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2014-15

ICAR-Zonal Project Directorate, Zone VII
Indian Council of Agricultural Research
Jabalpur, Madhya Pradesh

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Content

कार्यकारी सारांश

क्षेत्रीय परियोजना निदेशालय अंचल-7 के अन्तर्गत 100 कृषि विज्ञान केन्द्र है जो तीन राज्यों मध्यप्रदेश, छत्तीसगढ़ एवं उड़ीसा में स्थित है। विभिन्न कृषि विज्ञान केन्द्रों ने 20 विषयों पर आधारित कुल 37,995 प्रक्षेत्र परीक्षण आयोजित कर कुल 1,178 तकनीकों का मूल्यांकन किया। अंचल -7 में मध्यप्रदेश में 479, छत्तीसगढ़ मे 452 व ओडिशा में 247 प्रक्षेत्र परीक्षण आयोजित किए गए। जोन में कुल 32229 मध्यप्रदेश में, 1130 छत्तीसगढ़ मे एवं 4636 ओडिशा में परीक्षण आयोजित हुए।

इस अंचल के कृषि विज्ञान केन्द्रों द्वारा विभिन्न तिलहन, दलहन, अनाज, सब्जी, नगदी, कृषि वानिकी और कदन्न फसलों पर कुल 1559 अग्रिम पंक्ति प्रदर्शन आयोजित किये गये जो कि भागों पर 23408 हेक्टेयर क्षेत्र पर था ।

क्षेत्रीय परियोजना निदेशालय अंचल-7 के अन्तर्गत 10 ज्ञान प्रबंधन कार्यक्रम विभिन्न भारतीय कृषि अनुसंधान परिषद के संस्थानो के सहयोग से आयोजित किए गए जिसके अन्तर्गत 511 विषय वस्तु विशेषज्ञ लाभान्वित हुए।

कृषि विज्ञान केन्द्रों द्वारा कुल 7729 प्रशिक्षण कार्यक्रम आयोजित किये गये जिससे 232899 प्रशिक्षणार्थी लाभान्वित हुए जिसमें कृषक एवं महिलाएँ, ग्रामिण युवक, एवं प्रसार कार्यकर्ता शामिल थे ।

कृषकों द्वारा तकनीकों को विस्तृत रुप से अंगीकृत करने के लिए कुल 111071 प्रसार कार्यक्रम आयोजित किये गये जिसमें मुख्यतः किसान दिवस, किसान मेला, प्रदर्शनी, फिल्म, इत्यादि शामिल थे जिसके द्वारा 1884386 कृषक एवं विस्तारकर्मी लाभान्वित हुए ।

कृषि विज्ञान केन्द्रों द्वारा कुल 16579.93 कुन्तुल गुणवत्तापूर्ण बीज उत्पादन एवं 3828444 रोपण वस्तुएँ किये गये। जोन में कुल 154 वैज्ञानिक सलाहकर समिति की बैठक आयोजित की गई। कृषि विज्ञान केन्द्रों द्वारा 27,472 मिट्टी एवं 1275 जल के नमूने का परीक्षण भी किया जाता है जिससे 1818 गॉव के 23982 किसान लाभान्वित हुए। कृषि विज्ञान केन्द्रों द्वारा किये गये उत्कृष्ट कार्यो को देखते हुए परिषद् द्वारा कृषि विज्ञान केन्द्र झाबुआ को सर्वोत्तम कृषि विज्ञान केन्द्र (राष्ट्रीय) एवं कृषि विज्ञान केन्द्र दंतेवाडा को सर्वोत्तम कृषि विज्ञान केन्द्र (जोनल) पुरस्कार से सम्मानित किया गया। इसके अलावा निदेशालय के वैज्ञानिकों द्वारा किये गये उत्कृष्ट कार्यो के आधार पर इन्हें भी सात पुरस्कार प्राप्त हुये।

Executive Summary

Zonal Project Directorate, Zone VII has 100 KVKs located in three states namely Madhya Pradesh, Chhattisgarh and Orissa.

KVKs under Zone VII conducted total 37,995 On Farm Trials on the twenty thematic areas and assessed 1,178 technologies. The highest number of technologies were tested in the state of Madhya Pradesh (479) followed by Odisha (452) and Chhattisgarh (247) as the number of KVKs are also in the same order. The average numbers of technologies tested per KVK in the Zone 11.78 technologies were tested by each KVK. Average numbers of technologies tested per KVK were 12.35 in the state of Chhattisgarh, 10.19 in Madhya Pradesh and 13.70 in Odisha.

For implementing the technology at wider scale, a total of 1559 FLDs were conducted on oilseeds, pulses, cereals, vegetables, cash crops, agro-forestry, millets and other important area covering the area of 23408.523 ha.

Zonal Project Directorate organized 10 Capacity building in collaboration of ICAR institutes where 511 Subject Matter Specialists benefitted in the zone.

For regular knowledge-updation and imparting new skills In total, 7729 courses and benefitted 2,32,899 participants.

Total 1,11,071 Extension activities in the form of field days, Farmers fair, Farm advisory services, Exhibition, Film show etc. were organized for popularizing the technologies in the region which benefited 18,84,386 farmers and extension personnel in the Zone-VII.

Quality seeds and planting materials, to the tune of 16579.93 q seeds and 3828444 nos planting materials were produced by the KVKs of the Zone VII. In Zone VII, 154 SAC meetings were conducted.

KVKs of Zone analyzed 27,472 soil and 1275 water samples benefited 23,982 farmers of 1818 villages. ICAR Best KVK award (National) was conferred to KVK Jhabua and Best KVK (Zonal) was conferred to KVK, Dantewada. and seven awards were also received by the ZPD Scientists.

1

Introduction

Zonal Project Directorate, Zone VII was upgraded in March 2009 from the earlier status of Zonal Coordinating Unit. Zonal Corrdinating Unit was established on 11th September 1979 by ICAR in the campus of Jawaharlal Nehru Krishi Vishwavidyalaya at Jabalpur, Madhya Pradesh. The Directorate coordinates, monitor and evaluate the mandated activities of 100 KVKs spread across the three states namely Madhya Pradesh, Chhattisgarh and Odisha. Zonal Project Directorate, Zone VII performs following major activities:

- To formulate, implement, monitor and evaluate programmes organized by Krishi Vigyan Kendras.
- To coordinate project related work of various agencies such as State Agricultural Universities (SAUs), ICAR institutes, Voluntary Agencies and Development Departments.
- To serve as feedback point for research and extension systems.
- To maintain liaison with research and extension institutions.
- To coordinate agri-based schemes for successful implementation and better convergence with State/ Central Government departments.

1.1 Particulars of KVKs in Zonal Project Directorate VII

Zonal Project Directorate monitors the activities of 100 KVKs in the three states namely Madhya Pradesh, Chhattisgarh and Odisha. The details are as follows:–

Table 1.1: KVKs across the three state in the Zone VII

Name of State	No of Districts	Details of KVK			
		SAU	NGO	ICAR	Total
Chhattisgarh	27	20	0	0	20*
Madhya Pradesh	51	39	07	01	47
Odisha	30	31	0	02	33**
Total	108	90	7	3	100

Note: *Including two additional KVKs in larger districts; ** Including three additional KVKs in larger districts
SAU - State Agricultural University; NGO - Non-Governmental Organization; ICAR - Indian Council of Agricultural Research.

Krishi Vigyan Kendra

Realizing the importance of dissemination of technological information in the changing scenario of 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 act as model for the line departments and act as a catalyst to improve the existing systems for better delivery mechanism. For proper functioning, great emphasis was given on the strengthening the physical and human infrastructure of KVKs. The name of the host institution managing the KVKs is given in Table 1.2.

Table 1.2: Institutional set-up for operational KVKs under ZPD Zone VII

S No.	Host Institution	No. of KVKs
1.	**Madhya Pradesh**	**47**
	Jawaharlal Nehru Krishi Vishwa Vidhyalaya, Jabalpur	20
	Rajmata Vijyaraje Scindhia Krishi Vishwa Vidhyalaya, Gwalior	19
	Central Institute of Agricultural Engineering, ICAR, Bhopal	1
	Deen Dayal Research Institute, Chitrakut, Satna	1
	Kasturaba Gandhi National Memorial Trust , Indore	1
	Lok Mata Devi Ahilyabai Holkar Social National Mission, Burhanpur	1
	Kallukheda shikhcha Samiti, Jaora, Ratlam	1
	Deen dayal Krishi Vikas Awam Anusandhan Samiti (DKVAAS) Bhopal	1
	Centre for Rural Development and Environment, Sehore	1
	Shri Malwa Mahila Vikas Samiti, Sironj, Vidisha (sub-judice)	1
2.	**Chhattisgarh**	**20**
	Indira Gandhi Agricultural University, Raipur	20
3.	**Odisha**	**33**
	Odisha University of Agricultural & Technology, Odisha	31
	Central Rice Research Institute, ICAR, Cuttack	1
	Central Institute of Freshwater Aquaculture, ICAR, Bhubneswar	1

Mandate of KVK

Assessment, refinement and demonstration of technology/products.

Activities of KVK

- On farm testing to identify the location specific technologies in various farming systems
- Frontline demonstrations to establish production potentials of newly released technologies on farmers' fields and provide feedback
- Training of farmers and farmwomen 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 technology 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.
- The seed and planting materials produce by the KVKs also be made available to the farmers

Staff Position

The KVKs have sanctioned staff strength of 16 members. The current staff position in KVKs of Zone-VII is given in Table 1.3. Around 67.0 per cent posts are filled while remaining 33.0 per cent are vacant. The percentage of vacant posts is comparatively higher in case technical and administrative category.

Table 1.3: Staff Position in KVKs under Zone-VII

State	No. of KVK	PC (1)		SMS (6)		PA (3)		Admn. (6)		Total	
		Sanc.	Filled	Sanc.	Filled	Sanc.	Filled	Sanc.	Filled	Sanc.	Filled
MP	**47**	**47**	**33**	**282**	**186**	**141**	**86**	**282**	**147**	**752**	**452**
CG	20	20	09	120	107	60	45	120	81	320	242
Odisha	33	33	22	198	127	99	74	198	156	528	379
Total	**100**	**100**	**64**	**600**	**420**	**300**	**205**	**600**	**384**	**1600**	**1073**

The details of budgetary information of KVKs in Zonal Project Directorate VII, is given Table 1. 4

Table 1.4: Budgetary information (in Lakh) of KVKs and Zonal Project Directorate VII

S. no.	State	Budget Estimate	Revised Estimate	Total Release	Actual Expenditure
1.	Madhya Pradesh	3205.72	3125.92	3125.92	3125.92
2.	Chhattisgarh	1400.50	1391.96	1391.96	1391.96
3.	Odisha	2232.78	1966.24	1966.24	1966.24
4.	ZPD, Zone VII	206.0	172.0	172.0	159.17
Total		**7045.00**	**6656.12**	**6656.12**	**6643.29**

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

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

S. No.	State	No. of KVKs	Admn. Building			Trainees Hotel			Staff Quarters		
			Com-pleted	In pro-gress	NA	Completed	In progress	NA	Completed	In progress	NA
1	Madhya Pradesh	47	33	10	4	36	8	3	38	6	3
2	Chhattisgarh	20	15	0	5	10	0	10	6	0	14
3	Odisha	33	27	0	6	27	0	6	22	0	11
Total		**100**	**75**	**10**	**15**	**73**	**8**	**19**	**66**	**6**	**28**

1.2 Agro-climatic Zones (ACZ) in Zonal Project Directorate, Zone VII

Zonal Project Directorate, Zone VII is having 107 rural districts under its jurisdiction, out of which 100 districts have been covered by KVK. The coverage of KVKs under different agro-climatic zones is as given below.

Table 1.6: Agro-climatic Zones under Zone-VII

State	Agroclimatic Zones (ACZ)	KVKs	No. of KVKs
M.P.	Chhattisgarh Plain	Balaghat	01
	North Hills of Chhattisgarh	Shahdol, Umaria, Dindori , Mandla	04
	Bundelkhand Region	Datia, Tikamgarh, Chattarpur	03
	Gird Zone	Guna, Gwalior, Morena, Ashoknagar, Shivpuri, Sheopur, Bhind	07

State	Agroclimatic Zones (ACZ)	KVKs	No. of KVKs
	Kymore Plateau	Satna, Sidhi, Seoni, Jabalpur, Katni, Panna, Rewa	07
	Jhabua Hills	Jhabua	01
	Malwa Plateau	Indore, Dhar, Dewas, Shajapur, Ujjain, Mandsaur, Ratlam, Rajgarh, Neemach	09
	Nimar Valley	Khandwa, Khargone, Badwani, Burhanpur	04
	Satpura Plateau	Chhindwara, Betul	02
	Vindhya Plateau	Sehore, Bhopal, Raisen, Sagar, Damoh, Vidisha	06
	Central Narmada Valley	Narsinghpur, Hoshangabad, Harda	03
Total	**11 ACZs**		**47**
CG	Chhattisgarh Plain	Bilaspur, Durg, Raipur, Raipir-II, Raigarh, Dhamtari, Jangir-Champa, Mahasamund, Korba, Kanker, Rajnandgaon, Kabirdham	12
	Bastar Plateau	Baster, Dantewada, Bijapur, Narayanpur	04
	North Hills of Chhattisgarh	Surguja, Jashpur, Koria, Surguja-II	04
Total	**3 ACZs**		**20**
Odisha	East and South Eastern Coastal Plain	Cuttack, Jagatsinghpur, Kendrapara, Khurda, Nayagarh, Puri	06
	Eastern Ghat High Land	Koraput, Navarangpur	02
	Mid Central Table Land Zone	Angul, Dhenkanal	02
	North Central Plateau	Keonjhar, Mayurbhanj, Mayurbhanj-II	03
	North Eastern Coastal Plain	Balasore, Jajpur,Bhadrak	03
	North Eastern Ghat	Ganjam, Ganjam-II, Kandhamal, Gajapati, Rayagada	05
	North Western Plateau Zone	Sundergarh, Sundergarh-II, Deogarh	03
	West Undulating Zone	Kalahandi, Nuapada	02
	Western Central Table Land Zone	Bargarh, Jharsuguda, Sambalpur, Boudh Sonepur, Bolangir	06
	South Easterm Ghat	Malkangiri	01
Total	**10 ACZs**		**33**

1.4. Thrust Areas for the KVKs under Zonal Project Directorate VII

The thrust areas identified for the KVKs are mentioned below:-

i. Sustainable production system through location-specific assessment and demonstrations of technology.

ii. Resource conservation through watershed management, soil and water conservation and proper farm mechanization.

iii. Development and promotion of crop and enterprise diversification and alternate land use system.

iv. Integrated pest and disease management.

v. Promoting rural entrepreneurship in livestock, goatery, poultry, fishery, mushroom, etc. by production, processing, value addition and marketing for higher income.

vi. Empowerment of farmwomen and youth through income generating activities and reduction of drudgery.

vii. Alternate livelihood support system for marginal, landless labour and farmwomen to check rural migration.

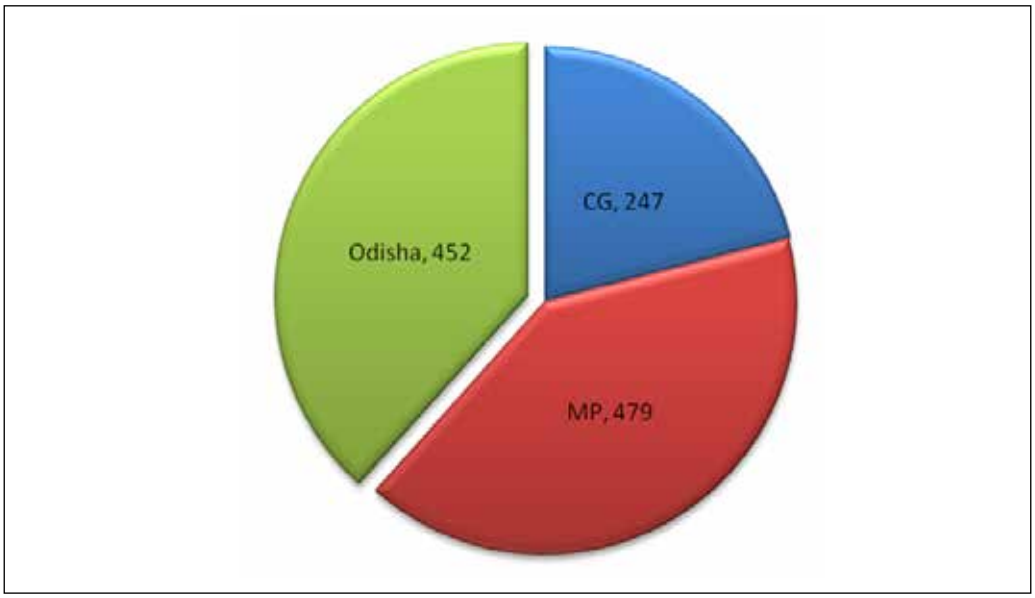
2

Technology Assessment through on-Farm Testing

The claimed superiority of location & specific technologies were tested by KVKs through On-Farm Testings (OFTs) and the numbers of technologies tested as well as trials are given in below mentioned tables. Overall 1178 technologies were tested in the zone through 37995 different trials (Table 2.1). The highest number of technologies were tested in the state of Madhya Pradesh (479) followed by Odisha (452) and Chhattisgarh (247) as the number of KVKs are also in the same order. The average numbers of technologies tested per KVK in the Zone 11.78 technologies were tested by each KVK. Average numbers of technologies tested per KVK were 12.35 in the state of Chhattisgarh, 10.19 in Madhya Pradesh and 13.70 in Odisha.

Table 2.1: State wise overall technology assessed during 2014-15

State	No. of Technology Assessed	No. of Trials
CG	247	1130
MP	479	32229
Odisha	452	4636
Total	**1178**	**37995**



Figur-1: State wise overall technology assessed during 2014-15

Table 2.2 : Crop Category wise OFT's Conducted

Crop Category	No. of Technology Assessed				No of Trials			
	CG	MP	Odisha	Total	CG	MP	Odisha	Total
Agroforestry	2	2	7	11	7	35	72	114
Cereal	76	108	89	273	362	867	911	2140
Fiber	0	2	3	5	0	18	34	52
Flower	0	1	6	7	0	10	54	64
Fodder	1	1	0	2	4	5	0	9
Fruit	2	14	31	47	8	118	292	418
ICM	1	1	3	5	5	5	28	38
IFS	0	0	2	2	0	0	20	20
Intercropping	2	1	5	8	8	10	52	70
Medicinal	0	1	0	1	0	13	0	13
Millet	3	1	1	5	14	10	13	37
Oilseed	10	90	33	133	43	712	330	1085
Plantation	1	0	5	6	4		47	51
Pulse	44	74	27	145	201	592	260	1053
Spice	2	15	4	21	7	104	46	157
Sugarcane	1	1	4	6	5	5	40	50
Vegetable	44	76	127	247	205	595	1360	2160
Total	**189**	**388**	**347**	**924**	**873**	**3099**	**3559**	**7531**

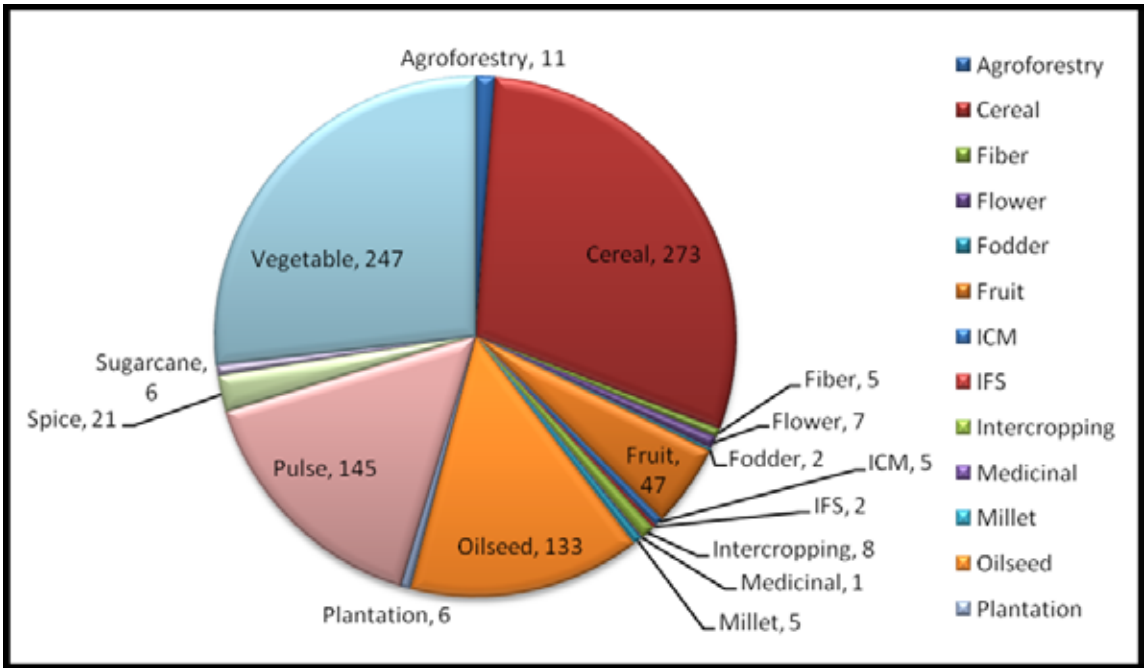


Figure.2 : Crop Category wise OFT's Conducted

Table 2.3 : Thematic area wise OFTs conducted on crops

Thematic Area	No. of Technology Assessed				No of Trials			
	CG	MP	Odisha	Total	CG	MP	Odisha	Total
Agroforestry	1	4	5	10	2	50	41	93
Crop Diversification	0	0	10	10	0	0	97	97
Disease management	4	0	2	6	18	0	21	39
Forestry	0	0	1	1	0	0	13	13
Integrated Crop Management	46	112	39	197	205	905	387	1497
Integrated Disease Management	13	26	39	78	57	205	449	711
Integrated Farming System	0	7	4	11	0	55	33	88
Integrated Nutrient Management	25	51	63	139	120	400	669	1189
Integrated Pest Management	29	67	54	150	143	543	613	1299
Integrated Water Management	0	1	0	1	0	13	0	13
Integrated Weed Management	1	21	19	41	4	160	191	355
Nutritional Security	11	0	5	16	58	0	53	111
Resource conservation technology	4	22	7	33	17	176	35	228
Soil Fertility Management	4	8	4	16	17	69	40	126
Varietal Evaluation	38	60	85	183	166	447	811	1424
Weed Control	0	2	1	3	0	18	7	25
Weed Management	13	7	9	29	66	58	99	223
Grand Total	**189**	**388**	**347**	**924**	**873**	**3099**	**3559**	**7531**

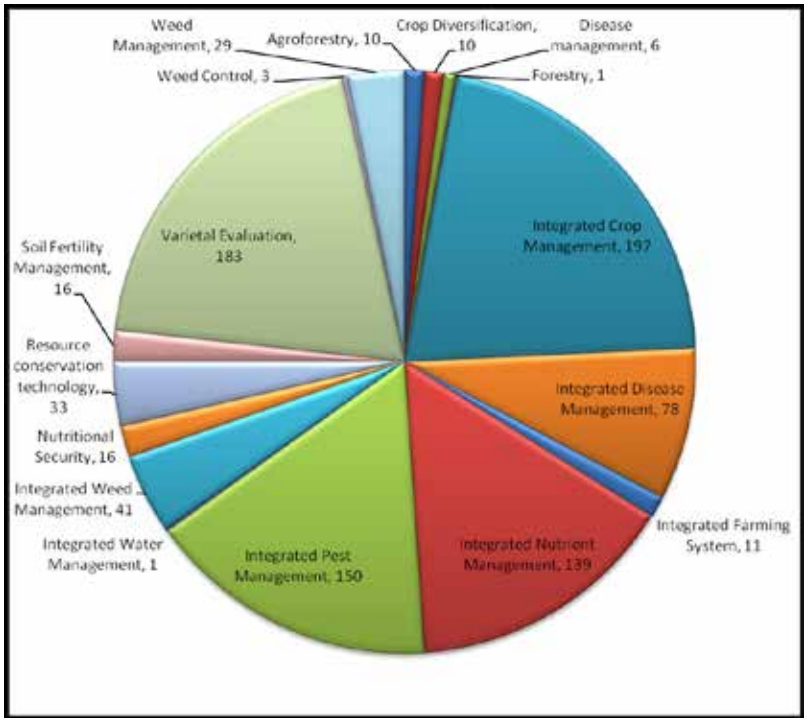


Figure 3: Thematic area wise OFTs conducted on crops

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

Thematic Area	No. of Technology Assessed				No of Trials			
	CG	MP	Odisha	Total	CG	MP	Odisha	Total
Animal disease management	1	0	0	1	4	0	0	4
Backyard Poultry Farming	1	0	0	1	4	0	0	4
Cattle Breed evaluation	1	0	0	1	4	0	0	4
Drudgery reduction	0	1	5	6	0	5	60	65
Evaluation of Breeds	0	0	3	3	0	0	25	25
Farm Mechanization	17	27	20	64	76	233	181	490
Feed & Fodder Production	0	7	1	8	0	65	4	69
Fish Production & Management	14	4	45	63	57	18	273	348
Goat management	3	0	0	3	14	0	0	14
ICT	0	13	3	16	0	28516	190	28706
Income Generation	2	3	6	11	9	15	66	90
Integrated Farming System	2		1	3	9	0	5	14
Livestock Production & Management	11	23	9	43	55	176	110	341
Malnutrition in farm women and children	0	1	0	1	0	5	0	5
Mushroom		0	1	1	0	0	5	5
Nutritional Security	1	0	1	2	5	0	15	20
Poultry Production Management	2	0	2	4	8	0	63	71
Small Scale Income Generating Enterprises	3	11	1	15	12	67	5	84
Soil Fertility Management	0	1	0	1	0	30	0	30
Storage	0	0	1	1	0	0	15	15
Value addition	0	0	6	6	0	0	60	60
Grand Total	58	91	105	254	257	29130	1077	30464

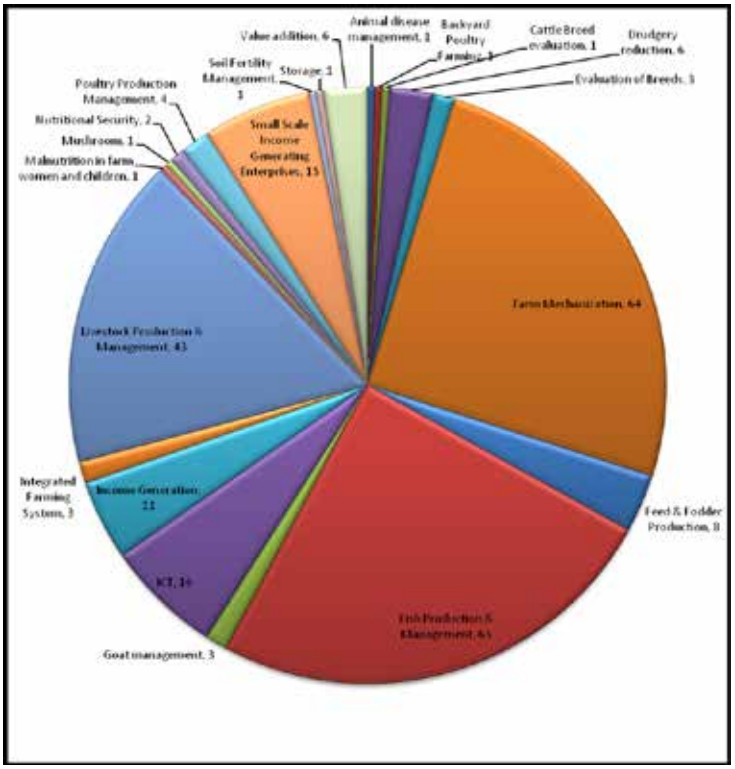


Figure4: Thematic area wise number of technologies assessed on enterprises

Varietal Evaluation

Varietal Assessment in Paddy

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

Technology Assessed : Assessment of improved variety Sahbhagi of paddy

Use of of under rainfed situation appropriate varieties for enhancing is most important factors responsible for enhancing productivity of paddy at farmers' field. With the use of improved early variety, the productivity of the crop can be increased. Keeping this in view, KVK Ganjam-II, Malkangiri, and Dindori 32 trials to assess the performance of the improved early variety Sahbhagi of paddy. The results showed that the yield was 42.49 per cent higher over the farmers' local varieties. The number of effective tillers/plant was recorded higher by 9.8 percent. The net return and BC ratio was found Rs 10,390 per ha and 0.83 additional with this variety as compared to the farmers variety.

Table: Performance of improved paddy variety Sahbhagi

Details	No. of trials	Yield (q/ha)	No. of effective tiller/hill	Net Return (Rs/ha)	BC Ratio
Medium duration varieties under rainfed situation (Farmers' practices)	32	23.32	10.5	11093	1.87
Improved early variety Sahbhagi (Recommended practice)		33.23	20.3	21483	2.7

OFT on Paddy (Sahbhagi Dhan)

Problem identified : Low yield due to yield lossess of local varieties during dry spell

Technology Assessed : Assessment of improved variety of paddy Nua Acharmati.

OFT on Paddy (Nua Acharmati)

The productivity of the crop can be increased. KVK Jajpur, Sonepur and Kalahandi conducted 36 trials to assess the performance of variety Nua Acharmati. Results showed that the yield of this variety was 26.54 percent higher over the farmers' local varieties. The number of tillers/hill was recorded higher by 45.30 percent. The

net return and BC ratio was found Rs 19533 per ha and 2.15 higher with this variety as compared to the farmers local variety. The variety gave very good performance in rainfed situation.

Table: Performance of improved paddy variety Nua Acharmati

Details	No. of trials	Yield (q/ha)	No. of effective tiller/hill	Net Return (Rs/ha)	BC Ratio
Local varieties Bhata and Sathia (Farmers' practices)	36	25.73	218.2	34,816	1.19
Improved paddy variety Nua Acharmati (Recommended practice)		32.56	317.06	54,350	3.34

Varietal Assessment in Soybean

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

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

KVK Shivpuri, Jhabua and shajapur conduced on farm trial to assess the performance of soybean variety RVS-2001-4. The results of the assessment showed that the variety gave 27.65 per cent higher production over the old variety JS 335/Sonia. The pods per plant were also increased by 21.03 per cent. The economic analysis showed that the net return was Rs 7940 per ha additional with this variety. This variety is noticeably adopted by the farmers in the districts of Madhya Pradesh.

Table : Performance of soybean variety RVS-2001-4

Details	No. of trials	Yield (q/ha)	No. of effective tiller/hill	Net Return (Rs/ha)	BC Ratio
Soybean variety JS 335/ JS 9303 (Farmers' practices)	25	13.56	28.34	26260	2.91
Soybean variety RVS-2001-4 (Recommended practice)		17.31	34.3	34200	3.17

OFT on Soybean variety RVS- 2001-04

Varietal Assessment in Wheat

Problem identified : Low yield of wheat due to use of old varities like Pusa-111

Technology Assessed : Assessment of improved variety of wheat RVW 4106 in irrigated condition

Wheat variety RVW 4106

Among the various factors responsible for low productivity of wheat at farmers' field, use of seeds of local/ old varieties is most important. Keeping this in view, KVK Datia, Shahdol, Shajapur and Ujjain conducted on farm trials to variety RVW 4106 of wheat. Results showed that the yield was 27.38 percent higher over the farmers' old variety. The number of effective tillers per plant was recorded higher by 42.74 per cent. The net return and BC ratio was found Rs 11289.5 per ha and 0.42 additional with this variety as compared to the farmers variety, respectively.

Table : Performance of improved wheat variety RVW 4106

Details	No. of trials	Yield (q/ha)	No. of effective tiller/hill	Net Return (Rs/ha)	BC Ratio
Wheat old varieties Like Pusa-111 (Farmers' practices)	27	36.73	85.22	35378	2.72
Improved wheat variety RVW 4106 (Recommended practice)		46.79	121.65	46667.5	3.14

Varietal Assessment in Mustard

Problem identified : Low yield of mustard due to use of old/traditional varieties Like Rohini

Technology Assessed : Assessment of improved variety of mustard RVM 2

It has been observed that with the use of improved variety, the productivity of the crop can be increased. Keeping above in view, KVK Seoni and Shivpuri of the Madhya Pradesh conducted trials to assess the performance of the RVM 2. Results showed 35.33 per cent higher yield over the farmers' old variety. The number of branches/plant was recorded higher by 18.74 per cent. The net return and BC ratio was found Rs 15416 per ha and 0.18 additional with this variety as compared to the farmers old / traditional variety, Rohini. The variety gave very good performance in semi-irrigated situation.

Table : Performance of improved mustard variety RVM 2

Details	No. of trials	Yield (q/ha)	No. of effective tiller/hill	Net Return (Rs/ha)	BC Ratio
Mustard old/traditional variety (Farmers' practices)	10	25.4	5.71	31185	2.57
Improved mustard variety RVM 2 (Recommended practice)		33.97	6.78	46601	2.75

OFT on Mustard

Varietal assessment in Chickpea

Problem identified : Low yield of chickpea due to use of degenerated seeds of old and disease succeptible varieties

Technology Assessed : Assessment of chickpea variety RKVG-101

OFT on Chick pea variety RKVG-101

Various biotic & abiotic factors are responsible for the low yield of chickpea including pest and disease infestation. KVK Dhar and Ujjain conducted trials to assess the performance of the improved variety RKVG-101. Results showed that the yield of this variety was 18.7 per cent higher over the farmers' variety. The number of pods per plant was also increased by 34.27 per cent. Similarly the net return and BC ratio was also found to be higher by Rs 8,670 and 0.33 with this variety. The variety gave very good performance due to having tolerance to major pests and diseases.

Table : Performance of chickpea variety RKVG-101

Details	No. of trials	Yield (q/ha)	No. of effective tiller/hill	Net Return (Rs/ha)	BC Ratio
Use of old varieties (Farmers' practices)	10	12.4	80.25	20962	2.21
Improved variety RKVG-101 (Recommended practice)		14.72	107.75	29632	2.54

Varietal Assessment in Pigeon Pea

Problem identified : Low yield of pigeon pea due to use of medium duration variety affected by frost during seed setting/maturity

Technology Assessed : Assessment of pigeon pea early variety ICPL- 88039

Unlike other legumes, Pigeon pea being a long duration crop, several factors are responsible for the low yield of pigeon pea. Farmers are using medium duration varieties which are usually affected by frost during

winter season at the time pod filling/seed setting stage resulting low yield. KVK Bhatapara and Nayagarh conducted 12 trials to assess the performance of the improved early variety ICPL- 88039. Results showed that the yield of this variety was 22.22 per cent higher over the farmers' variety. Similarly the net return and BC ratio was also found to be higher by Rs. 4,596.5 and 0.38 with this variety. The variety performed well in the area, as it escaped from the frost due to early maturity.

Table : Performance of chickpea variety RKVG-101

Details	No. of trials	Yield (q/ha)	No. of effective tiller/hill	Net Return (Rs/ha)	BC Ratio
Farmers' variety (Farmers' practices)	12	6.3	180	11153.5	1.62
Improved early variety ICPL- 88039 (Recommended practice)		7.7	155	15750	2.0

Varietal Assessment in Finger Millet

Problem identified : Low yield of finger millet due to incidence of blast in local varieties

Technology Assessed : Assessment of finger millet variety Indira kodo-1

Among the finger millet local cultivars, blast incidence is a major problem which minimizes the yield of the crop. Farmers are using blast susceptible local varieties resulting in low yield. KVK Bastar and Dantewada conducted 9 trials to assess the performance of the improved blast resistance variety Indira kodo-1. Results showed that the yield of this variety was 33.97 percent higher over the farmers' variety. No blast incidence was observed with the assessed variety; however, in the farmers' variety incidence was noted to be 60 per cent. The net return and BC ratio was also found to be higher by Rs. 7,000 and 1.04 with the assessed variety.

Table : Performance of finger millet variety Indira kodo-1

Details	No. of trials	Yield (q/ha)	No. of effective tiller/hill	Net Return (Rs/ha)	BC Ratio
Local variety (Farmers' practices)	9	10.45	60	20000	1.76
Improved variety Indira kodo-1 (Recommended practice)		14	0	27000	2.8

Varietal Assessment in Fenugreek

Problem identified : Low yield of fenugreek due to use of local/unidentified varieties

Technology Assessed : Assessment of fenugreek variety RMT 303

Fenugreek leaves commonly used for vegetable purposes, however, it has been grouped under spices due to its seed which is used as a important spice. Farmers are using local/unidentified varieties which produces low yield. KVK Narsinghpur and Neemuch conducted trials to assess the performance of the improved variety RMT 303. The results showed that the yield of this variety was 25.46 per cent higher over the farmers' variety. Number of pods per plant also increased by 141.4 per cent in the assessed variety. Similarly the net return and BC ratio was also found to be higher by Rs. 7,569 and 0.38 with this variety.

Table : Performance of fenugreek variety RMT 303

Details	No. of trials	Yield (q/ha)	No. of effective tiller/hill	Net Return (Rs/ha)	BC Ratio
Local/unidentified variety (Farmers' practices)	12	11.82	20.1	26910	3.18
Improved variety RMT 303 (Recommended practice)		14.83	48.53	34479	3.55

Varietal Assessment in Okra

Problem identified : Low yield of okra due to use of YVMV

Technology Assessed : Assessment of okra variety Deepika

Several factors are minimizing the yield of okra, use of local or old variety seeds are most important one. Farmers are using old varieties resulting low yield due to YVMV incidence. KVK Durg conducted trials to assess the performance of the improved variety Deepika. The results showed that the yield of this variety was 22.36 percent higher over the farmers' variety. Similarly the net return and BC ratio was also found to be higher by Rs. 17,500 and 0.57 with this variety.

OFT on Okra

Table : Performance of okra variety Deepika

Details	No. of trials	Yield (q/ha)	No. of effective tiller/hill	Net Return (Rs/ha)	BC Ratio
Farmers' variety (Farmers' practices)	4	76	83000	3.00	3.18
Improved variety Deepika (Recommended practice)		93	100500	3.57	3.55

Varietal Assessment in Pea

Problem identified : Low yield of pea due to use of local/old variety

Technology Assessed : Assessment of pea variety Azad P3

Farmers are using local varieties resulting low yield of pea. KVK Ashoknagar and Jashpur conducted on farm trials to assess the performance of the improved variety Azad P3. Results showed that the yield of this variety was 41.39 percent higher over the farmers' variety. The number of pods per plant was also increased by 26.40 percent. Similarly the net return and BC ratio was also found to be higher by Rs. 16,200 and 0.63 with this variety.

Table : Performance of pea variety Azad P3

Details	No. of trials	Yield (q/ha)	No. of effective tiller/hill	Net Return (Rs/ha)	BC Ratio
Local variety (Farmers' practices)	21	21.43	33.86	58000	3.12
Improved variety Azad P3 (Recommended practice)		30.3	42.8	74200	3.75

Varietal Assessment in Tomato

Problem identified : Low yield of tomato due to use of old/traditional variety

Technology Assessed : Assessment of Tomato variety Swarna sampada

Several factors are responsible for lowering the yield of tomato, use of old/traditional varieties are important one. KVK Janjgir-champa, Jajpur, Kendrapra, Khargon, Ganjam-I and Ganjam-II of zone planned and conducted on farm trials to assess the performance of the improved variety Swarna sampada. Results showed that the yield of this variety was 73.75 per cent higher over the farmers' variety. Similarly the net return and BC ratio was also found to be higher by Rs. 85079.04 and 0.24 with this variety. The variety performance very well in the area.

