Annual Report 2014-15

Technology Demonstration Component

"National Initiative on Climate Resilient Agriculture"

ZONAL PROJECT DIRECTORATE ZONE VII

Division of Agricultural Extension
Indian Council of Agricultural Research
Adhartal , Jabalpur - 482004 (M.P.)

Annual Report 2014-15

Technology Demonstration Component

National Innovations in Climate Resilient Agriculture

ICAR-Agriculture Technology Application Research Institute

Division of Agricultural Extension

Adhartal, Jabalpur – 482 004 (Madhya Pradesh)

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PREFACE

Indian agriculture being the backbone of the Indian economy is on decreasing trend apropos contribution to our national GDP. Though around 55 percent people derive their livelihood from this sector. In fact, agriculture is the mainstay for the farmers and farms women in the states like Madhya Pradesh, Chhattisgarh & Orissa. Therefore, it was felt need for proper implementation of the NICRA activities in the region to educate the farmers and save their farming through climate vulnerability.

KVKs have been considered as catalyst for promoting climate resilient agriculture through technological interventions at the district level. It aimed at educating the farmers on the changing climate situation and providing the technical skill for using the coping and mitigation strategy in the harsh weather situation. Basically, NICRA KVKs identify the need and problems of the farming communities related with climate change and make endeavour to solve the same through available technologies using various extension methods viz., training, demonstrations, exhibitions, farmers fairs, field days and farmers friendly literature. All the activities are finalized with the presence of the experts and documented as Action Plan for the concerned year well in advance keeping in view the past experiences at the farmers fields.

It gives me immense pleasure to publish this Annual Report 2014-15. This report is based on the progress of activities reported by 14 NICRA KVKs working under ZPD Zone VII. All the officers and staffs of the NICRA KVKs deserve appreciation. We sincerely thank to all the Vice Chancellors, Chairman (NGO KVKs), Director of Extension Education and other concerned Senior Officials of the host organizations for their support to the NICRA KVKs activities.

Our team expresses profound gratitude to Deputy Director General (Agril. Extn.), for giving thrust to the NICRA KVKs in all ICAR programmes with full support. His valuable suggestions and guidance works as source of motivation for the professionals. Our team expresses hearty thanks to TDC-NICRA, Dr. B. Venkateswarlu, and all his NICRA team member for their guidance and support. We are highly grateful to Dr. Anupam Mishra, Zonal Project Director Zone VII, for his regular guidance and support in better implementation of these programmes in KVKs through Zone VII.

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Executive Summary

Zonal Project Directorate, Zone VII monitors the performance of 14 NICRA KVKs namely Balaghat, Chhattarpur, Datia, Guna, Morena, Satna, Tikamgarh in Madhya Pradesh, Bhatapara, Bilaspur, Dantewara in Chhattisgarh, Kendrapara, Ganjam, Jharsuguda, Sonepur in Odisha. These KVKs are conducting the field activities as per the approved action plan by ZPD Zone VII & CRIDA, Hyderabad.

During 2014-15, under Natural Resource Management module**,** a total of 1450 farmers benefited covering area of the 848.75 ha area in all activities. Detailed activities included renovation of eight old farm ponds six new check dam were constructed, 514 farmers are benefited through in-situ moisture conservation practices and covering 189.2 ha area. Green manure applications were followed by 78 farmers and 593 farmers used zero tillage technology for using residual moisture etc.

In Crop Production module, a total of 2467 demonstrations were conducted on 834.73 ha area focused on drought tolerant varieties, advancement of planting dates of rabi crops to escape terminal heat stress, etc on chickpea, wheat, barley, green gram, pigeon pea and vegetable crops.

In Livestock and Fisheries module, 1545 farmers benefited covering the 8372 units during the year 2014-15. Out of 8372Unit, 3626 animals were vaccinated to boost immunity through prevention, 890 animals were de-wormed and health check-up were covered under 1007 animals.

In Institutional interventions module, 2541 farmers benefited covering 351.7 ha area in year 2014-15. Out of 2541 farmers, 696 farmers benefited through Custom hiring service, 460 farmers by community nursery and 319 farmers through climate literacy through a village level weather station, also 824 farmers benefited under Seed bank.

A total of 6772 farmers benefited through capacity building which comprised 5481 male and 1291 female through 271 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 5962 farmers benefited of which 963 farmers through Field day, 215 farmers by capacity building programme and 317 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.

Introduction

The India produces nearly 11,924 billion rupees per year in agricultural commodities, with contributions from livestock and fisheries accounting for roughly 20 percent of that value. Production of all commodities will be vulnerable to direct impacts (from changes in crop and livestock development and yield due to changing climate conditions and extreme weather events) and indirect impacts (through increasing pressures from pests and pathogens that will benefit from a changing climate). The agricultural sector continually adapts to climate change through changes in crop rotations, planting times, genetic selection, fertilizer management, pest management, water management, and shifts in areas of crop production. These have proven to be effective strategies to allow previous agricultural production to increase, as evidenced by the continued growth in production and efficiency across the India.

Climate change poses a major challenge to Indian agriculture because of the critical dependence of the agricultural system on climate and because of the complex role agriculture plays in rural and national social and economic systems.

Climate change has the potential to both positively and negatively affect the location, timing, and productivity of crop, livestock, and fishery systems at local, national, and global scales. It will also alter the stability of food supplies and create new food security challenges for the India as the world seeks to feed nine billion people by 2050. Indian agriculture exists as part of the global economy and agricultural exports have outpaced imports as part of the overall balance of trade. However, climate change will affect the quantity of produce available for export and import as well as prices.

The cumulative impacts of climate change will ultimately depend on changing global market conditions as well as responses to local climate stressors, including farmers adjusting planting patterns in response to altered crop yields and crop species, seed producers investing in drought-tolerant varieties, and nations restricting trade to protect food security. Adaptive actions in the areas of consumption, production, education, and research involve seizing opportunities to avoid economic damages and decline in food quality, minimize threats posed by climate stress, and in some cases increase profitability. Hence three is a strong need to use modern science along with indigenous wisdom of farmers to enhance climate resilience in Indian agriculture

Beside under taking research to develop location specific climate resilient agriculture technologies there are needs to make immediate efforts to disseminate and demonstrate the scientific production technologies to farmers, field in more vulnerable regions. In order to deal with climate change in right earnest, it has therefore, been planned to organize extensive farmer participatory approaches and demonstrations of location specific climate resilient

agricultural technologies/ package of practices developed by ICAR and SAUs as sell as successful ITKs on farmers, in 14 most vulnerable districts of Zone VII as part of National Initiative on Climate Resilient Agriculture (NICRA).

The technology demonstration components of NICRA envisages identifying climate vulnerabilities to agriculture in selected village in each of the 14 district based on climate related problem, farmers experience, perceptions and preparing and implementing, adaptation and mitigation strategies following a bottom to top approach. The focus of the programme is not only to demonstrate the climate resilient agriculture technologies but also to continued adoption of such practices in sustainable manner. One village from each district was selected on basis of concerned KVK of district.

NICRA KVK Districts profile and their Climatic vulnerability under Zone VII

S.No.	State	Agro Climatic Zone	District	Climate Vulnerability
1	Madhya Pradesh	Chhattisgarh Plain Zone	Balaghat	Drought
2	Madhya Pradesh	Girid Zone	Guna	Drought
3	Madhya Pradesh	Girid zone	Morena	Drought
4	Madhya Pradesh	Bundelkhand Region	Datia	Drought
5	Madhya Pradesh	Bundelkhand Region	Tikamgarh	Drought
6	Madhya Pradesh	Bundelkhand Region	Chhatarpur	Drought
7	Madhya Pradesh	Kymore, Plateau & Satpura Hill Zone	Satna	Drought
8	Chhattisgarh	Chhattisgarh Plain Zone	(Bhatapara) Raipur	Drought
9	Chhattisgarh	Chhattisgarh Plain Zone	Bilaspur	Drought
10	Chhattisgarh	Bastar Plateau Zone	Dantewada	Soil erosion and heavy rainfall
11	Odisha	East and south eastern coastal Plain Zone	Kendrapara	flood and cyclone
12	Odisha	Western Central Table Land zone	Jhasuguda	Drought and flood
13	Odisha	Western Central Table Land zone	Sonepur	Drought and flood
14	Odisha	North eastern Ghat zone	Ganjam-I Bhanjanagar	Drought

1. NATURAL RESOURCE MANAGEMENT

In Zone-VII, under the natural resource management interventions module, on different technologies demonstrating in an area of 674 ha are by involving 873 farmers on specific interventions in NICRA villages under Madhya Pradesh KVKs followed by CG 101.3 ha area by involving 220 farmers and 73.45 ha area in Odisha which covered the 357 farmers.

Silent achievements:

- Total eight old farm ponds were renovated through de-silting for life saving irrigation to corps and ground water recharge.
- Six new check dam were constructed/renovated under NICRA activities.
- Total 514 farmers are benefited through In-situ moisture conservation practices and covering 189.2 ha area.
- In water harvesting and recycling for supplemental irrigation, total 396.7 ha area covered and 593 farmers were benefited.

- By green manure applications, total 78 farmers were benefited.
- Total Six ha. area of 15 farmers used zero tillage technology for using residual moisture.

1.1 In – situ moisture conservation

Under the Natural resource management, technologies demonstrated at farmers field for in-situ moisture conservation were summer deep ploughing , ridge and furrow, green manuring and other resource conservation technologies including Across the slope sowing, Check bunds for soil and water conservation, Enrichment of bio-mass through vermi compost, soil reclamation, mulching etc. demonstrated in farmers fields.

Production performance of demonstration					
KVK	**Technology demonstrated**	**Critical input (Variety, Fertilizer / Chemicals doses)**	**No. of farmers**	**Area (ha)**	**Yield (q/ha)**
Madhya Pradesh					
Balaghat	Deep Summer Ploughing	Summer deep ploughing in for in-situ moisture conservation	12	5	22.55
Datia	Ridge & furrow method of sowing in soybean	JS-95-60	13	4.80	11.20
Datia	Summer deep ploughing	JS-95-60	05	2.00	9.50
Datia	Across the slope sowing of groundnut	JGN-23	09	2.50	10.50
Datia	Green manuring in kharif fallow – mustard	RVM-2	10	1.00	16.65
Guna	In-situ moisture conservation RCT	BBF Planting method in Soybean for in-situ moisture conservation and drainage	10	4.0	22.7
Guna	In-situ moisture conservation RCT	Ridge furrow planting method in Soybean for in-situ moisture conservation and well drainage	10	4.0	20.84
Guna	In-situ moisture conservation RCT	Summer deep ploughing in for in-situ moisture conservation	20	20.0	19.24
Guna	Check bunds for soil and water conservation	Check bunds	01	3.0	10.36
Guna	Enrichment of bio-mass	Vermi composting	02	02	8.45
MORENA	Green Manuring dhaincha (Sesbania) One harrowing +Two ploughing + planking and sowing through seed cum fertilizer drill	MP- 4010	25	05	50.2
MORENA	Green Manuring dhaincha (Sesbania) One harrowing + two ploughing and planking sowing in line with seed cum fertilizer Drill	Mustard RVM-2	10	02	21.9
MORENA	Alkali soil reclamation Two ploughiung and planking. Sowing in line	Gypsum 50 % + Green manuring , Mustard (NRCHB -101)	10	02	21.4

Production performance of demonstration					
KVK	**Technology demonstrated**	**Critical input (Variety, Fertilizer / Chemicals doses)**	**No. of farmers**	**Area (ha)**	**Yield (q/ha)**
	with seed cum fertilizer drill				
Satna	Ridge and Furrow technique in Pigeon pea	Ridge and furrow seed drill	10	03	5.90
Satna	Ridge and Furrow technique in Black gram	Ridge and furrow seed drill	12	03	5.20
Satna	Ridge and Furrow technique in Green gram	Ridge and furrow seed drill	15	04	6.30
Satna	Ridge and Furrow technique in Soybean	Ridge and furrow seed drill	04	2	12.56
Satna	Ridge and Furrow technique in Green gram + Red gram	Ridge and furrow seed drill	05	02	3.55
Satna	Line sowing technique in Sesame	Seed drill	11	02.0	3.67
Tikamgarh	Deep summer ploughing	-	35	48	Yield (q/ha)
Tikamgarh	Ridge and furrow method in sowing	-	10	05	Yield (q/ha)
		Total	**239**	**126.3**	
Chhattisgarh					
Bilaspur	Deep Summer Ploughing	-	21	10	37.5
Bhatapara	Zero till Seed cum fertilizer drill for wheat	GW-273, DAP 125 Kg / ha	10	4	24.90
Bhatapara	Zero till Seed cum fertilizer drill for Mustard	Pusa Bold, DAP 65 Kg / ha	5	2	9.40
Bhatapara	Deep Summer Ploughing	Mahamaya, DAP 125 Kg /ha	5	2	43.34
Dantewada	Summer deep ploughing followed by with Direct seeded Line Sowing Paddy var. MTU-1010	Paddy	12	4.8	36.59
Dantewada	Harrowing with Rotavator followed by paddy var. Samleshawari	Paddy	08	3.0	30.45

Production performance of demonstration					
KVK	**Technology demonstrated**	**Critical input (Variety, Fertilizer / Chemicals doses)**	**No. of farmers**	**Area (ha)**	**Yield (q/ha)**
Dantewada	Line sowing with seed cum fertilizer drill var. Indira Barani Dhan-1	Paddy	10	4.0	29.39
		Total	**71**	**19.8**	
Odisha					
Ganjam-I	Moisture conservation in Paddy	Ploughing by MB plough	17	5.0	26.4
Ganjam-I	Ridge & furrow method	Seed	5	1.0	42.6
Ganjam-I	Ridge & furrow method –Cowpea	Pesticide	5	0.6	76.4
Jharsuguda	In-situ moisture conservation through ridge and furrow method in cow pea.	Seeds	34	2.0	64.0
Jharsuguda	In-situ moisture conservation through ridge and furrow method in Raddish	Seeds	25	1.0	148
Jharsuguda	Green manuring paddy by Dhaincha	Seeds	10	4.0	45.0
Kendrapara	Cultivation of Sugarcane var. Raghunath through ridge and furrow method	Sugarcane var. Raghunath	5	1	-
Kendrapara	Demonstration of Green manuring of Dhanicha for Soil Reclamation	Paddy	23	10	47.8
Kendrapara	Horti –silvi (Cashew + Casuarina)	planting along river embankment	25	3	-
Kendrapara	Establishment of 7 numbers of vermi compost units at project village.	Cement ring, earthworm, shed net	7	-	-
Sonepur	Ridge and Furrow Method	Brinjal-Local	9	1.5	300
Sonepur	Ridge and Furrow Method	Chilli- Utkal Ava	7	1.8	125
Sonepur	Contour ploughing	Paddy -Lalat	28	12	45

