यालय के कुलपति डॉ. एसएस सेंगर, डॉ. आरके बाजपेयी, निदेशक विस्तार सेवाएं, डॉ.आरएस राजपूत, वरिष्ठ वैज्ञानिक एवं प्रमुख, कृषि विज्ञान केन्द्र बेमेतरा एवं डॉ. केसरी राजहंस वरिष्ठ वैज्ञानिक एवं प्रमुख कृषि विज्ञान केन्द्र उपस्थित रहे। कलेक्टर श्याम धावड़े ने इस उपलब्धि के लिए कृषि विज्ञान केन्द्र के सभी वैज्ञानिकों एवं कर्मचारियों को बधाई दी। जिला प्रशासन के सहयोग से कृषि विज्ञान केन्द्र ने विभिन्न इकाईयों की स्थापना के साथ आदिवासी कृषकों के लिए अभिनव और उन्नत तकनीकों एवं मार्गदर्शन में आदिवासी कृषकों की आय बढ़ाने एवं आर्थिक स्थिति में सुधार के लिए दुध प्रसंस्करण इकाई की स्थापना, सुगंधित और औषधीय फसलों के लिए भाप आसवन संयंत्र इकाई, मधुमक्खी पालन, अनाज, दलहन और तिलहन प्रसंस्करण इकाई, सर्गध साबुन, अगरबत्ती बनाने एवं मशरूम उत्पादन आदि शामिल है। कृषि विज्ञान केन्द्र और जिला प्रशासन के मार्गदर्शन में आदिवासी कृषकों को संगठित कर कोरिया एग्रो प्रोड्यूसर कंपनी लिमिटेड किसान उत्पादक संगठन का निर्माण किया।

Agri Extension Award 2021

Dr. SRK Singh, Director (Act.), ICAR-ATARI, Jabalpur was conferred with the Agri Extension Award by Agriculture Today group for excellence in the category of Excellence in Dissemination from Lab to Farm.

14. DISTINGUISHED VISITORS

KVK Panna (M.P.): Dr. A. K. Tiwari, Director, Directorate of Pulses Development, Ministry of Agriculture and Farmers Welfare, Govt. of India visited KVK Panna

Dr. A. K. Tiwari, Director, Directorate of Pulses Development, Ministry of Agriculture and Farmers Welfare, Government of India, monitored the Cluster Demonstration of Pulses 2020-21 and various demonstration units of the centre on 19.01.2021. He visited the crop cafeteria, vermicompost production unit, azolla production unit, nursery production unit and nutritional garden of the centre. He interacted with Senior Scientist & Head along with all the Scientists of the centre and provided valuable suggestions.

KVK Durg-II (CG): Minister Council for Agricultural Affairs, United States Development of Agriculture.

On September 17, 2021, Mr. Rawn Verdank, Carrier - Minister Council for Agricultural Affairs, United States Development of Agriculture and Dr. Santosh Kumar Singh, Agriculture Scientist, US Embassy, New Delhi, visited different villages of district-Durg and saw various agricultural related works of Krishi Vigyan Kendra, Pahanda (A), Durg under the technical guidance of Director, Extension Services, Indira Gandhi Agricultural University, Raipur. They were interacted with the farmers Mr. Deepak Chandrakar, Mr. Atul Chandrakar, Mr. Bilas Ram Sahu, Mr. Shiv Kumar Verma etc. of village- Aunri, Aundhi, Ameri, Ghughwa, Karsa etc and inspected line sowing of paddy. During this, Mr. Rawn Verdank and Dr. Singh was told that this method is more beneficial than broadcast sowing of paddy because in this method proper space is available for adequate development of paddy plants and the cost of weeding, hoeing is less and the need of water and fertilizer is less than that of broadcasting method. With this method, the harvesting of paddy is done 8 to 10 days earlier than the broadcasting method. Mr Rawn Verdank and Dr. Singh appreciated the method of sowing.

KVK Bilaspur (CG): Finance Director, ICAR New Delhi Visited KVK Bilaspur

Sh. G.P Sharma, Finance Director ICAR New Delhi Visited KVK Bilaspur on 13.02.2021 and monitored the On Farm Trials conducted and evaluated the research findings of Research Stations at the farmer's field.

KVK Kanker (CG): Sh. Bhupesh Singh Baghel. Hon'ble Chief Minister CG.

Sh. Bhupesh Singh Baghel. Hon'ble Chief Minister CG. visited KVK Kanker on 27.01.2021 and inaugurated the Minor millet processing unit in the district due to maximum production of the minor millets in the area and also provided valuable suggestions as millets contain major and minor nutrients in good amount along with dietary fibre.and emphasized on value addition of minor millets He also inaugurated farmers training center at KVK.

KVK Datia (M.P.) Hon'ble Narottam Mishra, Home Minister of MP Govt visited Kisan Sangosthi.

Kisan Sangosthi was organized on 27.02.2021 in the presence of Hon'ble Narottam Mishra, Home minister of MP Govt. During Kisan Sangosthi the distribution of equipment were made under SCSP programme and inauguration of Seed hub unit was done at KVK Datia by honorable minister.

KVK Kanker (CG): Dr. P. K. Ghosh, Director National Institute of Biotic Stress Management visited at KVK Kanker

Director NIBSM Dr. P. K. Ghosh Visited KVK Kanker on 13 July 2021. He visited different demonstration units viz. Kadaknath hatchery unit, Mushroom production unit, Model nutritional garden, Vermi compost unit, Lac processing unit, Minor millet processing unit of KVK Kanker.