Table : Performance of Tomato variety Swarna sampada

Details	No. of trials	Yield (q/ha)	No. of effective tiller/hill	Net Return (Rs/ha)	BC Ratio
Farmers' local / old variety (Farmers' practices)	126	294.03	105152.66	2.69	3.18
Improved variety Swarna sampada (Recommended practice)		510.89	190231.7	2.93	3.55

Varietal Assessment in Marigold

Problem identified : Low yield of Marigold due to use of old/traditional variety

Technology Assessed : Assessment of Marigold variety Ceracoul

Several factors are responsible for lowering the yield of Marigold, use of old/traditional varieties are important one. KVK Angul, Bhind, Jajpur and Nuapada of zone planned and conducted on farm trials to assess the performance of the improved variety Ceracoul. Results showed that the yield of this variety was 44 percent higher over the farmers' variety. Similarly the net return and BC ratio was also found to be higher by Rs. 33,874 and 0.3 with this variety. The variety performance very well in the area.

Table : Performance of Marigold variety Ceracoul

Details	No. of trials	Yield (q/ha)	No. of effective tiller/hill	Net Return (Rs/ha)	BC Ratio
Farmers' local / old variety (Farmers' practices)	33	77.35	89012	1.7	3.18
Improved variety Ceracoul (Recommended practice)		111.4	122886	2	3.55

Varietal Assessment in Onion

Problem identified : Low yield of Marigold due to use of old/traditional variety

Technology Assessed : Assessment of Onion variety Bhima super

Several factors are responsible for lowering the yield of Onion, use of old/traditional varieties are important one. KVK Khandwa, Jajpur, kawardha, Nayagarh, Deogarh, Sonepur, Sundaergarh-1, Jagatsinghpur & Boudh of zone planned and conducted on farm trials to assess the performance of the improved variety Bhima super. Results showed that the yield of this variety was 25.47 percent higher over the farmers' variety.

Similarly the net return and BC ratio was also found to be higher by Rs. 28,835 and 0.24 with this variety. The variety performance very well in the area.

Table : Performance of Onion variety Bhima super

Details	No. of trials	Yield (q/ha)	No. of effective tiller/hill	Net Return (Rs/ha)	BC Ratio
Farmers' local / old variety (Farmers' practices)	104	193.33	90017	2.70	3.18
Improved variety Bhima super (Recommended practice)		242.59	118852	2.94	3.55

Integrated crop management

Problem identified : Low productivity of tomato.

Technology Assessed : Assessment of Fertigation scheduling in tomato crop (open field)

Fertilizer application influences the yield of the crop. Adequate fertilizer application can enhance the growth and yield of crops . KVK Badwani conducted on farm trials to assess the effect of fertigation through drip irrigation system in tomato. Results revealed that the fruit yield was 122.85 per cent higher over the farmers' practice. Similarly the net return and BC ratio was also found to be higher by Rs. 143080 and 1.09 with the technology. This technology is effective as it increases the yield and net return per unit area.

Tomato crop

Details	No. of trials	Yield (q/ha)	Yield q/acre	Net Return	BC Ratio
By fertilizer application through broadcasting (Farmers practice)	5	347.4	124.6	90440	2.01
Application of fertilizer through Fertigation. (Recommended practice)		426.8	171.2	143080	3.1

Problem identified : High fertiliser requirement, low fertiliser use efficiency, high weed growth.

Technology Assessed : Assessment of fertigation in Brinjal (var. Mukta keshi)

KVK Rayagada conducted OFT on fertigation in brinjal crop, the recommended practice Results revealed that the fruit yield was 119.55 per cent higher over the farmers' practice. Similarly the net return and BC ratio was also found to be higher by Rs. 58000 and 0.3 with the technology. This technology is effective as it increases avg. nos. of fruit /plant, avg. weight of fruit and net return per unit area.

Assessment of fertigation in Brinjal (var. Mukta keshi)

Details	No. of trials	Yield (q/ha)	Avg. nos. of fruit /plant, Avg. weight of fruit (kg)	Net Return	BC Ratio
By fertilizer application through broadcasting (Farmers practice)	13	266	9	41280	1.80
Basal application of NPK @ 30:30:30 kg/ha followed by fertigation at 30, 45, 60 DAT with water soluble fertiliser (19:19:19) with micro nutrient. (Recommended practice)		318	14	58000	2.16

Problem identified : No Effective Land Utilization (Use only one crop in season)

Technology Assessed : Assessment of Tomato + Pigeon pea inter copping

KVK , Durg conducted on farm trials on Assessment of performance of intercropping tomato + pigeon pea inter cropping resulting yield 312q/ha (Tomato +pigeon pea) over farmers practices. The net return and BC ratio was also found to be higher by Rs. 75000 and 1.92 with the technology.

OFT on Assessment of Tomato and Pegion pea Intercropping

Details	No. of trials	Yield (q/ha)	Yield (q/ha)	Net Return	BC Ratio
Pigeon pea and tomato taken as pure crop (Farmers practice)	13	Tomato- 190 q/ha Pigeon pea- 10q/ha	Tomato- 190 q/ha Pigeon pea- 10q/ha	65600	1.42
Tomato + pigeon pea taken as Intercropping. (Recommended practice)		Tomato + Pigeon pea- 312q/ha	Tomato + Pigeon pea- 312q/ha	75000	3.34

Problem identified : Low return from upland rice.

Technology Assessed : Assessment of onion varieties during kharif in rice-fallow system in uplands

Paddy is grown in Madhya Pradesh, Chhattisgarh and Odisha states during kharif season. The net return from paddy is comparatively less to that of vegetables like onion. It may be better substitute in the upland/ midland areas of the zone where it can successfully cultivated for increasing profitability. KVK Satna, Dhenkanal and Malkangiri of the zone planned and counducted 28 trials on assessment of Agri Found Dark Red and N-53 varieties of onion during kharif for increasing profitability. Results of these trials showed that kharif onion yield recorded to be 136.75 q/ha with the additional net return of Rs. 139500 over the farmers practice (paddy). Retults indicated that cultivation of onion is profitable for the farmers as it giving additional benefit in comparison to paddy.

Details	No. of trials	Yield (q/ha)	Bulb weight(gm)	Net Return	BC Ratio
Traditional paddy cultivation in farms (Farmers practice)	28	18.6 (Paddy Yield)	–	12500	1.03
Target – 168q/ha yield (Recommended practice)		136.75	58.75	168150	3.05

OFT on onion varieties during kharif

Problem identified : Low production due to non- adoption of improved techniques.

Technology Assessed : Assessment of mulching with drip irrigation system for the insect pest and disease incidence in vegetables

Assessment of method of irrigation and Mulching on yield potential of Okra

Vegetable crops are huge water demanding in nature and heavily infested by insect and pest. Non availability of proper soil moisture and heavy weed infestation during early stage, crop growth restricted resulting in low yield. Plastic mulching is a cost effective technology which not only conserves the soil moisture and reduces irrigation requirement but also checks the weeds infestation and insect, pest and disease incidence. KVK Chhatarpur, Rajnandgaon and Dhamtari planned and conducted 14 trials on assessment of plastic mulching in vegetable. Results of these trials at showed that the technique enhanced the yield of different vegetables by 34.03 percent. Technology also enhanced the net return and BC ratio by Rs.78,000 and 0.82 compared to farmers' practice.

Details	No. of trials	Yield (q/ha)	Net return	BC Ratio
No mulching (Farmers practice)	14	95.5	167000	1.94
Plastic mulching (Recommended practice)		128	245000	2.76

Problem identified : Low yield of bitter gourd due to poor fruit set and less retention of flower

Technology Assessed : Assessment of plant growth regulator (PGR) on Bitter gourd

Flower drop and less fruit setting and more no. of male flower intensity observed in bitter which reduced the crop yield. With the use of plant growth regulators flower drop can be controlled and the production can

be maximized. KVK Dhamtari (C.G.), Bhadrak and Dhenkanal (Odisha) conducted trials to assess the effect of plant growth regulators (Tricontanol, Ethephone and GA 3) on bitter gourd. Results showed that fruit setting was 26.87 per cent higher over the farmers' practice and the crop yield was 61.11 per cent higher over the farmers' practice. Similarly the net return and BC ratio was also found to be higher by Rs. 95653.333and 0.68 with this technology. The technology is effective as it increases the fruit setting which ultimately increase the crop yield and the net return per unit area.

Details	No. of trials	Yield (q/ha)	No of fruits/ plant	Net Return	BC Ratio
No use of plant growth regulators (Farmers practice)	25	90	24	68000	2.35
Use of plant growth regulators – Tricontanol, Ethephone and GA 3 (Recommended practice)		145	32	163653	3.02

Assessment of PGR (Etheral 250 ppm) application in Bitter gourd

Problem identified : Low female : male (1:30-40) Ratio in Bottle Gourd

Technology Assessed : Assessment of use of PGR in Bottle Gourd

Low female : Male (1:30-40)Ratio in Bottle Gourd and farmers get less no. of fruits per plant, which cause reduction in yield. With the use of plant growth regulators flower drop can be controlled and the production can be maximized. KVK Dantewada and Janjgir-Champa (C.G.), conducted 25 trials to assess the effect of plant growth regulators (Ethrel (250 PPM) and GA3 (25PPM)) on bottle gourd. Results showed that no. of fruit per plant was 68.11 per cent higher over the farmers' practice and the crop yield was 31.91 per cent higher over the farmers' practice. Similarly the net return and BC ratio was also found to be higher by Rs.23400 and 0.26 with this technology. The technology is effective as it increases the fruit setting which ultimately increase the crop yield and the net return per unit area.

Details	No. of trials	Yield (q/ha)	No of fruits/ plant	Net Return	BC Ratio
No use of plant growth regulators (Farmers practice)	25	90	10.2	61300	2.87
Target – 168q/ha yield (Recommended practice)		145	17.2	84400	3.13

Integrated Nutrient Management

Integrated Nutrient Management in Rice

Problem identified : Low yield of Rice due to poor soil fertility and indiscriminate use of fertilizers

Technology Assessed : Assessment of brown manuring in Rice

Imbalance/indiscriminate use of nutrients is one of the major reasons for declining the yield of Rice. Farmers are not using the organic sources for nutrient supplement; hence, the. KVK Jajpur, Kalahandi, Ganjam II & Gwalior conducted 49 on farm trials to assess the impact of brown manuring on the performance of Rice. Results showed that the crop yield was 32.13 per cent higher over the farmers' practice. As a result of brown manuring the number of tillers/hill, organic carbon (%) & panicle length also increased by35, 13 & 8.5 per cent respectively. The net return and BC ratio was also found to be higher by Rs. 26502 and 0.16 with this technology. The technology is effective as it increases the crop yield, reduces the weed population and maintains the soil health and fertility.

Details	No. of trials	Yield (q/ha)	No. of tillers/hill	organic carbon (%)	panicle length	Net Return (Rs/ha)	BC Ratio
No brown manuring (Farmers' practices)	49	33.45	13.1	0.46	21.4	23220	2.24
Brown manuring with sesbania (Recommended practice)		46.79	17.75	0.52	23.2	49722	2.78

Problem identified : Low yield of Rice due to imbalanced/ indiscriminate use of nutrients

Technology Assessed : Assessment of balanced fertilization in Rice

Balanced fertilization in Rice

Imbalanced/indiscriminate use of plant nutrients are one of the major reasons for declining yield of Rice. Farmers are not using the organic resources for nutrient supplement hence, the soil fertility is declining gradually which significantly affects the crop yield. Looking the above problem, KVK Umaria, Shahdol, Kanker, Rajnandgaon, Jajpur and Ganjam II conducted 58 on farm trials to assess the Balanced fertilization (NPK @ 120:60:40 kg/ha + 5 kg Zn/ ha). Results showed that the crop yield was 23.38 per cent higher over the farmers' practice. The number of effective tillers per m2 was also increased by 15.77 per cent. Similarly the net return and BC ratio was also found to be higher by Rs. 9,639 and 0.43 with the assessed technology. The technology is effective for irrigated situation as it increases the crop yield and maintains the soil health and fertility for sustainable crop production.

Details	No. of trials	Yield (q/ha)	No. of effective tillers/ m2	Net Return (Rs/ ha)	BC Ratio
NPKZn @ 80:60:0:0 kg/ha (Farmers' practices)	58	41.69	307.5	26315.5	2.26
NPK @ 120:60:40 kg/ha + 5 kg Zn/ ha (Recommended practice)		51.44	356	37354.9	2.34

Problem identified : Nitrogen losses resulting low yield of paddy due to indiscriminate use of Nitrogenous fertilizers

Technology Assessed : Assessment of leaf colour chart (LCC) for management of nitrogen in Rice

Nitrogen is the major nutrient limiting the high yield potential of rice cultivars. Farmers generally apply fertilizer N in several split applications, but the number of splits, amount of N applied per split, and the time of applications vary substantially. Farmers generally apply too much N (and little P and K and other nutrients) that results in high pest and disease incidence and serious lodging. Site specific nitrogen management has the potential to increase fertilizer use efficiency as well as grain yield in the farmers fields. The optimum use of N can be achieved by matching N supply with crop demand. Keeping above point under consideration, KVK Cuttack, and Jajpur of zone planned and conducted 17 on farm trials to assess the impact of leaf colour chart (LCC) for nitrogen management in paddy. Results showed that 29 per cent saving of nitrogenous fertilizer (Urea) through LCC with higher yield as compare to farmers practice. The net return and BC ratio was also found to be higher by Rs 4,650 and 0.18 with this technology. The technology is effective as it increases the crop yield, saves the nutrient, minimizes the N losses and maintains the soil health and fertility.

Details	No. of trials	Yield (q/ha)	Total N applied (kg/ha)	Net Return (Rs/ha)	BC Ratio
Blanket application of Nitrogenous fertilizer (Farmers' practices)	17	33.7	80	29590	2.02
Application of N-fertilizers based on LCC (Recommended practice)		34.4	61.6	34240	2.20

Problem identified : Low yield of Rice due to no use of micronutrients.

Technology Assessed : Assessment of zinc in Rice

Zinc is one of the most important micronutrient essential for plant growth especially for rice grown under submerged condition. Zinc deficiency is prevalent worldwide in temperate and tropical climates. Zinc is a major component and activator of several enzymes involved in metabolic activities. Iron toxicity is a common problem in rice cultivation, especially in the lowlands, and zinc deficiency in rice is often linked to this phenomenon. Keeping above problem under consideration KVK Keonjhar and Malkangiri conducted 26 on farm trials to assess zinc application for management of Iron toxicity problem in paddy and KVK Kalahandi, Cuttack and Rewa conducted 25 trials to assess the impact of zinc in Rice. Results showed that the crop yield was 17.62 per cent higher over the farmers' practice. The number of effective tillers per hill was also increased by 47.61 per cent. Similarly the net return and BC ratio was also found to be higher by Rs. 5353 and 0.16 with the assessed technology. The technology is effective as it increases the crop yield and maintains the soil fertility for sustainable crop production.

Details	No. of trials	Yield (q/ha)	No. of effective tillers/ m2	Net Return (Rs/ha)	BC Ratio
No use of zinc (Farmers' practices)	51	31.38	10.5	19145	1.80
RDF(120:60:40 N:P:K kg/ha)+ ZnSO4@ 25kg/ha at the time of transplanting (Recommended practice)		36.91	15.5	24498	2.24

Integrated Nutrient Management in Soybean

Problem identified : Low yield of soybean due to imbalance fertilization and no use of bio fertilizer

Technology Assessed : Assessment of Integrated Nutrient management in Soybean

The soybean crop is one of the most important crops worldwide. Soybean grains are important as protein meal and vegetable oil. Among the essential nutrients, macro-nutrients such as nitrogen, phosphorus and potassium play a crucial role in improving plant growth and yield. Looking the above issues, KVK Ujjain, Burhanpur, Dewas and Kawardha conducted 33 trials to assess the response of Balanced fertilization (20:60:40 N:P:K Kg/ha) and inoculation of Rhizobium culture in soybean. Results showed that the seed yield was 69.69 per cent higher over the farmers' practice. The number of pods per plant was also increased by 17.8 per cent with the assessed technology. Similarly the net return and BC ratio was also found to be higher by Rs. 12500 and 0.34 with the assessed technology. The technology is effective as it increases the crop yield and maintains the soil health and fertility.

Details	No. of trials	Yield (q/ha)	No. of pods/ plant	Net Return (Rs/ ha)	BC Ratio
N:P:K 15:45:0kg/ha & no use of bio fertilizer. (Farmers' practices)	33	15.27	29.4	30826	2.34
RDF(N:P:K 20:60:20)+ seed treatment with Rhizobium @ 5 gm/ kg seed. (Recommended practice)		17.99	36.4	43325	2.47

Problem identified : Low yield of Soybean due to no use of sulphur based fertilizer

Technology Assessed : Assessment of Sulphur through Bentonite in Soybean

Soybean is being cultivated as an oilseed crop in India. It supplies nearly 40% protein and 20% edible oil with sulphur containing amino acid (methionine). Sulphur , one of the 16 essential plant nutrients, is now considered as the fourth major nutrient. It is absorbed by plants in amounts comparable to P. Sulphur is no doubt a master nutrient in oil production as almost 12 kg S is required to produce one tone of soybean or in other words 9.4 kg grain is produced per kg of sulphur applied A balanced fertilizer management practice is, thus, imperative to mitigate the effect of sulphur deficiency. Keeping these in view 50 on farm trials on "sulphur nutrition in soybean" was initiated during Kharif 2014-15 at KVK Narsingpur, Dhar, Neemuch, Jhabua, Indore and Rewa. Results revealed that the crop yield was 28 per cent higher over the farmers' practice. Similarly the net return was also found to be higher by Rs. 8612 with higher BC ratio 2.26. The technology is effective as it increases the crop yield and maintains the soil fertility for sustainable crop production.

Details	No. of trials	Yield (q/ha)	No. of pods/ plant	Net Return (Rs/ ha)	BC Ratio
N:P:K:S 15:45:0:0 kg/ha (Farmers' practices)	50	12.31	21.6	20573.66	2.01
RDF(N:P:K:S 20:60:20:20) (Recommended practice)		15.81	33.5	29185.66	2.26

Integrated Nutrient Management in Sesamum

Problem identified : Low yield due to imbalance fertilization and no use of sulphur

Technology Assessed : Assessment of Integrated Nutrient management in Sesame

Sesame is an important oilseed crop among the oilseeds grown across the zone. Imbalanced/indiscriminate use of major plant nutrients and no use of sulphur are the major reasons for declining yield of Sesame. Farmers are not using the sulphur containing fertilizers; hence, the status of this nutrient is low in the soil which is affecting the crop yield. Sulphur is responsible for increasing the oil content in the oilseeds. Looking the above problem, KVK Jhabua, Gwalior, Khordha and Kandhamal of zone planned and conducted 40 on farm trials to assess the response of sulphur in Sesame. Results showed that the crop yield was 49.44 per cent higher over the farmers' practice. The number of capsules per plant was also increased by 29.81 per cent. Similarly the net return and BC ratio was also found to be higher by Rs. 8505 and 0.41 with the assessed technology. The technology is effective as it increases the crop yield and maintains the soil health and fertility for profitable crop production.

Details	No. of trials	Yield (q/ha)	No. of capsule/ plant	Net Return (Rs/ ha)	BC Ratio
No soil test (Farmers' practices)	40	4.47	17.34	11360	1.86
Soil test besed recommended fertilizer dose along with bio fertilizer @ 4kg each and sulphur 20kg/ha (Recommended practice)		6.68	22.51	19865	2.27

Integrated Nutrient Management in Wheat

Problem identified : Low yield of wheat due to imbalanced/indiscriminate use of nutrients

Technology Assessed : Assessment of integrated nutrient management in wheat

Among the cereals, wheat crop ranks IInd in uptake of major nutrients. Imbalanced/indiscriminate use of plant nutrients are one of the major reasons for declining yield of wheat. Farmers are not using the organic resources for nutrient supplement and appling less/imbalanced use of fertilizers; hence, the soil fertility is declining gradually which significantly affeting the crop yield. Looking the above problem, KVK Shahdol, Chhatarpur, Khandwa, Neemuch, Sehore, Burhanpur, Balrampur, Korea, and Sagar conducted 79 on farm trials to assess the INM (Biofertilizers-Azotobactor & PSB @ 5 g/kg as seed inoculation + NPK @ 100:60:40 kg/ ha + 5 kg Zn/ha) in wheat. Results showed that the crop yield was 28.68 per cent higher over the farmers' practice. The number of effective tillers per m2 was also increased by 22 per cent. Similarly the net return and BC ratio was also found to be higher by Rs. 16230 and 0.32 with the assessed technology. The technology is effective for irrigated situation as it increases the crop yield and maintains the soil health and fertility for sustainable crop production.

Details	No. of trials	Yield (q/ha)	Effective Tillers/m2	Net Return (Rs/ha)	BC Ratio
NPKZn @ 41:46:0:0 kg/ha (Farmers' practices)	79	33.5	278	27040	2.33
Biofertilizers-Azotobactor & PSB @ 5 g/kg as seed inoculation + NPK @ 100:60:40 kg/ha + 5 kg Zn/ha (Recommended practice)		42.42	339	43270	2.65

Integrated Nutrient Management in Chickpea

Problem identified : Low yield of chickpea due to imbalanced/indiscriminate use of nutrients

Technology Assessed : Assessment of integrated nutrient management in chickpea

Chickpea is an important pulse crop grown across the zone. Imbalanced/indiscriminate use of plant nutrients and no use of bio fertilizers and micronutrients especially molybdenum which is responsible for nodulation in roots for N fixing microorganisms are the major reasons for declining yield of chickpea. Farmers are not using bio fertilizer and molybdenum and applying imbalanced dose of NPK fertilizers; hence, the status of these nutrients is declining in the soil which is otherwise affecting the crop yield. Looking the above problem on priority, KVK Narsinghpur, Bhatapara, Durg and Gariyaband of zone planned and conducted on farm trials to assess the the response of bio fertilizer @ 5 gm/kg seed and molybdenum applied through ammonium molybdate @ 1.0 gram/kg seed as seed coating with basal application of N:P:K @ 20:60:20 kg/ha in chickpea. Data revealed that seed treatment with ammonium molybdate and multiplication of rhizobium & PSB culture with FYM and balanced dose of fertilizer give highest yield 15.1 qt/ha followed by seed treatment with rhizobium and RDF (12 qt/ha) as compare to farmer's practice i.e. 10.03 qt/ha. Similarly the net return was also found to be higher in T2 and T3 by Rs. 11078, 10555 respectively with higher B:C ratio i.e. 2.23 and 2.24 as compared to farmer's practice. The technology is effective as it increases the crop yield and maintains the soil health and fertility.

Details	No. of trials	Yield (q/ha)	No. of pods/ plant	Net Return (Rs/ha)	BC Ratio
T1:NPKZn @ 15:45:0:0 kg/ha (Farmers' practices)	18	10.03	32	11625	1.80
T2: Biofertilizers-Rhizobium & PSB @ 5 g/kg as seed inoculation + NPK @ 20:60:20 kg/ha		12.00	40	22703	2.23
T3: Ammonium molybdate @1 gm/ kg seed+ + Multiplication of bio fertilizer (1.5 kg) in 100 kg FYM +NPK @ 20:60:20 kg/ha		15.1	45	22180	2.24

Integrated Nutrient Management in Green gram

Problem identified : Low yield of chickpea due to imbalanced/indiscriminate use of nutrients

Technology Assessed : Assessment of integrated nutrient management in Green gram

Imbalanced/indiscriminate use of plant nutrients and no use of bio fertilizers are the major reasons for low yield of Green gram. Farmers are not using bio fertilizer and applying imbalanced dose of NPK fertilizers; hence, the status of these nutrients is declining which affect the crop yield. Looking the above problem on priority, KVK Sihore, Raigarh, Khordha and Cuttack of zone planned and conducted 24 on farm trials to assess the the response of bio fertilizer @ 5 gm/kg seed with basal application of N:P:K @ 20:60:20 kg/ha. Data showed that the crop yield was 28.68 per cent higher over the farmers' practice. The number of effective tillers per m2 was also increased by 22 per cent. Similarly the net return and BC ratio was also found to be higher by Rs. 16230 and 0.32 with the assessed technology. The technology is effective for irrigated situation as it increases the crop yield and maintains the soil health and fertility for sustainable crop production.

Details	No. of trials	Yield (q/ha)	No. of pods/ plant	Net Return (Rs/ha)	BC Ratio
NPK@ 15:45:0:0 kg/ha (Farmers' practices)	24	6.05	22	16343	2.13
Rhizobium @ 5 g/kg as seed inoculation + NPK @ 20:60:20 kg/ ha (Recommended practice)		7.41	30	21574	2.77

Sulphur Management in Mustard

Problem identified : Low yield of mustard due to imbalanced application of fertilizer without sulphur

Technology Assessed : Assessment of response of Sulphur in Mustard

Mustard is an important oilseed crop among the oilseeds grown across the zone. Imbalanced/indiscriminate use of major plant nutrients and no use of sulphur are the major reasons for declining yield of mustard. Farmers are not using the sulphur containing fertilizers; hence, the status of this nutrient is low in the soil which is affecting the crop yield. Sulphur is responsible for increasing the oil content in the oilseeds. Looking the above problem, KVK Jhabua, Gwalior and Kandhamal of zone planned and conducted 36 on farm trials to assess the response of sulphur with soil test based nutrient management in Mustard and applied this nutrient @ 40 kg/ha on soil test basis alongwith NPK @ 80:40:20 kg/ha in mustard. Results showed that the crop yield was 28.06 per cent higher over the farmers' practice. The number of siliqua per plant was also increased by 32.19 per cent. Similarly the net return and BC ratio was also found to be higher by Rs. 10,030 and 0.46 with the assessed technology. The technology is effective for Irrigated/semi-irrigated situation as it increases the crop yield and maintains the soil health and fertility for profitable crop production.

Details	No. of trials	Yield (q/ha)	No. of siliqua/ plant	Net Return (Rs/ha)	BC Ratio
(Farmers' practices)	36	7.99	44	14168.33	1.98
NPK+S (80:40:20)+30 kg S as elemental sulphur (Recommended practice)		9.74	67	22867.33	2.03

Acid soil Management through lime in Maize

Problem identified : Poor yield of Maize due to soil acidity and improper nutrient management

Technology Assessed : Assessment of lime and FYM in Maize

In India, approximately one-third of the cultivated land is affected by soil acidity. Crop productivity on such soils is mostly constrained by aluminium (Al) and iron (Fe) toxicity, phosphorus (P) deficiency, low base saturation, impaired biological activity and other acidity-induced soil fertility and plant nutritional problems. Soil acidity management and crop productivity improvement on such soils is therefore important for enhancing crop productivity. Lime application along with integrated nutrient management is often recommended to increase the availability of essential nutrients. Keeping above issue KVK Ganjam-I, Ganjam-II, Balrampur and Rayagada conducted 32 trials to assess the impact of lime and FYM in Maize. Data from the table revealed that the crop yield was 28 per cent higher over the farmers' practice. The number of grains per cob was also increased by 28 per cent. Similarly the net return and BC ratio was also found to be higher by Rs. 12442 and 0.21with the assessed technology. The technology is effective as it increases the crop yield and

maintains the soil health and fertility.

Details	No. of trials	Yield (q/ha)	Grains/cob	Net Return (Rs/ha)	BC Ratio
(Farmers' practices)	32	33.35	145	24305	1.70
RDF (120:60:40) + Application of lime @0.2 LR (Recommended practice)		42.7	187	36747	1.91

Integrated Nutrient Management in Brinjal

Problem identified : Low yield of brinjal due to imbalance fertilization and no use of sulphur

Technology Assessed : Assessment of Integrated Nutrient management in Brinjal

Brinjal is an important vegetable crop grown across the zone. Imbalanced/indiscriminate uses of fertilizers and no use of organic sources are the major reasons for declining the yield of brinjal. Farmers are not using organic inputs and balanced dose of fertilizers; hence, the status of these nutrients is declining in the soil which is affecting fertility and soil health. KVK Jagatsinghpur, Keonjhar and Dhamtari conducted 31 on farm trials to assess the the effect of INM in Brinjal. Results showed that the fruit yield was 23.74 per cent higher over the farmers' practice. Average fruit weight also increase by 55 per cent. The net return and BC ratio was also found to be higher by Rs. 18060 and 0.41with the assessed technology.

Details	No. of trials	Yield (q/ha)	Fruit weight (gm)	Net Return (Rs/ha)	BC Ratio
(Farmers' practices)	31	246.35	145	68620	1.86
RDF + biozyme soil application 20kg/ha (Recommended practice)		304.85	225	86680	2.27

Integrated Nutrient Management in Okra

Problem identified : Low yield of Okra due to imbalance fertilization

Technology Assessed : Assessment of Integrated Nutrient management in Okra

Farmers are not using organic inputs and balanced dose of fertilizers; hence, the status of major and micro nutrients is declining in the soil which is affecting fertility and soil health. KVK Jagatsinghpur, Keonjhar and Dhamtari conducted 39 on farm trials to assess the the effect of INM in okra. Results showed that the fruit yield was 29.77 per cent higher over the farmers' practice. The number of number of fruits per plant was also increased by 70 per cent. The net return and BC ratio was also found to be higher by Rs. 32964 and 0.53 with the assessed technology.

Details	No. of trials	Yield (q/ha)	No. of fruits/ plant	Net Return (Rs/ha)	BC Ratio
(Farmers' practices)	39	108.13	12	54016	1.96
(Recommended practice)		140.33	20.5	86980	2.49

Boron Management in Cauliflower

Problem identified : Low yield and small curds of cauliflower due to Boron deficiency

Technology Assessed : Assessment of Boron in cauliflower

Cauliflower yield is affected by a number of factors including seed, nursery, nutrient and crop management practices etc. Farmers are not applying balanced dose of fertilizers for major nutrients as well as boron, KVK Badwani, Raigarh and Mayurbhanj conducted 22 on farm trials to assess the response of boron with RDF (NPK @ 120:60:60 kg/ha + Boron @ 1 kg/ha) on cauliflower. Results showed that the yield was 19.08 per cent higher over the farmers' practice. The unit curd weight also increased by 23 per cent. Similarly the net return and BC ratio was also found to be higher by Rs. 67146 and 1.0 with the assessed technology. The technology is effective as it increases the yield and maintains the soil health and fertility.

Table: Effect of INM with boron on performance of cauliflower

Details	No. of trials	Yield (q/ha)	Curd wt. (kg)	Net Return (Rs/ha)	BC Ratio
NPK @ 46:58:0 kg/ha and no use of boron (Farmers' practices)	22	227.93	1.0	148470	3.61
NPK @ 120:60:60 kg/ha + Boron @ 1 kg/ha (Recommended practice)		271.44	1.23	215616	4.61

Boron Management in Tomato

Problem identified : Low yield of Tomato due to non judicious nutrient management

Technology Assessed : Assessment of Boron application for management of fruit cracking in Tomato

Tomato is one of the most important and popular vegetables across the zone. It is a cheap source of vitamin-C. Adequate supply of nutrient can increase the yield, fruit quality, fruit size, keeping quality, colour, and taste of tomato. Micronutrient deficiencies are one of the major limiting factors for crop production. Among the micronutrients, boron plays an important role in improving the yield and quality of tomato in addition to checking various diseases and physiological disorders. KVK Guna, Korba and Raigada conducted 24 on farm trials to assess the response of boron with RDF (RDF + Boron @ 1 kg/ha). Results showed that the yield was 22per cent higher over the farmers' practice. Fruit crack per 25 plants is also reduced by 61 per cent. Similarly the net return and BC ratio was also found to be higher by Rs. 25,629 and 0.47 with the assessed technology. The technology is effective as it increases the yield and maintains the soil health and fertility.

Details	No. of trials	Yield (q/ha)	Fruit crack/25 plants	Net Return (Rs/ha)	BC Ratio
no use of boron (Farmers' practices)	24	305.57	5.13	97450	2.8
RDF + Boron @ 1 kg/ha (Recommended practice)		375.30	3.17	123079	3.27

Integrated Plant Nutrient Management

Fertilizer is one of the costliest inputs in agriculture and the use of right amount of fertilizer is fundamental for profitability and environmental protection. To enhance profitability under different soil-climate conditions, it is necessary to have information on optimum doses for crops. Traditionally, to determine the optimum fertilizer doses of most appropriate method is to apply fertilizer on the basis of soil test and crop

response studies. But now day crop yield stagnation as well as no further increment in crop yield is emerging challenge for researchers. One of the reasons for lower production of crops are imbalanced fertilization of N, P and K nutrients. The most comprehensive approach of fertilizer application by incorporating soil test values, nutrient requirement of the crop, contribution of nutrients from soil, manures, fertilizers and fixing yield-targets is possible only through Soil Test Crop Response (STCR) approach. Keeping this in view, On Farm Trials on assessment of STCR based nutrient management in Rice, Soyabean, Wheat, Maize and Chickpea was conducted by different KVKs of the zone.

Problem identified : Low yield of Rice due to imbalanced and inadequate use of fertilizers

Technology Assessed : Assessment of STCR based nutrient management in Rice

KVK Jashpur, Korea, Mahasamund, Surguja, Sundargarh, Ganjam-II, and Beejapur conducted 46 on farm trials to assess STCR based nutrient management in Rice during Kharif 2014-15. Results revealed that crop yield was 33% higher over the farmers' practice. Number of panicles per m2 is also increased by 88 per cent. Similarly the net return and BC ratio was also found to be higher by Rs. 23,256 and 0.20 with the assessed technology. The technology is effective as it increases the yield and maintains the soil health and fertility.

Details	No. of trials	Yield (q/ha)	Panicles/m2	Net Return (Rs/ha)	BC Ratio
(Farmers' practices)	46	33.31	136	30532	1.97
STCR based fertilizer recommendations (Recommended practice)		44.40	256	53788	2.17

Problem identified : Low yield of Soybean due to imbalanced and inadequate use of fertilizers

Technology Assessed : Assessment of Site Specific Nutrient Management (SSNM) for realizing full potential of Soybean

Soybean is an important oilseed crop among the oilseeds grown across the zone. Imbalanced/indiscriminate use of major plant nutrients and no use of sulphur are the major reasons for declining yield of soybean. KVK Shahdol, Khargone, Guna and Sehore of zone planned and conducted 34 on farm trials to assess the impact of Site Specific Nutrient Management (SSNM) in soybean. Results showed that the crop yield was 26 per cent higher over the farmers' practice. The number of pods per plant was also increased by 29 per cent. Similarly the net return and BC ratio was also found to be higher by Rs. 6246 and 0.13 with the assessed technology. The technology is effective for Irrigated/semi-irrigated situation as it increases the crop yield and maintains the soil health and fertility for profitable crop production.

Details	No. of trials	Yield (q/ha)	No. of pods/ plant	Net Return (Rs/ha)	BC Ratio
(Farmers' practices)	34	12.36	28.97	19572	2.17
STCR based fertilizer recommendations (Recommended practice)		15.56	37.50	25818	2.30

Problem identified : Low yield of wheat due to imbalanced and inadequate use of fertilizers

Technology Assessed : Assessment of STCR based nutrient management in Wheat

Imbalanced/indiscriminate use of plant nutrients are one of the major reasons for declining yield of

wheat. KVK Janjgir-Champa, Jashpur, Korba, Raigarh, Surguja, Balrampur, Hoshangabad and Guna conducted 41 trials to assess the impact of Site Specific Nutrient Management (SSNM) in wheat. Results revealed that the crop yield was 26 per cent higher over the farmers' practice. The number of pods per plant was also increased by 29 per cent. Similarly the net return and BC ratio was also found to be higher by Rs. 6246 and 0.13 with the assessed technology. The technology is effective for Irrigated/semi-irrigated situation as it increases the crop yield and maintains the soil health and fertility for profitable crop production.

Details	No. of trials	Yield (q/ha)	No. of tillers/ plant	Net Return (Rs/ha)	BC Ratio
(Farmers' practices)	41	27.54	12	27018	2.03
STCR based fertilizer recommendations (Recommended practice)		35.35	17	29309	2.41

Problem identified : Low yield of maize due to imbalanced and inadequate use of fertilizers

Technology Assessed : Assessment of STCR based nutrient management in Maize

KVK Jhabua and Beejapur of zone planned and conducted 14 on farm trials to assess the impact of Site Specific Nutrient Management (SSNM) in maize. Results showed that the crop yield was 26 per cent higher over the farmers' practice. The number of pods per plant was also increased by 29 per cent. Similarly the net return and BC ratio was also found to be higher by Rs. 6246 and 0.13 with the assessed technology. The technology is effective for Irrigated/semi-irrigated situation as it increases the crop yield and maintains the soil health and fertility for profitable crop production.

Details	No. of trials	Yield (q/ha)	No. of grains/ cobb	Net Return (Rs/ha)	BC Ratio
(Farmers' practices)	14	25.47		13255	3.17
STCR based fertilizer recommendations (Recommended practice)		33.85		22180	4.33

Problem identified : Low yield of chickpea due to imbalanced and inadequate use of fertilizers

Technology Assessed : Assessment of STCR based nutrient management in Chickpea

Chickpea is an important pulse crop grown across the zone. Imbalanced/indiscriminate use of plant nutrients is the major reasons for declining yield of chickpea. Looking the above problem on priority, KVK Shahdol, Korba, Rajnandgaon, Jhabua and Jabalpur of zone planned and conducted on farm trials to assess the impact of STCR based nutrient management in Chickpea. Results revealed that crop yield was 55 per cent higher over the farmers' practice. The number of pods per plant was also increased by 29 per cent. Similarly the net return and BC ratio was also found to be higher by Rs. 8049 and 0.32 with the assessed technology. The technology is effective for Irrigated/semi-irrigated situation as it increases the crop yield and maintains the soil health and fertility for profitable crop production.

Details	No. of trials	Yield (q/ha)	No. of pods/ plant	Net Return (Rs/ha)	BC Ratio
(Farmers' practices)	35	10.37	31	18662	2.18
STCR based fertilizer recommendations (Recommended practice)		16.13	40	26711	2.50

Integrated Pest Management for pod borer in Chickpea

Problem identified : Low yield due to local variety (Khazoa), use of Imbalance dose of fertilizers, heavy infestation of insect pest and incidence of wilt

Technology Assessed : Assessment of Beaveria basseiana & Profenophas against pod borer in Chick pea

Pod borer in gram is a major pest responsible for heavy reduction (20-35%) in yield. KVK Balaghat , katni and sagar in Madhya Pradesh and Kawardha, Dhamtari and Rajnandgoan in Chhattishgarh conducted on farm trial for assessing the integrated management module for pod borer in Chickpea. Result of the on farm trial showed that the yield was increased by 22.3% and insect infestation was decreased by 259.67 %.The net return and BC ratio were increased Rs. 2650 per ha and 0.40 respectively . Farmers are satisfied to this technology for pod borer management and they realized that IPM modules in chickpea are better than only use of chemical insecticide.

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

Details	No. of trials	Yield (q/ha)	Insect infestation (%)	Net Return (Rs/ha)	BC Ratio
Indiscriminate use of insecticide (Farmer's Practices)	25	8.34	17.32	25200	2.5
Deep summer ploughing +JG-16, Seed treatment by tricodarma viride & 5g/kg seed + Vitavex @ 2.5 g/ kg of seed T3 - T2+ Pheromone trap@10/ha+ bird percher@50/ha+ spray of Perfenophas@1.5 lit/ha of water. (Recommended practice)		10.2	6.67	31450	2.9

Integrated Pest Management for Thrips in Onion

Problem identified : Yield losses due to thrips infestation in onion

Technology Assessed : Assessment of IPM practices for management of thrips in onion

KVK Angul from Odisha assessed the performance of Imidachloprid for effectively managing the thriphs. They also found it effective in minimizing thrips and reduced the insect infestation 584.95 % and increased the yield by 47.17%. The net return due to use of this technology increased by Rs. 80,304 per ha. Farmers were satisfied with this technology for thrips management and they realized that imidachloprid is one of the best options for management thriphs. The farmers were involved through training, field day and field visit during the crop growth and at the time of harvesting.