Production performance of demonstration					
KVK	**Technology demonstrated**	**Critical input (Variety, Fertilizer / Chemicals doses)**	**No. of farmers**	**Area (ha)**	**Yield (q/ha)**
Sonepur	Saucer and Pitcher Irrigation with LLDP mulching	Mango	4	0.2	Trees are in Vegetative stage
		Total	**204**	**43.1**	

Economical performance of demonstration (Rs./ha)					
KVK	**Technology**	**Gross Cost**	**Gross Return**	**Net Return**	**BCR**
Madhya Pradesh					
Balaghat	Deep Summer Ploughing	24284	56512	32248	2.33
Datia	Ridge & furrow method of sowing in soybean	19872	33600	13728	1.69
Datia	Summer deep ploughing	19650	29978	10328	1.56
Datia	Across the slope sowing of groundnut	19735	37800	18065	1.95
Datia	Green manuring in kharif fallow – mustard	18000	54945	36945	3.05
Guna	In-situ moisture conservation RCT	24284	56512	32248	2.33
Guna	In-situ moisture conservation RCT	18053	52960	27486	2.28
Guna	In-situ moisture conservation RCT	6712	35390	28678	2.27
Guna	Check bunds for soil and water conservation	49500	100800	51300	2.03
Guna	Enrichment of bio-mass	-	-	-	-
MORENA	Green manuring *dhaincha* (Sesbania) One harrowing +Two ploughing + planking and sowing through seed cum fertilizer drill	38820	92390	53570	2.37
MORENA	Green manuring *dhaincha* (Sesbania) One harrowing + two ploughing and planking sowing in line with seed cum fertilizer Drill	19743	83250	63507	4.21
MORENA	Alkali soil reclamation Two ploughing and planking. Sowing in line with seed cum fertilizer drill	19743	78000	58257	3.95
Satna	Ridge and Furrow technique in Pigeon pea	12560	20650	8090	1.64
Satna	Ridge and Furrow technique in Black gram	9750	18200	8450	1.82

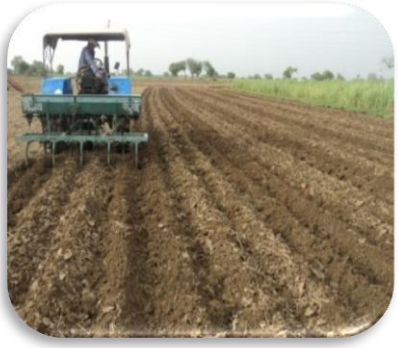
Economical performance of demonstration (Rs./ha)					
KVK	**Technology**	**Gross Cost**	**Gross Return**	**Net Return**	**BCR**
Satna	Ridge and Furrow technique in Green gram	10580	25200	14620	2.38
Satna	Ridge and Furrow technique in Soybean	15640	33912	18272	2.17
Satna	Ridge and Furrow technique in Green gram + Red gram	12290	13320	1030	1.08
Satna	Line sowing technique in Sesame	8430	16150	8085	1.96
Tikamgarh	Deep summer ploughing	18506	54836	36330	2.96
Tikamgarh	Ridge and furrow method in sowing	16447	58528	42081	3.55
Chhattisgarh					
Bilaspur	Deep Summer Ploughing	24700	48165	23465	1.95
Bhatapara	Zero till Seed cum fertilizer drill for wheat	14500	34860	20360	2.40
Bhatapara	Zero till Seed cum fertilizer drill for Mustard	11200	24440	13240	2.18
Bhatapara	Deep Summer Ploughing	33262	58505	25243	1.76
Dantewada	Summer deep ploughing followed by with Direct seeded Line Sowing Paddy var. MTU-1010	26312	50494	24182	1.91
Dantewada	Harrowing with Rotavator followed by paddy var. *Samleshawari*	26500	42021	15521	1.58
Dantewada	Line sowing with seed cum fertilizer drill var. Indira Barani Dhan-1	23390	40558.0	22984	1.73
Odisha					
Ganjam-I	Moisture conservation in Paddy	16800	31680	15300	1.9
Ganjam-I	Ridge & furrow method	19500	42600	23100	2.2
Ganjam-I	Ridge & furrow method –Cowpea	34300	76400	42100	2.3
Jharsuguda	In-situ moisture conservation through ridge and furrow method in cow pea.	22000	96000	74000	4.36
Jharsuguda	In-situ moisture conservation through ridge and furrow method in Radish	31000	145000	114000	4.67
Jharsuguda	Green manuring paddy by Dhaincha	18000	54000	36000	3.0
Kendrapara	Cultivation of Sugarcane var. Raghunath through ridge and furrow method	125000	198000	73000	1.58

Economical performance of demonstration (Rs./ha)					
KVK	**Technology**	**Gross Cost**	**Gross Return**	**Net Return**	**BCR**
Kendrapara	Demonstration of Green manuring of Dhanicha for Soil Reclamation	32000	62140	30140	1.94
Kendrapara	Horti –silvi (Cashew + Casurina)	40000	Plants are in vegetative stage		
Sonepur	Ridge and Furrow Method	80000	180000	100000	2.25
Sonepur	Ridge and Furrow Method	83241	187500	104259	2.25
Sonepur	Contour ploughing	30000	61200	31200	2.04
Sonepur	Saucer and Pitcher Irrigation with LLDP mulching	-	Plants are in vegetative stage		

Summer deep ploughing: The advantage of summer ploughing was observed for water conservation, improvement in soil health and protection from soil borne insects. Under this intervention, four demonstration were conducted, which covered total 75 ha area involving 72 farmers in four NICRA KVKs of Madhya Pradesh followed by Odisha covered 43.1 ha area by involving 204 farmers and in Chhattisgarh total 29.8 ha area covered which benefited the 71 farmers.

Ridge and furrow: For In – situ moisture conservation, ridge and furrow practice observed beneficial for water conservation and prevent to water logging condition because of proper drainage system. This intervention benefited the 89 farmers and covered 31.8 ha in four NICRA KVKs in nine demonstrations. Similarly in Odisha total 91 farmers were benefited by covering 8.6 ha area.

Green manuring: Five demonstrations carried out by four NICRA KVKs of Zone-VII. In this intervention, not only the water holding capacity of soil improved but soil physical condition, organic matter content and microbial activities also improved. In Madhya Pradesh a total of eight ha area covered involving 45 farmers and two KVKs of Odisha covered 14 ha



area by involving 33 farmers.

Intervention on different technologies: Intervention on different technologies viz. vermi composting, line sowing, contour ploughing and soil reclamation covered total 32.5 ha benefited 108 farmers of the region.

1.2 Water harvesting and recycling for supplemental irrigation

Water harvesting and recycling for supplemental irrigation were demonstrated at 593 farmers field in an area of about 369.72 ha through 30 demonstrations in Zone VII in which total 318.47 ha area covered involving 384 farmers. In Madhya Pradesh, demonstration 17 demonstration conducted by four KVKs. Similarly in Chhattisgarh seven demonstrations conducted by three KVKs involving 118 farmers and covered 67.4 ha area. Six demonstration conducted by three KVKs of Odisha covered the 10.75 ha area which benefited the 91 farmers. The purpose of this intervention was to recharge the ground water and make availability of water under the dry land situation. The mono cropping converted in double cropping due to availability of the water and productivity per unit of land also increase due to life saving irrigation in drought condition.

KVK	Technology demonstrated	Critical input (Variety, Fertilizer / Chemicals doses)	No. of farmers	Area (ha)	Measurable indicators of output* [yield (q/ha.) & others]
Madhya Pradesh					
Balaghat	Medh Bandhan	Bunds making	20	10	5 q/ha yield increase
Datia	Rainwater harvesting in farm ponds	Farm pond for life saving irrigation	03	12	18000 cu.m
Datia	Rainwater harvesting in renovated check dams	RHS for crop production	60	51	51000 cu.m
Datia	Rainwater harvesting in bori bandhan (polybag check dam)	Check dam for rain water harvesting	55	65	65000 cu.m
Datia	Ground water recharge in open well from harvested rainwater	Ground water recharge	28	15	Two extra irrigation for rabi crop.

KVK	Technology demonstrated	Critical input (Variety, Fertilizer / Chemicals doses)	No. of farmers	Area (ha)	Measurable indicators of output* [yield (q/ha.) & others]
Datia	High value vegetable production in harvested rain water tomato	Laxmi hybrid	05	1.00	180
Datia	High value vegetable production in harvested rain water Chilli	Disha Hybrid	05	1.00	150
Datia	High value vegetable production in harvested rain water brinjal	Chamaki	05	1.00	160
Datia	High value vegetable production in harvested rain water cauliflower	Hybrid	05	1.00	120
Datia	Open well recharge water used in wheat	Ground water recharge	28	26.4	39.50
Datia	Pre-sowing irrigation in mustard through harvested rain water	Irrigation management	118	128	16.31
Datia	Fish culture in harvested rainwater	Fish seed	03	0.075	18.75
Datia	Efficient utilization of recharged open well by harvested rainwater in excess rainfall situation by Green gram	TJM-3	05	1.00	6.50
Guna	Water harvesting and recycling for supplemental irrigation	Percolation tank for water harvesting and recycling for supplemental irrigation	04	20x20x3 m	0.12 m/lit.
Guna	Water harvesting and recycling for supplemental irrigation	De-silting in Farm pond	10	90x75x7.5 m	5.06 m/lit.
Morena	Farm pod 70x50 Meter (7) repairing and maintenance in storage of water use in Rabi crop irrigation (Raised bed sowing)	Wheat (RVW-4106)	05	01	51.6

KVK	Technology demonstrated	Critical input (Variety, Fertilizer / Chemicals doses)	No. of farmers	Area (ha)	Measurable indicators of output* [yield (q/ha.) & others]
Morena		Pearl millet	25	05	25.3
		Total	**384**	**318.47**	
Chhattisgarh					
Bilaspur	Water harvesting and recycling for supplemental irrigation	Wheat (GW-273)	50	20	22
Bhatapara	Sluice Gate Construction	Sluice Gate	18	21	Irrigated Area
Dantewada	Stop dam	Renovated	26	10.0	-
Dantewada	Irrigation pond	Renovated	12	15.0	-
Dantewada	Percolation tank	Renovated	5	-	-
Dantewada	Ring well	Renovated	5	01	-
Dantewada	Open well	Renovated	2	0.5	-
		Total	**118**	**67.5**	
Odisha					
Ganjam-I	Renovation of old farm ponds	Labour	13	0.5	Irrigation area increased by 8 acre
Ganjam-I	Check Dam	Labour	18	0.25	Water storage capacity increased by 2250 cubic Meter
Ganjam-I	RWH structure	Labour	Cont….	Cont….	Cont….
Kendrapara	Construction of Chek dam	Hume pipes	25	25m	Livelihood support for pisci culture
Sonepur	Farm Pond	Paddy-Sahabhagi	17	5	38
Sonepur	Farm Pond	Paddy-Lalat	18	5	44
		Total	**91**	**10.75**	

Check or stop dam constriction/ renovation: Under the intervention water harvesting and recycling of supplemental irrigation, stop dam or check dam was major intervention for water conservation. In Madhya Pradesh, one sand bag check dam constructed and one check dam renovated, these dams provide the irrigation to 116 ha area and benefited the 115 farmers.

Two KVKs laid of Chhattisgarh out the demonstration in NICRA village were 31 ha area covered by irrigation facilities and 44 farmers were benefited by this intervention. In Odisha, by two demonstrations, total 43 famers were benefitted by increasing number of irrigations.

Farm pond: Total eight number of demonstration conducted in Zone-VII in which Madhya Pradesh covered 13 ha area for irrigation involving 22 farmers followed by Odisha 10.5 ha area by which 48 farmer were benefited through life saving irrigation. In Chhattisgarh, one farm pond was renovated involving 12 farmers which covered 15 ha of land.

Open well: Through open well renovation/recharge, irrigated area and no. of irrigation were increased. In Madhya Pradesh, 42.4 ha area covered under this intervention involving the 61 farmers. In Chhattisgarh two demonstrations conducted, in which 1.5 ha area covered and seven farmers were benefited.

Crop production in harvested rain water: This intervention observed very beneficial particularly for Bundenkhand region of Madhya Pradesh, where ground water is very deep and distribution of rains also very irregular. In Madhya Pradesh, two KVKs conducted the demonstration on the following crops i.e. chilli, tomato, brinjal, cauliflower and traditional pearl millet production through harvested rain water. The crop covered the total 9 ha of land involving 45 farmers in adopted NICRA villages. Wheat variety (GW-273) was cultivated by using harvested rain water for irrigation which covered 20 ha area involving 50 farmers.

Other interventions: In water harvesting and recycling for supplemental irrigation intervention bund formation, fish farming in harvested rain water and pre sowing of irrigation demonstration were conducted in 138.08 ha area involving 141 farmers. In this intervention it was observed that pre sowing irrigation save of one irrigation in mustered and also increased the germination percent in field. Other practices also help in harvesting the rain water and generated of the additional income from the same field.

1.3 Improved drainage in flood prone areas

Ridge and furrow method of sowing: Improved drainage is the major demand, particularly in kharif crop. By the five demonstrations of ridge and furrow method sowing method on soybean, black gram, green gram and maize crops covered 53 ha area in Madhya Pradesh involving 46 farmers. In this intervention it was observed that furrow worked as drainage channels, also helps in irrigation and moisture conservation in the root zone during dry spell.

Under this intervention other demonstration like water way (by grass and Use of loose boulder and pebbles) deep ploughing and check dam demonstrated for the purpose of check soil erosion and proper drainage.