KVK Satna (MP): Dr. SRK Singh, Director, ICAR-ATARI Zone IX, Jabalpur

Dr. SRK Singh, Director ATARI Jabalpur, visited to different demonstration unit viz Diary farming, Mushroom Production, Value addition, Vermicompost, Technology park, Bio-pesticide and Bio-fertilizer unit, seed bank, Hi-tech fruit and vegetable nursery**.**

15. ATIC PROGRESS REPORT

Table 15.1: 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 Prasad Sharma
2	ATIC, Raipur	IGKV, Raipur (C.G.)	Dr. Neeta Khare
3	ATIC, RVSKVV	RVSKVV, Gwalior (M.P.)	Dr. Yagya Dev Mishra
4	ATIC, CIAE, Bhopal	Central Institute of Agricultural Engineering, Bhopal, (M.P.)	Dr. U.C. Dubey (Upto 23rd Nov 2021) Dr. V. Bhushana Babu (From 1st Dec 2021)

Table 15.2: Details of farmers visit

S. No	Purpose of visit	Number of farmers visited
1	Technology information	3244
2	Technology products	140
3	Diagnostic services	209
4	Others	2188
	Total	**5781**

Table 15.3: Facilities in the ATIC

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

Technology information provided

Table D.1. Details on technology information

S. No	Information category	Total number of farmers benef-itted	Category of information						
			Varieties / hybrids	Pest manag-ement	Disease manag-ement	Agro-techn-iques	Soil and water conser-vation	Farm Mechani-zation and Value addition	Animal Husbandry and fisheries
1	Crop & Livestock	3033	338	641	287	763	265	544	195
2	Kisan Call Centre / other Phone calls from farmers	536	6	50	54	164	46	121	95
3	Training to farmers / technocrats / students	3870	100	500	200	1205	60	305	1500
4	Video shows	343	-	-	-	290	-	53	
5	Letters received	1	-	-	-	1	-	-	-
6	Letters replied	1	-	-	-	1	-	-	-
7	Others (Machinery)	-	-	-	-		-	-	-
	Total	**7784**	**444**	**1191**	**541**	**2424**	**371**	**1023**	**1790**

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

S. No	Particulars	Numbers sold	Revenue generated (in Rs.)	Number of farmers benefited
1	Books & Technical Bulletins	3012	147922	3012
2	**Others** Drawing CAD, Krishi Panchang, Krishi Darshika, Telephone Directory, Farm magazine & booklets	44502	2051320	42502
	Total	**47515**	**2199242**	**45565**

Table 15.4: Technology Products provided

S. No	Particulars	Quantity	Unit of quantity	Value in Rs.	Number of farmers benefited
1	Animal Feed	620	kg	124000	58
2	Biofertilizer	9486	Kg.	1842486	-
3	Biofertilizer	10327	Lit.	3570586	
4	Blackgram	181	q.	1140300	-
5	Broken Rice	93	kg	1860	6
6	Chick pea	2723	q.	13887300	-
7	Chickpea flour	4249	kg	280470	180
8	Chickpea dal	70	kg	3500	4
9	Greengram	537	q.	3906675	-

S. No	Particulars	Quantity	Unit of quantity	Value in Rs.	Number of farmers benefited
10	KVK fruit and vegetable Plants/ seedlings	281	nos.	7025	30
11	Maize flour	470	kg	9400	18
12	Lentil	94	kg	2820	11
13	Pigeon pea	422	q.	2658600	-
14	Pigeon pea dal	1122	kg	84150	42
15	Rice	892	kg	22300	35
16	Wheat flour	9813	kg	208050	217
	Total			**27749522**	**601**

Table 15.5: Technology services provided

S. No	Particulars	Number of farmers benefited
1	Details about the services to line Departments	5
2	Farmers' visited ATIC	2880
3	Mechanization Planning Advisory	441
4	Plant diagnostics	209
5	Soil Health Cards issued & Farmers' training conducted in KVKs & NGOs	1000
6	Through Kisan Call Centre	432
7	Through Letters	01
8	Others (Krishi Gyan Portal)	104
	Total	**5072**

16. LIST OF SCIENTIFIC, TECHNICAL AND ADMINISTRATIVE STAFF

I/c Director
Dr. S. R. K. Singh

Scientific
Dr. Dwaipayan Bardhan, Principal Scientist (Agril. Economics)
Dr. A. A. Raut, Scientist (Agrl. Extension)

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

Technical
Sh. Ashok Kumar Dubey, Driver

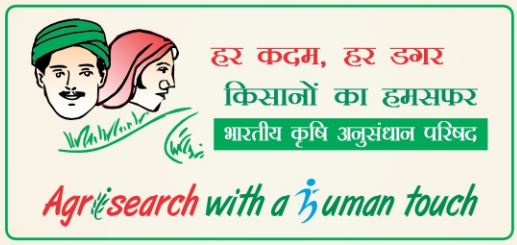
Administration
Sh. Sunil Kumar Gupta
Assistant Administrative Officer

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

PS to Director
Sh. A. K. Bhowal

Technical Officer
Sh. R. K. Soni

Supporting
Sh. Sukhchain Das



भाकृअनुप-कृषि प्रोद्यौगिकी अनुप्रयोग अनुसंधान संस्थान, क्षेत्र-9

ICAR-Agricultural Technology Application Research Institute, Zone IX

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