Table : Performance of IPM for thrips management in Onion

Details	No. of trials	Yield (q/ha)	Net Return	Insect infestation (%)	BC Ratio
Indiscriminate use of insecticide (Farmer's Practices)	10	99.95	86937	13.22	2.89
Basal application of neem cake and alternate spraying of multineem and imidacloprid effectively controlled thripes) (Recommended practice)		147.1	167241	2.26	4.67

Integrated Management of sucking pests in Soybean

Problem identified : Low yield of Soybean due to heavy infestation of YVMV

Technology Assessed : Assessment of trichoderma viride in soybean crop variety 95-60

KVK Chindwara, Narsinghpur and harda from Madhya Pradesh conducted on farm trials for assessing the Integrated management of girdle beetle in soybean. Results showed that the yield was increased by 24.61% and insect infestation was decreased by 673.04 %. The net return and BC ratio were increased by Rs. 8153.33 per ha and 0.35 respectively given in Table below.

Table : Performance of Integrated management of IPM in soybean

Details	No. of trials	Yield (q/ha)	Net Return	Insect infestation (%)	BC Ratio
No use of chemical (Farmer's Practices)	30	8.39	11113.33	35.56	1.32
Deep summer ploughing + thiomethaxam 30SL @ 10ml/lit at 20 days interval (Recommended practice)		11.13	19266.66	4.6	1.67

Management of Brown Plant Hopper in Paddy

Problem identified : Low yield of Paddy due to heavy infestation of brown plant hopper (BPH)

Technology Assessed : Assessment of Buprofenzin for management of BPH in Paddy

KVK Bolangir, Dhenkanal, Gajapati, Nayagarh, Jagatsinghpur from Odisha and Janjgir champa from Chhattishgarh, were conducted on farm trials for assessing the performance of Buprofenzin for management of BPH in paddy. Provision of alleyways of 30 cm width after every 2-3 meter in field + foliar spray of Buprofenzin- 25% SC@ 0.75-1.0 lit./ ha at ETL (10 insect/hill at vegetative stage while , 20 insect/ hill at post flowering stage) used for managing the pest. Results of the on farm trial showed that the yield was increased by 20.12% and no. of nymph and adult /hills was decreased by 296.34 %. The net return and BC ratio were increased by Rs. 5,946.8 per ha and 0.18 respectively given in Table beow.

Table : Performance of Buprofenzin for management of BPH in Paddy

Details	No. of trials	Yield (q/ha)	Net Return	Nymph & adult population /hill (No.)	BC Ratio
No use of chemical (Farmer's Practices)	63	36.63	20654.2	32.5	1.84
Provision of alleyways of 30 cm width after every 2-3 meter in field + foliar spray of Buprofenzin- 25% SC@ 0.75-1.0 lit./ ha at ETL (10 insect/hill at vegetative stage while, 20 insect/ hill at post flowering stage). (Recommended practice)		44.0	26601.0	8.2	2.02

Integrated Management of stem borer in Paddy

Problem identified : Low yield of Paddy due to heavy infestation of stem borer

Technology Assessed : Assessment of Integrated management stem borer in Paddy

KVK Dindori from Madhya Pradesh, Kawardha, Narayanpur, Rajnandgoan, from Chhattishgarh, Jajpur, Kandhamal, Kendrapada, Cuttack and Nabarangpur from Odisha were conducted an on farm trial for assessing the Integrated management of stem borer in paddy. Application of Fipronil 0.3G @ 33 kg/ha at 5 to 7 days before transplanting, Clipping of leaf tips of the seedlings at a time of transplanting , Foliar spraying of Indoxacarb 14.5 SC @ 75 a.i. /ha. at 30 and 60 DAT and installation of pheromone trap @ 20/ha ETL (5-10% dead hearts) used for managing the pest. Results of the on farm trial showed that the yield was increased by 41.30% and no. of nymph and adult /hills was decreased by 66.34 %. The net return and BC ratio were increased by Rs. 11095.00 per ha and 0.5 respectively given in Table below.

Table : Performance of Integrated management of stem borer in paddy

Details	No. of trials	Yield (q/ha)	Net Return	Dead Heart plant (%)	BC Ratio
No use of chemical (Farmer's Practices)	12	23.00	22230	11	3.1
Application of Fipronil 0.3G @ 33 kg/ha at 5 to 7 days before transplanting in nursery + Clipping of leaf tips of the seedlings at a time of transplanting + installation of pheromone trap @ 20/ha+ Foliar spraying of Indoxacarb 14.5 SC @ 75 a.i. /ha at 30 and 60 DAT at ETL (5-10% dead hearts). (Recommended practice)		32.5	33325	5	3.6

Management of leaf minor in Tomato

Problem identified : Low yield of Tomato due to heavy infestation of leaf minor

Technology Assessed : Assessment of Trizophos and Cyomaizine for management of leaf minor in tomato

KVK Balasore and Gajapati from Odisha were conducted on farm trial for assessing the performance of

Trizophos and Cryomaicine against leaf minor in tomato. Application of one spray of Trizophos 40 EC@ 1.0 lit./ha followed by Cryomaicine 75 WP @ 400g/ha 15 days after Ist spray for managing the pest. Result of the on farm trial showed that the yield was increased by 29.94% and per cent leaf minor infestation was decreased by 190.6 %. The net return and BC ratio were increased by Rs. 29,330.0 per ha and 0.30 respectively given in Table below.

Table : Performance of Trizophos and Cyomaizine for management of leaf minor in tomato

Details	No. of trials	Yield (q/ha)	Net Return	Infestation (%)	BC Ratio
No use of chemical (Farmer's Practices)	26	197	77060	9.3	2.25
One spray of Trizophos 40 EC@ 1.0lit./ha followed by Cryomaicine 75 WP @ 0.25g/lit.of water 15 days after Ist spray (Recommended practice)		256.3	106390	3.2	2.55

Management of thrips & mite in Chilli

Problem identified : Low yield of chili due to severe infestation of thrips & mite. reduces yield upto 55% in 300 ha area

Technology Assessed : Assessment of Chlorfenpyre 10 % SC against thrips & mite complex in chili

KVK katni, Seoni and narsingpur from Madhya Pradesh and Bastar from Chhattisgarh were conducted on farm trials for assessing the performance of yellow sticky trap against sucking insect in chilli. Application of Chlorfenpyre 10 % SC for managing the sucking pest of chilli. Results of the on farm trial showed that the yield was increased by 41.46% and insect population / m2 infestation was decreased by 338.21.6 %. The net return and BC ratio were increased by Rs. 60,302 per ha and 1.08, respectively given in Table.

Table : Performance of Yellow sticky trap for management of sucking insect in Chilli

Details	No. of trials	Yield (q/ha)	Net Return	% of pest infestation	BC Ratio
No use of chemical (Farmer's Practices)	15	116.06	136792	18.94	3.70
Application of Chlorfenpyre 10 % SC (Recommended practice)		164.19	197094	5.6	4.78

Integrated Disease Management

Blast in Paddy

Problem identified : Low yield of paddy due to high incidence of blast disease

Technology Assessed : Assessment of tricylaozole and Kasugamycin against blast of rice

Incidence of blast severely damages the paddy crop especially in the old varieties. KVK Katni, Batul from Madhya pradesh and rayaguda, Jagatsinghpur from Odisha conducted on farm trials on blast management in

paddy. Tricyclozole @ 0.15% was used for blast management. Results of the on farm trial showed that the yield was increased by 30.05 % and blast incidence was decreased by 309.23 %. The net return and BC ratio were increased by Rs. 11198 per ha and 1.00 respectively.

Table : Performance of tricyclozole for blast management in paddy

Details	No. of trials	Yield (q/ha)	Disease incidence (%)	Net Return	BC Ratio
Indiscriminate use of any fungicide after severe infestation (Farmer's Practices)	34	23.73	26.6	26097.50	2.6
Application of Tricyclazole 0.15% + optimum dose of nitrozen (Target 35.21q/ha) (Recommended practice)		33.91	6.5	37295.50	3.6

Wilt Management in Chickpea

Problem identified : Low yield due to infestation of wilt in Chickpea

Technology Assessed : Assessment of Integrated disease management (IDM) Module against wilt (Fusarium Oxysporum) in Gram

Remarkable reduction in yield has been observed due to heavy wilt incidence in Gram. KVK Betual and Harda from Madhya Pradesh had conducted on farm trials on wilt management in Chick pea. IDM module i.e. summer plaughing + seed treatment by Carboxin + Thiram @ 3 gram/kg seed + soil treatment with Trichoderma viridae @ 5 kg/ha with 50 kg vermicompost was assessed for wilt management.Results of the on farm trial showed that the yield was increased by 8.59 % and wilt incidence was decreased by 40 %. The net return and BC ratio were increased by Rs. 9010 per ha and 0.48 respectively. Farmers were satisfied with this technology for wilt management in chick pea and they realized that IDM module is only option for wilt management.

Table : Performance of Integrated wilt management module in pigeon pea

Details	No. of trials	Yield (q/ha)	Disease incidence (%)	Net Return	BC Ratio
No seed treatment / seed treatment with Thiram @ 2g/ kg seed (Farmer's Practices)	10	13.76	19.56	25172	2.67
summer ploughing + seed treatment by Carboxin + Thiram @ 3 gram/ kg seed + soil treatment with Trichoderma viridae @ 5 kg/ha with 50 kg vermicompost (Recommended practice)		14.91	7.96	34182	3.15

Leaf curl Management in Chilli

Problem identified : Low yield of chilli due to LCV

Technology Assessed : Assessment of Thiomethoxam and Imidacloprid for the management of leaf curl disease in chilli

KVK Damoh, Dhar, Harda, Sidhi from Madhya Pradesh and Jajpur from Odisha conducted on farm trials on leaf curl management in chilli. IDM module i.e. seed treatment with Thiomethaxom -75WG @3 g/ kg + One

Spray of NSKE @ 5 % and one spray of Imidacloprid @ 125 ml/ ha before flowering at 15 days interval was assessed for leaf curl management. Result of the on farm trial showed that the green chilli yield was increased by 27.40 % and disease incidence was decreased by 138.61 %. The net return and BC ratio were increased by Rs. 49,498 per ha and 0.8 respectively. Farmers were satisfied with this technology for leaf curl management in chilli.

Table : Performance of IDM module for leaf curl management in chilli

Details	No. of trials	Yield (q/ha)	Disease incidence (%)	Net Return	BC Ratio
Spray of insecticides (Farmer's Practices)	33	155.58	21.07	113303	3.68
Thiomethaxom -75WG @3 g/ kg + One Spray of NSKE @ 5 % and one spray of Imidacloprid -17.8SL @ 125 ml/ ha before flowering at 15 days interval (Recommended practice)		198.22	8.83	162801	4.48

Mungbean Yellow Mosaic Viral Disease Management in Black gram

Problem identified : Low yield of Mandarin due to incidence of dieback & gummosis disease

Technology Assessed : Assessment of dieback & gummosis disease in Nagpur mandarin (in 9 year old orchard)

Dieback & gummosis disease of mandarin is a major disease causes up to 80 % yield loss in mandarin due to use of susceptible varieties and non adoption of suitable integrated disease management module for management. KVK Chhindwara from Madhya Pradesh have conducted on farm trials on dieback & gummosis disease in Nagpur mandarin (in 9 year old orchard). Results of the on farm trial showed that mandarin yield was increased by 43 % and disease incidence was decreased by 103.16 %. The net return and BC ratio were increased by Rs. 12,007.5 per ha and 0.64 respectively. Farmers were satisfied with this technology for MYMV management in Black gram.

Table : Performance of Thiomethaxom for management MYMV in black gram

Details	No. of trials	No. of fruits per tree (%)	Net Return	BC Ratio
Spray of insecticides (Farmer's Practices)	10	90	225000	5
IDM in Nagpur mandarin (Recommended practice)		110	280000	5.6

Leaf curl Management in Tomato

Problem identified : Low yield of tomato due to severe incidence of leaf curl disease

Technology Assessed : Assessment of Imidachloprid for leaf curl management in tomato

Leaf curl in tomato is a major disease causes heavy yield loss in tomato due to use of susceptible varieties and nonadoption of suitable leaf curl management technology. KVK Katni, from Madhya Pradesh and Sambalpur from Odisha have conducted on farm trials on leaf curl management in tomato. Leaf curl management technology i.e. seed treatment with seed treatment with Imidacloprid-70WS @5 g/ kg + One

Spray of NSKE @ 5 % and one spray of Imidacloprid @ 125 ml/ ha before flowering at 15 days interval was assessed for leaf curl management. The result of the on farm trial showed that the tomato yield was increased by 193.45 % and disease incidence was decreased by 107.00 %. The net return and BC ratio were increased by Rs. 58784.9 per ha and 0.75 respectively.

Table : Performance of IDM module for leaf curl management in Tomato

Details	No. of trials	Yield (q/ha)	Disease incidence (%)	Net Return	BC Ratio
Spray of insecticides (Farmer's Practices)	74	280.26	24.07	160224.8	4.25
Seed treatment with Imidacloprid- 70WS @5 g/ kg + One Spray of NSKE @ 5 % and one spray of Imidacloprid @ 125 ml/ ha before flowering at 15 days interval (Recommended practice)		367.16	11.5	219009.7	5.00

Weed Management

Weed Management in Paddy

Problem identified : Low yield of paddy due to heavy weed infestation

Technology Assessed : Assessment of chlorimuron ethyl +Met- sulpharon methyl for weed management in paddy

In general, yield of paddy are decreased by 30-35% due to infestation of narrow and broad leaved grassy weeds. Farmers are not using herbicide on time for weed management effectively; hence the crop yield is adversely affected. KVK sahdol, shidhi, hosangabad, Ganjam-I, conducted on farm trials to assess the the response of bispyribac sodium 10 SC for weed management in paddy. Results showed that the yield was 28.58 per cent higher over the farmers' practice. The number of weeds per m2 was reduced by 781.33 per cent. Similarly the net return and BC ratio was also found to be higher by Rs. 23,255 and 0.51 with the assessed herbicide.

Table : Response of bispyribac sodium for weed management in paddy

Details	No. of trials	Yield (q/ha)	No. of weeds /m2	Net Return (Rs/ha)	BC Ratio
One mannual weeding (Farmers' practices)	31	31.21	67.17	40902	2.00
Use of chlorimuron ethyl +Met- sulpharon methyl for weed management in paddy (Recommended practice)		40.13	8.6	64157	2.51

Weed Management in Wheat

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

Technology Assessed : Assessment of sulphosulfuron + metsulfuron methyl for weed management in wheat

Farmers are not following weed management practices due to which the wheat yield is adversely affected. Looking the above problem, KVK Sidhi and betul conducted on farm trials to assess the the response of sulphosulfuron 75% WP (25 g a.i./ha) + metsulfuron methyl 5% WP (6 g a.i./ha) for weed management in wheat. Results showed that the yield was 44.51 per cent higher over the farmers' practice. The number of weeds per m2 was reduced by 717.85 per cent with the assessed technology. The net return and BC ratio was also found to be higher by Rs. 12,465 and 0.67 with the assessed herbicides.

Table : Response of sulphosulfuron + metsulfuron methyl for weed management in wheat

Details	No. of trials	Yield (q/ha)	No. of weeds /m2	Net Return (Rs/ha)	BC Ratio
One mannual weeding (Farmers' practices)	14	21.16	40.2	21460	3.08
Use of sulphosulfuron75% WP (25 g a.i./ha) + metsulfuron methyl 5% WP (6 g a.i./ha) at 25 DAS (Recommended practice)		30.58	5.6	33925	3.75

Weed Management in Chickpea

Problem identified : Low yield of chickpea due to heavy weed infestation of narrow and broad leaved weeds

Technology Assessed : Assessment of Pendimethalin for weed management in chickpea

KVK Gwalior and Hoshangabad of the zone conducted 10 on farm trials to assess the response of Pendimethalin for as preemergence weed management in chickpea. The herbicide was applied @ 1.0 kg/ha within 48 hours of crop sowing. The results showed that the yield was 17.97 per cent higher over the farmers' practice. The number of weeds per m2 was reduced by 846.6 per cent. The net return and BC ratio was found to be higher by Rs. 2,680 and 0.16 with the assessed herbicide.

Table : Response of Pendimethalin for weed management in chickpea

Details	No. of trials	Yield (q/ha)	No. of weeds /m2	Net Return (Rs/ha)	BC Ratio
One mannual weeding (Farmers' practices)	10	7.68	42.6	7125	1.52
Use of Pendimethalin @ 1.0 kg/ha as pre-emergence (Recommended practice)		9.06	4.5	9805	1.68

Small Scale Income Generating Enterprises

Weed Management in Paddy

Problem identified : Less income due to high mortality of seedlings rising in open field

Technology Assessed : Assessment of Improved nursery management for income generation (vegetable)

Seven KVK's from Odisha viz. Deogarh, Dhenkanal, Balasore, Angul,Sambalpur ,Bolangir,kendranara conducted 52 trials to assess the low cost plastic tray technique for nursery raising. Improved method of nursery raising (seedling plastic tray mixture of cocopit 1:2:1:1 cocopit + fym +soil+ send for increasing germination with reduced mortality. The trails revealed that the best performance of 60.0 per cent higher seedlings over farmers practice with 90% damping off control and 78% weed control. Similarly the net return and BC ratio were higher by Rs. 1640 and 4.56 . The trails revealed that the performance of low cost plastic tray technique for nursery raising was more profitable than the farmers practice.

Table : Performance polytunnel technique for nursery raising

Details	No. of trials	Production per Unit (Seedling)	Cost of Input(Rs/Unit)	Incremental (%)	Net return (Rs/bed)	BC Ratio
Traditional nursery in open field (Farmers Practice)	52	2500	240	1250	1010	
Improved method of nursery raising (seedling plastic tray mixture of cocopit 1:2:1:1 cocopit + fym +soil+ send (Recommended practice)		4000	360	2000	1640	4.56

Problem identified : Low yield due to non availability of alternative high yielding species

Technology Assessed : Assessment of yield potential of Oyster mushroom Sp. Pleurotus eryngii

Non availability of suitable and improved oyster mushroom species influences greatly its production. By introducing high yielding species the oyster mushroom can be enhanced. KVK Khurda, Sambalpur,Badwa ni,Balasore,sundargarh from Orissa conducted 59 trials to assess the performance of oyster mushroom sp. Pleurotus eryngii. Results revealed that 33.33 per cent higher mushroom obtained over farmers practice with species influences. Similarly the net return per bed and 0.5 kg/beg higher over farmers practice. The trails revealed that the performance of oyster mushroom (Pleurotus eryngii) was more profitable than the local mushroom species.

Table : Performance of Oyster mushroom Sp. Pleurotus eryngii

Details	No. of trials	Production per Unit (Seedling)	Cost of Input(Rs/Unit)	Incremental (%)	Net return (Rs/bed)	BC Ratio
Local mushroom species (Farmers Practice)	59	1.5	56	160	94	
Oyster Mushroom (Pleurotus eryngii) (Recommended practice)		2	56	200	145	

Problem identified : Poor utilization of paddy straw

Technology Assessed : Refinement of low cost paddy straw mushroom

KVK shajapur,Ujjain,harda conducted 18 trials with disinfection of straw with Bavistin (8gms) + Formaline (100ml)/100lits/water and using rice bran(200gms/bed) for low cost paddy straw mushroom. Results showed an increase 10 % in the production over the farmer's practice. Net return showed an increase of Rs 18.75% over farmer practice.

Table : Performance of low cost paddy straw mushroom

Details	No. of trials	Production per Unit (Kg/bed)	Cost of Input(Rs/ Unit)	Incremental (%)	Net return (Rs/ bed)
15 kg of Straw (Farmers Practice	18	1.5	70	150	80
7.5 kg of Paddy straw (Recommended practice)		1.65	70	165	95

Drudgery Reduction

Problem identified : Drudgery & low output due to use of cutter for dehusking coconut

Technology Assessed : Assessment of Coconut Dehusker (sitting type) for drudgery reduction of farm women

A total of 25 trials were conducted by KVK Balasour,Bhadrak (Odisha) for Assessment of Coconut Dehusker (sitting type) for drudgery reduction of farm women.

Results revealed that use of Coconut Dehusker (sitting type) showed an increase of 18.51% output with reduction in drudgery.

Table : Performance of Coconut Dehusker (sitting type) for dehusking coconut

Details	No. of trials	Output (no/hour)	Est. Energy	WHR beat/ min	% Reduction	% Increase
Mannual cleaning (Farmers Practice)	25	108	16.9	122.5	-	-
Coconut Dehusker (Recommended practice)		128	14.9	109	11.83	18.51

Problem identified : high Drudgery & low Efficiency due to manual threshing of sunflower

Technology Assessed : Assessment of Sunflower thresher for drudgery reduction

A Total of 13 Trails were conducted by KVK Keonjhar(Odisha) during for the assessment of sunflower Thresher for drudgery Reduction of farm women. Results revealed that use of sunflower Thresher showed an increase of 202.63% output with reduction in drudgery.

Table : Performance of Sunflower thresher for drudgery reduction

Details	No. of trials	Output (no/hour)	Est. Energy	WHR beat/ min	% Reduction	% Increase
Manual (Farmers Practice)	13	3.8	11.15	125	-	-
Sunflower thresher (Recommended practice)		11.5	9.08	112	22.79	202.63

Problem identified : Low efficiency's and high drudgery during weeding of soybean crop

Technology Assessed : Assessment of Improver weeding implements for drudgery reduction

A total of 20 trials were conducted by KVK Morena (M.P) during for the Assessment Improve weeding implements for drudgery reduction of farm women. Results revealed that use of Hand Wheel hoe showed an increase of 14% output with reduction in drudgery.

Table : Performance of Wheel hand Hoe

Details	No. of trials	Output (hour/h)	Est. Energy	WHR beat/ min	% Reduction	Increase in output (%)
Khurpi (Farmers Practice)	20	129	9.41	114.05	-	-
Wheel Hand Hoe (Recommended practice)		150	7.22	108.85	30.25	14

Problem identified : Low efficiency and high drudgery of farm women during Weeding of Pulse crop

Technology Assessed : Assessment of Twin wheel hoe for drudgery reduction and efficiency enhancement of farm women during weeding.

KVK Gwalior, Raigarh and Ratlam (M.P) assessed the technology and found that the output increased up to 132.15% as compared to traditional method and reduced drudgery up to 26.5%.

Table : Performance of Twin Wheel Hoe

Details	No. of trials	Output (m2 /h)	Est. Energy	WHR beat/ min	% Reduction	Increase in output (%)
Khurpi (Farmers Practice)	25	74.55	11.00	125	-	-
Twin Wheel Hoe (Recommended practice)		173.07	8.2	110.4	26.5	132.15

Problem identified : Low efficiency and high drudgery in farm women during seed grading.

Technology Assessed : Assessment of spiral seed grader(Soyabean & Pigeon pea) for drudgery reduction.

A total of 10 trials were conducted by KVK Hoshagabaad,Jabalpur (M.P), during for the Assessment of spiral seed grader (Soyabean & Pigeon pea) for drudgery Reduction of farm women Results revealed that use of spiral seed grader (Soyabean & Pigeon pea) showed an Efficiency of Spiral Grader 230 (Kg/hr) output & increase work efficiency of 73.4 % with reduction in drudgery.

Table : Performance of Spiral seed grader

Details	No. of trials	Output (kg/hr)	Reduction in drudgery (Beats/min)	% Increase Efficiency
Chhanna/Supa (Farmers Practice)	10	3	-	-
Spiral seed grader (Recommended practice)		230	52	73.4

Problem identified : More drudgery ,time taken &high labour cost for stripping groundnut

Technology Assessed : Assessment of groundnut stripper for drudgery reduction.

KVK Badwani (MP) and Kendrapara (Odisha) assessed the technology and found that the output increased up to 200% as compared to traditional method and reduced drudgery up to 45.21%

Table : Performance of Groundnut Stripper

Details	No. of trials	Output (kg/hr)	Est. Energy	Reduction %	Increase %
Manual stripping (Farmers Practice)	18	6.15	-	-	-
Groundnut Stripper (Recommended practice)		11.25	8.2	45.21	200

Problem identified : High drudgery and losses of cane involved in manual sugarcane bud chipping using by axe

Technology Assessed : Assessment of sugarcane bud chipper for drudgery reduction.

KVK Hoshangabaad(M.P), Bargarh, Gunjam -II (Odisha) assessed the chipping of sugarcane with sugarcane bud chipper and found that the working efficiency increased upto 79.08% and the drudgery was reduced by 47.75 %.

Table : Performance of sugarcane bud chipper for farm women

Details	No. of trials	Output (bud/hr)	WHR beat/min	% Reduction	% Increase
Manual chipping (Farmers Practice)	31	153	113	-	-
Sugarcane bud chipper (Recommended practice)		274	120	47.75	79.08

Problem identified : Low efficiency & high drudgery in harvesting paddy

Technology Assessed : Assessment of Padel operated Paddy Thresher for drudgery reduction of farm women.

KVK Khordha, Mayurbhani-II,Jashipur (Odisha) assessed the Padel operated Paddy Thresher during paddy Thershing. Result of this OFT showed that the use of Padel operated Paddy Thresher increased efficiency by 29.83% as compared to traditional practice. The net return was also increased by 33.25%.

Table : Performance of Padel operated Paddy Thresher

Details	No. of trials	Output (m2/hr)	Esst. energy	WHR beat/ min	% Reduction	% Increase
Manual Thershing (Farmers Practice)	26	15.12	21.1	136	-	-
Padel operated Paddy Thresher (Recommended practice)		30	14.85	125.25	19.5	40.8

Problem identified : High drudgery & low efficiency of farmwomen involved in threshing paddy manually

Technology Assessed : Assessment of power operated paddy thresher for drudgery reduction of farmwomen.

KVK Bolangir (Odisha) assessed the during power operated paddy thresher paddy thershing. Result of this OFT showed that the use of power operated paddy thresher increased efficiency by 29.83% as compared to traditional practice. The net return was also increased by 33.25%.

Table : Performance of power operated paddy thresher

Details	No. of trials	Output (m2/hr)	Esst.energy	WHR beat/ min	%Reduction	%Increase
Manual weeding (Farmers Practice)	13	35	18.86	124	-	-
Power operated paddy thresher (Recommended practice)		135	4.47	118	76.29	2.85

Storage

Problem identified : loss of store grain due to pest infestation

Technology Assessed : Assesemnt of grainpro superbag for safe storage of pulses

Storage lossess of grains occurs due to attack of store grain pests because of inappropriate storage. KVK Chhatarpur, Sagar (M.P), Gajapati (Odisha) of the zone conducted trials on proper storage of pulses to avoid looses due to attack of pulses weevil pest during storage. Grainpro superbeg for safe storage of pulses and 96 % yield increase was observed over farmers practice. Net return Rs 3406 & saving Rs 2256 and BC ratio was also higher with the assessed technology.

Table : Performance of grainpro superbag for safe storage of pulses

Details	No. of trials	Cost of Input(Rs/beg)	Yield(Kg/Beg)	Net Return (Rs/bag)	Saving Rs	BC ratio
Traditional storage practices (Farmers Practice)	25	15	25	1150	-	-
Grainpro Superbag (Recommended practice)		120	49	3406	2256	3.41

Problem identified : Spoilage of pulses due to Insect infestation

Technology Assessed : Assessment of storage bin for storing pulses

KVK Bargarh and Boudh (Odisha) conducted trial on mustard oil for controlling pulse beetle in green gram. Treated green gram with mustard oil @ 5ml/kg before storing. Time of storage of pulses increased by 11.9% with saving in Rs. 5200/-.

Table : Performance of mustard oil for controlling pulse beetle in green gram

Details	No. of trials	Grain damaged after six month (%)	Net return (Rs.)
Traditional system (Farmers Practice)	26	3.7	13500
Mustard oil for pulse beetle (Recommended practice)		15.6	18700

Value Addition

Farm women are still less aware about value addition to crops, forest produce and fruits for income and employment in the nutritional status of their families. Fourteen KVKs of the zone undertook trial for the assessment of the value addition aspect in the various areas which resulted in enhanced quality, rich nutritional status and higher net return of the value added products.

Problem identified : Lack of knowledge and skill about RTS preparation from raw stone apple

Technology Assessed : Assessment of preparation of RTS from stone apple

KVK Hoshangabaad (M.P) and Nuapada (Odisha) conducted trial on value addition of Apple . RTS preparation was the value added product prepared from apple. Results indicated that after value addition Rs. 2290.00 per ten kg net return was gained over the farmer's practice. The increase in net income was noted more than 7.5 times than the farmer's practice. Peanut butter has good nutritive value and can be stored for 5 months.

Table : Performance of preparation of RTS from stone apple

Details	No. of trials	Production per unit (Lit/unit)	Cost of Input(Rs/unit)	Incremental Income (Rs/unit)	Net return	Saving Rs
Lack of knowledge (Farmers Practice)	26	100	1280	1600	320	
RTS Preparation Recommended practice)		100	2380	5000	2620	2300

Problem identified : Less demand in market & no value addition of cashew apple

Technology Assessed : Assessment of income in value added product of cashew apple

KVK Jajpur (Odisha), Bilaspur (Chhatisgarh), Ujjain (M.P), conducted trial on value addition of fruits

(cashew apple) . Results indicated that after value addition of Cashew apple Rs. 900 was gained as net profit. The women involved in value addition were satisfied with the value addition technique.

Table : Performance of value addition of fruits and vegetables

Details	No. of trials	Production per unit(Rs/kg)	Cost of input (Rs/ Kg)	Incremental income (Rs/Kg)	Net return
No value addition (Farmers Practice)	38	38	30	-	30
Value addition of cashew apple (Recommended practice)		800	450	800	350

Problem identified : Low income of farm women due to no value addition in fruits like papaya cubit etc

Technology Assessed : Assessment of income generation of farm women through preparation of mixed fruits jam

KVK Rajgarh (MP) conducted trial on preparation of value added rose product- Gulkand, packaging and marketing. Results indicated that after value addition Rs. 13745 was gained as net profit. Value addition of rose flowers is appropriate for income generation of farm women.

Table : Performance of value added rose product Gulkand

Details	No. of trials	Production per unit (Kg/unit)	Cost of input (Rs/unit)	Incremental income (Rs/ Kg)	Net Return (Rs/Unit)	Saving (Rs/ unit)	B:c Ratio
No value addition (Farmers Practice)	05	17.5	650	23.01	150	-	-
Mixed fruits jam (Recommended practice)		25	2100	66.66	1400	3500	1.66

Income Generation

Problem identified : Low income due to backyard farming of marigold local species

Technology Assessed : Assessment of marigold var. cerakaole for income generation

Cultivation of local marigold species results in less return due to small flower size and less yield. Keeping above problem on priority, KVK Puri, Jagatsinghpur, Boudh, Nuapuda,Ganjam, Hoshangabad were conducted trials on improved marigold variety (Cirakole, African Marigold,Pusa Narangi,Bengal yellow) at farmer's fields. A total of Fifty five trials were conducted on best performance KVK Puri conducted trails on improved marigold variety Sirakaole. Results indicated that increase in flower yield was 41.46 per cent higher with improved variety over farmers practice. The number of flowers per plant was also higher (125 %) with the assessed variety. Similarly the net return and BC ratio was Rs. 52000 and 0.6 units higher with the improved variety. The variety is suitable with reference to flower yield and net return per unit area.

Table : Performance of marigold var. Cerakole for income generation

Details	No. of trials	Production per unit(qt.)	Cost of Input (Rs/unit)	Incremental income (Rs/unit)	Net Return (Rs./ha)	BC ratio
Local marigold species (Farmers Practice)	55	38	42000	80000	38000	-
Marigold var. Cerakole (Recommended practice)		75	52000	124800	72800	1.9

Problem identified : Low family income and seasonal unemployment of farm women

Technology Assessed : Assessment of back yard rearing of improved poultry breed

KVK Balasore, Jajpur, Koraput, Mayurbhanj and Sundargarh-I (Odisha) conducted trial on rearing of improved poultry breed in backyard. Increase in weight was recorded as 40.6% with incremental income of Rs.735/.

Table : Performance of back yard rearing of improved poultry breed

Details	No. of trials	Increase in wt. (kg/6 month)	Cost of input (Rs)	Incremental income (Rs)
Local breed (Farmers Practice)	65	3.2	120	2475
Improved poultry breed (Recommended practice)		4.5	750	3840

Farm Machinery

Problem identified : Low yield due to use of non-precision sowing implements

Technology Assessed : Sowing of crops with seed cum fertilizer drill

Seed sowing should be at proper depth, proper distance and with the fertilizers. Seed cum fertilizer drill place the seed at proper interval of distance and also place fertilizer just below or nearby the seed for maximum and efficient utilization. It saves seed, fertilizer, and time of operation and provides ease in inter-culture and plant protection operations. Seed cum fertilizer drill assessed by KVK Jajpur and Rajnadgaon for sowing of Paddy and Ground nut. Result showed 1.8 times field coverage, 43% more yield and 73% more net return by using seed cum fertilizer drill.

Table : Performance of improved implement Seed cum fertilizer drill

Details	No. of trials	Crop	Yield (q/ha)	Field capacity (ha/hr)	Net Return (Rs/ha)	B:C Ratio
Sowing with bullock-drawn sowing implements (Farmers' practices)	24	Paddy	37.2	0.57	19600	1.70
		Groundnut	22.00	0.015	50150	2.49
		Paddy	39.62	0.40	33993	1.48
Sowing with seed cum fertilizer drill (Recommended practice)		Paddy	39.60	0.163	22600	1.84
		Groundnut	23.50	0.163	58350	2.88
		Paddy	46.88	0.40	44617	2.36

Problem identified : High labour cost and time involved in manual random transplanting and line transplanting

Technology Assessed : Assessment of self propelled Rice Transplanter

Weeding operation is highly labour intensive. To overcome the labour demand for paddy trasplnter has been assessed by KVK- Denkanal and KVK- Mayurbhanj. This machine is self propelled. This machine can easily be operated by women as well. Results showed 10 times more labour effecient with additionally 7% more yields which ultimately gives 20.8% more net returns.

Table : Performance of improved implement Drum Seeder

Details	No. of trials (KVK)	Crop	Yield (q/ha)	Labour requirement (MDs/ha)	Net Return (Rs/ha)	B:C Ratio
Manually paddy transplanting (Farmers' practices)	26	Paddy	40.1	30	32300	1.89
By paddy transplanter (Recommended practice)			42.8	3	39028	2.14

Animal Feed Management

Problem identified : Poor nutrient diet results in the lack of essential mineral and vitamin requirement which leads to low production and profitability in milch animals

Technology Assessed : Assessment of mineral mixture and vitamin supplementation on the milk production of milch animals

Supplementation of minerals and vitamins is inevitable to achieve optimum health and production. Formulation of perfect mineral mixture needs special considerations, since the requirements of animals vary within different regions, species, age of animals, stage and level of production and the purpose for which the animals are reared. Supplementation increases the feed intake, feed conversion efficiency and productive performance of animals in terms of growth, reproduction and milk production. After diagnosing above problem KVK Burhanpur, Sehore, Sidhi (MP), Cuttack and Jajpur (Odisha) conducted OFT to assess the effect of mineral mixture and vitamin supplementation on the milk production of milch animal from calving

up to six month of lactation and observed 11.98 % increase in milk production per day per animal and 23.40% increase in net returns.

Table : Effect of min mix and vitamin supplement on production of milch animals

Details	No. of trials	Av. Milk yield (lit/ animal/4month)	Net Return (Rs.)	B:C ratio
Dry+green+cake without mineral mixture and vitamins supplement (Farmers' practices)	51	651	10512	1.56
Mineral and vitamin supplement @ 50 gram from date of calving to six month of lactation with balanced dry+green + concentrate (Recommended practice)		729	12972	1.65

Problem identified : Low milk yield and profitability due to lack of protein intakes

Technology Assessed : Assessment of feeding by pass protein in milch animals

When the highly degradable proteins are protected from ruminal degradation, proteins by pass rumen and more amino acids reach lower tract, and there is more supply of amino acids to the various body tissues. The excess supply of amino acids as a result of feeding bypass protein can partly be used for synthesis of milk proteins in mammary gland and partly used for the synthesis of glucose in liver which improves production performance of dairy animals, feed conversion efficiency of nutrients for growth and milk production and better economic returns. KVK Khandwa, Mandsour and Sidhi (MP) conducted OFT on Feeding bypass protein resulting in increase in avg. milk yield by 13.31 % and 21.43 % in net return.

Table : Performance of bypass protein

Details	No. of trials	Avg. Milk Yield (lit/ day/animal)	Net Return (Rs.)	B:C ratio
No feeding of bypass protein in the ration (Farmers' practices)	25	6.61	166.14	1.82
Feeding of bypass protein @ 100 gm each / animal / day after calving for three months. (Recommended practice)		7.49	201.74	1.96

Problem identified : Low milk yield due to deficiency of essential mineral in feed

Technology Assessed : Assessment of feeding chelated minerals in Milch animals

Chelated minerals improve performance, reproductive efficiency, hoof health and milk production with lower somatic cell counts. They can replace 25-40% of the supplementary inorganic minerals as a means of providing highly available trace minerals. To combat above diagnosed problem KVK Dhar, Sidhi and Tikamgarh (MP) conducted OFT on feeding chelated minerals in ration of milch animals resulting in increase avg. milk yield by 10.43 % and 28.27 percent increase in net return.

Table : Performance of chelated minerals

Details	No. of trials	Avg. Milk Yield (lit/ day/animal)	Net Return (Rs.)	B:C ratio
No feeding of chelated minerals in the ration (Farmers' practices)	32	5.56	96.00	2.88
Feeding of chelated minerals @ 100 gm each / animal / day (Recommended practice)		6.14	123.14	3.45

Problem identified : Low production due to unavailability of green fodder in the diet

Technology Assessed : Assessment of Azolla feeding for sustaining milk production

Azolla is a floating fern and belongs to the family of Azollaceae. This plant is with high protein content, essential amino acids, vitamins, growth promoter intermediaries and minerals like Calcium, phosphorus, potassium, ferrous, copper, magnesium etc. the carbohydrate and fat content of Azolla is very low. It is very easy to cultivate and ideal feed for cattle and other animals. For assessing the effect of Azolla as green fodder, KVK Chhindwara, Jabalpur, Katni, Satna, Sehore and Sidhi (MP) conducted OFT for sustaining milk production when there is unavailability of green fodder resulting in increase avg. milk yield by 12.20% and 27.71% increase in net returns.

Table : Performance of Azolla feeding on production

Details	No. of trials	Avg. Milk Yield (lit/day)	Net Return (Rs.)	B:C ratio
Feeding only dry (Farmers' practices)	46	5.08	3230	1.82
Feeding dry along with Azolla (400 gm)/ animal/day (Recommended practice)		5.70	4125	1.93

Problem identified : Poor quality nutrient diet results in the low Milk production and profitability in milch animals

Technology Assessed : Assessment of direct feeding of calcium and vitamins as feed supplement

Calcium is essential for the transmission of nerve impulse, excitation of skeletal and cardiac muscle contraction, control cell permeability, blood coagulation, digestive secretion and as a component of milk. A deficiency of calcium may result in an increased incidence of milk fever, decreased feed intake which results in a drop in milk production. To solve above diagnosed problem KVK Dhamtari (CG), Gwalior, Mandla and Raisen (MP) conducted OFT to assess direct feeding of oral calcium and vitamin supplementation on the milk production of Cow and Buffalo from calving up to six month of lactation and observed 24.49% increase in milk production per day per animal and 21.83% increase in net returns.