KVK	Technology demonstrated	Critical input (Variety, Fertilizer / Chemicals doses)	No. of farmers	Area (ha)	Measurable indicators of output*
Madhya Pradesh					
Guna	Drainage channels to avoid flood hazard in Soybean	Drainage channels	6	45	Avoid flood in Soybean crop
Morena	Bed planting sowing method	Green gram (TJM-3)	5	01	8.5
Morena	Bed planting sowing method	Black gram (PU-35)	5	01	8.8
Morena	Bed planting sowing method	Maize (NK -6240)	5	01	150
Morena	Bed planting sowing method	Soybean (JS-9560)	25	05	13.2

KVK	Technology demonstrated	Critical input (Variety, Fertilizer / Chemicals doses)	No. of farmers	Area (ha)	Measurable indicators of output*
Chhattisgarh					
Bilaspur	Deep Summer Ploughing	Paddy	21	10	Yield per Ha of Paddy
		Total	**21**	**10**	
Odisha					
Sonepur	Check Dam	Padday- Lalat	15	3	44
Sonepur	Grass water ways	Planting of vertiver	Common land		
Sonepur	Safe disposal water ways	Use of loose boulder and pebbles	Common land		
		Total	**15**	**3**	

Economics of demonstration (Rs./ha)

KVK	Technology demonstrated	Gross Cost	Gross Return	Net Return	BCR
Madhya Pradesh					
Guna	Drainage channels to avoid flood hazard in Soybean	22500	63000	40500	2.8
Morena	Bed planting sowing method	12949	53400	40451	4.12
Morena	Bed planting sowing method	13149	46400	33251	3.52
Morena	Bed planting sowing method	19768	1,03,000	83232	5.2
Morena	Bed planting sowing method	27305	46875	19570	1.71
Chhattisgarh					
Bilaspur	Deep Summer Ploughing	24700	48165	23465	1.95
Odisha					
Sonepur	Check Dam	30000	59840	29840	1.99
Sonepur	Grass water ways				
Sonepur	Safe disposal water ways				

1.4 Conservation tillage

Zero tillage method: In Madhya Pradesh two demonstration of the under Zero tillage for wheat sowing were laid out in an area of three ha and benefited the 10 farmers.

KVK	Technology demonstrate	Critical input (Variety, Fertilizer / Chemicals doses)	No. of farmers	Area (ha)	Measurable indicators of output*
Madhya Pradesh					
Datia	Zero tillage in wheat	variety GW-366	05	2.00	42.25
Datia	Dry sowing of wheat	GW-366	10	4.00	40.49
Guna	Conservation tillage where appropriate	Hand Wheel hoe	30	40.0	Moisture conservation during drought
Morena	Zero tillage sowing method	wheat (MP-4010)	05	01	50.2
Morena	Raised bed planter sowing	ICPL 88039	05	02	21.9
Satna	Deep summer ploughing	Reversible MB Plough	20	13.33	Moisture conservation
Satna	Brown Manuring	Seed of Sesbania Var-ses-1	5	1	Brown manuring
		Total	**80**	**63.33**	
Chhattisgarh					
Bhatapara	Deep Summer Ploughing	Mahamaya, DAP 125 Kg per ha	5	2	43.34
		Total	**5**	**2**	
Odisha					
Ganjam-I	Seed-cum-fertilizer drill	Green gram	5	2.0	6.4q/ha
Sonepur	Arhar	Upas-120	5	Bund	16
Sonepur	Blackgram	T-9, Prashad	6	2 ha	6
Sonepur	Dhaincha	Seed-Local	7	6.1	Yield attributes and green manuring
		Total	**23**	**10.1**	

Economical performance of demonstration (Rs./ha)					
KVK	Technology demonstrate	Gross Cost	Gross Return	Net Return	BCR
Madhya Pradesh					
Datia	Zero tillage in wheat	22250	63378	41128	2.84
Datia	Dry sowing of wheat	23650	60732	37082	2.56
Guna	Conservation tillage where appropriate	22500	56000	33500	2.48
Morena	Zero tillage sowing method	38820	92390	53570	2.37
Morena	Raised bed planter sowing	26960	101600	74640	3.76
Satna	Deep summer ploughing				
Satna	Brown Manuring				
Chhattisgarh					
Bhatapara	Deep Summer Ploughing	33262	58505	25243	1.76
Odisha					
Ganjam-I	Showing of Green gram by using seed-cum-fertilizer Drill	13500	25600	12100	1.9
Sonepur	Arhar	31165	64500	33335	2.0
Sonepur	Black gram	26964	30100	3136	1.11
Sonepur	Dhaincha				

Other practices:

- The demonstration use of hand wheel hoe for intercultural operation and moisture conservation covered 40 ha of land involving 30 farmers.
- Pigeon pea sowing through raised bed planter demonstration laid out in 2 ha area covering the five farmers of adopted village. Other three demonstrations on dry sowing of wheat, deep ploughing and brown manuring laid out in total 18.33 ha area including 35 farmers.
- One demonstration of deep ploughing conducted in Chhattisgarh which covered 10 ha area and benefited the 21 farmers.
- In Odisha, high yielding improved varieties taken in farmers filed, which laid out in 6.1 ha of land including 18 farmers similarly improved practices of line sowing through seed cum ferti drill covered 2 ha of area involving 5 farmers.

1.5 Artificial ground water recharge

Under artificial ground water recharge in Madhya Pradesh three demonstrations were performed in adopted NICRA village in which total 45 ha of area covered 45 ha of land covered through send bag check dam involving the 37 farmers. In intervention, desilting of open well covered one ha land which benefited two famers.

One demonstration of kitchen garden was carried out with help of ground water harvesting system laid out in 0.1 ha area and benefited the two farmers.

In Odisha four demonstration of well and pond recharging/renovation through desilting , covered the four ha area and benefited 11 farmers through improving irrigation facilities.

Production performance of demonstration					
KVK	**Technology demonstrate**	**Critical input (Variety, Fertilizer / Chemicals doses)**	**No. of farmers**	**Area (ha)**	**Measurable indicators of output***
Madhya Pradesh					
Balaghat	Bori Bandhan	-	45	37	Yield/ha
Guna	Artificial ground water recharge	Desilting of open Wells to improve irrigation water discharge capacity	02	11	Increase availability of irrigation water
Morena	Kitchen Garden from GWHRS	Agri Found Dark Red 100:50:100:40 NPKS kg/ha + Azoto. +PSB @2.5 kg/ha	2	0.1	120 q/ha
		Total	**49**	**48.1**	
Odisha					
Ganjam-I	Percolation tank (6 x 3 x1.5m)	Labour	5		Soil moisture conservation
Ganjam-I	Raising of farm bund by 2ft	Labour	5		In-situ Soil moisture conservation
Sonepur	Farm Pond	Vegetables-Brinjal-Utkal Keshari	3	3	Yield q/ha
Sonepur	Well-7 ft Dia.	Chilli-Utkal Ava	4	1	Yield q/ha
		Total	**17**	**4**	

Economical performance of demonstration (Rs./ha)					
KVK	Technology demonstrate	Gross Cost	Gross Return	Net Return	BCR
Madhya Pradesh					
Guna	Artificial ground water recharge	39700	92400	52700	2.32
Morena	Kitchen Garden From GWHRS	20200	60000	39800	2.97
Odisha					
Sonepur	Farm Pond	69447	150000	80553	2.15
Sonepur	Well-7 ft Dia.	56452	160000	103548	2.83

1.6 Water saving irrigation methods

Sprinkler irrigation system: The sprinkler irrigation systems were established in wheat crop for efficient use of water performed by four demonstrations in Madhya pradesh, laid out in 11.4 ha area involving 20 farmers.

Drip irrigation system: Drip irrigation in tomato and brinjal crop covered 0.4 ha of land and benefited the two farmers in Madhya Pradesh. These practices help to save the water and reduce the water losses.

One demonstration of drip irrigation conducted in Chhattisgarh which covered two ha of land with involving the five farmers.

In Odisha, two demonstrations conducted in 1.2 ha area in vegetable crops and benefited three farmers of the adopted NICRA village.

Mulching practice: Mulching practices for crop production in tomato crop var. laxmi demonstration laid out 1 ha of land involving two farmers in odisha. Similarly demonstration of mulching in nursery raising in odisha performed in 0.3 ha of land including two farmers.

Production performance of demonstration					
KVK	Technology demonstrate	Critical input (Variety, Fertilizer / Chemicals doses)	No. of farmers	Area (ha)	Measurable indicators of output*
Madhya Pradesh					
Balaghat	Drip Irrigation	Tomato, Brinjal	2	0.4	Yield/ha
Balaghat	Sprinkler	Wheat	6	2.4	Yield/ha

Guna	Water saving Sprinkler irrigation method	Water saving irrigation system in Wheat crop	04	4.0	Increasing irrigated area
Morena	Sprinkler irrigation	Wheat (RVW-4106)	05	01	51.6 q/ha
Satna	Saving available water	Sprinkler set	5	4	
		Total	**22**	**11.8**	
Chhattisgarh					
Dantewada	Drip Irrigation	Tomato	05	2.0	356 q/ha.
		Total	**5**	**2**	
Odisha					
Ganjam	Utilization of available irrigation water through drip	2 sets of Drip	02	1.0	212q/ha
Sonepur	LLDPE Mulching	Tomato-Laxmi	2	1	250
Sonepur	Drip Irrigation	Vegetables	1	0.2	Increase water use efficiency
Sonepur	Ridge Bed and mulching	Nursery Raising	1	0.2	Yield q/ha
Sonepur	Solar Treatment with mulching	Nursery Raising	1	0.1	Yield q/ha
		Total	**7**	**2.5**	

Economical performance of demonstration (Rs./ha)

KVK	Technology demonstrate	Gross Cost	Gross Return	Net Return	BCR
Madhya Pradesh					
Balaghat	Drip Irrigation	90000	160000	70000	1.8
Balaghat	Sprinkler	15000	57000	42000	3.8
Guna	Water saving Sprinkler irrigation method	48300	11200	63700	2.31
Morena	Sprinkler irrigation	38820	93840	55020	2.4
Chhattisgarh					
Dantewada	Drip Irrigation	58510	178000	119490	3.04
Odisha					
Ganjam	Drip Irrigation	52300	106000	54300	2.03
Sonepur	LLDPE Mulching	54991	150000	95009	2.72

Other practices under NRM module:

Bio gas: In KVK Tikamgarh (MP), under biogas demonstration performed with 18 farmers, they not only produce Bio gas slurry for crop production but they use it as cooking gas for their domestic use and save fuel (wood and cow dunge etc.). This demonstration covers total 18 ha of land.

Nutrient management: In Natural resource management, soil health card distributed after soil testing. Demonstration nutrient management through soil testing were organize on 35 ha area, by this total 35 farmers were benefited.

KVK	Technology demonstrate	Critical input (Variety, Fertilizer / Chemicals doses)	No. of farmers	Area (ha)	Measurable indicators of output*
Madhya Pradesh					
Tikamgarh	Biogas plants		18	18	
Tikamgarh	Soil testing	Soil testing	35	35	
		Total	**53**	**53**	

2. CROP PRODUCTION

This module consists of interventions technological on the measures taken for bringing crop resilience viz. drought/temperature tolerant varieties, advancement of planting dates of rabi crops in areas with terminal heat stress, water saving paddy cultivation methods (SRI, aerobic, direct seeding), frost management in horticulture through fumigation, community nurseries for delayed monsoon, custom hiring centers for timely planting, location specific system with high sustainable yield Index.

Silent achievements

- Under this module, total of 791 farmers benefited using flood / drought / temperature tolerant varieties under crop production and covered 279.3 ha area.
- Total 205 were benefited demonstration conducted under water saving in paddy through SRI and DSR method.
- Under advancement of planting dates of rabi crops in areas with terminal heat stress covered 79.6 ha area.
- Total 300 demonstrations conducted under custom hiring centers for timely planting and covered 160.79.0 ha area.

2.1 Introducing flood / drought / temperature tolerant varieties

In demonstration on flood/ drought/ heat tolerant varieties of cereal, pulses, oil seed and horticultural crops were taken with specific objects. Total 267.4 ha involving 880 farmers were covered in Zone VII under this intervention. In Madhya Pradesh, 648 farmers benefited by 194.7 ha area demonstration fallowed by Chhattisgarh were demonstration laid out in 39.3 ha area involving 120 farmers. 112 farmers were benefited by 33.4 ha area demonstration in Odisha.

Introducing flood / drought / temperature tolerant varieties in cereal crops: Demonstration on cereal crops i.e. Paddy, wheat, barley, maize and ragi were organized in an area of 81 ha involving 249 farmers. The demonstration on barley yielded 16 q/ha in demonstration field in comparison to 12 q/ ha under farmer practice condition. In this demonstration JB-58 and K-508 were taken over local varieties. Two demonstration of improved maize variety JM-216 and hybrid variety PEHM-2 taken in place of local varieties .The demonstration yield found 100.5 q/ha over local varieties i.e.81 q/ha. The BC ratio of the

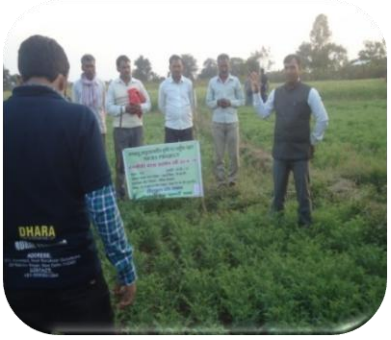
under maize cultivation demonstration found 2.6.

In wheat approx 19 percent yield increased by different varieties, where net return Rs.14765.86 found in demonstration area and the BC ratio of this demonstration found 1.51.

In paddy total seven KVKs were involved and performed 10 demonstrations in which total 11.12 percent yield increased with Rs. 27438.3 net return and BC ratio of 1.91. Total 38.2 ha area coved involving 118 farmers in this intervention.

Minor millet ragi laid out 3 ha are and benefited the eight farmers in which Rs.13391.5 found in demonstration and BC ratio 2.05 found in this demonstration by improved varieties of ragi GPU-28 and Indira ragi -1.

Production performance of demonstration					
KVKs involved	Name of crop	No. of farmers	Area (ha)	Yield (q/ha.)	
				Demo/ha	Local/ha
2	Barley	44	14	16.00	12.00
2	Maize	16	4.5	100.50	81.00
7	Wheat	63	21	22.74	18.94
7	Paddy	118	38.2	37.18	29.93
2	Ragi	8	3	13.89	8.66
		249	**81**		
Economics performance of demonstration (Rs./ha)					
Name of crop		**Gross Cost**	**Gross Return**	**Net Return**	**BCR**
Barley		12000.00	22400.00	10400.00	1.86
Maize		18884.00	82100.00	63216.00	2.60
Wheat		12212.71	26978.57	14765.86	1.51
Paddy		21697.70	49136.10	27438.30	1.91
Ragi		11592.50	23881.50	13391.50	2.05



Demonstration of pulses crops: Five pulse crops black gram, chickpea, green gram, pigeon pea and pea varieties were laid out in 69.6 ha area and benefited the 258 farmers through different objective like drought tolerant, heat tolerant and disease tolerance of varieties.Black gram demonstration with improve varieties TAU-2, Shekhar-2 and PU-35 laid out in 24.4 ha of area involving 68 famers. Net income Rs. 24937.80 were found in demonstration with yield of 9.81 q/ha and 2.75 BC ratio. Similarly in green gram, the varieties HUM 1, TJM-3 and Samrat yielded the 8.76 q/ha over local with BC ration of 3.06.

In chick pea (JAKI-9218, JG-11, JG-14 and JG), pigeon pea (ICPL-88039, ICPL-88039 and ICPL-85063) and field pea (Prakash) were laid out in 4.80 ha, 24.8 ha and 2 ha respectively. This demonstration resulted highest BC ratio in chick pea 3.2 followed by 2.43 in pigeon pea and 2.4 in pea. the major objective of this intervention was to introduce frost escaping and short duration variety of pigeon pea, wilt and heat tolerant varieties introduction on field in gram and replace the local variety of pea with improve variety in pea.

Production performance of demonstration (Rs./ha)					
KVKs involved	Name of crop	No. of farmers	Area (ha)	Yield (q/ha.)	
				Demo/ha	Local/ha
5	Black gram	68	24.2	9.81	6.66
4	Chickpea	38	4.80	14.15	11.70
4	Green gram	46	13.8	8.76	6.15
6	Pigeon pea	100	24.8	14.02	10.09
1	Pea	6	2.00	7.35	5.06
		258	**69.6**		

Economical performance of demonstration (Rs./ha)				
Name of crop	Gross Cost	Gross Return	Net Return	BCR
Black gram	15192.20	40130.00	24937.80	2.75
Chickpea	13077.50	46580.00	33502.50	3.20
Green gram	14730.00	43250.00	31987.50	3.06
Pigeon pea	20562.83	61266.67	40703.83	2.43
Pea	18301.00	44100.00	25799.00	2.40

Demonstration on oilseed crops: Demonstration of oil seed crops of mustard, soybean, groundnut and sesame were conducted in as area of 103.4 ha of with participation of 303 farmers under different vulnerability situations.

The demonstration resulted in higher yield in mustard (16.40 q/ha) in improved varieties Pusa Bold, RVM-2, NRCHB- 101 and Pusa Tarak with BC ration of 3.18. In sesame were demonstration laid out in 21.9 ha area the demo yield was found 5.71 ha over local practice (3.75q/ha). JTS- 8, TKG -306, JTS-21 and GT-10 variety resulted the Rs 31086.25 net return with 4.17 BC ratio.

The soybean varieties JS 95-60 and NRC-7 were taken in 33 ha. of land involving 94 farmers of the NICRA village. This intervention resulted in returns of Rs. 19843.17/ha with 1.87 BC ratio. These varieties are drought tolerant and short duration and performed better in stress condition. Total 14.5 ha of land covered with groundnut improved varieties TG- 37-A and JGN-23 for drought tolerance purpose resulted as 2.33 BC ration with Rs. 21032.50 net income. Under this intervention total 39 farmers were benefited.

Production performance of demonstration					
KVKs involved	Name of crop	No. of farmers	Area (ha)	Yield (q/ha.)	
				Demo/ha	Local/ha
2	Ground nut	39	14.5	10.5	8.25
4	Sesame	61	21.9	5.71	3.75
6	Soybean	94	33	14.58	9.01
4	Mustard	109	34	16.40	12.50
		303	**103.4**		
Economical performance of demonstration (Rs./ha)					
Name of crop		**Gross Cost**	**Gross Return**	**Net Return**	**BCR**
Ground nut		16867.50	37900.00	21032.5	2.33
Sesame		12115.00	43201.25	31086.25	4.17
Soybean		22415.50	42255.33	19843.17	1.87
Mustard		17368.75	58743.25	41374.50	3.18

Demonstration of horticultural crops

Demonstration of brinjal var. muktakeshi was organized in 0.5 ha of area involving three farmers resulted BC ratio 3.27 by net return 103550.00. Similarly in cowpea variety 0.5 ha gave net return of Rs. 652210.00 by yielding of 35.40 q/ha.

Demonstration on tomato varieties Laxmi and BSS-99laid out in 1.2 ha involving 15 farmers resulted yield of 301.11q/ha with BC ratio 5.18.

It was realized Rs 400000 net return in coriander var. Delite under demonstrations, covered 4.0 ha of land involving 12 farmers. The BC ratio of the demonstration found 1:3.

Beside this, under intervention the root crop introduced in sonepur KVK involving 3 farmers and 0.5 ha of land to address the drought problem and assured returns to farmers.

KVKs involved	Name of crop	No. of farmers	Area (ha)	Yield (q/ha.)	
				Demo/ha	Local/ha
1	Brinjal (Muktakeshi)	3	0.5	213.00	167.50
1	Introduction of Root crop	4	1.0	continue	-
1	Cowpea (Gomati)	3	0.5	35.40	29.98
2	Tomato	15	1.2	301.11	215.85
1	Coriander (Delite)	12	4.0	6.00	4.00
		37	**7.2**		
Economical of demonstration (Rs./ha)					
Name of crop		**Gross Cost**	**Gross Return**	**Net Return**	**BCR**
Brinjal (Muktakeshi)		45550.00	149100.00	103550.00	3.27
Cowpea (Gomati)		40990.00	106200.00	652210.00	2.59
Tomato		43235.00	213750.00	170515.00	5.18
Coriander (Delite)		20000.00	60000.00	40000.00	3.00

(ii) Advancement of planting dates of rabi crops in areas with terminal heat stress

Advancement of planting dates of rabi crops and terminal heat stress varieties were selected for different location of cereal, pulses, oilseed and horticultural crops were taken for frost escaping

and reduce the temperature increase losses in February and March . Total 160.79 ha involving 437 farmers were covered in Zone VII under this intervention. In Madhya Pradesh, 309 farmers benefited by 12.1 ha area demonstration followed by Chhattisgarh were demonstration laid out in 39.3 ha area involving 30 farmers. 36 farmers were benefited by 14.2 ha area demonstration in Odisha.

Advancement of planting dates of rabi crops in areas with terminal heat stress in pulses:

The demonstration of drought and thermo tolerant early var. of chick pea of gram JG–14 and JAKI-9218 was conducted in 23.2 ha and benefited 82 farmers. This demonstration observed that these varieties performed well under stress condition as compared to local varieties yield low under advancement of planting dates of rabi crops and terminal heat stress demonstration, JG-14 was 14.5q over 9.3q/ha local variety, similarly gram variety JAKI-9218 in respect of short duration resulted Rs 14500 and 3.2 BC ratio.

Short duration Green gram variety TARM-1 taken under this intervention which resulted the early maturity and reduce the yield losses due to YMV of crop. This variety gave 33 percent more yield than local variety. Similarly under improve variety demonstration SML-668 and K-851 varieties were taken, which resulted 39.5 percent yield increase with 1.87 BC ratio. These varieties also gave more yield then local varieties due to early maturity characters of varieties.

Production Performance of Demonstration					
KVKs involved	Name of crop	No. of farmers	Area (ha)	Yield (q/ha.)	
				Demo/ha	Local/ha
1	Black gram	30	13	9.00	7.35
1	Chick pea	82	23.2	14.53	9.93
1	Green gram	15	7	7.15	5.25
		127	**43.20**		

Economical Performance of Demonstration (Rs./ha)				
Name of crop	Gross Cost	Gross Return	Net Return	BCR
Black gram	14500.00	37125.00	22625.00	2.58
Chick pea	13878.33	47460.00	33610.00	3.40
Green gram	13850.00	29270.00	15070.00	2.14

Advancement of planting dates of rabi crops in areas with terminal heat stress in cereal crops:

Under this intervention heat tolerant varieties JW-3211, HI 1544 and GW-273 introduce in NICRA villages to fight the major problem in wheat particularly in Buldhelkahnd and Gird region i.e. sudden temperature increase in the month of February and March. These varieties performed well over local verities.

Under limited irrigation condition, JW- 3020 yield resulted in 15q over local variety. Two irrigation given in demonstration and local variety and JW-3020 preformed very well. This variety also shows resistant to lodging, bold grain and long ear. In market JW-3020 known as Sarbati and market paddy is higher than local varieties.

For reducing the sudden increase of temperature affect the wheat variety Ratan taken after paddy in Utera condition for using soil moisture and for early maturity. This variety resulted in 1.92 BC ratio with Rs.13580 net return. Similarly variety MP-4010 performed well by zero seed drill sowing method under late sown condition resulted in 50.2 q yield with Rs 53570 net return (BC ratio - 2.37). This variety performed very well in pigeon pea- wheat system due to early maturity (110 day) in demonstration, where local varieties taken 135 days for maturity.

In barley var. JB-58 was demonstrated in 10 ha which resulted 16q yield. Demonstration result shows earliness of the variety, this variety matured in 123 days (medium) in comparison to local variety 135 days taken for maturity.

Production performance of Demonstration					
KVKs involved	Name of crop	No. of farmers	Area (ha)	Yield (q/ha.)	
				Demo/ha	Local/ha
1	Wheat	86	33.10	31.09	26.83
1	Barley	24	10.00	16.00	12.00
		110	**43.1**		

Economical of Demonstration (Rs./ha)				
Name of crop	Gross Cost	Gross Return	Net Return	BCR
Wheat	21453.33	48476.50	27112.33	2.14
Barley	12000.00	22400.00	10400.00	1.86

Advancement of planting dates of rabi crops in areas with terminal heat stress in oilseed crops:

Groundnut variety TG 37A seed colour monochrome-rose demonstrated in 12 ha area. Total 30 farmers had taken this medium duration variety which matured 20 days earlier than local variety.

Under this intervention mustard varieties NRCDR-2 demonstration was taken for early sowing. This demonstration shows the mustard variety NRCDR-2 was taken 15 days less time to maturity than local varieties and yielded 14.5q/ha. For timely sown condition Pusa Tarak, RVM-2 and Pusa Bold, early maturing varieties were demonstrated with local varieties. These varieties not only taken lesser time to mature but it yields higher than local varieties.

Short duration variety of sesame variety JTS- 8 demonstrated in 9.6 ha of land and benefited the 26 famers. This variety was matured in 87 DAS over local varieties which taken 105 day for maturity.

KVKs involved	Name of crop	No. of farmers	Area (ha)	Yield (q/ha.)	
				Demo/ha	Local/ha
1	Ground nut	30	12	10	8
4	Mustard	43	17.6	11.94	7.06
1	Soybean	30	12	8	5
1	Sesame	24	9.6	5	3.5
		127	**51.2**		

Economics of demonstration (Rs./ha)				
Name of crop	**Gross Cost**	**Gross Return**	**Net Return**	**BCR**
Ground nut	14000	38000	24000	2.71
Mustard	15333.33	39861.33	24528	2.44
Soybean	19000	22400	3400	1.17
Sesame	15500	35000	19500	2.26

Advancement of planting dates of rabi crops in areas with terminal heat stress in Vegetable crops:

Early shown varieties to avoid heat stress and better market ppaddy tomato Utkal raja and Okra hy. demonstration laid out in 2.2 ha and 11 farmer .

KVKs involved	Name of crop	No. of farmers	Area (ha)	Yield (q/ha.)	
				Demo/ha	Local/ha
1	Tomato-Utkal Raja	5	1	250	220
4	Okra-F1	6	1.2	120	100
		11	**2.2**		

Name of crop	Economics of demonstration (Rs./ha)			
	Gross Cost	Gross Return	Net Return	BCR
Tomato-Utkal Raja	54991	175000	120009	3.18
Okra-F1	61474	130000	68526	2.11

(iii) Water saving paddy cultivation methods (SRI, aerobic, direct seeding)

Water saving direct seedling

Total 28 ha area coved under the water saving paddy cultivation method in direct seed paddy involving 123 farmers. The Pusa-1121, Sahbhagi, MTU 1010 and Mahamaya variety demonstration taken under direct seeding for save input cost on labour and low rain fall condition.

Production performance of demonstration						
KVK	Technology demonstrated	Critical input (Variety, Fertilizer / Chemicals doses,)	No. of farmers	Area (ha)	Yield (q/ha)	
					Demo/ha	Local/ha
Datia	Direct seeded paddy on fallow land during kharif	Paddy variety Pusa-1121	10	1	28	-
Satna	Introduction of new variety in paddy - Sahbhagi,, (Direct sowing of Paddy)	Organic manure 4t/ha, NPK 60:20:20 Kg/ha, Seed t/t with salt solution @ 10%, one spray of Trizophos @ 1000 ml / ha, one spray of Propaconozole 1ml/L of water, weed control by bispyriback sodium @ 200g/ha	5	1	26.25	25.13

Bilaspur	Paddy (DSR)	MTU-1010	30	12	30	22
Bhatapara	DSR -Mahamaya	DAP 125 Kg per ha	10	4	43.34	42.73
Dantewada	DSR	Variety	10	5	35.13	22.55
Ganjam-I	Direct seeded paddy	Seed & micronutrient	17	5	27.6	23.4
		Total	**82**	**28**		

Economical performance of demonstration (Rs./ha)				
KVK	**Gross Cost**	**Gross Return**	**Net Return**	**BCR**
Datia	24000	91600	67600	3.81
Satna	26130	38062.5	6082.5	1.19
Bilaspur	10000	39300	29300	3.9
Bhatapara	33262	58505	25243	1.76
Dantewada	20260	48479	28219	2.39
Ganjam-I	15770	33120	17350	2.1

Water saving through SRI

SRI method is very use full for low rainfall condition and also required less water than traditional transplanting method. MTU 1010, Pusa sugandha, Shabhagi and Lalat verities demonstration were laid out in field, the result show that MTU 1010 had highest BC ratio 3.33.