Table : Effect of direct feeding of calcium and vitamins supplement on production of cattle and buffalos

Details	No. of trials	Av. Milk yield(lit)/ day/animal	Net Return (Rs.)	B:C ratio
Dry + green + cake without calcium and vitamin supplement (Farmers' practices)	29	5.47	135.33	1.53
100 ml Oral calcium and vitamin supplement from date of calving to three month of lactation. balanced dry + green + concentrate (Recommended practice)		6.81	164.87	1.71

Problem identified : Low Milk production and profitability in milch animals

Technology Assessed : Assessment of probiotic as feed supplement

Probiotics are live microbial feed supplements which beneficially affect the host by improving its intestinal microbial balance and belongs to one of three different groups lactic acid bacteria, yeasts and Bacillus spores which helps in managing rumen acid levels, improve digestibility and increase yields. KVK Gwalior(MP) and Puri (Odisha) conducted OFT to assess feeding of probiotic as feed supplement in the milk production of milch animals and observed 18.30% increase in milk production per day per animal and 27.31% increase in net returns.

Table : Effect of probiotic on production in milch animals

Details	No. of trials	Av. Milk yield(lit)/ day/animal	Net Return (Rs.)	B:C ratio
No use of probiotic in diet of animals (Farmers' practices)	27	7.43	74.23	1.6
Use of probiotic @ 10g in the feed of animals (Recommended practice)		8.79	94.50	2.01

Problem identified : Improper feed management and high incidence of parasitic diseases in animals due to open grazing

Technology Assessed : Stall feeding of the animals in comparison to open grazing

Stall feeding is feeding system in which animals are confined to a fixed place and are mostly used in intensive farming system where as open grazing is traditional system in which animals are left to graze at its own. KVK Raigarh and Rajnandgaon (CG) conducted OFTs to assess the effect of Stall feeding of the animals in comparison to open grazing. Observation revealed that average increase in body weight by 22.5% and 67.50 % increase in net return with better feed utilization by the animal.

Table : Effect Stall feeding of the animals in comparison to open grazing

Details	No. of trials	Av. Body wt. (kg)/ animal	Net Return (Rs.)	B:C ratio
Open grazing (Farmers' practices)	09	360	3600	1.5
Balanced feeding by Stall feeding of the animals (Recommended practice)		441	6030	1.8

Problem identified : Low productivity and profitability due to non availability of quality greens feed and fodder

Technology Assessed : Assessment of Napier grass as quality green fodder and impact on milk production

Napier grass is also known as elephant grass is fast growing, deeply rooted, perennial grass with high nutritive value and for assessing the efficacy of it on milk production I milch animals KVK Chhindwara (MP) conducted trail and observed increase of avg. milk yield by 66.67% and 49.02% increase in net return.

Table : Performance of Napier grass as quality green fodder and impact on milk production

Details	No. of trials	Av. Milk yield(lit)/ day/animal	Net Returns (Rs./litr.)	B:C ratio
Local variety poor quality fodder production and feeding (Farmers' practices)	13	3	7726	1.49
4-5 kg per animal per day Napier with recommended practices and feeding (Recommended practice)		5	11514	1.74

Problem identified : Low Production and profitability in goat due to imbalance and poor feeding management

Technology Assessed : Assessment of Salt lick as mineral supplement in feed on body wt. growth and milk production in goat

KVK Raisen (MP) conducted OFT on assessment of Salt lick as mineral supplement in feed on body wt. growth and milk production in goat. Observation reveals that there was increase in body wt. by 7.37%, milk yield by 24.45% and net return by 61.70%.

Table : Performance of salt lick in goat

Details	No. of trials	Avg. Body wt. gain (kg)	Milk yield in lit. / days	Net returns (Rs.)	B:C ratio
Free range grazing and feeding available greens (Farmers' practices)	10	5.56	1.10	940	1.46
Feeding recommended Salt lick and greens along with free range grazing (Recommended practice)		5.97	1.38	1520	1.75

Animal Health Management

Problem identified : Low conception rate due to poor feeding management (i.e. deficiency of essential mineral mixture, vitamin and regular de-worming) in cattle

Technology Assessed : Management of low conception rate in cattle by de-worming followed by supplementation of essential mineral mixture, vitamins

Nutrition is only one of the component which affects reproduction in animals and milch animal can tolerate a fairly wide range of nutrient intakes for a short time without suffering poor reproduction. A better nutrition and management programme may have a profound effect on reproductive efficiency and for assessing above mentioned problem KVK Kanker (CG) conducted trial to combat low conception rate in cattle by regular de-worming and supplementation of mineral mixture and vitamins and observed 36% increase in estrus and 11.40% in net return.

Table : Effect of de-worming and mineral mixture supplementation to overcome low conception rate problem

Details	No. of trials	Expression of estrous %	Avg. Net Returns (Rs.)	B:C ratio
Do not take care after calving on balance feeding in cattle and also do not use any drugs (Farmers' practices)	05	28	7980	1.4
After parturition follow de-worming and supplementation of essential mineral mixture, vitamins, in non-pregnant anoestrous animals for induction of estrous and following breeding practices (Recommended practice)		64	8890	1.65

Problem identified : More time taken in first kidding by goat

Technology Assessed : Management of feed by supplementation of essential mineral mixture, vitamins followed by de-worming at 3 months interval to reduce the time period of first kidding in goat

Puberty of doe can be reach between 8-12 months of age, depending on the breed, season of birth, health status and most importantly level of feeding/ nutrition which can lower her chances of getting pregnant and having kids and can also reduce milk production after having kids. To combat this problem KVK Jashpur (CG) conducted trial to reduce the time period of first kidding in goat by regular de-worming followed by supplementation of mineral mixture and vitamins results in 57.27% increase in body weight, 125% increase in pregnancy rate and 81.95% in net return.

Table : Effect of de-worming and mineral mixture supplementation to overcome more time taken in first kidding by goat

Details	No. of trials	Av. Body wt (kg)gain	Av. No. of goat get pregnant	Net returns (Rs.)	B:C ratio
Do not take care on balance feeding in goat and ignorance/ improper management leads to more time in first kidding (Farmers' practices)	04	9.9	4	1330	3.04
Regular de-worming followed by supplementation of mineral mixture and vitamins and following breeding practices (Recommended practice) (Each trail contains 04 goats)		15.57	9	2420	3.36

Problem identified : Incidence of postpartum problems (dystokia, ROP, Poor body weight of calf at birth, metritis and metabolic diseases Ketosis) and ultimately poor milk yield in the recently calved buffaloes

Technology Assessed : Assessment of balance ration, supplemented with mineral mixture and calcium on post partum disorders and milk yield in buffaloes

Careful monitoring of feed quality, especially forages and nutrient content of the animal diet is crucial to minimize post partum problems and for that KVK Jabalpur (MP) conducted OFT on assessment of the balanced feeding with mineral mixture and vitamins supplementation for last two months of pregnancy in buffaloes to control post partum disorders. There was reduction in post partum problems by 40%, increase in body weight by 4.1 kg, increased in milk yield by 25.80% and 40.31% increase in net returns.

Table : Effect of mineral mixture and vitamins in reduction of post partum disorders

Details	No. of trials	Incidence of PP disorders%	Body weight of calf at birth in kg	Milk yield/day /animal (Rs)	Net returns (Rs.)	B:C ratio
No or poor feeding during last two months of pregnancy (Farmers' practices)	05	20	22.2	6.2	150.08	2.53
Balance feeding with feed supplements like mineral mixture @ 50g and Calcium @100ml per day per animal during last two months of pregnancy (Recommended practice)		60	26.3	7.8	210.58	3.04

Problem identified : High incidence of mastitis in milch animals resulting in heavy loss in milk production and profitability

Technology Assessed : Assessment of feeding selenium and vitamin-E to control sub clinical mastitis

Mastitis and sub clinical mastitis in dairy animals is inevitable and may caused by so many factors like climate, housing, bedding, stress, genetic factors, silage, hay and nutritional factors. Maintaining an adequate level of Selenium and Vitamin-E in the body of animal helps in preventing mastitis. Therefore, KVK Cuttack, Puri (Odisha), Korba (CG) and Sehore (MP) assessed the prophylactic majors for mastitis by feeding selenium and vitamin-E resulting in 700 % reduction in cases of mastitis and average increase in milk yield by 13.33%and 39.35% in net return.

Table : Performance of feeding selenium and vitamin-E to control mastitis in milch animal

Details	No. of trials	Disease incidence (%)	Milk yield per lactation	Avg. Net Returns (Rs.)	B:C ratio
Poor prophylactic majors for mastitis (No practice of cleaning of udder and regular testing of subclinical mastitis and no use of drugs (Farmers' practices)	10	40	4.5	31	1.28
Supplementation of 2 gram vitamin E + selenium per day per animal for 60 days during dry pried prior to calving for control of subclinical mastitis (Recommended practice)	40	5	5.1	43.2	1.6

Problem identified : Low production and profitability due to high incidence of calves mortality infested with heavy load of worms

Technology Assessed : Management of calf mortality and by adopting de-worming schedule and maintaining hygienic condition in the farm

It is essential to deworm calves regularly every month using a suitable anthelmintic. Such a deworming schedule is very crucial for buffalo calves, in which mortality due to worms is very high and to combat such situation KVK Dhar, Sehore, Tikamgarh and Umaria (MP) conducted OFT on assessment of albendazole/ piprazine/ fenbendazole antihelmentic drug which results in 32 % reduction in calf mortality, and 55.60 % increase in avg. net return.

Table : Performance of piprazine/albendazol/ fenbendazole antihelmentic drug on calf mortality and milk production

Details	No. of trials	Calf mortality (%)	Avg. Net Returns (Rs.)	B:C ratio
Do not follow the de-worming schedule, occasionally provide medicine for de-worming that to local herbal drug and do not maintain hygienic condition (Farmers' practices)	10	51	3500	2.0
Follow up de-worming schedule by albendazole/ piprazine/ fenbendazole broad spectrum antihelmentic drug i.e. de-worming before and after monsoon and follow the hygienic condition and cleanliness of the shed (Recommended practice)	27	19	5446	2.19

Problem identified : Low production and profitability due to infection of ecto-parasites (tick, mites, lice etc.)

Technology Assessed : Management of ecto-parasites by herbal oil (Neem+Karanj) and following hygienic condition of animal and shed

Our livestock suffers from parasitic infections especially ectoparasite which constitute a major threat to the health and productivity of animals. Herbal oils are eco-friendly, safe, effective and economical indigenous plant/leaves extraxt and keeping in view all these things KVK Dhamtari, Korba amd Kawardha (CG) conducted OFT on assessment of herbal oil (Neem + Karanj) for the control of ecto parasite in cattle. This results in reduction of incidence of ecto parasite (ticks) by 38 % with 42.32% in net return

Table : Performance of herbal oil (Neem + Karanj) for ecto parasite management

Details	No. of trials	Tick incidence (%)	Avg. Net Returns (Rs.)	B:C ratio
Farmers do not take proper step to control ecto parasite and generally follow local measures available (Farmers' practices)	12	71	2930	1.52
Follow up de-worming schedule by albendazole/ piprazine/ fenbendazole broad spectrum antihelmentic drug i.e. de-worming before and after monsoon and follow the hygienic condition and cleanliness of the shed (Recommended practice)	12	33	4170	2.24

Problem identified : Poor body weight gain due to heavy worm infestation of endo parasites in goat

Technology Assessed : Management of endo parasite by following schedule of broad spectrum anthelmintic drug- Fenbendazole

Parasitism, and gastrointestinal nematode parasitism in particular, is arguably the most serious constraint affecting goat production by affecting productivity such as weight loss, reduced weight gain, reproductive inefficiency etc. to avoid such kind of situation KVK Indore, Mandla, Tikamgarh (MP) and Korea (CG) conducted OFT on assessment of broad spectrum anthelmintic drug- Fenbendazole for the control of endo parasite in goat. This results in reduction of incidence of endo parasite with increase in body weight by 18.83% and 6.77% in net return.

Table : Performance of broad spectrum anthelmintic drugs Fenbendazole for endo parasite management

Details	No. of trials	Avg. body weight (kg) gain	Avg. Net Returns (Rs.)	B:C ratio
Farmers do not follow drug to control endo parasite (Farmers' practices)	05	16.03	1551	1.9
control of endo parasite by following schedule of broad spectrum anthelmintic drugs Fenendazole @ 5mg/kg body weight (Recommended practice)	05	19. 05	1656	2.1

Backyard Poultry Production

Problem identified : Low production of backyard poultry in free range system due to poor feeding management resulting in low production and profitability

Technology Assessed : Assessment of growth promoters as feed supplement in poultry

A growth promoter enhances growth performance and immune response in poultry and prevents bacterial diseases. Therefore, KVK Jashpur (CG), Jajpur (Odisha), Jabalpur and Katni (MP) conducted trial on poultry to overcome the slow growth of the birds in the field condition by supplementing turmeric/ multi enzyme mixture/ probiotics /acidifier respectively, as growth promoter in backyard poultry which results in increase in body wt. gain by 11.76%, and net return by 25.42%.

Table : Performance of different feed supplements in poultry

Details	No. of trials	Body Weight gain in kgs per bird in 3 month	Net Return per bird per month (Rs)	B:C ratio
Backyard poultry in free range without balance feeding and improper care and management (Farmers' practices)	27	1.36	98.43	2.3
Balance feeding with feed supplements like turmeric, multi enzyme mixture, probiotics and acidifier (Recommended practice)		1.52	123.45	2.84

Problem identified : Low production of eggs in backyard poultry due to poor feeding management

Technology Assessed : Assessment of Calcium and Mineral mixture as feed supplement in poultry

Feed consumption is one of the major factor which affects egg production in poultry. Laying birds require a completely balanced diet to sustain maximum egg production over time. Inadequate levels of energy, protein or calcium can cause a drop in egg production and in few cases hens stop laying. By identifying this problem KVK Ganjam-I (Odisha) and Katni (MP) conducted trial by supplementing Calcium and Mineral mixture respectively, as feed supplement in poultry feed to increase the egg production which results in increase in egg numbers by 44, and net return by 38.89%.

Table : Performance of different feed supplements in poultry

Details	No. of trials	Average No. of eggs laid by per bird/year	Net Return per bird per month (Rs)	B:C ratio
Backyard poultry in free range without balance feeding and improper care and management (Farmers' practices)	19	118	450	4.2
Balance feeding with feed supplements of Calcium and mineral mixture for better egg production (Recommended practice)		162	625	4.38

Problem identified : Poor growth rate of desi type ducks

Technology Assessed : Assessment of broiler type duck, White Pekin in backyard

White Pekin duck are an extremely hardy breed with a high level of fertility and excellent hatchability. White Pekin is large and rapidly growing reed with excellent FCR which makes them ideal breed for broiler purpose i.e. why KVK Cuttack and Nayagarh (Odisha) assessed the White Pekin duck in comparison to desi type duck for broiler purpose to get more returns under backyard system results in increase in body wt. by 57.89%, net return by 30%, with reduction in mortality.

Table : Performance of White Pekin under backyard system

Details	No. of trials	Body Weight at 6 week of age (g)	Net return per bird (Rs.)	B:C ratio
Rearing of desi type duck under backyard condition without balance feeding and improper care and management (Farmers' practices)	15	950	125	1. 69
Rearing of broiler type white pekin duck under backyard condition with balance feeding and proper care and management (Recommended practice)	15	1500	162.50	2.11

Problem identified : Low income of farm women due to low productivity of local breed in back yard/semi range system

Technology Assessed : Assessment of improved dual purpose birds in free range (backyard poultry system)

Most of the backyard poultry production comprises rearing indigenous birds with poor production performances. However, the backyard poultry production can be easily boost up with improved varieties of chicken and can promise a better production of meat and eggs. Therefore, KVK Balrampur, Korea, Raigarh

(CG), Balasore (Odisha), Raisen and Umaria conducted OFT on assessment of Improved dual purpose bird (Jabalpur dwikaji, Black Plymouth Rock, Vanaraja, Gramapriya, RIR, Giriraja and Red Cornish) in backyard free range system with better management results in increase in avg. body wt. by 65.25% and eggs by 60% with net return by 50.42 %.

Table : Performance of improved dual purpose bird in backyard free range system better management

Details	No. of trials	Avg. body Weight at 6 month age (kg.)	Avg. No. of eggs/month	Return (Rs.)
Local colored bird (poor in egg and meat production) (Farmers' practices)	42	1.18	15	2340
Improved dual purpose color bird (Jabalpur dwikaji, Black Plymouth Rock, Vanaraja, Gramapriya, RIR and Red Cornish) with better health and feeding management (Recommended practice)	42	1.95	24	3520

Animal Housing Management

Problem identified : Poor growth in goat due to improper management and parasitic infestation

Technology Assessed : Assessment of wooden (Bamboo) floor shed for Goat

Improper management and parasitic infestation leads to poor growth in goat, wooden/ bamboo floor shed for goat is a better option to avoid above said problems as in bamboo floor, slats allow the urine and manure to fall through to the ground below by which proper hygienic condition may be achieved and KVK Kanker (CG) conducted OFT to assess the effect of wooden (Bamboo) floor shed for Goat for proper management and controlling parasitic infestation which results in reduction in parasitic infestation by 15 %, and increase in body weight by 18.69%.

Table : Performance of wooden (Bamboo) floor shed for Goat

Details	No. of trials	Incidence of parasitic infestation (%)	Av. Body weight gain (g)
Free range without proper care and management (Farmers' practices)	4	25	797
wooden (Bamboo) floor shed for Goat with care and management (Recommended practice)	4	10	946

Problem identified : Low yield of milch buffalo due to feeding in elevated manger

Technology Assessed : Assessment of fenceline feeding system

Fenceline feeding system is beneficial in terms increased dry matter intake, lower feed wastage, improved milk yield and lower level of aggression as compared to existing manger system of feeding dairy cows. KVK Bhind (MP) conducted OFT to assess the effect of fenceline feeding system in buffaloes which results in increase by 13.75 % in milk yield and by 30.39% in average net returns.

Table : Performance of indigenous breed of poultry in intensive housing

Details	No. of trials	Yield per lactation (lit)	Av. Net return (Rs.)	B:C Ratio
Traditional feeding in elevated manger (Farmers' practices)	10	1200	15300	1.7
Fenceline feeding with care and management (Recommended practice)	10	1365	19950	1.9

Fish Seed Production & Management

Problem identified : Requrement of fish seed & no use of small pond

Technology Assessed : Assessment of Spawn to fry raising to supplementary feeding in small seasonal pond (multi crop)

KVK, Bastar conducted on farm trials to asses Spawn to fry raising to supplementary feeding in small seasonal pond (multi crop) Use supplementary feeding and phase manuring by utilization of mustard oil cake, rice bran, raw cow dung and SSP for increasing survival % during spawn to fry raising in seasonal village pond for economic utilization of pond result increasing yield 1200000 nos fry /ha.

Table : performance of production of fish fry

Details	No. of trials	Yield (nos/ha)	Cost of cultivation (Rs/ha)	Net Income (Rs./ha)	BC Ratio
No Manuring & supplymentary feeding of fish spawn (Farmers' practices)	6	27,00000	160000	42500	1.27
Stocking of 3 million spawn /ha with supplementary feeding (MOC & Rice Bran 1:1) phase manuring by raw cow dung and SSP. (Recommended practice)		39,00000	180500	112000	1.62

KVK Gariyaband conducted trials for assessment of spawn to fry raising through supplementary feeding in small seasonal ponds and Stocking of 3 million spawn /ha with supplementary feeding (GNOC & Rice Bran – 1st five days 600gm /lakh and than 1200 gm / lakh twice a day) result increasing yield 10%, KVK Nuapada conducted OFT to asses Fry to fingerling production in Seasonal ponds because Offseason seed production makes more profit result increasing yield 700,000nos fingerling /ha., KVK puri on farm trials Assessment Assessment on control of oxygen depletion by using sprinkler in stunted fingerling production pond using sprinkler because Sprinkler can control oxygen depletion and reduces temp. During summer result increasing yield 40,000nos fingerling /ha. KVK Mahasamund conducted OFT to asses of Spawn to fry raising through supplementary feeding of groundnut oil cake+rice bran in seasonal ponds for multiple crops result increasing yield 360,000 no of fry 12 % (Survival).

Aquatic Insect Control in Fish pond

Problem identified : Spawn mortality due to unwanted aquatic insect

Technology Assessed : Assessment on control of aquatic insects by Cypermethrin 10% w/v in nursery pond

KVK Puri conducted on farm trials on assessment on control of aquatic insects by Cypermethrin 10% w/v in nursery Cypermethrin is cheaper for control of aquatic insect's pond result increases yield 210,000 nos spawn/ha.

Table : Performance of spawn production

Details	No. of trials	Yield (no. of spawn/ha)	Cost of cultivation (Rs/ha)	Net Income (Rs./ha)	BC Ratio
No insect control (Farmers' practices)	1	2130000	210800	450000	2.6
Cypermethrin 10% w/v in nursery pond (Recommended practice)		2340000	212500	930000	2.92

Fish Processing & Preservation

Problem identified : Insect and fungus infestation, off odour and discoloration during preservation of cured fish.

Technology Assessed : Assessment of Calcium propionate [Ca(C2H5COO)2] for effective preservation of cured fish.

KVK Ganjam-II conducted on farm trials on Assessment of Calcium propionate [Ca(C2H5COO)2] for effective preservation of cured fish irect dusting method with Calcium propionate powder @3gm/100gm cured fish just after salting followed by sun-drying result incress yield 14.11%.

Table : Performance Fish preservation

Details	No. of trials	Yield (q/ha)	Cost of cultivation (Rs/ha)	Net Income (Rs./ha)	BC Ratio
No management (Farmers' practices)	3	8.5	2500	122500	2.14
Calcium propionate powder @3gm cured fish just after salting followed by sun-drying. (Recommended practice)		9.7	3000	172000	2.51

KVK Khordha conducted assessment of low cost solar poly tent drier for drying the fishes Hygienic dry fish production in solar poly tent drier increases the shelf life by 6 months compared to local practice of 4 months. It also reduces contamination from other sources.result incress Rs. 40/kg fish.

Supplementary Feed Management

Problem identified : Excess expenditure due to feed cost and low production of fish without supplymentary feed or growth prmoters

Technology Assessed : Assessment of Vitamin and mineral premix with traditional feed on increasing fish yield.

KVK, Mayurbhanj-I conducted on farm trials on Assessment of Vitamin and mineral premix with traditional feed on increasing fish yield By use of vitamin mineral premix in the traditional feed the production increases by 29.8%.

Table : performance of feed management

Details	No. of trials	Yield (q/ha)	Cost of cultivation (Rs/ha)	Net Income (Rs./ha)	BC Ratio
No use of supplementary feed & growth promoter (Farmers' practices)	12	17.4	39600	81000	2.2
vitamin mineral premix in the traditional feed (Recommended practice)		22.6	58500	111300	2.9

KVK Boudh conducted OFT to asses floating feed in composite pisciculture the result increases fish yield 18.83%, KVK Bhadrak Assessment of CIFABROOD (gonadal maturation inducing broodstock diet) in increasing breeding performance of catla Feeding catla at its vitellogenic period with CIFABROOD @ 2% of body wt. daily for 5 days & thereafter @ 3% of body wt. daily for 30 days. Increases its breeding performance by 45.3%. , KVK Nayagarh conducted on farm trials on Assessment of production performance by low cost locally available feed in composite pisciculture Low cost feed such as sesamum oilcake, mustard oilcake reduce cost of feed and enhance yield 39.78%. , KVK Sarguja Conducted to OFT Assessment of Spawn to fry rising through supplementary feeding (Soya Milk + Egg yolk in seasonal ponds (Multiple crops) Stocking of 3-5 million spawn /ha supplementary feeding (Soya Milk = 150 ml + Egg yolk = 1 egg per million.) result incress yield 20%.,KVK Mahasamund conducted on farm trials Assessment of soya milk and egg yolk on rearing of initial stages (01-05 days) of fry (IMC) at nursery pond feeding 1 egg yolk & 560 ml soymilk per lakh of spawn and result incresses yield 144.8%. KVK Ganjam-I conducted OFT Assessment of Probiotic AQUALACT as feed additive in growth enhancement of Carps in Composite Pisciculture Incorporation of feed probiotic, AQUALACT as feed additive @ 5gm/Kg feed enhanced the yield by 33%. KVK Khordha conducted OFT Performance of Farm made feed Farm made feed prepared from local feed ingredients reduces the feed cost by 8.79% and thus generate additional income for the farmers

Water Quality Management

Problem identified : Low dissolved oxygen condition causes environmental stress on fish, lessens feed intake and growth. But, in persistent conditions, mass mortality of fish occurs

Technology Assessed : Assessment of Calcium peroxide (CaO2) in mitigating low dissolved oxygen condition in fish grow-out tanks

KVK Bhadrak conducted on OFT Assessment of Calcium peroxide (CaO2) in mitigating low dissolved oxygen condition in fish grow-out tanks Application of CaO2 increases DO level by 175% within half an hour. Method is simple & quite effective result incress yield 11.46%.

Table : performance water quality management management

Details	No. of trials	Yield (q/ha)	Cost of cultivation (Rs/ha)	Net Income (Rs./ha)	BC Ratio
No proper management of water quality. (Farmers' practices)	1	21.8	95000	101200	2.06
Application of CaO2 increases DO level by 175% (Recommended practice)		24.3	96000	122700	2.27

Composite Fish Culture

Problem identified : Low yield are being obtained by farmers from single species fish farming and they not stocked proper ratio fish species

Technology Assessed : Assessment of composite fish culture, mixed fish culture and polyculture used different fish species in different ponds

KVK Datia conducted on farm trials on Assessment of income generation through composite Fish culture in four species Catla, Rohu, Grass carp and Mrigala resulting increase in yield 57.32%.

Table : Performance of composite fish culture

Details	No. of trials	Yield (q/ha)	Cost of cultivation (Rs)	Net Return (Rs)	BC Ratio
No practices and do not stocked fish seed proper ratio. (Farmers' practices)	6	15.98	30460	97380	4.19
Stocking 8000 Fingerling /ha. ratio 3:1:3:3 Catla rohu Grass carp and mrigala (Recommended practice)		25.14	34460	166660	3.83

KVK Sarguja on farm trials on Refinement of Composite fish farming stocking of catla, rohu, and mrigala with balanced use of nutrient and feed resulting increase in yield 83.65 KVK Khordha conducted on OFT ssessment of the performance of new species in carp polyculture system Incorporation of L. fimbriatus and P. gonionotus in polyculture system yield additional production of 12q/ha and increase in net income by 28.87%. The incorporated fishes have also good market demand and consumer preference.

Aquatic vegetation Management

Problem identified : Low fish yield due to high infestation of aquatic weeds

Technology Assessed : Assessment of Indian Major carps with Grass Carp to control aquatic vegetations

KVK Raigarh and Balasore conducted on farm trials for assessment of Indian Major carps with Grass Carp to control aquatic vegetations resulting in increase in fish production 17.96%. and Control of Aquatic weed 60%.

Table : Performance of Contol of aquatic weed

Details	No. of trials	Control of aquatic weed	Yield (q/ha)	Cost of cultivation (Rs)	Net Return (Rs.)	B:C Ratio
No aquatic weed management (Farmers' practices)	02	60%	20.71	64,000	66,000	2.0
Stocking IMC with Grass carp (Recommended practice)			24.43	80,000	144,000	2.56

3

Frontline Demonstrations

Frontline demonstration is conducted to demonstrate the superiority of frontier and location specific proven technologies of agriculture and allied area 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 reporting year, a total number of 1559 were conducted on crops including oilseeds, pulses, cereals, vegetables crops, cash crops, agro forestry, millets , Important income generating enterprises , Home science and other important area covering the total area of 23408.523 ha in Zone VII including, 37557 units and 23296 beneficiaries (Table 3.1).

Table 3.1: Summary of FLDs conducted in by KVKs of Zone-VII

Categories	No. of FLD	Area (ha)	Beneficiary
Agroforestry	9	202.46	52
Cereal	309	1197.8	3503
Flower	13	15.34	101
Fruits	41	44.813	301
ICM	8	6	325
Intercropping	5	5.8	50
Medicinal	2	0	10
Millet	18	71.8	148
Oilseed	205	716.9	2531
Plantation	1	0	0
Pulses	233	1119.4	3586
Spices	21	32	186
Sugarcane	6	6.4	68
Vegetable	296	823.785	2689
Enterprises 1.Fodder, Integrated Fish Farming, Resource Conservation Technologies, Farm Mechanization, 2.Cattle, Drudgery Reduction, Nutritional, Nutritional security, Value addition, Income generation, Dairy, Duckery, Capacity Building & Group Dynamics, Goattry, Poultry, Storage, Value Adition, Bee Keeping, Lac cultivation, Mushroom, Vermicompost	120 108 (8861 units)	19166.02	6038 2051
Home Science	164 (28696 units)	-	1757
Total	**1559 (37557 units)**	**23408.523**	**23296**

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

Categories	No. of FLD	Area (ha)	Beneficiary
Agroforestry	5	201.5	28
Cereal	132	448.3	1535
Flower	4	7	15
Fruits	6	5	25
ICM	4	2	300
Medicinal	2	0	10
Millet	13	43.8	100
Oilseed	128	447.9	1620
Plantation	1	0	0
Pulses	134	557.2	1783
Spices	11	25.5	98
Vegetable	118	514.485	924
Enterprises (units) 1. Farm Mechanization, Fodder , Integrated Fish Farming, Resource Conservation Technologies 2. Cattle, Drudgery Reduction, Nutritional security, Value addition, Income generation, Dairy, Duckery, Capacity Building & Group Dynamics, Fisheries, Goattry, Poultry, Storage, Value Adition, Bee Keeping, Lac cultivation, Mushroom, Vermicompost)	28 43 (651 units)	18928	5304 445
Home Science	61 (18982 units)	-	505
Total	**865 (19633 units)**	**21181.49**	**12692**

Table 3.3: Summary of FLDs conducted by KVKs of Chhattishgarh.

Categories	No. of FLD	Area (ha)	Beneficiary
Cereal	81	590.5	1125
Fruits	1	12	12
Millet	3	26	38
Oilseed	21	100.2	218
Pulses	51	402.4	1114
Spices	3	4.5	29
Sugarcane	1	5	12
Vegetable	52	165.68	554

Categories	No. of FLD	Area (ha)	Beneficiary
Enterprises			
1. Farm Mechanization, Fodder , Integrated Fish Farming, Resource Conservation Technologies	21	121.4	240
2.Cattle, Drudgery Reduction, Nutritional security, Value addition, Income generation, Dairy, Duckery, Capacity Building & Group Dynamics, Fisheries, Goattry, Poultry, Storage, Value Adition, Bee Keeping, Lac cultivation, Mushroom, Vermicompost	23 (202 units)		159
Home Science	8 (2502 units)	-	124
Total	**265 (2704 units)**	**1427.68**	**3525**

Table 3.4: Summary of FLDs conducted in different areas by KVKs of Odisha

Categories	No. of FLD	Area (ha)	Beneficiary
Agroforestry	4	0.96	24
Cereal	96	159	843
Flower	9	8.34	86
Fruits	34	27.813	264
ICM	4	4	25
Intercropping	5	5.8	50
Millet	2	2	10
Oilseed	56	168.8	693
Pulses	48	159.8	689
Spices	7	2	59
Sugarcane	5	1.4	56
Vegetable	126	143.62	1211
Enterprises			
1. Farm Mechanization, Fodder , Integrated Fish Farming, Resource Conservation Technologies	71	115.82	494
2.Cattle, Drudgery Reduction, Nutritional security, Value addition, Income generation, Dairy, Duckery, Capacity Building & Group Dynamics, Fisheries, Goattry, Poultry, Storage, Value Adition, Bee Keeping, Lac cultivation, Mushroom, Vermicompost	42 (8008 units)		1447
Home Science	95 (7212 units)	-	1128
Total	**604 (15220 units)**	**799.353**	**7079**

INTEGRATED CROP MANAGEMENT

Technology demonstrated	Crop- Area (ha)	Total no. of Participants	Results (q/ha)		Average Net Return (Rs/ha)	
			FP	RP	FP	RP
Cereal						
Maize	49.8	131	147.37	204.81	108152.2	166661.5
Paddy	168	398	754.2	986.83	466327.4	710480.7
Soybean	2	5	5.73	4.5	5855	3630
Wheat	36	114	207.95	248.05	153148	209227
Flower						
Sunflower	5	12	14.3	17.2	39700	50800
Fruit						
Cashew	4	20	8.65	11.63	396	622
Millet						
Pearl Millet	24	25	23.4	33	29986	44777
Sorghum	6	18	27.8	37.5	12500	22800
Oilseed						
Ground Nut	83	216	216.58	274.85	351777	489124
Linseed	25	63	399.2	548.31	42242	71013
Mustard	68.2	349	151.13	190.99	702455.7	512969.5
Niger	38	116	13.97	21.74	18931.4	45987.3
Soybean	97.2	260	217.24	248.12	370999.5	519381.9
Sunflower	10	27	18.6	24.2	33900	51300
Toria	10	34	15	19.64	35014.77	50767.64
Pulse						
Black Gram	89.2	209	110.57	131.55	220163.2	314484.9
Chick Pea	236.2	620	19.39	26.23	536486.9	706586.6
Field pea	10	25	19.15	28.25	13500	19500
Green Gram	78.2	198	97.46	126.05	198408.7	321403.1
Lentil	5	13	3.5	6.5	8000	17900
Pea	8	29	84	98	88000	0
Piegon Pea	110	301	163.1	247.73	362853.4	525367.1
Redgram	5	10	10.5	14.2	19600	30400
Sunflower	5	15	11.5	15.7	0	0
Spice						
Garlic	8	20	73.1	109.2	139600	228000
Turmeric	1.2	15	59.12	96.6	29123	225900
Sugarcane						
Sugarcane	10	35	944	1052	82030	149790

Technology demonstrated	Crop- Area (ha)	Total no. of Participants	Results (q/ha)		Average Net Return (Rs/ha)	
			FP	RP	FP	RP
Vegetable						
Brinjal	4.84	30	554.28	775.42	263450	411470
Cabbage	6	34	688.8	880.22	179415	295019.6
Cauliflower	4.4	20	313.5	405.72	190150	299080
Chilli	1.5	15	243.8	235.1	346999	385616
Cowpea	0.2	4	40.12	55.54	50345	78085
Elephant foot yam	0.4	10	532	680	127680	346000
Okra	5	20	139.2	184.65	73300	117500
Onion	13.08	60	869.06	1365.94	461362	740110
Pointed gourd	2	20	0	132	0	205500
Potato	10	10	101.91	125.31	61780	82794
Sesame	41.4	101	39.39	50.96	157049.5	218959.2
Sponge Gourd	2	5	50.6	81	104000	176900
Tomato	15	108	1023.51	1447.73	629680	992435
Vegetable	270.002	21	4173.57	9535	767.99	3254.97

INTEGRATED DISEASE MANAGEMENT

Technology demonstrated	Crop- Area (ha)	Total no. of Participants	Results (q/ha)		Average Net Return (Rs/ha)	
			FP	RP	FP	RP
Cereal						
Paddy	32	109	492.42	584	345009	482204
Fruit						
Mango	5	10	22.3	26.8	25700	32200
Oilseed						
Ground Nut	2	10	15.6	22.9	35000	63550
Mustard	2	5	8.1	11.2	17540	26680
Pulse						
Black Gram	5.2	13	9.5	12.5	36200	49825
Chick Pea	8	20	17.8	24.54	23000	38711
Green Gram	3	20	11.39	15.42	115138	146370
Lentil	4	10	12.35	13.95	29025	33825
Piegon Pea	4	5	13.4	15.6	40100	48700
Spice						
Coriander	4	10	12.3	9.5	52322	36447
Ginger	1	13	80	102	178000	258500
Sugarcane						
Sugarcane	5	12	785	895	97700	122300

Technology demonstrated	Crop- Area (ha)	Total no. of Participants	Results (q/ha)		Average Net Return (Rs/ha)	
			FP	RP	FP	RP
Vegetable						
Bittergourd	1.4	23	130.2	160.7	180320	225120
Brinjal	7	43	1071.6	1390.5	642608	896270
Cabbage	4	33	697.5	764	175922	207510
Chilli	14	43	890.5	1066.1	534060	734658
Coriander	5.2	13	14.75	18.6	94130	123930
Cucumber	1	10	94.6	127.5	101100	149250
Garden pea	1	5	81.4	101.2	85440	113320
Grass pea	4.8	12	4.4	6.94	90200	110600
Okra	4	30	199.7	239.3	142280	179220
Onion	7	22	363.58	367.68	286536	285286
Potato	6	31	958.7	1033.5	309240	345830
Sesame	4	16	11.22	13.81	33442.2	49694.4
vegetable	0.5	10	158	212	68200	99800

INTEGRATED FARMING SYSTEM

Technology demonstrated	Crop- Area (ha)	Total no. of Participants	Results (q/ha)		Average Net Return (Rs/ha)	
			FP	RP	FP	RP
Maize & cowpea	1	5	0	418.5	0	17165
Maize , Ground nut	2	10	38.2	51.32	20542	29016
Maize, Cowpea	1	5	28	37	14000	21000
Maize+cowpea	1	5	42.9	54.28	29060	42992
Paddy & Dhanicha	5	10	23.2	29.4	8352	15332
Vegetable and fruit	1	5	0	0	8000	26600
Ground nut+Maize	3	7	46.8	42	33980	44570
Fenugreek	1	4	8.55	13.75	35575	64175
Fish + Duck	0	4	10	12	54460	75800
Paddy-BrinjalVermicompostAzollaMushroomBeekeeping	1	1	57.41	168.82	36858	156145

INTEGRATED NUTRIENT MANAGEMENT

Technology demonstrated	Crop- Area (ha)	Total no. of Participants	Results (q/ha)		Average Net Return (Rs/ha)	
			FP	RP	FP	RP
Cereal						
Maize	17.4	65	346.1	434.56	214569	324199
Paddy	61.4	220	1134.31	1313.58	533467	764833
Sorghum	4	10	24.96	31.64	24323	31062
Wheat	66.8	182	454.98	516.04	416230	507653
Fruit						
Banana	2.4	30	861	932	353950	397500
Mandarin	2	5	187.2	267.4	158200	371100
Mango	5	10	22.1	27.7	24900	32700
Pineapple	1	5	434	620	69000	178000
Water melon	4	28	704.2	925.1	177850	284800
Millet						
Finger millet	1	5	11.5	14.8	4750	7400
Pearl Millet	2	10	30.45	38.47	17495	26017
ragi	1	5	11.6	14.7	7300	9450
Oilseed						
Ground Nut	15.4	63	116.76	148.57	213917.2	312676.4
Mustard	12.8	65	32.4	42.4	52346.29	76697.46
Musturd	1	10	240	280	11520	19200
Soybean	23.8	78	146.35	175.23	357473	482271.5
SPINE GOURD	1	5	96.74	118.27	118137	182078
Pulse						
Black Gram	7	17	8.96	12.07	21211	33382
Chick Pea	65.6	183	101.66	117.66	159875.1	207771.5
Field pea	25	102	20	30	32720	59080
Gram	2.4	11	28.82	33.19	57669	81372
Green Gram	1	10	5.1	6.8	9650	16200
Pigeon Pea	12	38	53.68	68.48	139543	190470
Spice						
Turmeric	0.4	6	74	91	39200	63800
Vegetable						
Brinjal	6	40	1222.7	1532.8	504544	700929
Cabbage	3	18	515	572	214500	233000
Capsicum	1	5	261	307	101050	125850
Carrot	8	20	114.4	159.4	73020	108220
Cauliflower	17.8	101	1319	1664.9	745314	982473
Chilli	0.5	6	121.13	136.65	98087.01	114766.4

Technology demonstrated	Crop- Area (ha)	Total no. of Participants	Results (q/ha)		Average Net Return (Rs/ha)	
			FP	RP	FP	RP
Coriander	3	15	11.18	14.84	97275	137951
Okra	0.4	5	84.8	121.4	50200	78540
Onion	4.3	56	648	815.87	564907.6	773831.1
Pea	2	5	5.5	8	8825	15200
Potato	9	40	1113.1	1375.2	466222	639618
Pumpkin	9	30	419.8	724.6	174100	228200
Runner bean	5	25	82.6	141.2	62780	127460
Sesame	5	14	5	7.2	14550	23020
Tomato	20.5	73	1797.61	2096.66	600909	971396.2
vegetable pea	2	5	100.07	67.44	114179	75564

INTEGRATED PEST MANAGEMENT

Technology demonstrated	Crop- Area (ha)	Total no. of Participants	Results (q/ha)		Average Net Return (Rs/ha)	
			FP	RP	FP	RP
Cereal						
Barley	5	13	22.2	28.4	520	6840
Maize	2	5	30000	85000	30000	85000
Paddy	166.4	404	877.11	1045.6	902986	1228138
Wheat	54	135	402.65	411.35	328474	380054
Millet						
Chick Pea	5	5	19.95	18.76	50906	50004
Kodo	2	5	6.8	10.05	3700	7275
Kutki	2	5	7.58	12.09	4870	10185
Fruit						
Mandarin	2	5	187.8	229.2	126240	158360
Oilseed						
Ground Nut	24	39	59.72	84.92	93461	168130
Linseed	10	17	13.44	18.17	38710	56430
Mustard	69.2	236	117.27	130.02	205058.8	273114
Safflower	6	23	35.7	56.2	19250	36750
Soybean	54.2	111	103.11	109.66	145038	162285
Sesame	20	55	11.4	16.65	26531	48937
Pulse						
Black Gram	22.5	59	36.98	49.86	50568	82945
Chick Pea	79	236	213.73	245.84	403867.8	470194.5
Field pea	39	97	26.9	38.51	12590.21	34071.75
Green Gram	32	43	7.32	10.76	27100	43300
Piegon Pea	65.5	183	132.05	150.85	330842.5	440133.8

Technology demonstrated	Crop- Area (ha)	Total no. of Participants	Results (q/ha)		Average Net Return (Rs/ha)	
			FP	RP	FP	RP
Vegetable						
Bottle gourd	0.1	5	125	176	102500	151000
Capsicum	2	20	123.6	334.7	238251	578348
Cauliflower	2	2	107	123	96400	144000
Chilli	0.5	5	162.8	81.6	154200	52400
Cluster bean	7	10	26.9	32.04	55705	70215
Cowpea	1	5	32.5	39.4	15020	21650
Onion	2	10	173.6	252.12	150680	178522
Tomato	1.5	8	656	457	364800	275200

RESOURCE CONSESORVATION TECHNOLOGY

Technology demonstrated	Entrep - No. / Crop area(ha)	Total no. of Participants	Results (q/ha)		Average Net Return (Rs/ha)	
			FP	RP	FP	RP
Cereal						
Paddy	1	5	23.3	34.4	8700	9800
Wheat	4	22	81.98	87.62	79269	97611
Oilseed						
Soybean	17.2	43	76.89	94.97	120830.2	157507.2
Vegetable						
Tomato	1.18	19	896.1	1124.5	311550	311839.3

VARIETAL EVALUATION

Technology demonstrated	Crop- Area (ha)	Total no. of Participants	Results (q/ha)		Average Net Return (Rs/ha)	
			FP	RP	FP	RP
Cereal						
Maize	47.2	78	105.9	106.9	172832	325780
Oat	1	5	0	366.1	0	13649
Paddy	252.6	382	93.6	111.5	575400	739219
Sweet Corn	5.4	24	28.3	37.2	42350	85700
Wheat	111.8	322	619.64	714.6	571778.2	693940.8
Flower						
Gladiolous	0.4	4	105	180000	80825	0
Marigold	9.95	40	555.2	827.48	453790	776070
Fruit						
Banana	3.72	55	308	432	306790	399160
Papaya	1	10	184	236	60600	83300

Technology demonstrated	Crop- Area (ha)	Total no. of Participants	Results (q/ha)		Average Net Return (Rs/ha)	
			FP	RP	FP	RP
Water melon	3.4	35	1272.9	1851.9	149729	287595
Pulses						
Black Gram	27	35	25.77	37.83	64220	83815
Chick Pea	109.4	283	105	132.2	186526	256899
Field pea	18	58	8.5	17.61	4040	9500
Gram	20.8	17	19.8	28.55	44330	63490
Green Gram	50	135	18.57	23.78	58592	75527
Lentil	18	45	5	7	0	0
Piegon Pea	43.4	98	103.18	138.32	314201	461198
MIllet						
Finger millet	5	15	5.5	7	16358	27540
Kodo	9.8	17	25	34	3250	7750
Pearl Millet	2	5	14.65	17.85	9689	13362
Oilseed						
Ground Nut	8	21	47.6	60.94	99412	142034
Mustard	20.8	31	45.67	74.95	139943.3	165524
Safflower	4.8	12	13.88	15.76	27946	34644
Soybean	17.4	49	40.4	50.27	64708.83	93479.6
Sunflower	7	20	12.5	26.8	18150	40175
Toria	0.4	6	5.41	7.8	21460	33800
Vegetable						
Bean	2	18	29.5	55.6	53000	108000
Bittergourd	0.4	5	76	109	35000	58000
Bottle gourd	3	15	465.1	566.1	201970	303390
Brinjal	5.33	40	1268.7	1749.4	409050	751455
Broccoli	0.4	5	104	131	63100	86800
Capsicum	1.8	20	456	622.1	212380	340840
Cauliflower	2.5	25	496.8	605	196570	273900
Chilli	6	37	198	228	115370	162200
Cluster bean	0.4	6	27	38	23250	31000
Cow pea	12	12	0	0	0	0
Cowpea	2.4	20	134.95	179.4	86750	136637
Elephant foot yam	1.2	10	539	919	227500	495500
French bean	1	10	180.2	216.8	102300	142300
Onion	7.4	33	619.2	834.7	358660	558770
Pea	0.2	2	44.5	56	68000	90000
Pointed gourd	0.6	10	210	272.4	251600	339920
Potato	3	4	22	27	0	0

Technology demonstrated	Crop- Area (ha)	Total no. of Participants	Results (q/ha)		Average Net Return (Rs/ha)	
			FP	RP	FP	RP
Radish	4	15	316.4	401.4	175350	268430
Sesame	11	12	4.03	5.53	15554	29769
Sweet Potato	5	13	282.3	435.1	97540	227980
Tomato	15.4	77	1647.4	2525.2	457480	832200
Yam bean	2	15	240	327	79200	117750

WEED MANAGEMENT

Technology demonstrated	Crop- Area (ha)	Total no. of Participants	Results (q/ha)		Average Net Return (Rs/ha)	
			FP	RP	FP	RP
Cereal						
Maize	20.4	47	128.92	158.71	69409	96586
Paddy	22.6	79	383.99	434.76	443910	815440
Wheat	36.8	106	3124.53	4511.03	297655	428297
MIllet						
Pearl Millet	2	10	32.36	0	19595	25234
Oilseed						
Ground Nut	8	35	97.82	115.28	205221	264642
Niger	5	25	3.8	5.8	5780	11280
Soybean	30.45	93	97.27	120.2	137133	194262
Pulse						
Black Gram	12.8	42	23.26	32.12	40976	67181
Chick Pea	2	5	10.48	11.92	13644	16576
Gram	6	15	8.17	11.47	7333	16868
Green Gram	2	5	4.35	7.1	9535	20880
Piegon Pea	1	10	7.8	9.3	15900	23250
Spice						
Garlic	5	12	95.96	110.7	198820	234650
Sugarcane						
Sugarcane	2	10	948	1124	83210	125230
Vegetable						
Brinjal	1	10	252.6	294.2	71960	98820
Onion	5.4	12	188.35	209.24	125365	142116
Pea	1	10	51.3	69.5	44450	65600
Potato	0.5	6	235.57	263.51	209705.7	240446.1
Tomato	2	5	310.4	351.2	103200	137600

4

Training Organized

Training has been considered a key component for updating the knowledge and imparting the new skill to the participants. There was great emphasis on the organizing trainings both for the farmers as well as for the trainers so that equilibrium could be maintained in the KVKs. Data shows the significant increase in the number of trainings and participants. In total, 7729 courses benefitted to 2,32,899 participants including farmers and farm women, rural youth, extension personnel and sponsored from different agencies given in Table 4.1.

Table 4.1: State wise, category wise training programmes conducted by the KVKs in Zone VII during 2014-15

Type	No of courses				Participants			
	CG	MP	Odisha	Zone VII	CG	MP	Odisha	Zone VII
Farmers & Farm Women	1010	2616	1486	**5112**	36087	79296	37429	**152812**
Extension Personnels	97	204	163	**464**	3069	5452	2521	**11042**
Rural Youth	174	98	279	**551**	5552	2605	4979	**13136**
Sponsored	275	796	531	**1602**	11919	41952	2038	**55909**
Total	**1556**	**3714**	**2459**	**7729**	**56627**	**129305**	**46967**	**232899**

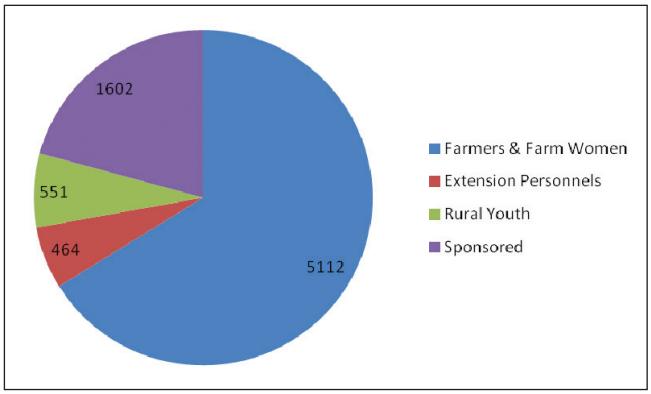


Figure1. No. of courses

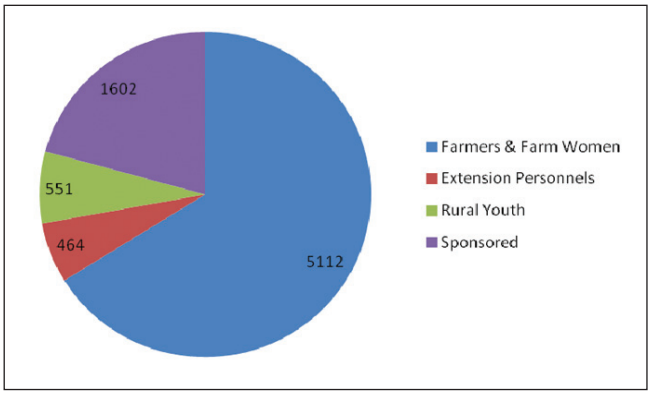


Figure2. No. of participants

Table 4.2: Training for Farmers and Farm Women in Zone VII during 2014-15

Major Theme	No	Duration	Gen		Total	SC		Total	ST		Total	Others		Total	Grand Total		
			M	F		M	F		M	F		M	F		M	F	Total
Crop Production	1133	1098	4771	608	5379	3246	948	4194	10904	3616	14520	9432	1891	11323	28353	7063	35416
Horticulture – Vegetable Crops	482	499	2067	240	2307	1371	345	1716	3265	1161	4426	4829	567	5396	11532	2313	13845
Horticulture-Fruits	118	124	795	131	926	297	114	411	683	224	907	1019	162	1181	2794	631	3425
Horticulture- Ornamental Plants	32	34	180	59	239	122	38	160	231	51	282	179	29	208	712	177	889
Horticulture- Tuber crops	36	35	117	29	146	69	20	89	221	43	264	301	31	332	708	123	831
Horticulture- Spices	34	35	153	42	195	131	36	167	175	44	219	393	56	449	852	178	1030
Horticulture- Medicinal and Aromatic Plants	10	15	87	23	110	18	4	22	128	44	172	62	6	68	295	77	372
Soil Health and Fertility Management	388	385	2527	217	2744	1122	242	1364	2106	761	2867	3410	482	3892	9165	1702	10867
Livestock Production and Management	360	296	1448	390	1838	1171	491	1662	4014	1443	5457	2508	505	3013	9141	2829	11970
Home Science/ Women empowerment	673	727	524	2744	3268	280	1662	1942	853	4294	5147	802	6603	7405	2459	15303	17762
Agril. Engineering	448	429	2828	492	3320	2283	537	2820	3912	1318	5230	4243	876	4587	13266	3223	16489
Plant Protection	772	799	3989	442	4431	2220	591	2811	4494	1510	6004	7377	1069	8446	18080	3612	21692
Fisheries	208	219	1149	176	1325	549	154	703	788	195	983	2048	454	2502	4534	979	5513
Production of Inputs at site	36	37	116	21	137	131	35	166	411	94	505	298	56	354	956	206	1162
Capacity building and group dynamics	60	77	406	35	441	134	32	166	124	115	239	569	139	708	1233	321	1554
Agro-forestry	21	21	23	5	28	21	9	30	97	24	121	343	38	381	484	76	560
Others	301	352	1754	170	1924	749	387	1136	1978	994	2972	2744	659	3403	7225	2210	9435
Total	**5112**	**5182**	**22934**	**5824**	**28758**	**13914**	**5645**	**19559**	**34384**	**15931**	**50315**	**40557**	**13623**	**54180**	**111789**	**41023**	**152812**

Table 4.3: Training for Extension Personnel in Zone VII during 2014-15:

Major Theme	No	Duration	Gen		Total	SC		Total	ST		Total	Others		Total	Grand Total		
			M	F		M	F		M	F		M	F		M	F	Total
Horticulture – Vegetable Crops	22	31	129	14	143	51	2	53	74	22	96	143	9	152	397	47	444
Horticulture-Fruits	13	19	67	3	70	27	2	29	28	9	37	80	2	82	202	16	218
Horticulture- Ornamental Plants	3	4	30	0	30	0	0	0	19	17	36	17	5	22	66	22	88
Horticulture- Tuber crops	4	7	28	1	29	6	1	7	11	8	19	1	9	10	46	19	65
Horticulture- Spices	2	3	15	0	15	9	1	10	6	0	6	16	0	16	46	1	47
Horticulture- Medicinal and Aromatic Plants	2	4	6	0	6	4	0	4	6	1	7	5	3	8	21	4	25
Soil Health and Fertility Management	28	35	188	10	198	79	12	91	124	49	173	185	35	220	576	106	682
Livestock Production and Management	6	9	47	9	56	13	8	21	21	8	29	12	8	20	93	33	126
Home Science/ Women empowerment	67	88	108	206	314	68	151	219	132	244	376	194	374	568	502	975	1477
Agril. Engineering	24	34	107	50	157	115	26	141	65	21	86	181	31	101	468	128	596
Plant Protection	90	121	633	52	685	223	34	257	243	131	374	629	83	712	1728	300	2028
Fisheries	13	15	54	1	55	32	0	32	58	0	58	44	10	54	188	11	199
Production of Inputs at site	5	5	36	3	39	16	2	18	38	8	46	60	0	60	150	13	163
Capacity building and group dynamics	39	58	264	21	285	55	14	69	70	43	113	284	43	327	673	121	794
Agro-forestry	8	11	33	0	33	19	5	24	5	10	15	54	6	60	111	21	132
Others	38	40	332	49	142	140	41	52	192	66	153	341	52	393	1005	208	1213
Total	**464**	**608**	**2702**	**473**	**3175**	**1176**	**356**	**1532**	**1638**	**833**	**2471**	**3073**	**791**	**3864**	**8589**	**2453**	**11042**

Table 4.4: Training for Rural Youth in Zone VII during 2014-15

Major Theme	No	Duration	Gen		Total	SC		Total	ST		Total	Others		Total	Grand Total		
			M	F		M	F		M	F		M	F		M	F	Total
Crop Production	77	131	202	57	259	118	39	157	588	174	762	294	84	378	1202	354	1556
Horticulture – Vegetable Crops	45	90	94	38	132	96	12	108	424	97	521	216	51	267	830	198	1028
Horticulture-Fruits	21	35	95	7	102	52	20	72	126	45	171	112	20	132	385	92	477
Horticulture- Ornamental Plants	23	35	78	20	98	24	10	34	149	28	177	80	5	85	331	63	394
Horticulture- Tuber crops	5	6	22	2	24	2	1	3	49	15	64	3	4	7	76	22	98
Horticulture- Spices	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Horticulture- Medicinal and Aromatic Plants	3	3	50	5	55	0	14	14	4	9	13	20	31	51	74	59	133
Soil Health and Fertility Management	31	63	328	39	367	50	40	90	106	91	197	227	138	365	711	308	1019
Livestock Production and Management	34	43	78	39	117	45	57	102	197	86	283	134	38	172	454	220	674
Home Science/ Women empowerment	68	180	21	260	281	11	128	139	27	314	341	35	384	419	94	1086	1180
Agril. Engineering	25	71	161	6	167	126	28	154	183	50	233	152	12	133	622	96	718
Plant Protection	60	108	462	59	521	243	93	336	312	148	460	355	161	516	1372	461	1833
Fisheries	33	57	152	18	170	56	12	68	184	23	207	136	12	148	528	65	593
Production of Inputs at site	10	21	34	8	42	28	9	37	196	46	242	104	10	114	362	73	435
Capacity building and group dynamics	31	56	186	21	207	55	13	68	73	44	117	221	30	251	535	108	643
Agro-forestry	3	6	0	0	0	11	5	16	5	5	10	32		32	48	10	58
Others	82	174	261	35	296	152	87	239	794	526	1320	349	93	442	1556	741	2297
Total	**551**	**1079**	**2224**	**614**	**2838**	**1069**	**568**	**1637**	**3417**	**1701**	**5118**	**2470**	**1073**	**3543**	**9180**	**3956**	**13136**

Table 4.5: Sponsored Training Programme in Zone VII during 2014-15

Major Theme	No	Duration	Gen		Total	SC		Total	ST		Total	Others		Total	Grand Total		
			M	F		M	F		M	F		M	F		M	F	Total
Crop Production	632	391	1175	226	1401	1896	747	2643	3142	1648	4790	3824	1029	4853	10037	3650	13687
Horticulture – Vegetable Crops	75	39	108	14	122	270	197	467	465	70	535	176	17	193	1019	298	1317
Horticulture-Fruits	18	22	63	12	75	209	55	264	265	20	285	65	10	75	602	97	699
Horticulture- Ornamental Plants	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Horticulture- Tuber crops	7	15	10	3	13	2	0	2	223	3	226	22	7	29	257	13	270
Horticulture- Spices	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Horticulture- Medicinal and Aromatic Plants	2	1	1	0	1	32	0	32	6	40	46	0	0	0	39	40	79
Soil Health and Fertility Management	218	71	156	27	183	197	27	224	3997	2491	6488	326	36	362	4676	2581	7257
Livestock Production and Management	77	24	217	22	239	243	130	373	177	85	262	68	11	79	705	248	953
Home Science/ Women empowerment	7	46	11	20	31	8	20	28	56	98	154	20	39	59	95	177	272
Agril. Engineering	37	52	391	47	438	407	227	634	743	240	983	631	170	801	2172	684	2856
Plant Protection	47	32	261	76	337	130	126	256	646	194	840	324	112	436	1361	508	1869
Fisheries	18	46	69	6	75	121	12	133	88	63	151	49	4	53	327	85	412
Production of Inputs at site	18	89	64	4	68	175	42	217	126	56	182	162	13	175	527	115	642
Capacity building and group dynamics	72	61	119	25	144	281	55	336	2317	1379	3696	1177	716	1893	3894	2175	6069
Agro-forestry	20	5	13	0	13	0	0	0	3	0	3	4	0	4	20	0	20
Others	354	293	937	173	1110	7373	1601	8974	4679	877	5556	3470	397	3867	16459	3048	19507
Total	**1602**	**1187**	**3595**	**655**	**4250**	**11344**	**3239**	**14583**	**16933**	**7264**	**24197**	**10318**	**2561**	**12879**	**42190**	**13719**	**55909**

5

Seed, planting materials, Bio-products and livestock material Production

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 5.1 and 5.2. The KVKs of the zone produced 16579.93 q of seed and 38.28 lakhs numbers of planting material of different crops live 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: State- wise seed and planting material produced by the KVKs in Zone-VII

State	2014-15	
	Seed (q)	Planting Material (No.)
Madhya Pradesh	9005.62	1134830
Chhattisgarh	3313.39	336870
Odisha	4260.92	2356744
Total	16579.93	3828444

Table 5.2: State- wise details of planting material produced by the KVKs in Zone-VII

State	2014-15			
	Nos.	Value (Rs.)	Provided to no. of Farmers	Expected area coverage (ha.)
Madhya Pradesh	1134830	372750	6285	27.81
Chhattisgarh	336870	270390	1990	10.15
Odisha	2356744	1551501	6565	80.22
Zone-VII	3828444	2194641	14840	118.18

Table 5.3: Status of Seed Production (q) in Zone-VII

Crop Category	Crop	Variety	Quantity (qt.)	Value (Rs.)	Provided to no. of Farmers
Cereals	Barley	JB-1	1.00	2700	0
Cereals	Kodo	JB-58	12.00	32400	0
Cereals	Kodo	JK 41	5.00	17500	100
Cereals	Kodo	JK 8	3.50	12250	50
Cereals	Maize	JM-216	13.80	0	0
Cereals	Maize	JVM-421	15.40	0	0

Crop Category	Crop	Variety	Quantity (qt.)	Value (Rs.)	Provided to no. of Farmers
Cereals	Maize	MM-1107	0.54	810	12
Cereals	Paddy	Badshahbhog	1.65	2040	6
Cereals	Paddy	Bamleshwari	50.40	55440	55
Cereals	Paddy	Birsa Vikash	180.00	0	220
Cereals	Paddy	Chandrahasini	53.00	75000	0
Cereals	Paddy	CR Dhan-10(Satyakrishna)	308.60	364089	0
Cereals	Paddy	CR-1014	22.50	55890	0
Cereals	Paddy	CR-BORO DHAN-2	33.60	85000	0
Cereals	Paddy	Danteshwari	194.05	675673.8	475
Cereals	Paddy	Gangabaru	1.50	2040	5
Cereals	Paddy	GPU-28	5.00	10000	0
Cereals	Paddy	GUJRAT-13	15.40	0	0
Cereals	Paddy	IGKVR-I	142.27	0	0
Cereals	Paddy	Indira Barani	50.80	55880	50
Cereals	Paddy	Indira barani -1	60.00	90000	0
Cereals	Paddy	Indira Maheshwari	85.00	106250	0
Cereals	Paddy	Indira R-1	159.90	0	0
Cereals	Paddy	IR 64	55.65	342247	0
Cereals	Paddy	JR 201	107.00	42800	0
Cereals	Paddy	JRH 5 (Mukhya Mantri Kheti tirth yojna)	5.25	10500	0
Cereals	Paddy	JRH-19	1.50	0	0
Cereals	Paddy	Karmamasuri	69.36	44880	30
Cereals	Paddy	Krianti SRI	0.08	0	0
Cereals	Paddy	Lalat	166.80	397220.4	208
Cereals	Paddy	Madakini	23.40	53586	0
Cereals	Paddy	Mahamaya	136.80	166080	50
Cereals	Paddy	Maheshwari	146.00	160875	0
Cereals	Paddy	Mandakini	47.40	123203	23
Cereals	Paddy	Menka-1	18.25	0	0
Cereals	Paddy	Mrunalini	278.80	602762	0
Cereals	Paddy	MTU 1001	382.20	639368	350
Cereals	Paddy	MTU 1010	1113.73	2640757	1855
Cereals	Paddy	Naveen	383.60	915679	62
Cereals	Paddy	Parijata	10.45	26083	0
Cereals	Paddy	Pooja	67.50	167670	0
Cereals	Paddy	Prathikhya	572.60	938166	0

Crop Category	Crop	Variety	Quantity (qt.)	Value (Rs.)	Provided to no. of Farmers
Cereals	Paddy	PS 3	0.30	0	2010
Cereals	Paddy	PS 4	1.30	4800	12
Cereals	Paddy	PS 5	0.03	0	0
Cereals	Paddy	Pusa Basmati	4.57	6943	6
Cereals	Paddy	Rajeshwari	578.00	876725	100
Cereals	Paddy	Ranidhan	1714.00	3969652	453
Cereals	Paddy	Sahbhagi dhan	133.50	271177	8707
Cereals	Paddy	Samleshwari	52.40	52390	56
Cereals	Paddy	Siddhant	24.40	19217	35
Cereals	Paddy	Swarna – sub - 1	20.50	34830	68
Cereals	Paddy	Tejaswini	61.20	25451	0
Cereals	Paddy	Varshadhan	20.40	50673.6	102
Cereals	Paddy	Vishnubhog	1.75	2584	6
Cereals	Paddy	PS 5	0.06	0	0
Cereals	Wheat	DBW-110	5.00	10000	13
Cereals	Wheat	GW 273	348.50	233450	25
Cereals	Wheat	GW 322	953.60	21000	6325
Cereals	Wheat	GW 366	1441.64	3970050	1870
Cereals	Wheat	HD 4672	0.15	0	0
Cereals	Wheat	HI 1418	0.12	0	0
Cereals	Wheat	HI 1479	0.14	0	0
Cereals	Wheat	HI 1500	0.11	0	0
Cereals	Wheat	HI 1531	0.10	0	0
Cereals	Wheat	HI 1544	6.82	0	0
Cereals	Wheat	HI 8627	0.12	0	0
Cereals	Wheat	HI 8663	0.11	0	0
Cereals	Wheat	HI 8713	19.60	20000	25
Cereals	Wheat	HW 2004	0.08	0	0
Cereals	Wheat	JW 3020	245.00	1683600	250
Cereals	Wheat	JW 3211	447.70	2840675	11135
Cereals	Wheat	JW 322	7.20	10627	0
Cereals	Wheat	JW 3271	10.00	45000	0
Cereals	Wheat	Kanchan	65.00	98000	0
Cereals	Wheat	Lok 1	34.00	0	0
Cereals	Wheat	MP 1106	0.12	0	0
Cereals	Wheat	MP 1203	0.11	0	0
Cereals	Wheat	MP 4010	240.00	1008000	20
Cereals	Wheat	MPO 1215	0.08	0	0
Cereals	Wheat	Pusa Anmol	5.00	10000	12

Crop Category	Crop	Variety	Quantity (qt.)	Value (Rs.)	Provided to no. of Farmers
Cereals	Wheat	Ratan	25.50	49725	25
Cereals	Wheat	RVW 4106	190.45	672000	15
Cereals	Wheat	Sujata	40.00	200000	0
Flowers	Marigold	Double Orange	0.00	4180	10
Flowers	Marigold	Pusa Narangi	0.04	20000	18
Flower	Marigold	Hybrid	1.6	8000	15
Fodder	Berseem seed	JB 1	0.30	4500	5
Fodder	oat	Kent	1.00	4000	5
Fruits	Aonla	N 7	80.00	0	2
Fruits	Guava	G 27	150.00	0	4
Fruits	Jack fruit	Deshi	25.00	0	2
Fruits	Lemon	Kagzi	60.00	0	3
Fruits	Mango	Amrapali	50.00	20000	5
Green manuring crops	Sunhemp	HYV	1.06	8000	0
Green manuring crops	Sunhemp	Local	2.70	12530	14
Green manuring crops	Sunhemp	S 1	1.20	3360	12
Oilseeds	Groundnut	CG 2	4.00	32000	0
Oilseeds	Groundnut	Devi	2.54	16078	20
Oilseeds	Groundnut	JGN 23	1.32	0	0
Oilseeds	Groundnut	Smruti	10.20	50000	25
Oilseeds	Groundnut	TG 37A	2.40	0	0
Oilseeds	Linseed	JLS 67	20.00	120000	200
Oilseeds	Linseed	JLS 9	0.10	0	0
Oilseeds	Linseed	Kartika	5.00	20000	0
Oilseeds	Linseed	PKDL 133	0.10	0	0
Oilseeds	Linseed	PKDL 21	0.09	0	0
Oilseeds	Linseed	RLC 92	4.50	27000	20
Oilseeds	Linseed	Sheela	6.00	0	0
Oilseeds	Mustard	Anuradha	1.30	6500	34
Oilseeds	Mustard	BR 9	6.00	18600	0
Oilseeds	Mustard	JM 2	5.65	22431	30
Oilseeds	Mustard	Pusa Agrani	0.25	2000	12
Oilseeds	Mustard	Pusa bold	1.25	5000	1250
Oilseeds	Mustard	Pusa Mustord 28	0.10	0	0
Oilseeds	Mustard	Pusa Tarak	6.73	22462	0
Oilseeds	Mustard	Pusa vijay	13.00	0	0

Crop Category	Crop	Variety	Quantity (qt.)	Value (Rs.)	Provided to no. of Farmers
Oilseeds	Mustard	RVM 2	14	151776	116
Oilseeds	Mustard	Yellow Mustard	1.72	5827	0
Oilseeds	Mustard	Chhattisgarh sarson	19.75	60625	5
Oilseeds	Niger	JNC 6	3.90	28200	2480
Oilseeds	Niger	Utkal Niger	0.55	1980	0
Oilseeds	Niger	Utkal niger-150	2.50	10800	54
Oilseeds	Safflower	JSI 7	45.00	130000	0
Oilseeds	Sesame	GT 2	1.26	0	0
Oilseeds	Sesame	JT 2	0.63	4600	3
Oilseeds	Sesame	TKG 22	0.05	0	400
Oilseeds	Sesame	TKG 306	10.77	40920	0
Oilseeds	Sesame	TKG 55	0.26	0	3375
Oilseeds	Sesame	TKG 8	0.10	1550	65
Oilseeds	Soybean	JS 2029	21.64	309600	40
Oilseeds	Soybean	JS 335	375.35	3371690	10
Oilseeds	Soybean	JS 9305	599.60	4151812	270
Oilseeds	Soybean	JS 9560	1081.13	5744012	727
Oilseeds	Soybean	JS 9752	17.05	15000	2
Oilseeds	Soybean	RVS 2001-04	1.92	0	0
Oilseeds	Toria	Anuradha	2.14	0	0
Oilseeds	Toria	JT 1	4.20	30000	25
Pulses	Black Gram	Azad 3	6.89	4350	2
Pulses	Black Gram	JU 86	1.84	0	0
Pulses	Black Gram	Prasad	2.42	16440	0
Pulses	Black Gram	PU 31	1.50	10449	0
Pulses	Black Gram	PU 35	2.68	40200	0
Pulses	Black Gram	TU 94 2	1.00	4000	10
Pulses	Chick pea	JAKI 9218	524.53	3271840	0
Pulses	Chick pea	JG 11	37.28	358148	0
Pulses	Chick pea	JG 12	17.50	0	0
Pulses	Chick pea	JG 130	252.20	1171175	18362
Pulses	Chick pea	JG 14	36.14	100975	52
Pulses	Chick pea	JG 16	279.00	612600	469
Pulses	Chick pea	JG 163	26.80	0	0
Pulses	Chick pea	JG 315	0.12	0	0
Pulses	Chick pea	JG 322	0.13	0	0
Pulses	Chick pea	JG 6	162.00	296000	0
Pulses	Chick pea	JG 63	272.37	1950440	35

Crop Category	Crop	Variety	Quantity (qt.)	Value (Rs.)	Provided to no. of Farmers
Pulses	Chick pea	JG 74	2.50	11500	0
Pulses	Chick pea	RVG 202	84.00	608800	76
Pulses	Chick pea	Vaibhav	36.90	33840	0
Pulses	Chick pea	VIJAY	0.12	0	0
Pulses	Field pea	Paras	21.80	52327	32
Pulses	Field pea	Shubhra	3.80	19152	10
Pulses	Green gram	Hum 12	15.72	0	0
Pulses	Green gram	Hum 16	2.67	0	0
Pulses	Green gram	Narendra	0.02	0	0
Pulses	Green gram	PDM 139	0.28	0	0
Pulses	Green gram	Pusa 9072	2.10	0	0
Pulses	Green gram	PUSA VISHAL	0.01	0	0
Pulses	Green gram	SML 668	2.50	0	0
Pulses	Green gram	TJM 3	120.99	1499120	40
Pulses	Green gram	TM 37	0.90	9900	12
Pulses	Green gram	TM 9937	0.02	0	0
Pulses	Kulthi	Indira kulthi-1	0.50	2300	0
Pulses	Lathyrus Sativus	-	2.18	3500	5
Pulses	Lentil	JL 3	9.00	70000	0
Pulses	Pigeon pea	ICPL 87119 (Asha)	21.24	187930	16
Pulses	Pigeon pea	JKM 189	7.80	0	0
Pulses	Pigeon pea	Rajeev Lochan	20.27	139600	5
Pulses	Pigeon pea	TJT 501	29.93	328350	170
Pulses	Pigeon pea	TT 401	0.10	0	0
Spices	Coriander	JD 1	2.00	0	0
Spices	Coriander	SIMPO 33	0.40	8000	20
Spices	Fenugreek	RMT 1	0.48	7200	24
Spices	Ginger	Suprabha	0.30	6000	4
Spices	Turmeric	Roma	33.50	85150	50
Spices	Turmeric	Suroma	2.38	14280	3
Vegetables	Amaranths	Pusa Lal Chaulai	0.04	800	10
Vegetables	Bottle Gourd	Pusa Santusti	0.04	200	5
Vegetable	Bottle Gourd	**Hybrid**	0.05	50	7
Vegetables	Cabbage	Snowball	12.00	36000	0
Vegetables	Cow Pea	Kashi Kanchan	0.10	3000	10
Vegetables	Okra	Arka Anamika	0.20	10000	11
Vegetables	Okra	VRO 22	0.35	17500	21
Vegetable	Onion	**Hybrid**	0.25	300	8

Crop Category	Crop	Variety	Quantity (qt.)	Value (Rs.)	Provided to no. of Farmers
Vegetables	Pea	PSM 3	10.00	100000	25
Vegetables	Potato	(each variety 30 kg) K. Chandramukhi, K. Chipsona-1, K. Chipsona-3, K. Chipsona-2, K. Anand, K. Jawahar, K. khyati, K. Pukhraj, K. Lalima, K. Arun, K. Sindoori, K. Surya, K. Pushkar, K. Lavkar, K. Kanchan, 166., K. Himsona, K. Frysona, K. Chipsona-4 (Va	5.70	17100	7
Vegetables	Potato	Kufri. Khayati, K.pukhraj, K.Anand, K. chipsona, K.surya, K.lavkar	135.00	350000	0
Vegetables	Radish	Pusa Mridula	0.05	400	5
Vegetables	Spinach	All green	0.46	5520	17
Total			**16579.93**	**51050878.15**	**63602.00**

Table 5.4: Status of Planting Material production (Nos) in Zone-VII

Major group/class	Crop	Nos.	Value (Rs.)	Provided to no. of Farmers	Expected area coverage (ha.)
Flowers	Dianthus	70	0	10	0
Flowers	Galladia	2000	400	200	0
Flowers	Hibiscus	1000	0	0	0
Flowers	Jinia	1300	2100	18	0
Flowers	Kachnar	500	10000	250	0
Flowers	Madhukamni	102	2040	23	0.04
Flowers	Marigold	136427	98307	597	3.02
Flowers	Roses	700	1000	140	0
Flowers	Seasonal flowers	865	865	50	0
Forest Species	Acacia	53753	19565	122	0
Forest Species	Bamboo	1630	13300	94	0.6
Forest Species	Eucalyptus	3150	16000	37	0.1
Forest Species	Gambhar	160	800	9	0
Forest Species	Mahogany	450	2250	27	0
Forest Species	Mahua	100	4000	40	0
Forest Species	Mangium	780	3900	29	0

Major group/class	Crop	Nos.	Value (Rs.)	Provided to no. of Farmers	Expected area coverage (ha.)
Forest Species	Sandal wood	5	0	1	0
Forest Species	Sissu	674	0	60	1.5
Forest Species	Teak	1060	8690	55	0
Fruit	Acid lime	500	0	0	0
Fruit	Aonla	1241	0	4	0
Fruit	Banana	485	5385	60	0
Fruit	Ber	22	0	0	0
Fruit	Citrus Seeded Lime	400	12000	200	0
Fruit	Custard Apple	155	1000	55	0
Fruit	Grafted Mango	59	1475	12	0
Fruit	Guava	4200	120000	200	0
Fruit	Jack fruit	20000	0	0	0
Fruit	Jamun	500	5000	125	0
Fruit	Kaju	10000	0	0	0
Fruit	Mango	15818	106001	253	34.55
Fruit	Other fruits	35553	32418	1188	0
Fruit	Papaya	27755	252835	1836	10.28
Fruit	Pomegranate	850	32000	50	0
Medicinal	Aonla	0	0	45	0
Medicinal	Bael	0	0	12	0.2
Medicinal	Black Turmeric	5000	0	0	0
Medicinal	Karre Patta	500	5000	250	0
Medicinal	Sandal Wood	100	2000	58	0.5
Medicinal	Tulsi	500	5000	250	0
OTHERS	Others	2752	22691	59	1.5
OTHERS	Sindoor	2000	40000	0	0
Spices	Chilli	402299	81486.75	1442	7.97
Spices	Coriander	14	280	10	0.4
Spices	Cucumber	11	220	20	0
Spices	Garlic	141	728	12	0
Spices	Ginger	75	11250	5	0
Vegeatble	Bittergourd	135	3450	20	0
Vegeatble	Bottlegourd	390	3900	20	0.15
Vegeatble	Brinjal	183771	13271.5	945	6.72
Vegeatble	Broccoli	1000	0	10	0.2

Major group/class	Crop	Nos.	Value (Rs.)	Provided to no. of Farmers	Expected area coverage (ha.)
Vegeatble	Cabbage	17805	3293	300	0.6
Vegeatble	Cauliflower	18600	3012	205	0.1
Vegeatble	Drumstick	754	11330	288	0.2
Vegeatble	Knokhol	500	0	0	0.51
Vegeatble	Okra	281	1020	35	1.5
Vegeatble	Onion	324106	21540	169	1.7
Vegeatble	Potato	55	1650	40	1
Vegeatble	Raddish	293	293	20	0
Vegeatble	Sponge gourd	74	1760	20	0.1
Vegeatble	Tomato	249996	21905.75	1160	6.59
Vegeatble	Turnip	4	80	22	1
Vegeatble	Balsan	40	40	1	0
Vegeatble	Brinjal	260821	119757	757	7.91
Vegeatble	Broccoli	40615	16915	126	0
Vegeatble	Bulk vegetables (Tomato, Brinjal, Onion, Papaya, Potato, French Bean, cabbage, capsicum, ridge gourd etc)	958	9580	78	0
Vegeatble	Cabbage	69003	42394	522	1.5
Vegeatble	Capsicum	88878	80028	101	1.33
Vegeatble	Cauliflower	166695	102393	563	4.85
Vegeatble	Cherry tomato	300	300	0	0
Vegeatble	Chilli	13420	2865	43	0.35
Vegeatble	Colour capsicum	1640	6560	8	0
Vegeatble	Drumstick	13452	61879	262	4.24
Vegeatble	Elephant apple	225	0	20	0.5
Vegeatble	Green capsicum	1240	2480	7	0.4
Vegeatble	Knokhol	500	200	12	0
Vegeatble	Onion	1202550	122610	193	3.9
Vegeatble	Other vegetables	21000	6300	0	0.2
Vegeatble	Pointed gourd	4792	385336	0	0
Vegeatble	Red cabbage	1650	950	24	0
Vegeatble	Sweet Potato	500	250	10	0
Vegeatble	Tomato	406745	227312	951	11.97
		3828444	**2194641**	**14840**	**118.18**

Production of Bio-products

Status of bio-agents/bio pesticides/ bio fertilizers production by the KVKs is presented in Table 5.5.