Production performance of demonstration						
KVK	**Technology demonstrated**	**Critical input (Variety, Fertilizer / Chemicals doses,)**	**No. of farmers**	**Area (ha)**	**Yield (q/ha)**	
					Demo / ha	**Local/ ha**
Balaghat	SRI	Seed of MTU-1010	6	2.42	53	36
Morena	SRI, aerobic, direct seeding	Paddy -Pusasugandha	10	5.00	45	40.2
Satna	Introduction of new variety in paddy Variety-Sahbhagi,System of Paddy Intensification	organic manure 4t/ha, NPK 60:20:20 Kg/ha, Seed treatment with salt solution@ 10%, one spray of Trizophos@1000ml/ha,one spray of Propaconozole 1ml/L of water	31	8.00	36.5	25.13

Dantewada	SRI	Variety	5	2.00	45.67	26.44
Kendrapara	Demonstration of SRI Method of paddy cultivation	Paddy foundation seed var. Lalat	10	2.00	48.7	42
		Total	**62**	**19.42**		

Economical performance of demonstration (Rs./ha)				
KVK	**Gross Cost**	**Gross Return**	**Net Return**	**BCR**
Balaghat	21300	71550	50250	3.33
Morena	35000	90000	55000	2.57
Satna	31980	52295	20945	1.65
Dantewada	24330	63024	38694	2.59
Kendrapara	32000	63310	33310	2.11

(iv) Frost management in horticulture through fumigation

Under this intervention spray of Thiourea @ 0.5 percent at flowering and seed development stage were taken in coriander crop. The result shows Thiourea protect the plant form forest, it increase the frost tolerant capacity of plants by hardening effect.

Intervention frost management in horticulture through fumigation also contents the community vegetable nurseries of tomato and brinjal to escape the frost.

Production performance of demonstration						
KVK	**Technology demonstrated**	**Critical input (Variety, Fertilizer / Chemicals doses,)**	**No. of farmers**	**Area (ha)**	**Yield (q/ha)**	
					Demo/ha	**Local/ha**
Guna	Frost management in horticulture through fumigation	Spray of Thiourea @ 0.5 % at flowering and seed development stage (70 & 90 DAS)	05	2.0	17.80	15.10
		Total	**5**	**2**		

Economical performance of demonstration (Rs./ha)				
KVK	**Gross Cost**	**Gross Return**	**Net Return**	**BCR**
Guna	21230	107250	86020	3.98

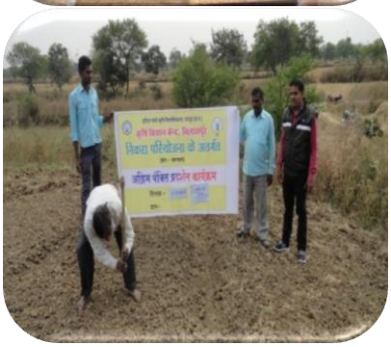
(v) Community nurseries for delayed monsoon

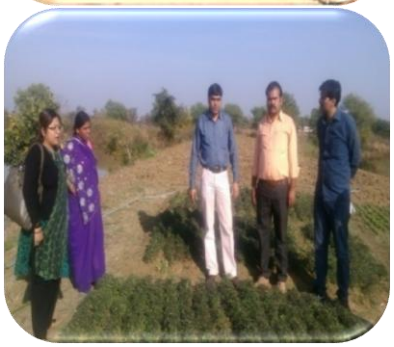
In Madhya Pradesh, under community nurseries of delayed paddy nursery covered 2.4 ha area involving six farmers. Similarly okra hy. Variety - SGT102, Tomato hy variety- Rasi Shivam, Brinjal hy - Rasi Nano 038 were laid out in 9 ha involving 45 farmers.

Under this intervention 11 ha area covered in Chhattisgarh covering 30 farmers in paddy nursery. Tomati (Aniruddh), Brinjal (VNR-218 & VNR-212),Onion (N-53) Drumstick (PKM-1) were demonstrated under horticulture community nursery programme.

Similarly in Odisha paddy nursery raising involving the 54 farmers with covering 2 ha of land.





Production performance of demonstration						
KVK	Technology demonstrated	Critical input (Variety, Fertilizer / Chemicals doses,)	No. of farmers	Area (ha)	Yield (q/ha)	
					Demo /ha	Local/ ha
Madhya Pradesh						
Balaghat	Nursery of paddy	Seed of paddy	6	2.4	46	32
Guna	Community nurseries for delayed monsoon summer season	Okra Hy. Variety SGT102, Tomato Hy variety Rasi Shivam, Brinjal Hy - Rasi Nano 038	45	9.0	-	-
		Total	**51**	**11.4**		
Chhattisgarh						
Bilaspur	Community vegetable nurseries	Tomati (Aniruddh)	10	2	100	80
Bilaspur	Community vegetable nurseries	Brinjal (VNR-218)	10	2	125	80

Bhatapara	Community vegetable nurseries	Brinjal (VNR-212)	10	2	210	155
Bhatapara	Community vegetable nurseries	Onion (N-53)	10	2	260	180
Dantewada	Summer deep ploughing followed by with Direct seeded Line Sowing Paddy var. MTU-1010.	Paddy	12	4.8	36.59	22.30
Dantewada	Harrowing with Rotavator followed by paddy var. Samleshawari	Paddy	08	3.0	30.45	24.33
Dantewada	Line sowing with seed cum fertilizer drill var. Indira Barani Dhan-1	Paddy	10	4.0	29.39	21.45
		Total	**80**	**20.2**		
Odisha						
Ganjam-I	Nursery raising of paddy	Seed and pesticides	54	2.0		
		Total	**54**	**2.0**		

	Economical of demonstration (Rs./ha)			
	Gross Cost	**Gross Return**	**Net Return**	**BCR**
Madhya Pradesh				
Balaghat	21300	62100	40800	2.91
Chhattisgarh				
Bilaspur	40000	100000	60000	2.5
Bilaspur	40000	125000	85000	3.1
Bhatapara	48000	147000	99000	3.06
Bhatapara	53000	260000	207000	4.91
Dantewada	26312	50494	24182	1.91
Dantewada	26500	42021	15521	1.58
Dantewada	23390	40558.0	22984.0	1.73

(vi) Custom hiring centers for timely planting

In this intervention total three KVKs worked on custom hiring centre for timely planting and total 157 farmer were benefited by five demonstration in 161.6 ha. Use in zero till seed drill sowing method covered total 26 ha of land involving the 55 farmers . One demonstration of paddy transplanter laid out in 2.6 ha of land and benefited the six farmers through the reducing the input cost and time.

Rotavator, seed cum ferti drill sowing and reaper implement used by 82 farmers for 32.8 ha of land. These demonstrations directly benefited the small and marginal farmers by timely operation. In Odisha one demonstration laid out in three ha of area involving the five farmers by paddy nursery line transplanting.

Production performance of demonstration						
KVK	Technology demonstrated	Critical input (Variety, Fertilizer / Chemicals doses,)	No. of farmers	Area (ha)	Yield (q/ha)	
					Demo/ha	Local/ha
Madhya Pradesh						
Balaghat	Paddy Transplanter	MTU-1010	6	2.6	53.0	36.00
Datia	Custom hiring for timely operation	Different implements	86	131	-	-
Morena	Use in zero till seed drill sowing method	Wheat (MP4010)	50	25	50.2	48.10
Morena	Use in zero till seed drill sowing method	Barley (RD- 2786)	5	1	41.7	36.40
Morena	Raised bed planter sowing	Cluster bean	10	2	16.8	14.20
		Total	**157**	**161.6**		
Chhattisgarh						
Bilaspur	Rotavator	Wheat (GW-273)	50	20	24	14.00
Bilaspur	Seed cum fertilizer drill	Wheat (Ratan)	2	0.8	24.7	14.82
Bilaspur	Reaper	Paddy MTU-1010	30	12	30	22 .00
		Total	**82**	**32.8**		
Odisha						
Sonepur	Line transplanting	Paddy-Lalat	5	3	46	40.00
		Total	**5**	**3**		

Economical performance of demonstration (Rs./ha)				
	Gross Cost	Gross Return	Net Return	BCR
Madhya Pradesh				
Balaghat	21300	71550	50250	3.35
Morena	38820	92390	53570	2.37
Morena	18650	67126	48476	3.59
Morena	28239	63300	35061	2.24
Chhattisgarh				
Bilaspur	19760	30800	11040	1.55
Bilaspur	19760	48580	28720	2.4
Bilaspur	10000	39300	29300	3.9
Odisha				
Sonepur	32515	62560	30045	1.92

(vii) Location specific intercropping systems with high sustainable yield index

Under location specific intercropping systems Paddy + pigeon pea + Colocasia three crops taken as mix cropping involving the six farmer and covering 2.4 ha of land give net return Rs .52800 with 2.03 BC ratio. The pigeon pea and colocasia were sown on the side bunds.

Sustainable production under aberrant weather condition Sugarcane + Coriander grown in ratio of 1:2, laid out in 2 ha of land and involving five farmers. Demonstration of intercropping systems of Pigeon pea + Maize in 2:1 ratio covered one ha of area involving five farmers. Similarly pigeon pea ICPL-88039 crop taken with black gram variety Samrat in ratio 4:2. In four different demonstrations chickpea varieties (JG - 11, JG - 16 and JAKI - 9218) taken with Mustard variety Pusa Tarak (6:2), Safflower variety JS1-7 and Coriander variety Delite were taken in 9.6 ha area involving 26 farmers.

Under Intercropping system Wheat JW-17+ Mustard (Pusa Tarak) laid in 6:2 ratio with involving the farmers ten farmers with 2 ha of land.

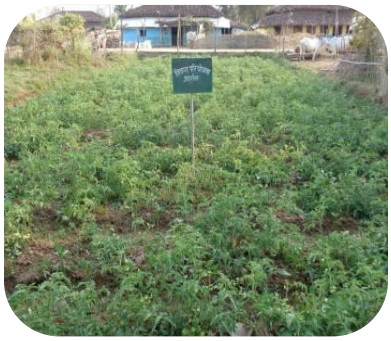
KVK	Technology demonstrated	Critical input (Variety, Fertilizer / Chemicals doses,)	No. of farmers	Area (ha)	Yield (q/ha)	
					Demo /ha	Local /ha
Madhya Pradesh						
Balaghat	Paddy + pigeon pea + Colocasia	Seed	6	2.4	52.2	-
Guna	Sustainable production under aberrant weather condition	Sugarcane + Coriander 1:2	05	2.0	687.50	543.50
Morena	Intercropping systems	Pigeon pea + Maize 2:1	5	1	17.2 + 100	16.1+75
Satna	Green gram + Pegion pea Samrat +ICPL-88039 (4:2)	Intercropping system seed treatment with Carbendazym 2.5gm/kg seed, NPKS 20:60:20:20 Kg/ha, Pendemethaline@ 1000ml ai/ha, organic manure 2t/ha, spray of imidacloprid@150 ml/ha, Cypermethrin@500 ml/ha	8	2.2	2.17 + 2.34	-
Satna	Chickpea+ Mustard- JG-11 + Pusa Tarak (6:2)	Intercropping system seed treatment with Carbendazym 2.5gm/kg seed, NPK 20:40:20 Kg/ha, organic manure 2t/ha, spray of imidacloprid@150 ml/ha,	5	1.6		
Satna	Chickpea+ Mustard JG-16 + Pusa Tarak (6:2)	Intercropping system seed treatment with Carbendazym 2.5gm/kg seed, NPK 20:40:20 Kg/ha, organic manure 2t/ha, spray of imidacloprid@150 ml/ha,	2	0.4		
Satna	Wheat + Mustard- JW-17+ Pusa Tarak (6:2)	Intercropping system seed treatment with Carbendazym 2.5gm/kg seed, NPK 60:20:20 Kg/ha, organic manure 2t/ha, spray of Chloropyriphos@ 2000 ml/ha,	10	2		
		Total	**41**	**11.6**		

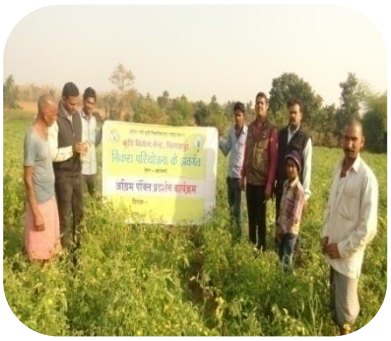
KVK	Technology demonstrated	Critical input (Variety, Fertilizer / Chemicals doses,)	No. of farmers	Area (ha)	Yield (q/ha)	
					Demo /ha	Local /ha
Chhattisgarh						
Bilaspur	Gram+ Safflower	Gram + Safflower (JAKI-9218+JS1-7)	14	5.6	6+4	3+2
Bilaspur	Gram + Coriander	Gram + Coriander (Delite + JAKI-9218)	5	2	7+6	4+4
		Total	**19**	**7.6**		
Economics of demonstration (Rs./ha)						
	Gross Cost	**Gross Return**	**Net Return**	**BCR**		
Madhya Pradesh						
Balaghat	26000.00	788000.00	52800.00	2.03		
Guna	37440.00	138750.00	101310.00	3.72		
Morena	26080 + 17920	787000 + 68000	52620 + 50080	3.01+3.79		
Satna	14700.00	16870.00	2170.00	1.14		
Chhattisgarh						
Bilaspur	15000.00	50000.00	35000.00	3.30		
Bilaspur	20000.00	40000.00	20000.00	2.00		

(ix) Others

Under the crop production module total 37 demonstrations were conducted in NICRA adopted villages. In Zone VII Total 607 farmers involved under 144.21 ha. In Madhya Pradesh, 289 farmer were benefited by 87.21 ha demonstration in CG total 12 ha demonstration were laid out in which 57 farmers were involved . Similarly 261 farmers of Odisha were benefited through 45 ha of demonstration

Different crop seed provided to farmers, were laid out in 80.213 ha of land involving the 335 farmers under 26 demonstration conducted by seven NICRA KVKs