Table 5.5: Production of bio-agents / bio pesticides/ bio fertilizers by KVKs in Zone-VII

Major Group Bio agent/Bio fertilizers/Bio Pesticides	Name of the Product	Qty (in Kg)	Qty (in No.)	Value (Rs.)	Provided to no. of Farmers	Expected area coverage (ha.)	No. of KVKs
Bio Agents	Australian ladybird	2000	0	1000	10	2	1
Bio Agents	Azolla	100	0	0	50	0	1
Bio Agents	Earthworm	122	0	14000	86	0	4
Bio Agents	Esenia foetida	25	0	150	5	5	1
Bio Agents	PSB, Rhizobium	20	0	0	5	0	1
Bio Agents	Trichoderma	500018.5	2010	53630	2527	10	4
Bio Agents	Trichoderma spp.	30	120	60	15	6	1
Bio Agents	Trichoderma viridi	10	0	40	5	0.5	1
Bio Agents	Trichoderma with compost	0.5	0	3000	30	2	1
Bio Agents	Vermi Compost	7947	4205	50700	108	13.80	9
Bio Agents	Vermi worm(E. Eugiinae)	60	0	30000	14	1	2
Bio Agents	Vermiculture	92.5	0	22500	77	10	4
Bio Fertilizer	Azatobacter	160	800	16000	130	64	1
Bio Fertilizer	Azolla	120	0	6600	6	0	4
Bio Fertilizer	Azospirilium	120	600	12000	90	48	1
Bio Fertilizer	Azotobactor	657	785	15700	560	272	2
Bio Fertilizer	FYM	100	0	0	0	0	1
Bio Fertilizer	Nadep Compost	3500	7	4050	22	2	3
Bio Fertilizer	Oyster Mushroom	104	0	8320	36	0	1
Bio Fertilizer	PSB	1567.5	4730	114350	1640	470	4
Bio Fertilizer	Rhizobium	481	2166	43420	1070	565	5
Bio Fertilizer	Rhizobium, PSB	50	250	0	0	0	1
Bio Fertilizer	Trichoderma	801	801	20025	550	250	1
Bio Fertilizer	Trichoderma viridi	200	800	20000	140	80	1
Bio Fertilizer	Vermi Compost	49529.31	25	277643	670	54.30	34
Bio Fertilizer	Vermiculture	1.29	0	650	3	0	1
Bio Pesticide	Baberia Basiyana	100	100	70000	100	70	1
Compost	Vermi Compost	1105	0	7735	21	2	1
Honey	Honey processing	1568	0	12376	0	0	1

Major Group Bio agent/Bio fertilizers/Bio Pesticides	Name of the Product	Qty (in Kg)	Qty (in No.)	Value (Rs.)	Provided to no. of Farmers	Expected area coverage (ha.)	No. of KVKs
Honey	Raj Vijay Honey marketing	407	0	95528	0	0	1
Mushroom	Paddy & Oyster Mushroom	87.5	0	9000	70	0	1
Mushroom Cutivation unit	Fresh Mushroom	41.61	0	3330	44	0	1
Mushroom spawn	Mushroom Spawn	0	326	4890	126	0	1
Mushroom Spawn	Paddy Straw Mushroom	0	258	3096	30	0	1
Mushroom Spawn Bottle	Spawn Bottle (Paddy straw & oyster)	0	380	0	40	0	1
Organic Manure	Vermi Compost	60000	0	30000	0	0	1
Others	Mushroom Spawn	0	2600	0.31	104	0	1
Others	Oyster Mushroom	110.80	0	5540	28	0	1
Others	Paddy straw Mushroom	134	0	9380	32	0	1
Spawn production unit	Commercial Spawn	476.75	1907	29605	67	4776.5	1
Spawn production unit	Mother Spawn	37.5	15	1125	5	0	1
Spawn production unit	Pure Culture	0	2	300	2	0	1
Vermicompost	Vermi Compost	4000	0	12700	1	5.30	2

Table 5.6: Production of bio-agents / bio pesticides/ bio fertilizers by KVKs in Madhya Pradesh

Major Group Bio agent/Bio fertilizers/Bio Pesticides	Name of the Product	Qty (in Kg)	Qty (in No.)	Value (Rs.)	Provided to no. of Farmers	Expected area coverage (ha.)	No. of KVKs
Bio Agents	Earthworm	100	0	3000	50	0	1
Bio Agents	Trichoderma	10	2010	52630	2500	0	2
Bio Agents	Vermiculture	20	0	0	5	0	1
Bio Fertilizer	Azatobacter	160	800	16000	130	64	1
Bio Fertilizer	Azolla	50	0	5000	0	0	1
Bio Fertilizer	Azospirilium	120	600	12000	90	48	1
Bio Fertilizer	Azotobactor	657	785	15700	560	272	2
Bio Fertilizer	PSB	1567.5	4730	114350	1640	470	4

Bio Fertilizer	Rhizobium	466	2166	43320	1055	550	4
Bio Fertilizer	Rhizobium, PSB	50	250	0	0	0	1
Bio Fertilizer	Trichoderma	801	801	20025	550	250	1
Bio Fertilizer	Trichoderma viridi	200	800	20000	140	80	1
Bio Fertilizer	Vermi Compost	14429	0	73575	188	10.5	8
Bio Pesticide	Baberia Basiyana	100	100	70000	100	70	1
Honey	Honey processing	1568	0	12376	0	0	1
Honey	Raj Vijay Honey marketing	407	0	95528	0	0	1
Vermicompost	Vermi Compost	2500	0	5200	0	5	1

Table 5.7: Production of bio-agents / bio pesticides/ bio fertilizers by KVKs in Chhattishgarh

Major Group Bio agent/Bio fertilizers/Bio Pesticides	Name of the Product	Qty (in Kg)	Qty (in No.)	Value (Rs.)	Provided to no. of Farmers	Expected area coverage (ha.)	No. of KVKs
Bio Agents	Azolla	100	0	0	50	0	1
Bio Agents	Esenia foetida	25	0	150	5	5	1
Bio Agents	PSB, Rhizobium	20	0	0	5	0	1
Bio Agents	Trichoderma	8.5	0	0	17	0	1
Bio Agents	Trichoderma spp.	30	120	60	15	6	1
Bio Agents	Trichoderma viridi	10	0	40	5	0.5	1
Bio Agents	Trichoderma with compost	0.5	0	3000	30	2	1
Bio Agents	Vermi Compost	3814	4	24900	30	6	3
Bio Agents	Vermi worm(E. Eugiinae)	50	0	25000	4	1	1
Bio Fertilizer	Azolla	20	0	0	0	0	1
Bio Fertilizer	FYM	100	0	0	0	0	1
Bio Fertilizer	Nadep Compost	3500	7	4050	22	2	3
Bio Fertilizer	Rhizobium	15	0	100	15	15	1
Bio Fertilizer	Vermi Compost	11250	24	29010	32	9.5	5
Mushroom Cutivation unit	Fresh Mushroom	41.61	0	3330	44	0	1
Spawn production unit	Commercial Spawn	476.75	1907	29605	67	4776.5	1
Spawn production unit	Mother Spawn	37.5	15	1125	5	0	1
Spawn production unit	Pure Culture	0	2	300	2	0	1

Table 5.8: Production of bio-agents / bio pesticides/ bio fertilizers by KVKs in Odisha

Major Group Bio agent/Bio fertilizers/Bio Pesticides	Name of the Product	Qty (in Kg)	Qty (in No.)	Value (Rs.)	Provided to no. of Farmers	Expected area coverage (ha.)	No. of KVKs
Bio Agents	Earthworm	22	0	11000	36	0	3
Bio Agents	Trichoderma	500000	0	1000	10	10	1
Bio Agents	Vermi Compost	4133	4201	25800	78	7.80	6
Bio Agents	Vermi worm(E. Eugiinae)	10	0	5000	10	0	1
Bio Agents	Vermiculture	72.5	0	22500	72	10	3
Bio Fertilizer	Azolla	50	0	1600	6	0	2
Bio Fertilizer	Oyster Mushroom	104	0	8320	36	0	1
Bio Fertilizer	Vermi Compost	23850.31	1	175058	450	34.30	21
Bio Fertilizer	Vermiculture	1.29	0	650	3	0	1
Compost	Vermi Compost	1105	0	7735	21	2	1
Mushroom	Paddy & Oyster Mushroom	87.5	0	9000	70	0	1
Mushroom spawn	Mushroom Spawn	0	326	4890	126	0	1
Mushroom Spawn	Paddy Straw Mushroom	0	258	3096	30	0	1
Mushroom Spawn Bottle	Spawn Bottle (Paddy straw & oyster)	0	380	0	40	0	1
Organic Manure	Vermi Compost	60000	0	30000	0	0	1
Others	Mushroom Spawn	0	2600	0.31	104	0	1
Others	Oyster Mushroom	110.80	0	5540	28	0	1
Others	Paddy straw Mushroom	134	0	9380	32	0	1
Vermicompost	Vermi Compost	1500	0	7500	1	0.30	1

Production of Livestock materials

Status of Livestock Production by the KVKs of Zone VII is presented in Table 5.7.

Table 5.9: Status of Livestock Production in KVKs under Zone-VII

Name of the animal / bird / aquatics	Breed	Type of Produce	Qty. (kg/ qt./litre)	Value (Rs.)	No. of Beneficiaries	No. of KVKs
Cattle	Cross	Milk	9435	0	42	1
Cattle	Sahiwal	Breeding and Milk Production	2860	98904	22	1

Name of the animal / bird / aquatics	Breed	Type of Produce	Qty. (kg/ qt./litre)	Value (Rs.)	No. of Beneficiaries	No. of KVKs
Cow	Gir	Breeding uint	4	0	0	1
Cow	Gir	Milk	2750	70036	45	2
Cow	Gir, Sahiwal	Milk	2700	81000	40	1
Cow	Jersey x Sindhi	Milk	2728	61890	20	1
Cow	Sahiwal	Milk	2040	72900	10	2
Duck	Naghans	Egg	0	0	0	1
Fish	Black, red and white molly	Ornamental fish	200	1000	20	1
Fish	Colour Fish	Live Bearer	500	2500	27	1
Fish	Fish	-	4	2000	4	1
Fish	IMC	-	18	9000	15	1
Fish	IMC	Advance Fingerlings	10000	9250	2	1
Fish	IMC	Carp Spawns	5000000	35000	8	1
Fish	IMC	Fingerlings	6000	12000	12	1
Fish	IMC	Fry	108000	18360	40	1
Fish	IMC	Nile Tilapia juveniles	17300	17300	14	1
Fish	IMC	Stunted fingerlings /yearlings	27670	41505	15	1
Fish	IMC	Table fish	5	50000	0	1
Fish	IMC	Yearling	16000	64000	45	1
Fish	IMC and Medium carp	Fingerlings	15600	31500	10	1
Fish	Indian & exotic major crap	Fish Production	6	0	0	1
Fish	Indian crap	Fingerlings	45100	60250	45	1
Fish	Major Indian Carps	Fingerlings	212000	424000	20	1
Fish	Ornamental fish	Fingerlings	200	4000	5	1
Fish	Pangas	Fresh Fish	4813	361025	0	1
Fish	Rohu	Fresh Fish	46	4600	52	1
Fish	Rohu,Catla	500gm to 2kg	155	10850	225	1
Fish	Rohu,Katla,Mrigal	-	17	1700	17	1
Goat	Barbari	Breeding unit	16	0	0	1
Goat	Jamunapari	Kids	40	0	0	1
Mushroom spawn	V. volvaceae,	Mushroom spawn bottle	1000	10000	23	1

Name of the animal / bird / aquatics	Breed	Type of Produce	Qty. (kg/ qt./litre)	Value (Rs.)	No. of Beneficiaries	No. of KVKs
Mushroom spawn	V. volvaceae,P. Sajor caju	Mushroom	4	27000	35	1
Poultry	Banaraja	21 days Chicks	4610	208136	342	5
Poultry	Banaraja	28 day old chicks	1619	0	0	1
Poultry	Banaraja	30 to 90 days old	619	48445	123	1
Poultry	Banaraja	4-6 months old	20	3650	15	1
Poultry	Banaraja	Chicks	1958	100980	100	3
Poultry	Banaraja Bird (Chick)	21 days Chicks	1750	87500	150	1
Poultry	Banaraja Bird (Chick)	Chicks	600	36000	110	1
Poultry	Banaraja, Rinbow rooster	21 days Chicks	8482	466510	515	1
Poultry	Chhabaro	21 days Chicks	235	9400	70	1
Poultry	Kadaknath	Birds	100	60000	50	1
Poultry	Kadaknath	Chicks	2700	96080	130	2
Poultry	Kadaknath	Egg	1000	8000	50	2
Poultry	Kadaknoth	Birds	600	0	201	1
Poultry	Kadaknoth	Chicks	24918	0	201	1
Poultry	Poultry	Brooded Chicks	388	13580	42	1
Poultry	RIR, Chhabro, Banaraja	-	510	47722	26	1
Poultry(chicken + duck)	Banaraja, Black rock, Khaki Campbell, white pekin	Developed chick/ ducks	8643	295790	490	1
Rabbit	Rabbit	-	6	750	5	1
Vanraja, Polliraja, Chhabro	21 days old chicks	254	13970	0	0	1

Table 5.10: Status of Livestock Production in KVKs under Madhya Pradesh during 2014-15

Name of the animal / bird / aquatics	Breed	Type of Produce	Qty. (kg/ qt./litre)	Value (Rs.)	No. of Beneficiaries	No. of KVKs
Cattle	Cross	Milk	9435	0	42	1
Fish	Indian & exotic major crap	Fish Production	6	0	0	1
Goat	Jamunapari	Kids	40	0	0	1
Poultry	Kadaknath	Chicks	1500	80	30	1
Poultry	Kadaknoth	Birds	600	0	201	1
Poultry	Kadaknoth	Chicks	24918	0	201	1

Table 5.11: Status of Livestock Production in KVKs under Chhattishgarh during 2014-15

Name of the animal / bird / aquatics	Breed	Type of Produce	Qty. (kg/ qt./ litre)	Value (Rs.)	No. of Beneficiaries	No. of KVKs
Cattle	Sahiwal	Breeding and Milk Production	2860	98904	22	1
Cow	Gir	Breeding uint	4	0	0	1
Cow	Gir	Milk	2750	70036	45	2
Cow	Gir, Sahiwal	Milk	2700	81000	40	1
Cow	Sahiwal	Milk	2040	72900	10	2
Duck	Naghans	Egg	0	0	0	1
Fish	Pangas	Fresh Fish	4813	361025	0	1
Fish	Rohu	Fresh Fish	46	4600	52	1
Fish	Rohu,Katla,Mrigal	-	17	1700	17	1
Goat	Barbari	Breeding unit	16	0	0	1
Poultry	Banaraja	21 days Chicks	600	15000	12	1
Poultry	Kadaknath	Birds	100	60000	50	1
Poultry	Kadaknath	Chicks	1200	96000	100	1
Poultry	Kadaknath	Egg	1000	8000	50	2

Table 5.12: Status of Livestock Production in KVKs under Odisha during 2014-15

Name of the animal / bird / aquatics	Breed	Type of Produce	Qty. (kg/ qt./litre)	Value (Rs.)	No. of Beneficiaries	No. of KVKs
Cow	Jersey x Sindhi	Milk	2728	61890	20	1
Fish	Black, red and white molly	Ornamental fish	200	1000	20	1
Fish	Colour Fish	Live Bearer	500	2500	27	1
Fish	Fish	-	4	2000	4	1
Fish	IMC	-	18	9000	15	1
Fish	IMC	Advance Fingerlings	10000	9250	2	1
Fish	IMC	Carp Spawns	5000000	35000	8	1
Fish	IMC	Fingerlings	6000	12000	12	1
Fish	IMC	Fry	108000	18360	40	1
Fish	IMC	Nile Tilapia juveniles	17300	17300	14	1
Fish	IMC	Stunted fingerlings /yearlings	27670	41505	15	1
Fish	IMC	Table fish	5	50000	0	1
Fish	IMC	Yearling	16000	64000	45	1
Fish	IMC and Medium carp	Fingerlings	15600	31500	10	1

Name of the animal / bird / aquatics	Breed	Type of Produce	Qty. (kg/ qt./litre)	Value (Rs.)	No. of Beneficiaries	No. of KVKs
Fish	Indian crap	Fingerlings	45100	60250	45	1
Fish	Major Indian Carps	Fingerlings	212000	424000	20	1
Fish	Ornamental fish	Fingerlings	200	4000	5	1
Fish	Rohu,Catla	500gm to 2kg	155	10850	225	1
Mushroom spawn	V. volvaceae,	Mushroom spawn bottle	1000	10000	23	1
Mushroom spawn	V. volvaceae,P. Sajor caju	Mushroom	4	27000	35	1
Poultry	Banaraja	21 days Chicks	4010	193136	330	4
Poultry	Banaraja	28 day old chicks	1619	0	0	1
Poultry	Banaraja	30 to 90 days old	619	48445	123	1
Poultry	Banaraja	4-6 months old	20	3650	15	1
Poultry	Banaraja	Chicks	1958	100980	100	3
Poultry	Banaraja Bird (Chick)	21 days Chicks	1750	87500	150	1
Poultry	Banaraja Bird (Chick)	Chicks	600	36000	110	1
Poultry	Banaraja, Rinbow rooster	21 days Chicks	8482	466510	515	1
Poultry	Chhabaro	21 days Chicks	235	9400	70	1
Poultry	Poultry	Brooded Chicks	388	13580	42	1
Poultry	RIR, Chhabro, Banaraja	-	510	47722	26	1
Poultry(chicken + duck)	Banaraja, Black rock, Khaki Campbell, white pekin	Developed chick/ ducks	8643	295790	490	1
Rabbit	Rabbit	-	6	750	5	1
Vanraja, Polliraja, Chhabro	21 days old chicks	254	13970	0	0	1

6

Details of soil, water and plant analysis

Soil and water testing is an import activity of KVK for improving the soil fertility and sustainability of agricultural production in the region. During the reporting year, KVKs of analyzed 27472 soil samples and 1275 water samples through which 23982 farmers of 1818 villages were benefitted (Table 6). The highest numbers of samples were tested in the state of Madhya Pradesh followed by Odisha and Chhattisgarh. The KVK wise details of soil and water samples tested are given in Table 6.

Table 6: Summary of soil and water samples tested by the KVKs in Zone-VII during 2013-14

State	Details	No. of Samples	No. of Farmers	No. of Villages covered
Madhya Pradesh	Soil samples	14900	13179	646
	Water samples	7	14	7
Chhattisgarh	Soil samples	3014	2653	220
Odisha	Soil samples	9558	7135	690
	Water samples	1268	1001	255
Zone-VII	Soil samples	27472	22967	1556
	Water samples	1275	1015	262
	Total	**28747**	**23982**	**1818**

7

Extension Programmes

With the objective of creating awareness about frontier technologies, a number of extension activities were organized by KVKs in their operational areas. These extension activities include Method Demonstration with small groups to Kisan Mela for huge gathering. It also includes use of old communication techniques of poster exhibition to latest technique of Mobile messaging. Broadly, these activities are – (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 production of CD/DVD, Film show, News paper coverage, radio talks and TV talks (v) meeting based like ex-trainee sammelan, celebration of important days, club meet, farmers' seminar, field day, group meet, gosthi, mela SHG meeting and workshops (vi) soil related activities like soil health camp and soil test campaign (vii) visit based activities like diagnostic visits, exposure visits, farmers visit to KVK and scientists visits to farmers fields. Quanta of these activities are presented state wise graphically. In all, 1,11,071 activities were conducted and 18,84,386 farmers, farm women, rural youth and extension workers were benefited (Table 7).

Table 7.1: Details of extension activities organized by the KVKs of Zone-VII during 2014-15

Activity	No. of activities	Detail of Participants								
		Farmers (Others)		Farmers (SC/ST)		Extension Officials		Totals of farmers and Extension Personnels		
		M	F	M	F	M	F	M	F	Total
Agri mobile clinic	1126	26288	180	1689	210	659	108	28636	498	29134
Animal Health clinic	1	12	0	24	0	0	0	36	0	36
Awareness Programme	2	129	325	0	0	0	0	129	325	454
Celebration of important days(World environment day, Women in Agriculture Day etc.)	1425	16464	3485	6624	4763	1277	425	24365	8673	33038
Diagnostic visits	3892	12113	2088	8382	1979	813	228	21308	4295	25603
Exhibition	400	161118	16141	49212	14421	3046	810	213376	31372	244748
Exposure visits	264	2813	435	3386	635	203	41	6402	1111	7513
Ex-trainees Sammelan	149	2086	363	1292	359	222	45	3600	767	4367
Farm advisory Services	6593	376684	5741	141290	6263	1857	330	519831	12334	532165
Farm Science Club conveners meet	115	1417	169	709	212	101	33	2227	414	2641
Farmers Seminar	158	6086	646	3260	709	501	118	9847	1473	11320
Farmers visit to KVK	66066	61751	10595	48775	10038	2457	416	112983	21049	134032
Farmers-Scientist Interaction	65	714	102	1378	149	127	17	2219	268	2487

Activity	No. of activities	Detail of Participants								
		Farmers (Others)		Farmers (SC/ST)		Extension Officials		Totals of farmers and Extension Personnels		
		M	F	M	F	M	F	M	F	Total
Field Day	683	10787	1989	8525	2173	915	235	20227	4397	24624
Film Show	2504	25686	5371	18432	5501	1699	469	45817	11341	57158
Formation of SHG	5	30	0	20	0	0	0	50	0	50
Group discussion	52	527	102	43	43	2	0	572	145	717
Group meetings	989	9471	2322	6301	3006	512	157	16284	5485	21769
Inteface for agri enterprenauer	1	16	0	9	0	0	0	25	0	25
Kisan Ghosthi	2731	54458	3313	18502	3674	1697	244	74657	7231	81888
Kisan Mela	114	137624	18846	133891	20120	5144	803	276659	39769	316428
Krishi Mahotsav	1181	28813	2891	10644	1342	202	16	39659	4249	43908
Lectures delivered as resource persons	4516	60743	9056	49624	8919	2967	783	113334	18758	132092
Mahila Mandals conveners meetings	104	849	1139	737	724	138	86	1724	1949	3673
Mahila Sammelan	1	0	1	0	101	12	2	12	104	116
Method Demonstrations	541	4425	1062	2861	1160	1948	153	9234	2375	11609
Publication of literature	17	4000	0	0	0	0	0	4000	0	4000
Scientist visit to farmers field	11028	26306	4972	21016	5988	805	188	48127	11148	59275
Seed treatment campaign	2	48	0	8	0	3	0	59	0	59
Self Help Group conveners meetings	214	962	1468	1878	1451	92	89	2932	3008	5940
Soil health Camp	124	3212	330	1917	206	109	28	5238	564	5802
Soil test campaigns	1146	2705	264	1506	338	179	35	4390	637	5027
Summer deep plougning	1	21	0	2	0	0	0	23	0	23
Village survey	2	80	8	5	5	2	0	87	13	100
Workshop	239	3682	492	2976	630	2690	351	9348	1473	10821
Total	**106451**	**1042120**	**93896**	**544918**	**95119**	**30379**	**6210**	**1617417**	**195225**	**1812642**

Note: M-Male, F-Female

Details of other Extension Activities

Activity	No. of activities (Achieved)	Detail of Participants								
		Farmers (Others)		Farmers (SC/ ST)		Extension Officials		Totals of farmers and Extension Personnels		
		M	F	M	F	M	F	M	F	Total
Extension Literature	584	41628	1853	13339	1877	434	86	55401	3816	59217
Newspaper coverage	2322	0	0	0	0	0	0	0	0	0

Popular articles	636	1720	215	2022	515	111	26	3853	756	4609
TV talks	384	13	0	0	0	0	0	13	0	13
Radio talks	562	0	0	0	0	15	4	15	4	19
Animal Health Camp	117	3249	451	2357	620	169	21	5775	1092	6867
Others (Horti. ATMA,)	15	764	0	255	0	0	0	1019	0	1019
Total	**4620**	**47374**	**2519**	**17973**	**3012**	**729**	**137**	**66076**	**5668**	**71744**

Note: M-Male, F-Female

Table 7.2: Details of extension activities organized by the KVKs of Madhya Pradesh during 2014-15

Activity	No. of activities	Detail of Participants								
		Farmers (Others)		Farmers (SC/ST)		Extension Officials		Totals of farmers and Extension Personnels		
		M	F	M	F	M	F	M	F	Total
Agri mobile clinic	926	25295	0	25	0	320	0	25640	0	25640
Animal Health Camp	65	2381	179	854	200	103	8	3338	387	3725
Animal Health clinic	1	12	0	24	0	0	0	36	0	36
Awareness Programme (ZPD & VC, IGKVV)	2	129	325	0	0	0	0	129	325	454
Celebration of important days (World environment day, International women day, Parthenium awareness Day etc.)	187	4644	1252	1394	616	238	133	6276	2001	8277
Diagnostic visits	1179	5847	609	2702	335	367	55	8916	999	9915
Exhibition	192	91067	10151	33340	7964	2013	349	126420	18464	144884
Exposure visits	133	1645	249	1599	238	121	23	3365	510	3875
Extension Literature	286	37041	307	6208	52	72	0	43321	359	43680
Ex-trainees Sammelan	62	1333	145	522	89	192	36	2047	270	2317
Farm advisory Services	3971	309481	3306	25980	5156	1393	201	336854	8663	345517
Farm Science Club conveners meet	30	343	77	189	77	25	16	557	170	727
Farmers Seminar	96	5364	430	2539	443	445	91	8348	964	9312
Farmers visit to KVK	32164	44314	6754	30937	5267	1940	224	77191	12245	89436
Field Day	322	5717	488	3799	778	403	86	9919	1352	11271
Film Show	1478	13469	1836	10365	2097	1305	332	25139	4265	29404
Formation of SHG	5	30	0	20	0	0	0	50	0	50
Group discussion	52	527	102	43	43	2	0	572	145	717
Group meetings	320	3621	528	2193	544	285	63	6099	1135	7234
Inteface for agri enterprenauer	1	16	0	9	0	0	0	25	0	25

Activity	No. of activities	Detail of Participants								
		Farmers (Others)		Farmers (SC/ST)		Extension Officials		Totals of farmers and Extension Personnels		
		M	F	M	F	M	F	M	F	Total
Interface with farmers/ scientist	43	388	37	984	39	82	10	1454	86	1540
Kisan Ghosthi	2466	52382	2544	16179	2607	1515	185	70076	5336	75412
Kisan Mela	70	127115	15924	125487	16726	4420	477	257022	33127	290149
Krishi Mahotsav	1181	28813	2891	10644	1342	202	16	39659	4249	43908
Lectures delivered as resource persons	3104	47825	6518	41408	5893	1941	467	91174	12878	104052
Mahila Mandals conveners meetings	74	777	608	737	171	127	57	1641	836	2477
Mahila Sammelan	1	0	1	0	101	12	2	12	104	116
Method Demonstrations	223	2458	460	1065	346	1750	75	5273	881	6154
Newspaper coverage	1374	0	0	0	0	0	0	0	0	0
Others (Horti. ATMA,)	15	764	0	255	0	0	0	1019	0	1019
Popular articles	290	0	0	0	0	0	0	0	0	0
Publication of literature	17	4000	0	0	0	0	0	4000	0	4000
Radio talks	344	0	0	0	0	0	0	0	0	0
Scientist visit to farmers field	3448	13157	1489	9994	1499	569	110	23720	3098	26818
Seed treatment campaign	1	16	0	0	0	2	0	18	0	18
Self Help Group conveners meetings	94	683	546	1317	506	72	38	2072	1090	3162
Soil health Camp	72	1514	51	831	29	55	6	2400	86	2486
Soil test campaigns	70	1601	146	624	73	80	12	2305	231	2536
Summer deep plougning	1	21	0	2	0	0	0	23	0	23
TV talks	206	13	0	0	0	0	0	13	0	13
Village survey	2	80	8	5	5	2	0	87	13	100
Workshop	79	3169	404	1892	409	628	50	5689	863	6552
Total	**54647**	**837052**	**58365**	**334166**	**53645**	**20681**	**3122**	**1191899**	**115132**	**1307031**

Note: M=Male, F=Female

Table 7.3: Details of extension activities organized by the KVKs of Chhattisgarh during 2014-15

Activity	No. of activities (Achieved)	Detail of Participants								
		Farmers (Others)		Farmers (SC/ST)		Extension Officials		Totals of farmers and Extension Personnels		
		M	F	M	F	M	F	M	F	Total
Agri mobile clinic	192	850	160	1620	210	335	108	**2805**	**478**	**3283**

Activity	No. of activities (Achieved)	Detail of Participants								
		Farmers (Others)		Farmers (SC/ST)		Extension Officials		Totals of farmers and Extension Personnels		
		M	F	M	F	M	F	M	F	Total
Animal Health Camp	18	132	18	650	57	32	5	**814**	**80**	**894**
Celebration of important days(World environment day, Swachchh Bharat Abhiyan etc.)	43	466	84	642	251	92	28	**1200**	**363**	**1563**
Diagnostic visits	735	1300	212	2195	429	331	129	**3826**	770	4596
Exhibition	110	3313	895	4103	1780	386	186	**7802**	**2861**	**10663**
Exposure visits	79	489	31	1262	196	48	15	**1799**	**242**	**2041**
Extension Literature	121	1161	182	3384	512	287	68	**4832**	**762**	**5594**
Ex-trainees Sammelan	18	105	7	271	34	16	3	**392**	**44**	**436**
Farm advisory Services	727	58576	1109	113830	536	287	54	**172693**	**1699**	**174392**
Farm Science Club conveners meet	2	0	0	0	0	0	0	**0**	**0**	**0**
Farmers Seminar	22	185	77	541	215	47	19	**773**	**311**	**1084**
Farmers visit to KVK	11266	8252	1071	10811	2282	504	182	**19567**	**3535**	**23102**
Field Day	117	1143	375	1775	479	175	36	**3093**	**890**	3983
Film Show	222	1977	505	2743	695	122	45	**4842**	**1245**	**6087**
Group meetings	128	964	205	1026	339	108	48	2098	592	2690
Kisan Ghosthi	156	951	476	1530	779	155	52	**2636**	**1307**	**3943**
Kisan Mela	12	1298	255	3996	849	78	31	**5372**	**1135**	**6507**
Lectures delivered as resource persons	785	3869	949	4383	1218	551	180	**8803**	**2347**	**11150**
Mahila Mandals conveners meetings	18	0	95	0	163	2	2	**2**	**260**	**262**
Method Demonstrations	98	556	176	797	389	106	29	**1459**	**594**	**2053**
Newspaper coverage	718	0	0	0	0	0	0	**0**	**0**	**0**
Popular articles	237	1680	200	2000	500	105	24	**3785**	**724**	**4509**
Radio talks	85	0	0	0	0	15	4	**15**	**4**	**19**
Scientific visit to farmers field	929	1676	328	2818	895	141	43	**4635**	1266	5901
Self Help Group conveners meetings	47	52	42	279	231	3	4	**334**	**277**	**611**
Soil health Camp	23	234	21	433	47	31	12	**698**	**80**	**778**
Soil test campaigns	1037	355	28	325	66	63	12	**743**	**106**	**849**
TV talks	44	0	0	0	0	0	0	**0**	**0**	**0**

Activity	No. of activities (Achieved)	Detail of Participants								
		Farmers (Others)		Farmers (SC/ST)		Extension Officials		Totals of farmers and Extension Personnels		
		M	F	M	F	M	F	M	F	Total
Workshop	136	244	18	911	166	1941	255	**3096**	**439**	**3535**
Total	**18125**	**89828**	7519	162325	13318	5961	1574	258114	22411	280525

Note: M=Male, F=Female

Table 7.4: Details of extension activities organized by the KVKs of Odisha during 2014-15

Activity	**No. of activities (Achieved)**	**Detail of Participants**								
		Farmers (Others)		**Farmers (SC/ ST)**		**Extension Officials**		**Totals of farmers and Extension Personnels**		
		M	**F**	**M**	**F**	**M**	**F**	**M**	**F**	**Total**
Agri mobile clinic	8	143	20	44	0	4	0	191	20	211
Animal Health Camp	34	736	254	853	363	34	8	1623	625	2248
Celebration of important days(World environment day, Women in Agriculture Day etc.)	1195	11354	2149	4588	3896	947	264	16889	6309	23198
Diagnostic visits	1978	4966	1267	3485	1215	115	44	8566	2526	11092
Exhibition	98	66738	5095	11769	4677	647	275	79154	10047	89201
Exposure visits	52	679	155	525	201	34	3	1238	359	1597
Extension Literature	177	3426	1364	3747	1313	75	18	7248	2695	9943
Ex-trainees Sammelan	69	648	211	499	236	14	6	1161	453	1614
Farm advisory Services	1895	8627	1326	1480	571	177	75	10284	1972	12256
Farm Science Club conveners meet	83	1074	92	520	135	76	17	1670	244	1914
Farmers Seminar	40	537	139	180	51	9	8	726	198	924
Farmers visit to KVK	22636	9185	2770	7027	2489	13	10	16225	5269	21494
Farmers-Scientist Interaction	22	326	65	394	110	45	7	765	182	947
Field Day	244	3927	1126	2951	916	337	113	7215	2155	9370
Film Show	804	10240	3030	5324	2709	272	92	15836	5831	21667
Group meetings	541	4886	1589	3082	2123	119	46	8087	3758	11845
Kisan Ghosthi	109	1125	293	793	288	27	7	1945	588	2533
Kisan Mela	32	9211	2667	4408	2545	646	295	14265	5507	19772
Lectures delivered as resource persons	627	9049	1589	3833	1808	475	136	13357	3533	16890
Mahila Mandals conveners meetings	12	72	436	0	390	9	27	81	853	934
Method Demonstrations	220	1411	426	999	425	92	49	2502	900	3402
Newspaper coverage	230	0	0	0	0	0	0	0	0	0

Activity	No. of activities (Achieved)	Detail of Participants								
		Farmers (Others)		Farmers (SC/ ST)		Extension Officials		Totals of farmers and Extension Personnels		
		M	F	M	F	M	F	M	F	Total
Popular articles	109	40	15	22	15	6	2	68	32	100
Radio talks	133	0	0	0	0	0	0	0	0	0
Scientific visit to farmers field	6651	11473	3155	8204	3594	95	35	19772	6784	26556
Seed treatment campaign	1	32	0	8	0	1	0	41	0	41
Self Help Group conveners meetings	73	227	880	282	714	17	47	526	1641	2167
Soil health Camp	29	1464	258	653	130	23	10	2140	398	2538
Soil test campaigns	39	749	90	557	199	36	11	1342	300	1642
TV talks	134	0	0	0	0	0	0	0	0	0
Workshop	24	269	70	173	55	121	46	563	171	734
Total	**38299**	**162614**	**30531**	**66400**	**31168**	**4466**	**1651**	**233480**	**63350**	**296830**

Note: M-Male, F-Female

8

Technology week

Technology week concept was given to the KVKs for showcasing the available technologies to the district level extension functionaries and farmers. During technology week, farmers could directly interact with KVK experts, technology generators and extension personnel which would result in higher adoption of the technology. Status of Technology week organized by KVKs in Zone VII is given in Table 8.

Table 6: Summary of soil and water samples tested by the KVKs in Zone-VII during 2013-14

No. of KVKs Involved	Types of Activities	No. of Activities	Number of Participants	Related crop/livestock technology
65	7 Day's Vocational Training	2	67	Lac , Farm Implements
	Animal Health camp	12	686	Awareness about management of health in animals, Vaccination, Treatment ; Deworming, General health check up, Awareness; Livestock technology
	Aqua Health Camp	1	13	Fish health
	Awareness Programme	10	767	Soil Sample collection technique.; SRI, Dual purpose poultry rearing, Mushroom cultivation, Bio-control in sugarcane, Weed management for vegetables like brinjal,tomato,cucumber,cauliflower,cabbage., Parthenium Awareness
	Bio Fertilizers (q)	6	4	Vermi compost
	Bio Product distribution (Kg)	33	410	Vermicompost
	CD Show	2	100	Cultivation of vegetable green house and poly house
	Crop diversification through Distribution of vegetable seedlings	1	25	Brinjal, Chilli
	Demonstration	3	63	seed and soil treatment
	Development of farm women agripreneurs through SHG	1	30	Strengthening of activity of women self help group
	Diagnostic Practical's	70	3918	Cereals, Pulses, Vegetables, Fruit Crops and other enterprises, Wheat, chickpea, mustard, lentil, tomato, cucurbits etc., Demonstrations of implements, tractor mounted sprayes, seed grader etc., Crop cafeteria on field crops, vegetables, spices and medicinal crops , Root rot of paddy; Seed treatment, wilting identification

No. of KVKs Involved	Types of Activities	No. of Activities	Number of Participants	Related crop/livestock technology
	Diagnostic Practice's	26	67	Solve the problems in crop production
	Diagnostic Visit to Mandarin Groove.	1		
	Distribution of Oyster Mushroom Spawn bottles	1	20(200 nos)	Distribution of Oyster mushroom spawn bottle for Income generation activities for landless farmers
	Distribution of fingerlings (No)	1	12	Pangas 5000 Nos.
	Distribution of Khaki Campbell duckling	1	30 (500 nos)	Distribution of Khaki Campbell variety of duckling for Income generation activities
	Distribution of Krishi Calander	0	1000	-
	Distribution of Literature (No.)	1115	18870	Production technology, Various package of practices of soybean, vermin compost, gram production technology etc., Improved technology of agril. allied fields, Production technology of rabi and kharif crop, Crop and live stock, Crop production, Horticulture, Plant protection, Ag. Engineering, Home Science, Fishery; Agricultural technology, success stories of farmers
	Distribution of Planting materials (No.)	13073	10435	Wilt resistant variety of Tomato chilli, Guava, Jackfruit, teak, aonla, Lime, Mango & Cashew grafts, papaya seedlings, mushroom spawn, chilli seedlings
	Distribution of Seed (q)	238.5	754	Improved variety of vegetables and Finger millet, Black Gram, Gram, Marigold, Onion, Tomato, Sponge gourd, Radish, Soybean, Wheat, Chickpea, Mustard, Coriander, Sun hemp, Paddy, Maize, Red gram , black gram
	Distribution of Vanaraja Poultry Chicks	1	30 (400 nos)	Distribution of Vanaraja Poultry Chicks for Income generation activities
	Distributions of Vegetable seedlings	1	60	Brinjal and chilli seedlings
	Exhibition	62	7502	Value addition, sindoor processing, Implements, Seed samples, Technological Charts, Models etc., Improved technology of agril. allied fields, Seeds of all imp. Variety, vermicompost, Kadaknath, implements, Bio pesticides, Literatures, Improved seed and planting material , Display different variety of seed (cereal, pulse, spices, oilseed, vegetable medicinal and aromatic plant), Wheat, chickpea, mustard, lentil, tomato, cucurbits etc., Crop production, Horticulture, Plant protection, Ag. Engineering, Home Science, Fishery, Oyster mushroom and women friendly implements
	Exposure visit	2	52	Technologies of Kharif crops

No. of KVKs Involved	Types of Activities	No. of Activities	Number of Participants	Related crop/livestock technology
	Extension activity	6	240	Off-season vegetable cultivation, Soil health campaign, Awarness Camp, Road show , Soil test campaign, seed treatment campaign
	Ex-trainees Meet	2	76	Use of Micro Irrigation System , Latest technologies & collect feed back for adoption of technologies
	Ex-trainees samelan	4	145	Agriculture and allied activities, Discussed on disease pest management, high value crop, off season cultivation
	Farmers' Fair	14	13025	Lecture on Production technology and Exhibition of live materials, Implements, Seed samples, Technological Charts, Models etc., Production technology of kharif and Rabi crop
	Farm Visit	202	12872	Display the improved technologies, Cereals, Pulses, Vegetables, Fruit Crops and other enterprises, Plant protection and weed management , Soybean and Wheat, Wheat, chickpea, mustard, lentil, tomato, cucurbits etc., Crop cafeteria, Green house & vermi compost unit, Improved technology of agril. allied fields, Crop Cafeteria, Seed production of Soybean, wheat and Chickpea , Different Crops at KVK farm, Crop production, Horticulture, Plant protection, Ag. Engineering, Home Science, Fishery
	Farmer Scientist Interaction	11	2910	Weed management in field crops, Oil seed and pulse crops, Integrated Farming System, Prospects of off- season vegetable cultivation
	Farmers & Farm Women Training	3	75	Awareness about latest technologies to farmers & afrm women
	Farmers friends training	3	159	-
	Farmers Seminar on IPM for Rabi pulses	1	35	Integrated pest Management in Rabi Crops
	Farmers Trainings Programme	29	1550	Soybean, Fisheries,, INM,IPM,IDM,ICM
	Field day	2	81	Production technology of Soybean & IDM in Soybean
	Field Visit with Farmer to demonstration unit	9	271	Hort,Fishery,PP
	Film show	201	7113	Drudgery Reduction, Cotton Cultivation , Soybean Cultivation and Mushroom Cultivation, Wheat, chickpea, mustard, lentil, tomato, cucurbits etc., Vemiculture, farm implements, IPM,INM,Micro irrigation, Improved technology of agril. allied fields, Cultivation practices of Onion, Garlic and Coriander , Crop and live stock, IPM, IDM, SRI Fertilizer Broadcaster, Vermi-compost, vegetable growing in Poly house, mushroom cultivation, Agriculture and allied technologies, Production technology, Crop and livestock, Crop production, IPM in Kharif crop, IDM in kharif crop Fisheries

No. of KVKs Involved	Types of Activities	No. of Activities	Number of Participants	Related crop/livestock technology
	Fish feed preparation and feeding management training	1	32	
	Food day	1	52	
	Future prospect of High tech agriculture	1	30	Awareness on High-tech Agriculture
	Gosthies	302	2547	Improve cultivation of Cereals, Maize and pulses Gram, Kharif & Rabi Crops Management, Soybean, Maize, Kadaknath and fodder management (Napier grass), Ridge and furrow system, SRI, Small farm implements, , system of mustard intensification, Azolla production, Drip irrigation with plastic mulching, Bio- fertilizer, soil sampling and testing, Hi- tech vegetable cultivation, oilseed and pulses production technology, Vegetable producers group
	Group discussion	3	318	Vermicompost, SWI in wheat, raised bed planting of gram, Cultivation of Soybean Production
	Group meeting	2	36	Crop production, Horticulture, Plant protection, Ag. Engineering, Home Science, Fishery
	Hariyali Mahotsav	1	32	Forest crops
	Health Camp	1	346	Live stock (Cow, Buffalo, Goat, Sheep, Poultry Bird etc.
	ICT tools for rural youth	1	15	AGMARKNET,farmers portal,Agri portals
	Importance of floriculture	1	25	Floriculture
	Improved management practices for nursery establishment	1	30	Horticulture
	In service training	1	10	
	Interface Kishan-Mitra training and visit of crop cafeteria and technological park	4	212	Kharif crops and vegetables
	Judicious management of Integrated Farming System Model	1	30	Crop/ Livestock
	Kisan Mela	2	800	Rabi crops
	Krishi Mohotsav(25sept-20oct2014)	1	8894	Rabi Crop And Livestock
	KVK ATMA Workshop on technologies to enhance/sustain Soil Health.	1		

No. of KVKs Involved	Types of Activities	No. of Activities	Number of Participants	Related crop/livestock technology
	Lectures organized	298	9227	Improve cultivation of tubers, Vegetables and pulses, Crop, Fisheries, Dairy, Mushroom, Goat, Post Harvest Technology , Various aspects on agricultural ,vermi compost & farm implements, Improved technology of agril. allied fields, Crop Technology / livestock Technology, Technology for Major crops & livestock of the district, IPM in Soybean and Gram cultivation practices, Crop and live stock, Paddy ,greengram,pisciculture ,soil testing , vegetable ,Animal Sc. & Mushroom; E-pest surveillance, Water Management in cereals, Post harvest management in tomato
	Literature distribution	15	480	
	Matadata awareness campaning	1	25	Matadata awareness
	Method demonstration	3	80	Mango grafting techniques, Vermin composting, Pulse crops
	Mobile Agri Clinic	2	90	Plant Protection,Horticulture,Fishery
	Mushroom Cultivation	1	25	Mushroom
	News Paper	8	mass	
	No. of organization involved	10	84	KVK, Ag.Dept, Hort Dept., Vet.Dept., Fishries Dept., Angaon badi, Mahila bal vikash, AASA, GVT, MPRLP etc
	Novel pesticides for safe and judicious use	1	25	Judicious use of pesticides in Agriculture
	Organic farming on 20.12.14	1	25	Crops
	Parthenium day	8	20	Parthenium
	Plant diagnostic camp	2	50	Rabi crops
	Plant Health Camp	1	30	Pest surveillance
	Posan Saptah	1	22	Nutrinitional food
	Preservation techniques	1	25	Tomato
	Promotion of organic farming through Bi Product distribution	1	20	Vermicompost & verms
	Road Show	4	300	Latest Scientific technologies on various crop & livestock's , Crop/Fishery, Organic plant protection methods, Awareness campaign on agricultural practices
	Scientific cultivation of onion and Potato	1	25	Onion and Potato
	Scientists visits in farmers field	16	182	Discuss about the adoption of technologies

No. of KVKs Involved	Types of Activities	No. of Activities	Number of Participants	Related crop/livestock technology
	Seed treatment Campaign	5	150	Seed treatment of Pulse seeds , Rabi crops, Groundnut, Rice
	SHG Conveners Meet	6	241	Capacity Building on pulse crops, Mobilization of SHGs on group activity
	Soil Helth Campaign	9	486	Soil test, Related Crop, Mobile soil test van
	Special day celebration	1	22	
	Spread of new agricultural technology through Distribution literature	1	120	KVK, News letter
	Swach bharat abhyan	7	44	Swachh Bharat
	Technical Seminar	6	2110	
	Technology demonstration	30	450	All Kharif & Rabi Crops, Vermicompost, Nadep, Azolla and Animal Unit, Nutrition Garden
	Total number of farmers visited the technology week	724	25299	Crop Production kharif & Rabi crops; Improved technology of agril. allied fields
	Training, Film show, Demonstration	34	1186	IPM, ICM, INM, Seed Production , D rudgery Reduction, Water Conservation, Formation of SHG, ICT, Mechnisation, Crop Protection, Crop Diversification, Horticultural crop etc., National nutritional week, Prathenium Eradication week, Identification and management of pest and disease in soybean; management of hairy caterpiller ; Crop Production, Horticulture, live stock & Women empowerment
	University day	1	49	
	Vaccination to poultry birds against Ranikheta disease	1	50	Livestock
	Visit to KVK Crop cafeteria and farm	2	795	Farmers visit of crop cafeteria and seen to different variety of soybean, maize, til, tuar, fodder crop, vegetable , spices and medicinal crop
	Women in Agriculture Day	1	25	Nutritional garden
	World Environment Day	1	20	Related Crop
	World Water Day	1	25	-

9

Technological backstopping through technical literatures and media

9.1 Newsletter

Status of Newsletter published by the KVKs during 2014-15 are presented in Table 9.1

Table 9.1: State wise Newsletter published by the KVKs during 2014-15

State	No. of KVKs	No of issues	Number of copies printed	Number of copies distributed
Chhatisgarh	20	4	48800	47431
Madhya Pradesh	36	4	98500	97208
Odisha	31	4	53050	48780
Grand Total	**87**	**-**	**200350**	**193419**

9.2. Publications

Status of literature published and print media distributed by the KVKs during 2014-15 are presented in

Table 9.2: Category wise literature published and distributed by the KVKs of Zone VII during 2014-15

S. No.	Type	Number	No. of KVKs
1	Abstract	112	11
2	Popular/Technical Article	170	20
3	Book/Booklet	45395	33
4	Leaflets/Folder	178397	57
5	News paper coverage	27	2
6	Pamphlet	14300	2
7	Research Paper	79	21
8	Technical/ Extension Bulletin	62010	16
9	Training manual	2190	3
10	Year Planner	1561	7
Total		**304241**	

10

Details on HRD activities

Table 10.1: HRD activities organized in identified area for KVK Staff by the Directorate of Extension Services 2014-15

Training Topic	Date	Venue	No. of Participants	Collaborating Institute
Jawaharlal Nehru Krishi Vishwa Vidyalaya, Jabalpur , M.P.				
Pre Zonal Workshop of KVKs	April 30,2014 to May 1,2014	KVK, Jabalpur	20	JNKVV, Jabalpur
KVK review meeting cum technologies backstopping MMKTY	May 24, 2014	DES, Jabalpur	20	JNKVV, Jabalpur
KVK review meeting cum technologies backstopping Krishi Mahotsav-2014	August 30-31, 2014	DES, Jabalpur	196	Govt. of M.P./DWSR, Jabalpur
KVK review meeting cum technologies backstopping Finance and Instructional Farm	November 18, 2014	DES, Jabalpur	20	JNKVV, Jabalpur
KVK review Meeting cum technologies backstopping Finance and Instructional Farm	February 6, 2015	DES, Jabalpur	20	JNKVV, Jabalpur
Total			276	
Rajmata Vijyaraje Sindhiya Krishi Vishwa Vidyalaya, Gwalior , M.P.				
Climate resilient agriculture for enhancing agricultural production	August 5-6, 2014	DES, Gwalior	23	-
Crop diversification under changing environment	October 27-28, 2014	DES, Gwalior	26	-
Human Resource Development (EEI- ANAND)	December 16-18, 2014	DES, Gwalior	34	-
Extension Strategy for Entrepreneurship development in agriculture	March 1-2, 2015	DES, Gwalior	18	-
Hi-tech Horticulture	March, 16-17, 2015	DES, Gwalior	25	-
Soil health management for sustainable production	March 24-25, 2015	DES, Gwalior	25	IISS, Bhopal
Total			151	
Indira Gandhi Agricultural University, Raipur (Chhattisgarh)				
Preparation of contingent plan in view of monsoon forecasting of IMD	July 3, 2014	Conference Hall of Directorate Extension Services, IGKV, Raipur	70	Nil

Training Topic	Date	Venue	No. of Participants	Collaborating Institute
Baseline survey and preparation of DPR	September 1, 2014	Conference Hall of Directorate Extension Services	69	Nil
Orientation Programme for newly appointed SMS's	January 14-16, 2015	Conference Hall of Directorate Extension Services	37	Nil
Upgradation of communication skills for transfer of technology to the KVK's	February 13, 2015	Conference Hall of Directorate Extension Services	45	Nil
Methodological Initiatives for accelerating technology	March 21, 2015	Conference Hall of Directorate Extension Services	26	Nil
Total			247	
Orissa University Agricultural & Technology, Bhubaneswar (Odisha)				
Climate change and its effect on Farming System-cum-Review meeting	May 27-28, 2014	Dean Extension Education, OUAT	40	-
Climate change and its effect on Agriculture-cum-Review meeting	August 12, 2014	Dean Extension Education, OUAT	40	-
Emerging trend in Agriculture production system and creative thinking for better transfer of technology	November 12-14, 2014	Dean Extension Education, OUAT	44	-
Crop diversification under changing climate	November 15, 2014	Dean Extension Education, OUAT	31	-
Recent advances in H.Sc., A.Sc. and Fisheries disciplines for rural development	February 6-8, 2015	Dean Extension Education, OUAT	42	-
Development of competency in Computer related work in KVK system	March 20, 2015	Dean Extension Education, OUAT	45	-
Appropriateness of different farm technologies in Plant Protection, Horticulture, Forestry and Ag. Engineering disciplines.	March 24-26, 2015	Dean Extension Education, OUAT	66	-
Total			308	-

Table 10.2: HRD activities organized by Zonal Project Directorate in collaboration with ICAR Institute in identified areas for KVK staff during 2014-15

Training Topic	Date	Venue	No. of Participants	Collaborating Institute
Review-cum Action Plan Workshop in Fishery Technology	April 28-30, 2014	CIFA, Bhubaneswar	35	Central Institute of Freshwater Aquaculture, Bhubaneswar
Review-cum Action Plan Workshop on Farm Mechanization	May 5-6, 2014	ZPD Zone VII	40	Central Institute of Agril Engineering, Bhopal

Training Topic	Date	Venue	No. of Participants	Collaborating Institute
Training-cum-workshop for Animal Science Specialists in KVK	May 8-9, 2014	ZPD Zone VII	56	ZPD, Zone VII, Jabalpur
Training – cum- Workshop on Soybean Production Technology	May 1-3, 2014	DSR, Indore	52	Directorate of Soybean Research, Indore
Training- cum- Workshop on Soil Fertility Management	May 7-9, 2014	IISS, Bhopal	50	Indian Institute of Soil Science, Bhopal
Training-cum-workshop on Rice Production Technology	May 15-17, 2014	CRRI, Cuttack	40	Central Rice Research Institute, Cuttack
Training-cum-workshop on Weed management Technology	May 19-21, 2014	DWSR, Jabalpur	50	DWSR, Jabalpur
Review Workshop for NICRA KVKs	June 9-10, 2014	ZPD, Zone VII, Jabalpur	28	CRIDA, Hyderabad
ICT Application in Agriculture for Programme Assistant (Computer)	June 11-12, 2014	ZPD Zone VII	72	ZPD, Zone VII, Jabalpur
Review workshop of TSP, ISOPAM and TSP Pulses	June 17-18, 2014	KVK Shahdol	31	ZPD, Zone VII, Jabalpur
KVK-ATMA Review Meeting of MP KVKs	June 6-7, 2014	ZPD, Zone VII, Jabalpur	46	JNKVV, Jabalpur and RVSKVV, Gwalior
Brainstorming Programme on use of IT Research in Agriculture	December 11-12, 2015	ZPD, Zone VII, Jabalpur	17	IIITDM, Jabalpur
Capacity Building of Extension Experts of KVKs under Zone VII	November 22-24, 2015	CIFA, Bhubaneswar	65	CRRI, Cuttack
KVK-ATMA Review Meeting of MP KVKs	February 6, 2015	Ballav Bhawan, Mantralay, Bhopal	25	JNKVV, Jabalpur and RVSKVV, Gwalior
KVK-ATMA Review Meeting of Chhattisgarh KVKs	February 24, 2015	Mahanadi Bhawan, Raipur	35	IGKV, Raipur & Govt. Deptt.
KVK Interface on Green Kumbh	March 25-26, 2015	KVK Ujjain	40	JNKVV, Jabalpur and RVSKVV, Gwalior
Zonal Workshop of KVK and Training Programme on Protection of Plant varieties and Farmers Right organized at IGKV, Raipur	March 13, 2015	IGKV, Raipur	700	International Bioversity Centre, Rome
Refresher Course for Programme Assistant (Computer)	March 25-27, 2015	IIITM, Gwalior	30	IIITM, Gwalior
Refresher Course for Programme Assistant (Computer)	March 28-30, 2015	ZPD, Zone VII, Jabalpur	40	IIITDM, Jabalpur
Total			1452	

Table 10.3: KVK Visit/Workshop/Training/Symposium attended by the ZPD Staff/Scientist

S. No.	Particulars	No. of Programmes
1	Training	2
2	Workshop	5
3	Conference	2
4	Seminar	5
5	KVK Visit	63
6	Any other (Review Workshop/Training conducted)	22
Total		**99**

Table 10.4: Footfall of farmers in KVKs of Zone VII

State	No. of KVKs	Footfall during 2014-15			
		No. of Farmers	No. of officials	No. of VIPs	Total
MP	43	108895	1517	292	110704
CG	17	23603	2369	342	26314
Odisha	30	25809	1005	147	26961
Zone-VII	90	158307	4891	781	163979

11

Flagship Programmes in Zone VII

1. Kisan Mobile Advisory (KMA)

Kisan Mobile Advisory (KMA) is the easiest ICT tool working successfully for dissemination of latest information to the farmers and farm women in the states of Madhya Pradesh, Chhattisgarh and Orissa. This ICT based *alternate agricultural information and rural delivery mechanism through Mobile phone* was initiated during 2007 in ZPD Zone VII, Jabalpur. It is based on the linear model of communication. This is the unique programme for making linkages between different stakeholders who are key players for making Indian agriculture sustainable in the coming future through intensive use of ICT tools like mobile phone. Short Message Service (SMS) is being provided by KVKs to the farmers. KVKs implemented the programme and during 2014-15, total 19316 text messages were sent which benefitted to 1616819 users by the operational KVKs in the Zone.

Table 11.1: Details of KMA during 2014-15 KVKs of Zone VII

State	No. of KVK	No. of Messages	No. of Farmers	No. of Extension Personnel	Total Beneficiary
M.P.	45	14133	943683	11315	954998
CG	20	1993	544869	11931	556800
Odisha	33	3190	102291	2730	105021
Zone VII	98	19316	1590843	25976	1616819

2. Climate Resilience Agriculture through KVKs under NICRA

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

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

NICRA is operational in 14 KVKs in states of Madhya Pradesh, Chhattisgarh & Odisha in Zone VII. Zonal Project Directorate, Zone VII monitor the performance of NICRA KVKs namely Balaghat, Chhattarpur, Datia, Guna, Morena, Satna, Tikamgarh in Madhya Pradesh, Bhatapara, Bilaspur, Dantewada in Chhattisgarh, Kendrapara, Ganjam, Jharsuguda, Sonepur in Odisha.

These KVKs are conducting the field activities as per their approved action plan.

- During 2014-15, under Natural Resource Management module, a total of 10160 farmers benefited covering area of the 848.75 ha area in all activities. Eight old farm ponds and 17 drainage channels were renovated to avoid flooding. Six new check dam were constructed/renovated, 514 farmers are benefited through In-situ moisture conservation practices and covering 189.2 ha area. STV based fertilizers applications were followed by 108 farmers and 593 farmers used Zero tillage technology and other technologies for saving residual moisture etc.

- **In Crop Production module**, a total of 7087 demonstrations were conducted on 2479.76 ha. area focused on drought tolerant

varieties , advancement of planting dates of rabi crops to escape terminal heat stress, etc on chickpea, wheat, barley, moong, arhar and vegetable crops.

- **In Livestock and Fisheries module**, 7889 farmers benefited covering the 29935 Units during the year 2013-14. Out of 29935 Unit, 4029 animals were vaccinated to boost immunity through prevention and, 2270 animals were de-wormed, health check-up of 3094 animals was done and 497 animals were covered under breed upgradation.
- **In Institutional interventions module**, 4557 farmers benefited covering 2031.46 ha area in year 2013-14. Out of 4557 farmers, 2357 farmers benefited through Custom hiring service, 460 farmers by community nursery and 434 farmers through community irrigation covering the area of 1624.31 ha through CHC, 41.5 ha community nursery and 123.7 ha Community irrigation.

- A total of 8705 farmers benefited through capacity building which comprised 6770 male and 1961 female through 398 courses.
- In order to create awareness among the farmers in region, various extension activities were organized by KVK at the farms and the farmer's fields. A total of 10760 farmers benefited of which 1291 farmers through Field day, 1770 farmers by group discussion and 700 farmers benefited through Exposure Visit during the year.

- The testimony of the success of NICRA activities is the number of visitors including dignitaries to the custom hiring centers at NICRA village also wide publicity by the print and electronic media as well as through ICAR website and CRIDA newsletter.

3. National Initiative for Fodder Technology Demonstration:

The programme is implemented in 11 KVKs of this directorate with technical guidance from IGFRI, Jhansi. 11 KVKs are implementing this programme namely datia, Sagar, Panna, Chhattarpur,Ratlam, Neemuch from Madhya Pradesh and Deogarh, Angul, Sundergarh, Kalahandi and Nuapara. The programme includes various Technology Demonstration Modules as mentioned below.

Technology Demonstration Modules (TDMs)

In order to address the feed resources related issues of the selected villages under different districts, different interventions will are planned with three modules. However the specific intervention under each module for a particular village is need based and decided upon categories of livestock and farming resource situation of that village. The three intervention modules are as follows-

i. TDM 1: Forage production from arable lands

This module comprises of introducing suitable fodder crops/varieties with improved package of practices, location specific intercropping systems with high sustainable yields, forage production systems for assured supply of fodder under irrigated and rainfed situations, utilizing problem soils (acidic, salt affected, waterlogged sites) for fodder production and exploring possibility for use of non-competitive land use for fodder.

ii. TDM 2: Forage production from non-arable lands

This module includes interventions related to enhancing forage production from rangelands/ degraded lands

like introducing suitable range grasses/legumes/fodder trees, improved management practices of pastures, soil and water conservation practices, and establishment of silvipasture / hortipasture systems on private/ community lands on participatory basis.

iii. TDM 3: Forage utilization and processing for balanced diets

This module comprises of enrichment of crop residues and dry forages, feeding of green forages, bailing and densification of surplus fodder through custom hiring of required machines, preparation of hay and silages, formulation of complete feeds utilizing locally available feed and fodder resources, supplementation area specific mineral mixture and leaf meals, popularization of chaff cutters etc.

Table 11.1: Demonstrations of Fodder Crops in Farmers Field During 2014-15

Name of crop	No. of demonstration	Area (ha)	No. of farmers	Av. Demo. Yield (q/ha)	Av. Check yield (q/ha)	% increase in yield
Maize	39	5.18	38	2280.25	1034	72.04
Sorghum MP Chari	9	1.05	9	810.33	470	46.4
NB Hybrid	10	0.2	10	-	-	-
Stylo	45	9.9	45	450		
Cowpea	14	2.2	14	347.5	225	24.4
Guinea	18	3.2	18	-	-	-

4. Tribal Sub Plan (TSP) on Pulses-

Incharge: Dr. A.P.Dwivedi, Senior Scientist (Agronomy)

This scheme is aimed for 'Enhancing Pulses Production for Food, Nutritional Security and livelihoods of Tribal Community through Demonstration and Training'. TSP is operational in 10 KVKs located in the tribal region of the M.P. and Chhattisgarh. 262 demonstrations were conducted in different pulse crops during the Kharif 2014 with an area of 105 ha with Black gram (PU-35, JU-3, JU-86) and Pigeon pea (JKM-189, TUT-501) varieties. During the Rabi 2014-15 the selected KVKs have conducted demonstration with 1320 farmers on an area of 528 ha. Varieties like JG-11, JG-16 of Chickpea and JL-3 of Lentil are being demonstrated for enhanced production of pulses. KVKs have organized Field Days for enhanced production of pulses.

Regarding the average demonstrated yield of important crops like gram was ranged from 7.11 to 13.42 qt.ha-1 to in demonstrated yield whereas, the average yield of framers' practices was ranged between 4.59 to 8.75 qt.ha-1 . In case of pegionpea, the average demonstrated yield was reported with range of 7.80 to 15.00 qt.ha-1 while, in farmers' practices the range of average yield was found between 5.60 to 12.50 qt.ha1. The average yield of lentil demonstrations was reported with ranged between 5.11 to 11.50 qt.ha-1 against the farmer practices which was ranged from 3.08 to 7.40 qt.ha-1. As per concern of fieldpea, the average yield of demonstration plots was recorded in range between 7.50to

9.96 qt.ha-1 against the farmers' practices which was 5.06 to 6.83 qt.ha-1. The average demonstrated yield of blackgram was recorded in range between 5.80 to 9.29 qha-1 against the farmers' practice which was 3.95 to 5.73 qt.ha-1.

5. PPV & FRA Awearness

Incharge: Dr. A.P.Dwivedi, Senior Scientist (Agronomy)

India is predominating agriculture and 12th mega biodiversity hot spot in the world. The farmers are playing major role to conservation of biodiversity in the country. There is a need for develop an effective system for empowered the farmers for their right for proteting the plant varieties in different part of the country. Looking the importance of the above programmes, the ICAR-Zonal Project Directorate, Zone- VII, Jabalpur and PPV & FRA, New Delhi jointly launched the programme for creation of awareness among the farmer's and other stakeholders about the provision of Protection of Plant Varieties & Farmer's Right Act, 2001 in 40 KVKs of M.P., Chhattisgarh and Odisha and 01 at ZPD level for Programme Co-ordinators of KVKs under Zone-VII. Since the Zone-VII having 5 biodiversity hot spot of the country covering 41 KVKs in the district out of 100 KVKs of zone-VII .

Methodology/ Action Plan/ Road Map:-

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

Outcome of the programme:-

The programme outcome are 969 farmer's planting materials including 614 in Cereals, 175 in Vegetable, Fruits and Spices, 45 in Oilseeds, 74 in pulses and 43 in Millets applied for registration in PPV & FRA .

11.3 Classification of participants attended the programme.

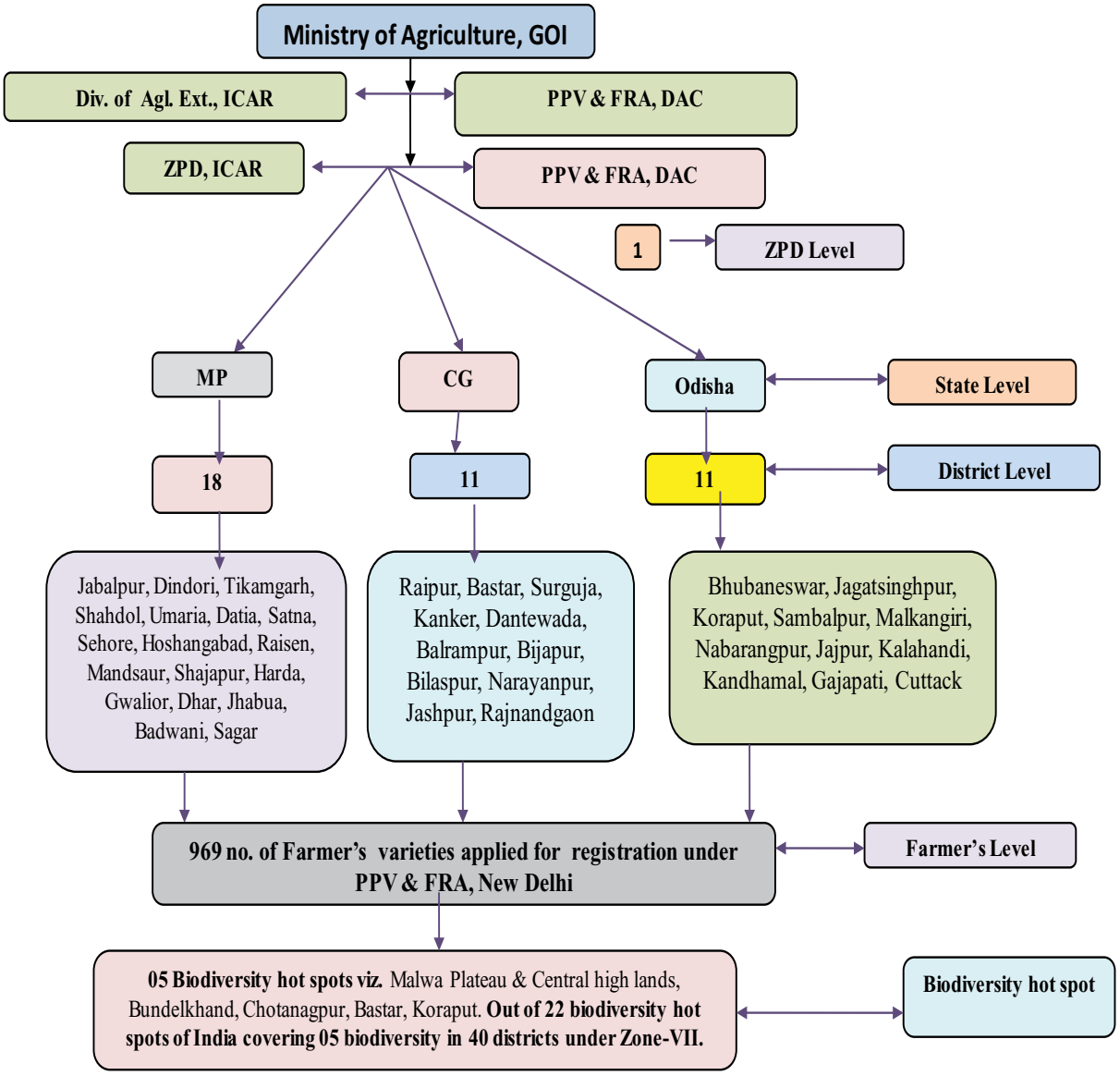
KVK Name	No of Farmers	No of Scientist	No of State Govt. Officers/Officials	No of NGO person and other participants
JNKVV, Jabalpur				
Dindori	202	4	3	3
Sagar	143	21	6	1
Hoshangabad	212	11	10	4
Shahdol	122	5	54	3
Jabalpur	142	15	30	4
Harda	235	5	12	4
Tikamgarh	101	11	3	2

KVK Name	No of Farmers	No of Scientist	No of State Govt. Officers/Officials	No of NGO person and other participants
Umaria	200	8	10	55
RVSKVV, Gwlaior				
Shajapur	137	9	8	2
Datia	111	11	16	0
Badwani	190	6	10	4
Dhar	125	15	34	7
Mandsaur	126	18	20	24
Jhabua	149	5	18	8
Gwalior	104	17	0	12
IGKV, Raipur				
DES, Raipur	547	120	33	0
Balrampur	100	8	9	2
Bastar	60	18	4	2
Bijapur	73	7	15	3
Bilaspur	60	21	16	10
Dantewada	150	11	7	26
Jashpur	98	9	5	0
Kanker	125	12	6	2
Narayanpur	98	7	5	3
Rajnandgaon	150	18	10	5
Surguja	110	8	7	9
OUAT, Bhubaneswar				
Jagatsinghpur	85	6	10	4
Jajpur	113	10	16	8
Kalahandi	82	7	9	2
Kandhamal	130	10	7	3
Koraput	100	15	10	2
Malkangiri	100	9	24	2
Nabrangpur	100	7	4	0
Gajapati	103	11	8	0
Dean, OUAT	104	12	15	3
Cuttack	106	3	5	0
Sambalpur	100	10	10	3
NGOs				
Satna	268	9	15	11
Raisen	152	11	8	4
Sehore	141	5	19	3
Total Zone-VII	5554	525	511	240

Future Strategy:-

1. Awareness of large number of farmers about registration of planting material under PPV & FRA Act.
2. Training of KVKs Scientist about PPV & FRA.
3. Increase the number of DUS testing Centre in each hot spot.
4. Increase the number of crop, varieties, medicinal plants, economic value plants for registration under PPV & FRA.
5. Training programme of farmers, NGO and other stakeholder who are directly involved in the PPV & FRA programme for sustain the programmes .

Flow chart of joint programme launching in the Zone-VII



12

New Initiatives

With the changing scenario, new initiative are required to tackle the problems of the farming community with the latest technological solutions vis-à-vis methodological blending for providing the real benefits of the scientific endaevours in agriculture. KVK is performing very well in the farmers' condition through its well planned mandated activities under the guidance of Division of Agricultural Extension and monitoring system of the ZPD with Director Extension. But due to lack of proper documentation of its works and impact assessment, only few KVKs got recognition and appreciation at various platforms.

Keeping in view the importance of the matter, ZPD Zone VII initiated some new works and its proper documentation at KVK level. Some of the important initiatives are being discussed below.

1. Cloudsourcing in wheat

A programme Seeds for Needs : Broadening the genetic base of crops to empower farmers for climate change adaptation through crowdsourcing and Participatory Varietal Selection Trials has been initiated in collaboration with Bioversity international in 5 KVKs of this directorate in wheat crop during Rabi 2014-15 in Madhya Pradesh and Chhattisgarh. 17 Wheat varieties has been provided to the 2500 farmers. A set of 3 varieties 500 gm each is being prepared for trial purpose. Each farmer will get 1.5 Kg seed, 500 gm each of 3 varieties randomly selected from the set of 17 varieties. The size of Trials for each farmers field was 50 square meter per variety. The area for trials was 150 square meter per farmer for set of 3 varieties.

2. Krishi Mahotsava: Krishi Kranti Rath

Krishi Mahotsava was organized by Govt. of Madhya Pradesh during September 25 to October 20, 2014 by initiating a 'KRISHI KRANTI RATH' throughout the state. Under this mahotsava, a team of officials from various departments of state government like agriculture, horticulture, livestock, fishery, revenue, cooperative, silk, banks, electricity under the supervision of PD, ATMA/DDA and leadership of the KVK scientists were visiting three villages daily and interacting with the farmers to get the real information and feedback on the technology and its performance along with the constraints to adopt it. The unique feature was that the team had to stay in the villages at the night to make the strong rapport with the villagers. As a result, during the period, KVKs in Madhya Pradesh had covered 20296 viallges, organized 9950 Krishak Sangosthi and 169 farmers fairs involving 8-26 departments in their districts.

3. Yield loss minimization through Agri alerts

Using mobile-messaging, KMA, KVKs were sending the weather related messages and agri-alerts which resulted great awareness among farming community besides, it helped in minimization the yield of crops in the tune to 15-20%. For example- KVK Datia send messages during kharif 2014 and received 8130 farmers calls for getting more information on weather.

4. Crop Cafeteria

KVKs in Zone-VII are maintaining crop cafeteria for showing the performance of crop variety/technology to the farmers & other visitors in the KVKs. Also it helps in screening the potential of the technology at KVK farms.

5. Community seed Bank

This was initiated by KVKs in Chhattisgarh, where they are encouraging farming for seed production using scientific methods KVKs are imparting training for grading packages & stay send of different crops by extension experts.

6. Methodological Initiatives

For accelerating the technology acceptance and adaptation among farming community extension experts in the Zone have been asked to focus on the group functionality under SHG/FIG as well as FPOs. In addition to that intensive use of ICT in technical infect dissemination have been planned. Improving market linkage of the group have been also given due consideration for group sustainability.

7. Widening database of farmers through farmer portal

As a testing of overwhelening response of the farmers, Zone-VII is broadening the farmers database through farmer portal and state government departmental portal.

8. Use of social media in technology dissemination like whatsapp

For quick and hassle free information delivery with Audio-video and text of desired lengths , farmers are joined with whatsapp group of concerned discipline scientists for information exchange. For example – Fishery group, animal science group, extension group, home science group, etc. have been crops and in operation. This will further expand as per the need and response for the farming community.

9. Digital KVK

For proper monitoring of the KVK's technical and financial performances ZPD, Zone-VII in collaboration with IIITDM, Jabalpur and IIT, Gwalior has initiated digitization of KVK activities so that the record keeping and online monitoring of the 100 KVKs could be made easily and effectively.

10. Strengthening of programme designing and capacity development

ZPD, Zone-VII has conducted discipline-wise workshops in collaboration with the concerned ICAR institutes and SAUs for designing of the programme of KVKs in that discipline in presence of experts of that subject. This also helps in capacity, development of the Subject Matter Specialist of KVKs.

11. Women face farming and nutria-guide by Home Scientists.

For women-empowerment, KVKs in Zone-VII are working on women face farming under which major areas like-nutritional security, drudgery reduction, value addition and income generation are addressed. Besides, an inventory of progressive women farmers are prepared for sending women- specific messages on above themes. Nutri-guide amd drudgery reducing inventory are being prepared.

12. Flag counters for global visitors of KVKs website.

KVKs under Zone-VII has its website and added flag counters for country the global visitors of the KVK web content of the Zone-VII. This has proud the importance of KVKs in international parlance. It has motivated the KVK scientists to do further better for farming community.

13

Institute Research Projects and Publications

A. Institute Research Projects

S No.	Title	Name of Scientist	Designation	Responsibility
1	Assessing the Efficacy of Mobile Messaging by KVK-KMA to the Farmers in operational states of Zone VII	Dr. SRK Singh	Sr. Scientist	Principal Investigator
2	Adoption Dynamics and impact of Improved Production Technology disseminated by KVK	Dr. SRK Singh	Sr. Scientist	Principal Investigator
3	Assessment of Sowing Techniques for Soybean in Madhya Pradesh-	Dr. AP Dwivedi	Sr. Scientist	Principal Investigator
4	Growth and Activities of Earthworm Species under Different Combination of Bio-wastes	Dr. AP Dwivedi	Sr. Scientist	Principal Investigator
5	Estimation of yield gap and its factors affecting in major crops of Madhya Pradesh, Chhattisgarh and Odisha.	Dr. Prem Chand	Scientist (SS)	Principal Investigator
6	Impact assessment of KKVs: Standardizing methodologies and its estimation	Dr. Prem Chand	Scientist (SS)	Principal Investigator
7	Participatory Approach for Management of Community Grazing Land through KVKs	Sh. Tushar Athare	Scientist	Principal Investigator

B. Publication

i. Research Articles

A. National

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3. A.P. Dwivedi, A. Mishra, S.K. Singh, S.R.K. Singh and M. Singh (2014). Yield gap analysis of chickpea through front line demonstration in different agro-climatic zones of M.P. and Chhattisgarh. *Journal of Food Legumes.* Vol. 27 (1), Pp. 60-63, 2014.
4. P. Chand, S.Sirohi, S.R.K.Singh, A.P.Dwivedi and A.Mishra (2014). Sustainability of dairy breeding practices in Semi-Arid Eastern Zone, Rajasthan. *Indian Res. J. of Ext. Edu*., Vol. 14 (3), Pp. 43-46.
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6. B.Sharma, S.R.K.Singh, S.Gupta, M.K.Shrivastava and S. Verma (2014). Improving Efficiency and Redution in Drudgery of Farm women in Weeding Activity by Twin Wheel Hoe. *Indian Res. J. of Ext. Edu*., Vol. 15 (1), Pp. 76-80.

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8. N.Kumari, S.B.Choudhary, S.K.Jha and S.R.K.Singh (2014). Radio: an educational media to transfer agricultural information among farmers. *Indian Res. J. of Ext. Edu*., Vol. 14 (2), May 2014, Pp. 134-136.

9. D.Kathal, Om Gupta and S.R.K.Singh (2014). Influence of Meteorological parameters on the development of Alternaria Blight of Ashwagandha. *Environment & Ecology*, 32 (3): 808-810, July to Sept., 2014.

10. R.K Singh, S.R.K.Singh, R.K.Jaiswal, U.S Gautam and A.K.Dixit (2014). Performance of Soybean plus Maize Intercropping in Sehore District of Madhya Pradesh. *Soybean Research,11 (1), Pp. 111-115.*

11. S.Kumar, S.R.K.Singh and R.C.Sharma (2014). Impact of Kisan Mobile Advisory Service on Transfer of Agricultural Technologies. *International J. of Ext. Edu*., Vol. 10 (3), Pp. 70-72.