Production performance of demonstration (Rs./ha)						
KVK	**Technology demonstrated**	**Critical input (Variety, Fertilizer / Chemicals doses)**	**No. of farmers**	**Area (ha)**	**Yield (q/ha)**	
					Demo /ha	**Local /ha**
Madhya Pradesh						
Balaghat	Brinjal-Harshita	Seed of	5	0.2	425	320
Balaghat	Chilli	Seed of Chilli Var. NS 1701	5	0.2	225	160
Balaghat	Tomato	Seed of Tomato Var. Laxmi 5005	5	0.2	370	280
Balaghat	Okra	Seed of Okra Var. Shakti	5	0.2	180	105
Guna	Soil test value based fertilizer management	Soybean	100	40.0	21.24	17.10
Guna		Wheat	100	40.0	49.97	42.80
Satna	Introduced new drought tolerant crop-Gwar Gum	RGC-1066	3	0.60	3.46	-
Satna	Introduced new drought tolerant	Niger Var.-JNC-6	14	2.80	3.59	-
Satna	Introduced income generating crop-Okra	VRO-6	2	0.12	75	
Satna	Drought escaping crop- Lobia	Komal	12	0.9	15.72 seed& 67.42 Green pod	
Satna	Introduced new drought tolerant -Kodo	JK-390-25	9	1.80	4.20	-
Satna	Radish	Pusa chetaki	14	0.13	234.6	
Satna	Coriander	Pant Haritima	15	0.06	6.33 (Seed) 80.80 (green leaf)	
		Total	**289**	**87.21**		
Chhattisgarh						
Bilaspur	Introduction of new crops (drought)	Safflower (JSI-7)	15	5	6	4
Bilaspur	Income generation	Tomato (Aniruddh,Laxmi)	15	2	100	80
Bilaspur	Income generation	Cowpea (VNR-Shweta)	6	1	70	40

Production performance of demonstration (Rs./ha)						
KVK	**Technology demonstrated**	**Critical input (Variety, Fertilizer / Chemicals doses)**	**No. of farmers**	**Area (ha)**	**Yield (q/ha)**	
					Demo /ha	**Local /ha**
Bilaspur	Income generation	Bitter gourd (VNR-22)	6	2	80	50
Bilaspur	Income generation	Brinjal (VNR-218)	15	2	125	80
		Total	**57**	**12**		
Odisha						
Ganjam-I	Demo. On Maize hybrid super-36	Seed	05	01	46.3	37.2
Ganjam-I	Demo. On Black gram var. Prasad	Seed	10	4.0	6.9	5.3
Ganjam-I	Demo. On Pigeon pea var. Asha	Seed	05	2.0	9.8	7.4
Ganjam-I	Demo. On Sunflower var Surykiran	Seed	5	2.0	13.4	10.7
Ganjam-I	Nutrient management - Paddy	Seed	20	6.0	29.4	23.6
Ganjam-I	Pest and disease management - Paddy	Seed	32	8.0	41.6	36.4
Ganjam-I	Integrated crop management -Tomato	Seed	12	2.0	216	184
Ganjam-I	Mushroom production: Oyster	Seed	10	100 bags	1.6kg /bed	1.2kg /bed
Ganjam-I	Vermicompost	Vermin & cement rings	5	5units	2.6q 2kg - vermin	-
Ganjam-I	Green manuring	Seed	10	2.0	pH increased from 5.5 to 5.8	
Jharsuguda	Crop diversification	Hybrid Maize Seeds	27	5.0	38.0	24.0
Jharsuguda	INM in Cauliflower	Micronutrient	25	2.0	158.0	127.0
Jharsuguda	INM in Cabbage	Micronutrient	20	2.0	249.0	218.0
Jharsuguda	IPM in Cauliflower	Chemicals	20	2.0	152.0	124.0
Jharsuguda	IPM in Cabbage	Chemicals	20	2.0	238.0	212.0
Kendrapara	Demonstration of Bio-agent for management of Internode borer in	Trichogramma chillonis	a	2	125	100

Production performance of demonstration (Rs./ha)						
KVK	**Technology demonstrated**	**Critical input (Variety, Fertilizer / Chemicals doses)**	**No. of farmers**	**Area (ha)**	**Yield (q/ha)**	
					Demo /ha	**Local /ha**
	sugarcane. Technology- Release of Bio-agent Trichogramma chilonis @ 20000 eggs / acre five times t 5 days interval.					
Kendrapara	Demonstration on cultivation of HYV Potato along with Riverbed Plantation.	Potato seed, pesticides, & fungicides, Fertilizer	10	2	250	220
Kendrapara	Cultivation of high yielding variety of Tomato (Chiranjeevi) with improved package and tolerant to wilt.	Tomato seedling var. Chiranjeevi	5	1	227.5	197
Kendrapara	Cultivation of paddy straw mushroom *Volvariella volvaceae* and *Volvariella diplasia*	Distribution of paddy straw mushroom spawn to farm women	10	-	1.5 kg per bed	0.4 kg per bed
		Total	**261**	**45**		

Economical performance of demonstration (Rs./ha)				
KVKs	**Gross Cost**	**Gross Return**	**Net Return**	**BCR**
Madhya Pradesh				
Balaghat	75000	212500	137500	1:2.83
Balaghat	80000	225000	145000	1:2.81
Balaghat	80000	370000	290000	1:4.62
Balaghat	60000	180000	120000	1:3
Guna	18780	52778	33998	2.51
Guna	19130	76723	57593	2.14
Satna	13652	20057	6405	1.47
Satna	11680	12565	885	1.07
Satna	30670	112500	81830	3.60
Satna	35890	116850	96680	3.20
Satna	10700	9240	2440	0.79

Economical performance of demonstration (Rs./ha)				
KVKs	**Gross Cost**	**Gross Return**	**Net Return**	**BCR**
Satna	65580	224680	159100	3.42
Satna	67658	298450	230792	4.41
Chhattisgarh				
Bilaspur	10000	30000	20000	3
Bilaspur	40000	100000	60000	2.5
Bilaspur	40000	140000	100000	3.5
Bilaspur	70000	200000	170000	2.8
Bilaspur	40000	125000	85000	3.1
Odisha				
Ganjam-I	14495	37688	2319	2.6
Ganjam-I	11500	27600	16100	2.4
Ganjam-I	19600	49000	29400	2.5
Ganjam-I	50			2.3
Ganjam-I	16036	35280	19244	2.2
Ganjam-I	22186	49920	27733	2.25
Ganjam-I	34892	90720	55827	2.6
Ganjam-I	2500	8000	5500	3.2
Ganjam-I	719	2300	1581	3.2
Ganjam-I				
Jharsuguda	42000	160000	118000	3.8
Jharsuguda	45000	270000	225000	6.0
Jharsuguda	48000	260000	212000	5.4
Jharsuguda	45000	253000	205000	5.6
Jharsuguda	47000	238000	191000	5.6
Kendrapara	98,000	288250	190250	2.94
Kendrapara	82000	150000	68000	1.82
Kendrapara	100000	227500	127500	2.28
Kendrapara	Rs.50/-per bed	Rs.150 /-per bed	100/-per bed	3.0

3. LIVESTOCK AND FISHERIES

Demonstration of fodder production, de-worming, preventive vaccination, and management of fish pond / during, water scarcity and excess water, breed up - gradation and nutrient supplement management conducted in an area of 35.42 ha are by involving 1554 farmers and 8372 animal, 800 birds on specific interventions in adopted NICRA villages under ZPD Zone VII.

Silent achievements

- Total 467 farmers were involved in fodder/feed storage methods demonstrations conducted on 8.8 ha improved and covered 4746 animals.
- Total 3626 animals and 983 farmers those are directly involved in preventive vaccination.
- Total 11 demonstrations conducted under Management of fish ponds / tanks during water scarcity and excess water.
- Total 800 animals benefited under improved shelters for reducing heat stress in livestock.
- Total 421 farmers directly involved under use of community lands for fodder production during droughts / floods and covered 13.6 ha.

3.1 Use of community lands for fodder production during droughts / floods

Use of community land for fodder production during droughts/ floods intervention covered 13.6 ha of land in Madhya Pradesh involving the 472 farmers and 128 animal. Under this intervention green fodder berseem, chari, lucern and hybrid Napier production taken on community land. Similarly, for animal feed soybean and wheat straw were produce for fodder bank.

In Odisha, hybrid Napier grass production demonstrated in community land for fodder production for animals were laid out in 0.2 ha of land involving two farmers

KVK	Technology demonstrated	Critical input (Variety, Fertilizer / Chemicals doses,)	No. of farmers	Unit/ No. / Area (ha)	Measurable indicators of output*		% increase
					Demo	Local	
Madhya Pradesh							
Balaghat	Barseem crop	Seed variety BL-1	06	2.4	Fodder yield	-	
Guna	Use of community lands for fodder production	Bajra Chari GSC 205	15	6.0	269.0	215.2	26.8
Guna	Use of community lands for fodder production during droughts / floods	Green fodder Lucern variety L L composite 3	20	4.0	186.90	134.20	39.27
Guna	Improved fodder bank methods	Wheat Straw	203		-	1015 q	-
Guna	Improved fodder bank methods	Soybean Straw	170		-	2550 q	-
Morena	fodder production	Maize	5	1	120	95	26.3
			419	**13.4**			
Odisha							
Sonepur	Fodder Cultivation	Variety-Hybrid Napier	2	0.2	110 MT/Year/Ac.	-	100 %
		Total	**2**	**0.2**			

3.2 Improved fodder/feed storage methods

Fodder production: Total seven demonstrations on fodder crops were laid out in an area 8.8 ha by involving 44 farmers in Madhya Pradesh under different vulnerability situations. The BC ratio was highest in Berseem crop (3.41) and given highest net return (Rs. 72790) in per unit.

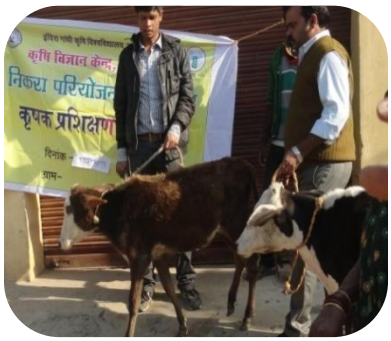
Fodder bank: Fodder collection and conservation technique, demonstrated in farmer's field. A total of 4746 animals and 423 farmers were benefited through three demonstrations in Madhya Pradesh.

KVK	Technology demonstrated	Critical input (Variety, Fertilizer / Chemicals doses)	No. of farmers	Unit/ No. / Area (ha)	Measurable indicators of output*		% increase
					Demo	Local	
Datia	Maize J-1006	Seed	04	0.8	936 lit / lactation period of 90 days	726 lit / lactation period of 90 days	28.92
Datia	Barseem BB-3	Seed	07	1.40	876 lit/ lactation period of 90 days	678 lit/ lactation period of 90 days	29.20
Datia	Oat JHO-851	Seed	03	0.60	745 lit/ lactation period of 90 days	625 lit/ lactation period of 90 days	19.20
Guna	Fodder bank	Soybean	170	3391 animals for a year	2550 q	1 group has developed	-
Guna	Fodder bank	Wheat	203	1355 animals for a year	1015 q	1 group has developed	-
Morena	Fodder production	Barseem	25	5	350	270	29.6
Morena		Oat	5	1	310	240	29.1
Morena	Augmentation of Fodder production and conservation	A healthy animal requires- Dry Fodder: 3-4 kg Green Fodder :	50	50 farmers	12 lit.	8 lit	50.0

		20-30 kg Concentrate: 1.5-2.0 kg Mineral Mix.: 20-40g There is a requirement of 500 g and 400 g concentrate for per litter milk production in buffalos and cows respectively.					

3.3 Preventive vaccination

In this module animal health camps, breed up-gradation, de-worming, feed management, fish management and vaccination were performed at farmer's field. There demonstrations benefited the 3626 animals and 983 farmers those are directly involved in dairy and fish farming.



KVK	Technology demonstrated	Critical input (Variety, Fertilizer / Chemicals doses,)	No. of farmers	Unit/ No. / Area (ha)	Measurable indicators of output*		% increase
					Demo	Local	
Balaghat	Animal Health Camp	De worming	53	116	2.5 Lt/day/ animal	1.5 Lt/day/ animal	66
Balaghat	Vaccination	HSBQ, Black Quarter, FMD	42	96	2.0 Lt/day/ animal	1.3 Lt/day/ animal	53.8

KVK	Technology demonstrated	Critical input (Variety, Fertilizer / Chemicals doses,)	No. of farmers	Unit/ No. / Area (ha)	Measurable indicators of output*		% increase
					Demo	Local	
Datia	Vaccination for F.M.D. and H.S. With convergence of veterinary department and IGFRI, Jhansi	Vaccinated	85	Cow 105 Buffalo 142 Goat 530 Sheep 243	Reduction in FMD & HS (87%)		
Datia	De worming With convergence of veterinary department and IGFRI, Jhansi	Piperazine 15 ml / calf 1st dose and 15 ml in 2nd dose after 20 days	54	Cow 52 Buffalo 113 Goat 185	Mortality nil	29.03% mortality	
Guna	Preventive vaccination	Training animal disease vaccination and management	52	128	3.50 Lit./day 840 lit/ Lactation	2.6 Lit./day 624 lit/ Lactation	34.61
Morena	Training animal disease vaccination and management	FMD and HS and galgontu disease vaccination	65	150 (Animals)	10 lit	7 lit	42.8
Tikamgarh	Vaccination to prevent the FMD and HS	Vaccinated	138	432	4.0	65	93% decreased in FMD and HS
Tikamgarh	De-worming HITEK-bolus@ 2 bolus/animal /year	HITEK-bolus@ 2 bolus/animal /year	09	09	16.66	41.67	60 % decreased

KVK	Technology demonstrated	Critical input (Variety, Fertilizer / Chemicals doses,)	No. of farmers	Unit/ No. / Area (ha)	Measurable indicators of output*		% increase
					Demo	Local	
Tikamgarh	Animal Health camp All needed medicines	All needed medicines	138	432	--	-	-
Tikamgarh	Mineral mixture Mineral mixture	Mineral mixture 40 g/day/animal	12	12	6.96	6.65	4.6 % increased
Tikamgarh	Fish pond cleaning Natural Resources management	Technical support	01	-	-	-	-
Tikamgarh	Fish farming Improved fish farming techniques	Technical support	01	-	-	-	-
Tikamgarh	Breed up grading Improved fish farming techniques	Technical support	60	-	-	-	-
Tikamgarh	Male Goat for breeding upgrade 5-He Goat provided for up grading in goat (Jamunapari dual purpose goat)	5 He goat provided to farmers	05	05	-	-	-
Bilaspur	Nutrient supplement	Calcium	10	2	2.5 liter	2 liter	25
Dantewara	Animal health camp	Coverage with Veterinary Department	69	298 animals			
Ganjam-I	Deworming with fenbendazole	Medicines	8	34	(Body wt-920gm)	Body wt. - 720gm)	20

KVK	Technology demonstrated	Critical input (Variety, Fertilizer / Chemicals doses,)	No. of farmers	Unit/ No. / Area (ha)	Measurable indicators of output*		% increase
					Demo	Local	
	@ 7.5mg /kg b.w						
Ganjam-I	Supplementary feed	Mineral mixture	10	30 no.	1.3	2.4	184
Jharsuguda	Animal Health Camp	Medicines and vaccines	25	80 nos. of animal			
Jharsuguda	Animal Nutrition Camp	Mineral Mixture	25	80 nos. of animals			
Kendrapara	Vaccination was done and vitamin supplement was given to domestic animals.	Medicine, antibiotics, vitamin	70	No of Animals-300	-	-	
Sonepur	De worming	Medicine	50	52			

Preventive vaccination: Preventive vaccinations were given to 2126 animal and by these programme total 452 farmers benefited in Zone –VII.

In Madhya Pradesh total 1826 animal were vaccinate of 382 farmers benefited through FMD , HS – and Galgontu disease vaccination. Similarly one demonstration on vaccination was done and vitamin supplement was given to domestic animals performed in Odisha with involving the 300 animals of 70 farmers.

Animal health camp: In this intervention total 5 camps were organized in Zone -VII, in which two animal health camps organized in Madhya Pradesh. Total 549 animals were examined and the treatments were given as per the diagnostic results by which animals of 191 farmers benefited by these health camps. Similarly in Chhattisgarh 298 animals of 69 dairy farmers were examined in animal health camps with District Veterinary Department of Chhattisgarh.

In Odisha, in two animal health camps, total 160 animals were examined and 50 farmers were benefited by these intervention.

De-worming in animals: De–worming were covered 445 animals of 121 farmers in Madhya Pradesh. Under this intervention, two demonstrations were performed, in which 359 animal of63 farmers directly benefited. Similarly in Odisha, 86 animal of 85 farmers were covered by two demonstrations. For de-worming, animals treated with HITEK-bolus @ 2 bolus/animal/year and Fenbendozol @ 7.5mg /kg b.w.

Breed up- gradation: The breed up-gradation is very important part of animal husbandry and fishery. In Zone –VII total 65 farmers were directly benefited under this module. Jamunapari, a dual purpose goat and three layer fish (Rahu, Katla and Mrigal) were taken in place of local breeds.

Nutrient management: For increasing the production and productivity, it is necessary to provide balance diet to animals. To teach better nutrient management, one demonstration were conducted in Madhya Pradesh which covered 12 animals of 12 farmers. In Chhattisgarh, one demonstration was performed with involving 20 animals of 10 farmers. Under this intervention in Odisha, one demonstration were conducted which involved 30 animals and 10 farmers.

3.4 Shelter and feed management:

In this intervention, farmers were trained for live stock and poultry management in summer and winter season by their shelter and feed management habits.

KVK	Technology demonstrated	Critical input (Variety, Fertilizer / Chemicals doses,)	No. of farmers	Unit/ No. / Area (ha)	Measurable indicators of output*		% increase
					Demo	Local	
Datia	Training and animal camp	Feeding and drinking water management during summer and winter season	45				
Kendrapara	Demonstration on Semi intensive poultry farming	Distribution of Blackrock and Banaraja among SHG members	50	600 bird	3.0kg	1kg	150
Sonepur	Demonstration of Colour Bird	Feeds	13	200	2.8 kg	1.2 kg	133%

Economics of demonstration (Rs./ha)

KVK	Technology demonstrated	Gross Cost	Gross Return	Net Return	BCR
Kendrapara	Demonstration on Semi intensive poultry farming	20,000	60,000	40,000	2.0

Livestock management: Under this intervention, one KVK performed the training on feeding and drinking water management during summer and winter season which benefited the 45 farmers.

Poultry management:

In two demonstration of 800 birds on Blackrock and Banaraja among SHG members and demonstration of colour bird were

benefited 63 farmers in Odisha. Through this intervention, income of farmers were increased through egg selling and chicken selling. Eggs are, fetched higher price than normal egg due to its appearance.

3.5 Management of Fish ponds

The demonstration on management of fish ponds/tanks during water scarcity and excess water condition were done in about 13.02 ha by involving 61 farmers. In Madhya Pradesh, total 5.12 ha area covered involving 17 farmers by in module. Whereas in Chhattisgarh 1.8 ha of area were taken under this intervention and total 11 farmers were benefited by this interventions. Under two demonstration ,total 6.2 ha of land covered involving 33 farmers. The fish like rohu and katla were cultivated. The fish farming done in flood affected area and diversified farming provided extra income to farmers. Besides this, technical support also proved to those farmers which are already engaged in fish farming.

KVK	Technology demonstrated	Critical input (Variety, Fertilizer / Chemicals doses,)	No. of farmers	Unit/ No. / Area (ha)	Measurable indicators of output*(q/ha)		% increase
					Demo	Local	
Balaghat	Fish pond	Feed	8	1.12	17.22	-	-
Datia	Fish culture in harvested rainwater	Fish seed Catla, Rohu, Mirgal Grass Carp, Common Carp, Silver Carp @ 12000 fingerling /ha Ratio 4:3:3	03	03	28.75	-	-
Guna	Management of fish ponds /	Fish farming	1	0.4	5.00	3.65	36.98

	tanks during water scarcity and excess water						
Morena	Training Maintenance of fish point , proper dose food ,grain and disease control of fish	Manuring should be checked or stopped during winter season. But lime should be used at regular intervals. Water exchange should be done at regular intervals.	2	0.2	90	70	28.5
Bhatapara	Fish Farming	Rohu, Katla,	5	1	Result awaited	Result awaited	Result awaited
Dantewada	Fish farming	Fish culture span	06	0.80	4	-	100%
Ganjam-I	Feed enrichment: floating fish feed management	Fingerlings and feed	8	1.1	38.30	29.55	29.61
Kendrapara	Demonstration of IMC & intercropping of middle carp	IMC & middle carp, feed, medicine	25	5	31.3	22.4	39.73

4. INSTITUTIONAL INTERVENTIONS

Institutional intervention module consist of institutional mechanism either by strengthening the existing ones or initiating new owns relating to seed bank, fodder bank, commodity groups, custom hiring centre, collective marketing group, introduction of weather index based insurance, literacy through a village weather station ,etc..

Salient achievements of institutional intervention

- Climate literacy benefitted total 319 farmers using village level weather station
- Collective marketing benefited total 197 farmers.
- A total of 77 farmers and 7 SHGs were benefited under Commodity groups
- Using Fodder bank total 428 farmers were benefited
- Seed bank benefited total 824 farmers.

4.1 Seed Bank

In seed bank intervention, total 886 famers covered in Madhya Pradesh and 1934.75 seed produced in 19 demonstrations on different corps. Under soybean seed production, 170 farmers produced 1700 q seed followed by fodder crop berseem which covered a group of 50 famers and they produced 1000 q seed. It observed that these practices improved the farmer's income and make seed availability easy to other farmers of adopted village. Total 17 demonstrations conducted under participatory seed production program on green gram, chickpea, mustard, wheat, etc. production and storage of 946 q seed involving 666 farmers in Madhya Pradesh under this intervention.

KVK	Details of activity			Critical input (Breed / Variety / Medicine doses,)	No. of farmers	Quantity (q)
	Name of crops / Commodity groups / Implements	Quantity / Number / Rent / Charges	Technology used in seed / fodder bank & function of groups			
Balaghat	Paddy	25-30 Rs./ kg	Groups	MTU-1010 JRH-5	12	12q.
Guna	Soybean	1 group of 170 farmers	1 group has developed	JS 95-60	170	1700
Guna	Gram	1 group of 30 farmers	1 group has developed	JG 14	30	359

KVK	Details of activity			Critical input (Breed / Variety / Medicine doses,)	No. of farmers	Quantity (q)
	Name of crops / Commodity groups / Implements	Quantity / Number / Rent / Charges	Technology used in seed / fodder bank & function of groups			
Guna	Wheat	1 group of 20 farmers	1 group has developed	HI 1544	20	528
Morena	Seed bank	150000/year	One society had been developed a seed processing unit.	ICPL -88039 , UPAS 120Wheat MP-4010, RVW-4106 Chik pea JG-16	80	15
Morena	Fodder bank	1 lakh /year	seed production co. societies were registered and working for farming community	Barseem,	50	1000
Morena	Commodity groups	1	Climate risk processing unit. in village level	All facility in maintenances climate i.e. seed, implement , fertilizers and other document	40	10
Morena	Custom hiring centre	As per KVK approved rate	In-situ moisture conservation And use in difference NICRA activity	Wheat, Barley, mustard, chickpea, Green gram, maize and soybean and other fodder crops	45	-
Morena	Collective marketing	1	Market facility and high value of input	Maize, soybean, pigeon pea wheat, barley, Paddy and mustard	150	As per market demand
Morena	Climate literacy through a village level weather station	1	Technology development	Through KMA from IAAS services ZARS Morena	200	mass

KVK	Details of activity			Critical input (Breed / Variety / Medicine doses,)	No. of farmers	Quantity (q)
	Name of crops / Commodity groups / Implements	Quantity / Number / Rent / Charges	Technology used in seed / fodder bank & function of groups			
Morena	Any other (Pl. specify)	2	25 rural youth has been involved in Mushroom, honey production	Market linkage, SHGs	10	As per environment
Satna	Green gram	25 Kg	Seed	Samrat	12	0.25
Satna	Paddy	500 Kg	Seed	JR-201	20	5.0
Satna	Mustard	200 Kg	Seed	Pusa Tarak	5	2.0
Satna	Chickpea	200 Kg	Seed	JG-11	7	2.0
Satna	Chickpea	150 Kg	Seed	JG-14	05	1.50
Satna	Barley	400 Kg	Seed	K-508	10	4.0
Satna	Barley	400 Kg	Seed	JB-1	10	4.0
Satna	Wheat	400 Kg	Seed	JW-17	10	4.0
				Total	**704**	**1934.75**

Storage of 20q of paddy variety MTU 1010, performed with involving 30 farmers in Chhattisgarh.

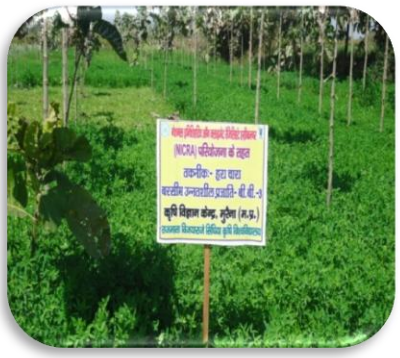
KVK	Details of activity			Critical input (Breed / Variety / Medicine doses,)	No. of farmers	Quantity (q)
	Name of crops / Commodity groups / Implements	Quantity / Number / Rent / Charges	Technology used in seed / fodder bank & function of groups			
Bilaspur	Paddy	2 tonne	Storage Structure	MTU-1010	30	200

In Odisha, seed production of paddy variety Sahabhagi Dhan & Swarna sub-I involving 75 farmers and produced the 35.1 q seed. Similarly in 10 q paddy seed stored in seed bin by which total 15 farmers were benefited.

KVK	Details of activity			Critical input (Breed / Variety / Medicine doses,)	No. of farmers	Quantity (q)
	Name of crops / Commodity groups / Implements	Quantity / Number / Rent / Charges	Technology used in seed / fodder bank & function of groups			
Ganjam-I	Paddy		High Yield seed	Sahabhagi Dhan & swarna sub-I	75	31.5
Sonepur	Paddy	10	Store in Seed Bin	Sahbhagidhan and Lalat	15	10
				Total	**90**	**41.5**

4.2 Fodder Bank

Under this intervention, total 3565 q wheat and soybean straw were produced and started with scientific manner involving 373 farmers , by resulting this off- season feed were available and per animal production increase in summer season. Similarly, in high yielding Berseem and hybrid Napier grass production demonstration covered the 55 farmers and total 1200 q fodder production taken for adverse condition.



KVK	Details of activity			Critical input (Breed / Variety / Medicine doses,)	No. of farmers	Quantity (q)
	Name of crops / Commodity groups / Implements	Quantity / Number / Rent / Charges	Technology used in seed / fodder bank & function of groups			
Guna	Soybean straw	-	1 group has developed	JS 95-60, 93-05	170	1015

KVK	Details of activity			Critical input (Breed / Variety / Medicine doses,)	No. of farmers	Quantity (q)
	Name of crops / Commodity groups / Implements	Quantity / Number / Rent / Charges	Technology used in seed / fodder bank & function of groups			
Guna	Wheat Straw	-	1 group has developed	HI 1544, Lok 1	203	2550
Morena	Fodder bank	1 lakh /year	Seed production co. societies were registered and working for farming community	Barseem	50	1000
Sonepur	Hybrid Napier	200 q	Round the year used by farmer	Breed - Jersey	5	200
				Total	**428**	**4765**

4. 3 Commodity Groups

In this intervention, village climate risk management committee (VCRMC), community development, poultry and goat distribution for improve the socio- economic condition of farmers and to provide training to other farmers. Total 77 farmers and seven SHGs directly benefited by different demonstrations in Zone VII.

KVK	Details of activity			Critical input (Breed / Variety / Medicine doses,)	No. of farmers	Quantity (q)
	Name of crops / Commodity groups / Implements	Quantity / Number / Rent / Charges	Technology used in seed / fodder bank & function of groups			
Datia	Village climate risk management committee	01	One committee had been developed in the village	Maintenance of CHC and other climate related agricultural activities.	15	-
Datia	Coustom hiring centre	01	Farmers of NICRA village	Agricultural implements	05	08 implements
Guna	Climate Risk Management Committee	01	1 Group has developed	Technical guidance and practices	10	10 members

KVK	Details of activity			Critical input (Breed / Variety / Medicine doses,)	No. of farmers	Quantity (q)
	Name of crops / Commodity groups / Implements	Quantity / Number / Rent / Charges	Technology used in seed / fodder bank & function of groups			
Morena	Commodity groups	1	One society had been developed a climate risk processing unit. in village level	All facility in maintenances climate seed, implement , fertilizers and other document	40	10
Jharsuguda	Floriculture	10000	Improved planting methods & managements	Planting materials	2 SHGs	10000 planting materials
Jharsuguda	Backyard poultry (Banaraja)	420	Improved Poultry variety-Banaraja	Chicks	5 SHGs	420
Jharsuguda	Buck (Black Bengal)	3	Improved Buck –Black Bengal	Buck	3 farmers	3
Sonepur	Leaf plate and cup making machine				4	

Village climate risk management committee: In VCRMC, maintenance of CHC and other climate related agricultural activities conducted under the commodity group. Total 30 farmers were benefited by VCRMC.