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B. International

15. S.R.K.Singh, A. P. Dwivedi, Anupam Mishra, Prem Chand, D. Kathal (2014). Impact of IPM Technology on Yield, Economics and Pesticide Use in Cotton by KVKs of Madhya Pradesh. *Environment and Ecology*, Vol. 32, No. 4B, Oct. – Dec., 2014, Pp. 1692-96.

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ii. Technical Bulletins/ Mannual

1. Capacity Building of Extension Experts on Methodological Initiative for Accelerating Technology Application by KVKs-*Proceedings*. Zonal Project Directorate, Zone VII, Jabalpur.

2. Technology Integration and its effect under KVK-ATMA Convergence Model in Madhya Pradesh. Zonal Project Directorate, Zone-VII, Jabalpur Madhya Pradesh.

3. ICAR Foundation Day for facilitating the SMART Farmers of NICRA. Zonal Project Directorate, Zone VII, Jabalpur.

4. SMART Farmers of NICRA KVKs: Some Experiences. Zonal Project Directorate, Zone-VII Jabalpur, Madhya Pradesh.
5. Krishi Mahotsava in Madhya Pradesh. Zonal Project Directorate, Zone-VII, Jabalpur, Madhya Pradesh.
6. Capacity Building of KVK Personnel 2014- *Proceedings*. Zonal Project Directorate, Zone-VII, Jabalpur, Madhya Pradesh.
7. Cyclone Hudhud in Odisha – a glance. Zonal Project Directorate, Zone-VII, Jabalpur, Madhya Pradesh.
8. XXI Zonal Workshop of KVKs-Proceedings. Zonal Project Directorate, Zone-VII, Jabalpur, Madhya Pradesh.
9. Vision 2050. Zonal Project Directorate, Zone-VII, Jabalpur, Madhya Pradesh.
10. Technology Showcasing for wide dissemination by the Farmer Fairs: KVK Approach in Madhya Pradesh. Zonal Project Directorate, Zone-VII, Jabalpur, Madhya Pradesh.
11. Technology Showcasing for wide dissemination by the Farmer Fairs: KVK Approach in Chhattisgarh. Zonal Project Directorate, Zone-VII, Jabalpur, Madhya Pradesh.
12. Technology Showcasing for wide dissemination by the Farmer Fairs: KVK Approach in Odisha. Zonal Project Directorate, Zone-VII, Jabalpur, Madhya Pradesh.
13. Fodder Activities by KVKs in Zone VII. Zonal Project Directorate, Zone-VII, Jabalpur, Madhya Pradesh.
14. Exploring Social Media for Agricultural Technology Application: An Initiative by KVKs. Zonal Project Directorate, Zone-VII, Jabalpur, Madhya Pradesh.
15. Technological Interventions by KVKs for Tribal Farmers. Zonal Project Directorate, Zone-VII, Jabalpur, Madhya Pradesh.
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17. Monsoon preparedness by KVK. Zonal Project Directorate, Zone-VII, Jabalpur, Madhya Pradesh.
18. Status Report-XXIIIrd Meeting of ICAR Regional Committee No. VII of KVK in Madhya Pradesh and Chhattisgarh. Zonal Project Directorate, Zone-VII, Jabalpur, Madhya Pradesh.
19. Technology Inventory for KVKs-MP, CG and Odisha. Zonal Project Directorate, Zone-VII, Jabalpur, Madhya Pradesh.
20. Successful Experiences for Food. Nutritional and Livelihood Security:Steps of KVKs for Tribal Community.
21. Empowering Farmers on PPVFRA Act.

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P.Rajan, N.Khare and S.R.K.Singh (2014). Impact Assessment of Krishi Vigyan Kendra on Tribal Farmers. Today & Tomorrow's Printers and Publishers, New Delhi. Pp. 124. (*In Press*).

iii. Book Chapters

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4 Mamta Singh, K.S.Yadav, A.K.Tripathi and A.P.Dwivedi (2014).Technological Interventions Substaintial for production gap in Pulses. Agriculture and Rural Development in India. Published by KVK Barkaccha, BHU, Varanasi.

5 S.P.Lal, S.R.K.Singh, J.Goyal and M.Tiwari (2014). Good Agricultural Practices (GAP) and Good Dairy Farming Practices (GDFP) – A Way Forward to Promote the Family Farming and Attract Rural Youth, *In*: *M.L.Choudhary & Aditya (eds.), Family Farming and Rural Economic Development*, NIPA, New Delhi. Pp. 159-172

iv. Presentations in Conferences/Symposia/Seminars/Other forums

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2 S.R.K.Singh, A.Mishra, Prem Chand, A.P.Dwivedi and Tushar Athare (2014). Scouting mechanization gaps in green gram cultivation in Odisha and addressing through institutional convergence. Paper presented in VII National Seminar of Society for Community Mobilization for Sustainable Development on Sustainable Rural Livelihood: Technological & Institutional Perspective, Jan. 08-10, 2015 at Jammu.

3 S.R.K.Singh, A.Mishra, U.S.Gautam, Prem Chand and A.P.Dwivedi (2014). Investigating mechanization gaps in black gram cultivation in Odisha and addressing through institutional convergence. Paper presented in ISEE National Seminar 2015 held at RVSKVV, Gwalior during February 26-28, 2015.

4 A.P.Dwivedi, A.Mishra, S.R.K.Singh, Premchand (2014). Sustainable Pulses Production: a climatic relisience alternative in Madhya Pradesh. Lead Paper Published in Souvenir; National Seminar on Technologies for Sustainable Production through Climate Resilient Agriculture, 8-9 August, 2014 at JNKVV, Jabalpur, Pp-78-84.

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v. Technical/ popular articles

S.Chouhan, S.R.Chouhan and S.R.K.Singh. *Sugarcane leaf cutter ki upyogita. Kheti.* August 2014. Pp. 38.

14

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, ZPD, 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 an application by the KVK. Therefore, all KVKs were asked to conduct the meetings on the periodical basis (twice in a year).

Total 154 SAC meetings conducted are presented in Table 14. Out of 99 functional KVKs, 95 KVKs have conducted their SAC.

Table 14: Status of SAC conducted by KVKs during 2014-15.

State	Host	S. No.	Name of KVKs	No. of SACs Conducted
Chhattisgarh	IGKV	1	Bastar	2
Chhattisgarh	IGKV	2	Bhatapara	2
Chhattisgarh	IGKV	3	Balrampur	1
Chhattisgarh	IGKV	4	Bijapur	2
Chhattisgarh	IGKV	5	Bilaspur	1
Chhattisgarh	IGKV	6	Dantewada	1
Chhattisgarh	IGKV	7	Dhamtari	2
Chhattisgarh	IGKV	8	Durg	1
Chhattisgarh	IGKV	9	Gariyaband	1
Chhattisgarh	IGKV	10	Janjgir-Champa	1
Chhattisgarh	IGKV	11	Kanker	2
Chhattisgarh	IGKV	12	Jashpur	1
Chhattisgarh	IGKV	13	Kawardha	1
Chhattisgarh	IGKV	14	Korba	1
Chhattisgarh	IGKV	15	Korea	1
Chhattisgarh	IGKV	16	Narayanpur	2
Chhattisgarh	IGKV	17	Mahasamund	1
Chhattisgarh	IGKV	18	Raigarh	1
Chhattisgarh	IGKV	19	Surguja	1
Chhattisgarh	IGKV	20	Rajnandgaon	1

State	Host	S. No.	Name of KVKs	No. of SACs Conducted
Total				26
Madhya Pradesh	JNKVV	21	Balaghat	0
Madhya Pradesh	JNKVV	22	Betul	1
Madhya Pradesh	JNKVV	23	Chhatarpur	1
Madhya Pradesh	JNKVV	24	Chhindwara	1
Madhya Pradesh	JNKVV	25	Damoh	1
Madhya Pradesh	JNKVV	26	Dindori	1
Madhya Pradesh	JNKVV	27	Harda	0
Madhya Pradesh	JNKVV	28	Hoshangabad	1
Madhya Pradesh	JNKVV	29	Jabalpur	0
Madhya Pradesh	JNKVV	30	Katni	1
Madhya Pradesh	JNKVV	31	Mandla	1
Madhya Pradesh	JNKVV	32	Narsinghpur	1
Madhya Pradesh	JNKVV	33	Panna	1
Madhya Pradesh	JNKVV	34	Rewa	1
Madhya Pradesh	JNKVV	35	Sagar	1
Madhya Pradesh	JNKVV	36	Seoni	1
Madhya Pradesh	JNKVV	37	Shahdol	1
Madhya Pradesh	JNKVV	38	Sidhi	1
Madhya Pradesh	JNKVV	39	Tikamgarh	1
Madhya Pradesh	JNKVV	40	Umaria	1
Madhya Pradesh	RVSKVV	41	Ashoknagar	2
Madhya Pradesh	RVSKVV	42	Badwani	2
Madhya Pradesh	RVSKVV	43	Bhind	2
Madhya Pradesh	RVSKVV	44	Datia	2
Madhya Pradesh	RVSKVV	45	Dewas	2
Madhya Pradesh	RVSKVV	46	Dhar	2
Madhya Pradesh	RVSKVV	47	Guna	2
Madhya Pradesh	RVSKVV	48	Gwalior	2
Madhya Pradesh	RVSKVV	49	Jhabua	2
Madhya Pradesh	RVSKVV	50	Khandwa	2
Madhya Pradesh	RVSKVV	51	Khargone	2
Madhya Pradesh	RVSKVV	52	Mandsaur	2
Madhya Pradesh	RVSKVV	53	Morena	2
Madhya Pradesh	RVSKVV	54	Neemuch	2

State	Host	S. No.	Name of KVKs	No. of SACs Conducted
Madhya Pradesh	RVSKVV	55	Rajgarh	2
Madhya Pradesh	RVSKVV	56	Shajapur	2
Madhya Pradesh	RVSKVV	57	Sheopur	2
Madhya Pradesh	RVSKVV	58	Shivpuri	2
Madhya Pradesh	RVSKVV	59	Ujjain	2
Madhya Pradesh	NGO	60	Burhanpur	2
Madhya Pradesh	NGO	61	Indore	2
Madhya Pradesh	NGO	62	Ratlam	2
Madhya Pradesh	NGO	63	Raisen	1
Madhya Pradesh	NGO	64	Satna	0
Madhya Pradesh	NGO	65	Sehore	2
Madhya Pradesh	ICAR	66	Bhopal	1
Total				65
Odisha	OUAT	67	Angul	2
Odisha	OUAT	68	Balasore	2
Odisha	OUAT	69	Bargarh	1
Odisha	OUAT	70	Bhadrak	2
Odisha	OUAT	71	Bolangir	2
Odisha	OUAT	72	Boudh	2
Odisha	CRRI	73	Cuttack	2
Odisha	OUAT	74	Deogarh	2
Odisha	OUAT	75	Dhenkanal	2
Odisha	OUAT	76	Gajapati	2
Odisha	OUAT	77	Ganjam-I	2
Odisha	OUAT	78	Ganjam-II	2
Odisha	OUAT	79	Jagatsinghpur	2
Odisha	OUAT	80	Jajpur	2
Odisha	OUAT	81	Jharsuguda	2
Odisha	OUAT	82	Kalahandi	2
Odisha	OUAT	83	Kandhamal	2
Odisha	OUAT	84	Kendrapara	2
Odisha	CIFA	85	Keonjhar	2
Odisha	OUAT	86	Khurda	2
Odisha	OUAT	87	Koraput	2
Odisha	OUAT	88	Malkangiri	2

State	Host	S. No.	Name of KVKs	No. of SACs Conducted
Odisha	OUAT	89	Mayurbhanj	2
Odisha	OUAT	90	Mayurbhanj-II	2
Odisha	OUAT	91	Nabarangpur	2
Odisha	OUAT	92	Nayagarh	2
Odisha	OUAT	93	Nuapada	2
Odisha	OUAT	94	Puri	2
Odisha	OUAT	95	Rayagada	2
Odisha	OUAT	96	Sambalpur	1
Odisha	OUAT	97	Sonepur	2
Odisha	OUAT	98	Sundargarh -I	2
Odisha	OUAT	99	Sundargarh-II	1
Total				63
Total – Zone VII				154

15

Awards and Recognitions

Best KVK Award (National):

KVK Jhabua has been awarded "Best Krishi Vigyan Kendra Award 2013" (Zone VII) by ICAR for their outstanding contribution in conservation of Kadaknath poultry breed among the tribals of Jhabua hills. Also KVK, Jhabua has promoted Kadaknath among rural youth as source of income and employment. KVK, Jhabua made intensive efforts made by this KVK towards propagation of various technologies and improved packages of practices including diversification in agriculture has changed the livelihood of tribes and helped to prevent their migration. Through the skill development in poultry production, dairy farming, vegetable production, crop diversification and plantation of various fruits, the KVK has been successful in securing grainful employment for individual farm families for for about 5-6 month a year.

Best KVK Award (Zonal):

KVK Dantewada has been awarded "Best Krishi Vigyan Kendra Award 2013" (Zone VII) by ICAR for their outstanding contribution.

Best KVK Award on Foundation Day

KVK Sheopur receiving best KVK award on foundation day of RVSKVV, Gwalior for their contribution in the field of technology dissemination and seed production.

Best Farmer Award

Kaillas Sahoo, Puri, Best farmer award on OUAT Foundation day

SEE Fellow Award

Dr. Anupam Mishra, ZPD, Zone VII has received Fellow Award at 7th National Extension Education Congress 2014 on Translational Research -Extension for Sustainable Small Farm Development during November 8-11 2014 organised at ICAR Research Complex for NEH Region, Umiam, Meghalaya.

ISEE Fellow Award

Dr. S.R.K. Singh received ISEE Fellow 2014 award at ISEE National Seminar on Extension Innovations and Methodologies for Market Led Agricultural Growth and Development organised at RVSKVV, Gwalior during 26-28 February 2015.

Best Young Professional Award

Dr. S.R.K. Singh received Best Young Professional Award at 7th National Extension Education Congress 2014 on Translational Research -Extension for Sustainable Small Farm Development during November 8-11 2014 organised at ICAR Research Complex for NEH Region, Umiam, Meghalaya.

Young Scientist Presentation Award

Dr. Prem Chand, Scientist (Senior Scale) awarded for best young scientist presentation during XII Agricultural Science Congress held during 3rd-6th February, 2015 at National Dairy Research Institute Karnal. The award was given for his excellent work and presentation entitled "Modelling economic, social and environmental sustainability of small-holder dairy farming: the Indian context.

Best Extension Scientist Award

Dr. S.R.K. Singh also received award of best Extension Scientist for providing advisory roles on Sustainable Methodology to KVK-Khordha for Faster Development of Aquaculture technologies of ICAR-CIFA.

Best Community Mobilizer Award

Dr. S.R.K. Singh received Best Community Mobilizer Award 2015 at 7th National Seminar on Sustainable Rural Livelihood Technological and Institutional Perspective organised by Society for Community Mobilisation for Sustainable Development held at SKUSAT-J, Jammu during 8-10 January 2015.


Best Community Mobilizer Award

7th National Seminar

on

Sustainable Rural Livelihood Technological and Institutional Perspective

at

Sher-e-Kashmir University of Agricultural Sciences & Technology of Jammu, Jammu (J&K)

January 8-10, 2015

mahyco

BBNL

This is to certify that Dr. S.R.K. Singh of ICAR-IIPD Zone III has been conferred with Best Community Mobilizer Award 2015 for his/her outstanding contribution for mobilizing the society for sustainable rural development. This award is conferred by Society for Community Mobilization for Sustainable Development (MOBILIZATION) during 7th National Seminar organized in collaboration with SKUAST-J, Jammu, BBNL-Uttarakhand, Mahyco, Excel Crop Care, Astha Beej Company-Uttarakhand and Shree Krishna Pickles, Haryana held at SKUAST-J, Jammu, India.

(Rakesh Nanda)
Organizing Secretary

(J.P. Sharma)
President

(P.K. Sharma)
Vice-Chancellor
SKUAST-J, Jammu

16

Success Story

KVK Ratlam: Pro Tray seedling technology under protected condition - a boon for vegetable, spices and floriculture crops

Background : Out of 65000 ha maximum area of horticulture crop is in spices, vegetable and floriculture i.e. 42000 ha (64.61%). Famers raise seedlings either traditionally or in raised bed method due to biotic and abiotic factor poor quality seedlings are produce with high mortality resulting in low productivity and profitability.

- Pro tray nursery technology is established as a small scale income generating industry in ratlam district for progressive farmers and rural youth.
- By this way vegetable, spices and flower growers get **virus free, healthy and off season seedlings** as per their requirement and at cheaper rate.

Description of Technology

- Natural ventilated poly house 1000 sqm x 2 is a permanent / complete space cover structure for quality production under partially control micro climate for seedling raising.
- 70% Green shed net house 1000 sqm for hardening of seedlings.
- Pro tray technology – raising seedling in the plug (cell) 102 to 104 filled with sterilized material i.e. cocopit : vermicolides : perlite (3:1:1). Covered for one week. After seven day germination spray of twice in a nutrient combination dose @ 0.521 % for INM with liquid water soluble NPK.
- Crops selected for seedlings –Vegetable : Capsicum, Chilli, Tomato & Brinjal, Floriculture : Marigold.

Dissemination process :

- Personal Discussion.
- On / Off Campus training
- Demonstration
- Field Day
- Scientist visit to farmers field.
- Exposure visit.
- Linkage with horticulture department.

Institutional Involvement :

- KVK, Ratlam
- State Horticulture department.
- K.N.K. College of Horticulture, Mandsaur.

Success Point :

- Poly house is a permanent / complete space cover structure for quality production under Partially control micro climate.
- Extreme / uncertain / unpredictable climate crop condition seedling can be grown. Where it is not possible under open field condition.
- There is no chance of soil born fungus or virus infection to seedlings as the nursery in grown in soil less sterilized media and insect cannot enter under protected condition.
- Under pro tray no mortality, no transplanting shock and quick establishment of the seedling due to perfect development of the root system.
- Drastic reduction in mortality in transplanting of seedling as compared to the traditional system of nursery raising.
- Management of insect pest disease under protected condition is quick easily particularly infection of viruses.
- Minimize biotic and abiotic incidence.
- Enhance earliness of seedling period.
- Save land and water for other crops.
- Production can be taken off season as well as market demand.
- Beneficial for marginal or weaker section of farmers.
- They are easy & safe in transporting after packing for long distance.

Outcome :

Practices	Seedling produce (No.)	Mortality (%)	Total Cost of cultivation (Rs.)	Gross income (Rs.)	Net income (Rs.)	Cost benefit ratio	% Increase in seedling produce
Traditional Method	715000	35	440000	500500	60500	1.13	53.84%
Natural ventilated poly house	1100000	2	880000	1485000	605000	1.68	

Impact :

Particular	No. of seedling production	Crop area covered (ha)	Village covered (No.)	No. of farmer
Chilli	600000	23	15	34
Tomato	300000	12	7	18
Capsicum	50000	5	3	7
Marigold	150000	6	5	9
Total	1100000	46	40	68

Looking to very high cost of hybrid seed or vegetables farmer can reduce the seed rate 30 – 40% in comparison with traditional nursery raising system as individual seeds are sown in each cell which produce very healthy seedling.

KVK Jabalpur: Win the race with Zero- Success Story of a Farmer

Shri Manoj Kumar Choubey son of Shri Ramsujan Choubey village Mohtara block Sihora having the 20 ha land. He followed the paddy-wheat cropping system and grows the paddy variety Kranti which takes about

140 days to mature. Hence it causes the delay of sowing of rabi wheat. He has interests in various innovative activities and participate in the different programmes of KVK and allied departments. He took part in many times in joint programmes organized by KVK and Agriculture Engineering, Jabalpur.

He asked to expert for the solution of yield deterioration in wheat due to late harvest of paddy and delay in sowing of subsequent wheat crop. He was advised to use happy turbo seeder machine for sowing of wheat instead of simple seeding after field preparation. Shri Manoj hired machine from Agriculture Engineering and sowed the wheat crop on 20 acre land during 2013-14. The results of the method attracts the number of farmers and he purchased the same machine during 2014-15 and used for their own purpose and sow the wheat crop on 60 acre land without field preparation (manage the residue of the paddy) just after the harvest of paddy. This method also encourage the other farmers and they hired the machine and covered the area more than 120 acre land during the 2014-15.

More over Manoj Choubey and his neighbours also use this machine for sowing of Zaid moong after harvest of wheat under zero tillage on a area of 90 acre land.

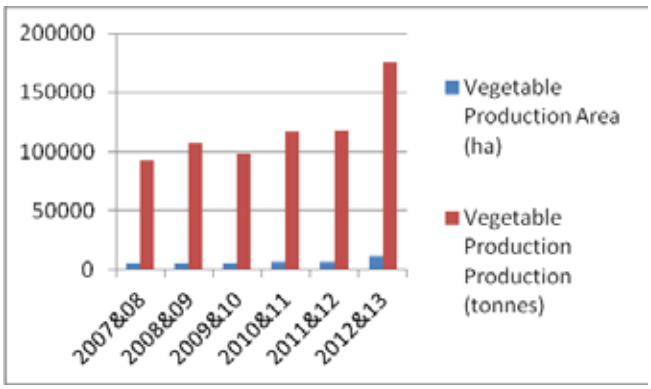
Season & Crop	Method used for sowing	Yield (q/ ha)	Cost of cultivation (Rs)	Gross return (Rs/ha)	Net return (Rs/ha)
Kharif Paddy	SRI planted upto 15th July variety Kranti harvested in the end of Nov	57	21900	77520	55620
Rabi Wheat	Sowing of wheat under zero tillage with the help of turbo seeder	42	19500	60900	41400
TOTAL		**99**	**41400**	**138420**	97020

KVK Seoni: Improved Vegetable Farming in barren land under Drip Irrigation

- **KVK Intervention** - Improved Hybrids of vegetables (Tomato, Chilli and Capsicum) coupled with introduction of Drip irrigation system in more than 150 ha. KVK provide full technical guidance mainly Improved Variety, Nursery Management, Planting, Fertigation Schedule and Insect pest management.
- Identified area link with subsidy (70%) given from Horticulture Deptt. Seoni.

Outcome -

Year	Vegetable Production	
	Area (ha)	Production (tonnes)
2007-08	5595	92317
2008-09	5910	107562
2009-10	6210	98118
2010-11	6495	117559
2011-12	6841	117665
2012-13	11639	175399



PS Agril., MP Govt., DRS, DES, JNKVV Visited field of adopted farmer

KVK Rajnandgaon: Modern Methods of Lac Cultivation for Livelihood Security of Tribes

Lac cultivation gives additional income to the farmers by spending little more efforts and time in their traditional farming practice. The farmers of the area has been taken up lac by the natural growth of the lac insect which was giving them very little extra income. The scientific method of lac cultivation i.e. proper pruning of lac host trees, timely tying up of brood lac, Use of 60mesh nylon jaali, spraying of insecticides as per requirement, and timely cutting of lac after maturity. This scientific approach increases the yield of lac so Krishi Vigyan Kendra, Rajnandgaon have started project on "Modern Methods of Lac Cultivation for Livelihood of Tribal's" in village kektitola of ambagarh chowki block of Rajnandgaon district since 2013-14 under RKVY. There is a natural forest of palas & ber trees in the area. Farmers of village kektitola are cultivating lac from many years but production was very low.

KVK intervention -KVK Rajnandgaon implemented lac project with identification of host trees, with formation of SHGs by participatory approaches. Before starting of project in kektitola, farmers were not trained for lac cultivation and after that our scientists have organized trainings and demonstrations for scientific methods of Lac cultivation.

Output- Total number of palas trees were 260 and ber tree was nil for lac cultivation before inception of this project and after the project these plants crossed 3835 and 365 for Palas and Ber respectively. In traditional farmer's technique production was 1.25 kg/plant in palas and nil in ber and after the scientific intervention it increased upto 3 kg /plant in palas and 3.5kg /plant in ber. Total production of lac in village before the project was only 200 kg but after implementation of project it was increased to 11000 kg in palas and 1200 kg in ber trees.

Outcome- After KVK intervation the farmers of village Kektitola has capable to produce quality broodlac for their self and sale purpose.

Impact : 480 numbers of farmers adopted the scientific methods of lac cultivation in kektitola village under A.Chowki Block of distt- Rajnandgaon. This was done by making 15 Self Help Groups at village level comprising 10 members in each group thus benefitting 150 families of the village. Out of 480 farmers 160 are female, 200 male and nearly 120 youths. Before implementation of the project these number were 27 farmers, 07 female, 15 male and zero youth. The families which were doing lac cultivation before this project were only 22.

Pruning of trees by tribal women

Spraying of pesticide

Brood lac tying

Lac insects on new shoots

Brood lac on tender shoots

Inspection by CEO, Zila Panchayat

SHG members going for training at IINLR, Ranchi

Hon'ble Member of Parliament and Collector Rajnandgaon at Kektitola village

Training to farmers on lac cultivation

KVK Bhadrak: Carp Culture in Abandoned Shrimp Ponds – a Way to Ecological Restoration

Sri Girija Shankar Nayak is an educated leading fish farmer of Balimunda village (Basudevpur block) of Bhadrak district. During the year 1996, he constructed 6 number of ponds of 7 acres (2.8 ha) water spread area (WSA) in a barren land of his paternal property and started tiger shrimp farming in it. He had been utilizing the saline creek water during high tide to fill up his shrimp ponds. In the Initial years the production was very good. Till the end of 2000, the average production was 3 MT shrimps/ha/year. But from 2001 to end of

2005, he faced problems like frequently occurrence of deadly viral diseases like WSSV (White-spot syndrome virus), MBV (Monodon baculo-virus), Yellow-head disease and the ban imposed by Government of India to use antibiotics for treatment shrimp diseases. He incurred loss in lakhs of rupees.

Kvk Intervention:-

He was mentally in a very depressed state when came in contact with KVK, Bhadrak in 2007 . By that time he tried culture of almost all locally available substitute candidate species like :- *Bhekti* (Sea-bass), prawn (*Macrobrachium rosenbergii*) and mud-crab fattening etc. in these ponds but result-wise he was not satisfied. The availability of quality seeds of these alternate candidate species in desired quantities was the major constraint posed before him. He was desperately searching for a technology, which is viable as well profitable as sustainable. The KVK fishery scientist visited his site, suggested him to carry out 'Pond rinsing' (Ploughing of pond bottom, harvesting of rain water upto 1 feet level and then draining it out completely). Accordingly he repeated the process 4 to 5 times during the monsoon season of year 2007. That process substantially reduced the salt content in the soil. Then rain water was harvested upto 4 feet level in 4 number of stocking tanks of 1.5 acre WSA each. These ponds were then properly limed, manured and stocked with IMC yearlings of average body weight 100g at a density 3000 numbers per acre. The water and feed management practices were strictly followed. In a month, the fishes attained an average body weight of 250g. Seeing the result, he was enlivened, which motivated him to invest Rs.5 lakhs to dig 2 number of bore wells of 800 feet deep as perennial fresh water resources.

Output:-

By following multiple cropping pattern in pisciculture, at the end of March 2008, he could able to produce 10 MT of fish in just 4 harvests. He started utilizing the 2 small tanks of WSA 0.5 acre each for nursery and rearing operations respectively. After that he never looked back. Now he produces more than 18 MT marketable-size fishes from his farm in just 10 months (utilizing the rest 2 months of the year for pond drying and preparation). At present the average fish production is more than 6.4 MT/ha/year. He invests Rs.8 lakhs as operational cost and earns a total income of Rs.18 lakhs from his farm. He gets a net profit of Rs.10 lakhs in a year.

Outcome:-

Previously even grasses did not grow over the pond embankments due to hyper-saline condition of soil. By adopting fresh water carp culture, the pond soil and the adjacent areas get gradually desalinized and are become suitable for growing horticultural crops. The technology is economically viable and helps in restoring ecological balance.

Impact:-

Inspired by the success of Sri Nayak, 92 farmers of adjacent villages adopted the technology and around 500 acres of abandoned shrimp ponds are now utilized for sustainable carp culture.

KVK Gajapati: Diversified Farming a Way to Empowerment

Smt Ambika Nayak (52 years), a farm women of Jubagaon village has holding size of 16 acres land basically growing direct seeded rice, maize & ragi followed by horse gram as a traditional farming practice and profit generated was very meager to maintain her family of fourteen members in a better way .i.e. health, education and decent livelihood status.

KVK Intervention

During 2014-15 she cultivated hybrid maize var. super-36 as per the recommendation of KVK scientist. Training and demonstration programme were conducted on improved package and practices for cultivation of hybrid of Maize. Smt. Ambika was identified as very progressive and receptive who could mobilize the beneficiaries for systematic and scientific cultivation by her own interest. She could be able to harvested 52 t/ha of maize which was the highest yield and the net return was Rs. 68,120/- with B:C ratio of 2.27 against the farmer practice of 30 qntl/ha. with this benefit from scientific maize cultivation she was motivated to diversify her farming system with improved cultivation of rice, ragi and vegetables from his 6.4 ha of land for maximization of profit.

Innovative Extension approach

Sl. No	Scope	Suggested enterprises	Enterprises adopted
1	Rice, maize	Hyv./hybrid maize	Hyv+/hybrid maize
		Hyv Rice	Hyv Rice
2	Millets	Ragi var.Bhairavi	Ragi var.Bhairavi
3	Vegetable nursery	Vegetables (Cow pea, brinjal, Tomato, chilli, beans, cauliflower, cabbage)	(Cow pea, brinjal, Tomato, chilli, beans, cauliflower, cabbage)
4	Mushroom	Mushroom (Oyster from maize stalk)	Mushroom (Oyster from maize stalk)
5	Poultry	Banaraja Poultry	Banaraja Poultry

Deposits of technology

KVK provided Agri advisory services and established linkage with AAO/AHO, R.Udayagiri, input suppliers Paralakhemundi for availability of quality seeds and other critical inputs like biofertilizer, fertilizer, biopesticides, micro nutrient and finance from banks and micro finance agencies. She started cultivation with maize, transplanted ragi (Bhairabi), Maize+arhar inter crop, off season cauliflower, brinjal (Tareni), Green pea (local), tomato (BT-10) and Chili (Local) through improved cultivation practices. She followed treatment proper seed treatment and appropriate fertilizer management practices integrated with organic and chemical inputs. The continuous follow up activities by scientists of KVK during the cropping season could build his confidence and skill for the improved method of cultivation with minimization of cost of cultivation by timely farming operations.

Adoption of technology

A) Details of technology

Crop	Technology intervention	Season	Area(Ha)
Maize	Packages of practices	Kharif	2.2
Ragi	Packages of practices	Kharif	0.8
vegetables	Packages of practices	Kharif + rabi	1
Rice	Packages of practices	Kharif	2.4

B) Profit-Share analysis

Crop	Gross cost	Gross return	Net return	B:C ratio
Maize	30,000	68,120	38120	2.75
Ragi	6,000	20,000	14,000	3.30
Vegetables	25,000	1,35,000	11,0,000	5.40
Rice	25,000	48,960	23,960	1.95
Total	86,000	2,72,080	1,86,080	3.16

C. Socio economic change

Smt. Ambika Nayak is now better up in her social status due to strengthening her farming economy through such type of diversified farming system. Her husband with 4 sons helped a lot taking care of her homestead farming system. How ever the family labour could be efficiently utilized for sustainability of the system.

D. Other out come

Gain in Knowledge	Before	After
Improved cultivation technique	Low level of knowledge	Moderately level of knowledge gained
Skill Seed treatment, fertilizer application, Interculture, Intercropping, Use of bio pesticide, Pest and diseases management	Low level of skill	Skill developed
Role in technology dissemination	Self motivated	Well oriented towards the achievement motivation for self and the fellow farmers in the village community.
Involvement of women farmers	Shy and hiding facts	Skill developed and better oriented towards participation in capacity building programmes

Farmer's reaction towards K.V.K intervention :

The farmers of Jubagaon village appreciated the technological intervention of KVK, Gajapati and realized the out come of the improved cultivation practices through diversified farming system and cost effectiveness. Most of the farmer of the village have now started diversifying their farming. Smt. Ambika Nayak is now become a better farmer trainer of that village for her friends and relatives. Even some of them have now started seed production in tomato seeds of BT-10 variety and supplying to the private traders @Rs. 5000 /Kg of seed.

Follow up :

Scientists of KVK Gajapati are making regular follow up and suggestions the critical technical intricacies faced by the farmers. The feedback is collected through ex-trainee meet, diagnostic field visit and group discussion. The crop planning is advised well ahead to procure the critical inputs for their timely applications. Scientists are advising all possible solution measures through practicable and advising appropriate recommendations.

Photograph :




KVK Keonjhar: Off-Season vegetable Cultivation Brings Prosperity among the Farmer

Background information :

Guhal Chatua, is one of village of Sadar block of Keonjhar district where majority of farmers depend on vegetable farming as their sole source of livelihood.

- Farmers were traditionally growing cucurbits, okra and brinjal in the rainy season and tomato during rabi season.
- KVK conducted no of training programmes on nursery raising techniques for healthy seedlings, integrated nutrient management, integrated pest management and other improved package practices of off season vegetable cultivation.
- Farmers front line demonstration were conducted in the their field with their active participation on suitable variety of off season vegetables.
- The farmers were motivated to grow off-season vegetables for getting better market price with minimum cost of cultivation.

Description of Technology:

- Looking at his interest, he was supplied with drip irrigation facilities.
- He established 3 nos of vermicompost units for his additional income.

Institutes involved :

- KVK,Keonjhar
- Horticulture Department – National Horticulture Mission
- Agriculture Department
- Financial assistance from Nationalized Bank.
- RRTTS, Keonjhar

Success Points:

Now he has been producing around 70,000 nos. of vegetable seedlings and offseason vegetable production with a net profit of Rs. 11,80,400 per annum.

Outcome:

Adoption of improved technologies led to increase in income from different Enterprises adopted by him.

Year	Crop/Enterprises	Area (ha)	Total Production (qn)	Cost of cultivation (Rs)	Gross return (Rs)	B:C
2011-12	Paddy	3.2	94	86000	103400	
	Brinjal	0.8	270	64800	135000	
	Tomato	0.8	316	53500	94800	
	Cauliflower	0.8	220	37400	88000	
	Total	5.6	-	**241700**	**421200**	**1.74**
2012-13	Vegetable seedling	0.008	30000 nos	5500	15000	
	Kharif Brinjal	1.4	360	133000	360500	
	Offseason Cauliflower	1.6	185	79625	556500	
	Paddy	2.6	82	72000	90200	
	Total	**5.6**	**-**	**290125**	**1022200**	**3.5**
2013-14	Vegetable seedling	0.008	70000 nos	12000	35000	
	Kharif Brinjal	1.6	432	135000	432000	
	Offseason Cauliflower	2.0	215	125000	752500	
	Paddy	2.0	94	82000	103400	
	Total	5.6	-	354000	1322900	3.74

Impact:

Within 2 years of intervention of offseason vegetable cultivation, he has been able to change his income and social status. Impressed by the dynamic leadership and innovative attitude of Sri Laxman Mahanta, about 72 farmers now adopted the off season vegetable cultivation of nearby villages.

Off season cauliflower cultivation visited by Dean, Extension Education

Nursery raising of off-season vegetables in poly-house funded by NHM

Harvested brinjal fruits

Off season brinjal cultivation

KVK Mayurbhanj-II: Farm Mechanization–A new Avenue of Agri-preneurship

Sri Binayak Nanda , Age-32, village-Koilisuta of Bisoi block is now an example of successful agri-entrepreneur on farm machinery . Being a graduate, instead of searching for job, he has given opportunities to the unemployed rural youths who are migrating every year to other state in search of job.

KVK-Intervention: He came in contact with KVK, Mayurbhanj-II, Jashipur 2 years back, leading some youths of his village. They got training about the multiuse of farm implements, also trained about repair and maintenance of agricultural machineries like power tiller , self propelled paddy transplanter , paddy reaper , seed drill etc. .

Output: Now his agro-service center is equipped with many agricultural implements, starting from land preparation to post harvest operation. Basically the more demanded agricultural machineries like rotavator for land preparation, self propelled paddy transplanter (4 rows walking behind), power weeder, power tiller , power tiller drawn seed cum fertilizer drill , paddy reaper , tractor operated axial flow paddy thresher etc. are accepted by farmers on custom hiring basis.

Outcome: He has transplanted 200 acres in line transplanting under BGREI programme during Kharif-2014. His total net annual income from custom hiring of agricultural machineries is around Rupees 3.5 lakhs. He is now targeting for purchasing of combine harvester for harvesting paddy.

Impact: Inspired by his success, youth farmers of his and nearby villages are now planning for setting up agro-service center of their own.

17

Important Visitors in Zone-VII

Dr. S. Ayyapan, Secretary, DARE and DG, ICAR visited ICAR-Zonal Project Directorate, Zone VII, Jabalpur on 29th September, 2014. During which he had taken a cursory look on the initiatives and salient achievements on the various fronts in the operational areas.

Dr. A.K. Sikka, DDG (AE), visited this directorate on 21 April 2014 and 3 September 2014.. An interaction meeting with scientists of Zonal Project Directorate, Zone VII has organised on this occasion. DDG took stock of various activities undertaken by this directorate

Sh. Arvind Kaushal, Addl. Secretary, DARE and Secretary ICAR, visited KVK Katni, Satna and ICAR-ZPD Zone VII

Addl. Secretary, DARE and Secretary, ICAR visited KVK Katni, Instructional Farm in presence of Prof. V.S.Tomar, VC, JNKVV, Jabalpur, Dr. Anupam Mishra, ZPD, Zone VII, Jabalpur, Dr. P.K.Mishra, DES, JNKVV, Jabalpur on **28.9.2014 done** by the KVKs under the guidance and support of ZPD.

Shri Abhisek Singh, MP, Rajnandgaon inaugurated seed grader cum processing centre of KVK at surgi, Rajnandgaon and one day farmers training programme on 16 February 2015 at KVK Rajnandgaon.

Sh Laxminarayan Yadav, MP, Sagar inaugurated the programme on Creation of Awareness regarding PPVFRA, 2001 among the farming community in presence of Prof. V.S. Tomar, VC, JNKVV, Jabalpur, Dr. P.K. Mishra, DES, JNKVV, Jabalpur, KVK Sagar staff and farmers on 25 March 2015.

Shri Vishnu Dev Sai Minister of State, Steel, Mineral, Labour & Employment, Govt. of India inaugurated the Training programme of farmers at KVK & visited field activities of **KVK Jashpur.**

Smt Jyoti Dhurve Member of Parliament and MLA Betul Shri Hemant Khandelwal along with other public representatives of Betul district with farmers visited KVK in the month of January 2015 to see the vegetable production technology and plasticulture in vegetable demonstrated by KVK Betul.

Shri Kamalbhan Singh Maravi, MP, Surguja inaugurated two days training programme and Sangosthi organized under All India Integrated Soil Testing Crop Response Correlation Project and Tribal Sub-plan, jointly by Krishi Vigyan Kendra, Surguja.

Sh. Gauri Shankar Bisen, Minister of Agril and Farmers Welfare, Govt of M.P. inaugurated Kisan mela and Administrative Building of KVK Balagaht in the presence of Sh. Nandkumar Singh Chauhan, Member of Parliament, Khandwa, MLAs of the district, Dr. V.S. Tomar, VC, JNKVV, Jabalpur, Dr. Anupam Mishra, ZPD, Zone VII, Jabalpur, Dr. S.S.Tomar, DRS, Dr. P.K.Mishra, DES, JNKVV, Jabalpur.

18

ATIC Progress Report