Capacity building through crop production: Under this intervention equipment, fertilizers, planting material and other inputs provide to farmers. Total 40 farmers and two SHGs were benefited in two demonstrations. All facility in maintenances climate seed, implement, fertilizers and 10,000 marigold seedlings provided for capacity building .

Capacity building through live stock and Poultry: Total five SHGs groups were benefited through dual purpose improved poultry breed ' Banaraja' for backyard poultry farming. Under this intervention, 420 birds were distributed between the farmers.

Three improved buck 'Black Bengal' were distributed in farmers for local breed improvement by NICRA capacity building programme.

Other: One leaf plate and cup making machine distributed in village for improving socio-economic condition and total four famers were benefited by this module.

4. 4 Custom Hiring center

Under this intervention, the latest implement were procured and put for use at adopted village for different cultivation practices. The custom hiring implements were used by 696 farmers and 351.7 ha area in Zone –VII.

In Madhya Pradesh total 191.7 ha of land covered involving 281 farmers followed by Odisha where 52 ha area covered and total 185 farmers were benefited. In Chhattisgarh 108 ha of land were covered and 108 farmers taking benefit of custom hiring centers.

KVK	Details of activity			Critical input (Breed / Variety / Medicine doses,)	No. of farmers	Quantity (q)
	Name of crops / Commodity groups / Implements	Quantity / Number / Rent / Charges	Technology used in seed / fodder bank & function of groups			
Balaghat	VCRMC	300 Rs./h.	Implements	Paddy	14	8.7
Datia	M.B.Plough	Rs. 10/hr	Soybean	In-situ moisture conservation,	15	6
Datia	Leveler	Rs. 10/hr	Soybean G. Nut	Time and	01	1

KVK	Details of activity			Critical input (Breed / Variety / Medicine doses,)	No. of farmers	Quantity (q)
	Name of crops / Commodity groups / Implements	Quantity / Number / Rent / Charges	Technology used in seed / fodder bank & function of groups			
Datia	Disc harrow	Rs. 20/hr or Rs. 150/day	Soybean, Groundnut,	labour saving, Technology	21	16.5
Datia	Rotavator	Rs. 20/hr	Sesame, Wheat, Gram, Mustard Wheat	demonstration of custom hiring centre,	04	8.5
Datia	Ferti-cum-seed drill	Rs. 20/hr or Rs. 150/day	Soybean, Wheat, Mustard, Gram	different NICRA activity	07	33
Datia	Bullock drawn seed drill	Rs. 10/hr	G. Nut, Wheat, mustard		01	1
Datia	Raingun	Rs. 10/day	Gram, mustard,		02	10
Datia	Ground nut decorticator	Rs. 1/hr	wheat Ground nut		06	3
Datia	Multi crop thresher	Rs. 50/hr or Rs. 600/day	Soybean, mustard, wheat		29	52
Morena	Zero till seed drill, ridge bed planter, Leveller, M.B.Plough, Sprinkler set, Disc harrow, Power sprayer,	As per KVK approved rate	In-situ moisture conservation And use in difference NICRA activity	Wheat ,Barley, mustard , chickpea ,Green gram ,maize and soybean	45	52
Satna	Farmers advisory for Kharif crops to protect the crop from drought	Mobile massage	Spray either 2% urea or DAP at the time of pod development stage to minimize losses due to dry spells	Message in hindi	34	-

KVK	Details of activity			Critical input (Breed / Variety / Medicine doses,)	No. of farmers	Quantity (q)
	Name of crops / Commodity groups / Implements	Quantity / Number / Rent / Charges	Technology used in seed / fodder bank & function of groups			
Satna	Farmers advisory for rabi crops to protect the crop from frost	Mobile massage	Do smoke in north and western side of plot, irrigate the field if possible by sprinkler irrigation	Message in hindi	34	-
Satna	Warning regarding raining at crop maturity stage	Mobile massage	Farmers were advised to pick up/lift their harvested crop to avoid the losses due to rains	Message in hindi	34	-
Satna	Warning in case of heavy rains	Mobile massage	Farmers were advised to drain out excess water from their field	Message in hindi	34	-
Dantewada	Custom hiring centres for timely Ploughing /field preparation/plantin g/ irrigation/threshing	13 Implements	Training organized for agriculture implements & there uses for crop production	All 13 implements are actively work under CHC	230	108
Ganjam-I	Sprinkler (2 Nos)	Rs. 10/- per pipe Per day	Irrigation	Implements	15	06
Ganjam-I	Power tiller	Rs.40/- per hour	Ploughing	Implements	43	18
Ganjam-I	Power sprayer (1 nos.)	Rs. 30/- per hour	Disease control	Implements	16	08
Ganjam-I	Diesel Water pump Set (2HP)	Rs 30 /-per hour	Irrigation	Implements	16	06
Ganjam-I	MB plough	Rs 20 /- per hour	Tillage	Implements	12	04

KVK	Details of activity			Critical input (Breed / Variety / Medicine doses,)	No. of farmers	Quantity (q)
	Name of crops / Commodity groups / Implements	Quantity / Number / Rent / Charges	Technology used in seed / fodder bank & function of groups			
Ganjam-I	Garuda Mini weeder	Rs 50 per hour	Weeding	Implements	12	03
Kendrapara	Power tiller	Rs.200 per hr	Ploughing	Implements	20	1
Kendrapara	Paddy thresher cum winnower	Rs. 20 per hr	Harvesting	Implements	15	1
Kendrapara	Power sprayer	Rs.20 per hr without fuel	Disease control	Implements	10	2
Kendrapara	Knapsack sprayer	Rs. 5 per hr	Disease Management	Implements	10	1
Kendrapara	Diesel Water pump set (3HP)	Rs. 20 without diesel	Irrigation	Implements	06	1
Kendrapara	Diesel Water pump set (3.5 HP)	Rs. 20 without diesel	Irrigation	Implements	10	1

4. 5 Collective marketing

Through collective marketing system related KVKs motivated farmers for collection of commodity and directly approach to *mandi* or marketing place where they get better paddy instate of individual sealing of commodity. Under this intervention module total 197 farmers were participated in capacity building programme with more than 784.0 q of different corps.

KVK	Details of activity			Critical input (Breed / Variety / Medicine doses,)	No. of farmers	Quantity (q)
	Name of crops / Commodity groups / Implements	Quantity / Number / Rent / Charges	Technology used in seed / fodder bank & function of groups			
Guna	Soybean, Wheat, Coriander	10	Group marketing	Soybean, Wheat, Coriander	47	784
Morena	Collective marketing	1	Market facility and high value of input	Maize ,soybean , pigeon pea wheat, barley, r ice and mustard	150	

4. 6 Climate literacy programmes

To overcome the vulnerabilities in relation to climate, technical awareness development programmes including different improve production practices and improve varieties MTU-1010, TJT-501. Also provided weather information to farmers through KMS from IAAS services ZARS Morena . Total 277 farmers in Madhya Pradesh and 42 farmers in Odisha were benefited through Climate literacy programmes.

KVK	Details of activity			Critical input (Breed / Variety / Medicine doses,)	No. of farmers	Quantity (q)
	Name of crops / Commodity groups / Implements	Quantity / Number / Rent / Charges	Technology used in seed / fodder bank & function of groups			
Balaghat	Paddy + Pigeon pea + Coriander	2.4 ha.	Seed	MTU-1010 TJT-501 Local	6	Paddy – 48 Pigeon pea -3.0 Coriander-1.20
Guna	Climate literacy through a village level weather station	Literacy about shout duration variety of Soybean to mitigate late session drought and frost management in Coriander though spraying of Thiourea	01	Technical awareness development	71	60.0
Morena	Climate literacy through a village level weather station	1	Technology development	Through KMS from IAAS services ZARS Morena	200	Mass
Sonepur	Dhaincha	1.6 qtl.	1	Seed-Local	7	Green manuring
Sonepur	Paddy	5 qtl.	1	Sahbhagidhan	17	5 qtl.
Sonepur	Paddy	5 qtl.	1	Lalat	18	5 qtl.

5. Capacity Building

Training has been considered a key component for updating the knowledge and imparting the new skill to the participants. There was great emphasis on the organizing trainings both for the farmers as well as for the trainers so that latest knowledge and skill could be maintained in the KVKs. In total, 271 courses benefitted 6772 participants including farmers and farm women and rural youth. These training not only improve the technical skill but it is also useful income generation, resource conservation technology, climate awareness etc. in farmer level.

Title of the programme	No. of KVKs involved	Number of trainings	Number of beneficiaries		
			Male	Female	Total
Crop management	11	42	864	80	944
Enterprises for self employment	4	6	97	73	170
Farm implements and machineries	8	27	541	105	646
Fish farming	4	6	116	31	147
Fodder and feed management	7	7	187	25	212
Forest tree/ agro forestry plantation	2	2	69	6	75
Irrigation management	2	3	46	0	46
Live stock management	8	29	601	194	795
Management of horticultural crops	10	14	257	123	380
Micro irrigation systems	2	1	20	5	25
Natural resource management	11	30	597	131	728
NICRA awareness	10	12	336	81	417
Nutritional garden	5	6	139	44	183
Pest and disease management	13	35	618	174	792
Post harvest technology	3	5	54	58	112
Resource conservation technology	5	7	149	31	180
Seed production	4	7	158	3	161
Soil health management	8	11	282	30	312
Vegetable production	4	9	148	70	218
Water saving technology	7	9	158	27	185
Awareness on abuse on social issues	2	3	44	0	44
Total	**130**	**271**	**5481**	**1291**	**6772**

Glimpses of Capacity Building in NICRA Villages

Farmers training on nutrient management

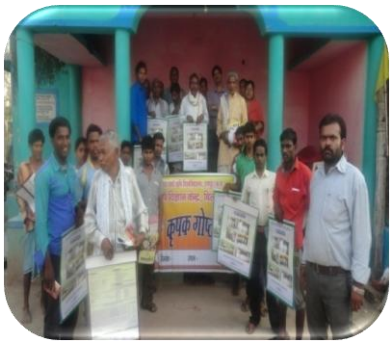
NICRA awareness

Crop management

Enterprises for self employment through Mushroom cultivation

Forest tree/ agro forestry plantation

Enterprises for self employment nursery management



Awareness on abuse on social issues

Natural resource management

Awareness on abuse on social issues

6. Extension Activities

In order to create awareness among the farmers in region, total 269 extension activities were organized by KVK at the farmer's fields. A total of 5962 farmers benefited through these activities out of which 75 farmers by climate change, 963 farmers by Field day, 215 farmers by capacity building programme, 240 farmers by Animal Health camp, 1179 farmers by agro advisory services, 510 farmers by method of demonstration, 284farmers by Scientist -farmers interaction & 369 farmers benefited through kisan mela and Krashak sangosthi in during the year 2014-15.

Thematic area	No. of activity	No. of beneficiaries		Total Beneficiary
		Male	Female	
Climate Change	1	56	19	75
Agro Advisory Services	132	1088	94	1179
Awareness and motivation	4	125	129	194
Capacity building	19	150	65	215
Method demonstrations	12	309	401	510
Field day	22	653	310	963
ICM	17	653	204	795
ICT	1	1	45	20
Farmer Scientists Interaction	6	186	98	284
IPM	5	173	42	215
IWM	1	25	0	25
LMP	6	198	42	240
Kisan mela	1	185	40	225
Krashak sangosthi	4	120	24	144
VCRMC	9	61	22	83
Diagnostic Visit	21	289	28	317
Others	8	365	113	478
Total	**269**	**4637**	**1676**	**5962**

Glimpses of Extension Activity in NICRA

Farmer visit



Farmer Scientists Interaction



Capacity building awareness and motivation



7. Status of Custom Hiring Services

In Zone VII, NICRA KVKs has worked on Custom hiring centre covered the in which 1636 farmers and covered 750.72 ha area. Also Custom hiring implements were used on rental basis M.B. Plough, Disk Harrow, Rotavator Ferti-seed Drill, Multi-crop thresher, Sprinkler set, Diesel pump etc. In Madhya Pradesh, four KVKs (Datia, Guna, Morena and Satna) covered the total 1352 farmers directly benefited through custom hiring centers by covering 611.44 ha of land in 1964 hr of different implement working. By this total Rs. 78470 revenue were generated by the custom hiring centers.

Similarly in two KVKs of Chhattisgarh (Bilaspur and Bhatapara) 30.08 ha of land covered by custom hiring centers implements after 667 hr working and benefitted the 50 farmers. The Chhattisgarh custom hiring centers were generate total Rs. 17175.0 through rent.

In Odisha, custom hiring benefited total 234 farmers after 320 hr working of different implement and covered 109.2 ha of land by three NICRA KVKs (Jharsuguda, Kendrapara, Sonepur)of Odisha. The total rental of Rs. 29480.0 revenue was generated through rent by these custom hiring centers.

KVK Datia

S. No.	Name of implements	Date of Purchase	Operational performance		Revenue Generated (Rs.)	No. of Farmers benefited
			No. of hrs.	Area covered (ha)		
1	M.B. Plough	Mar-11	196	32	1960	32
2	Leveler	Mar-11	135	20	1350	28
3	Disc harrow	Mar-11	35	9	700	21
4	Rotavator	Mar-11	34	7	680	10
5	Ferti-cum seed drill	Mar-11	150	60	3000	15
6	Bullock drawn seed drill	Sep-12	5	1	50	1
7	Ground nut decorticator	Mar-12	20	5	200	2
8	Multi crop thresher	Jun-11	60	2	60	6
9	Diesel pump	Mar-11	90	36	4500	29
10	Power sprayer	Mar-11	-		-	-
11	Hand wheel hoe	Mar-11	-		-	-
12	Maize sheller	Mar-11	-		-	-
13	Paddy marker	Sep-12	-		-	-
14	Cono weeder	Nov-11	-		-	-

			725	**172**	**12500**	**144**

KVK Guna

S. No.	Name of implements	Date of Purchase	Operational performance		Revenue Generated (Rs.)	No. of Farmers benefited
			No. of hrs.	Area covered (ha)		
1	MB Plough	18/06/2011	9	18	900	6
2	Hand wheel hoe	15/07/2011	10	20	100	20
3	Seed cum Fertilizer –drill	6/6/2011	2	4	300	2
4	Rotavator	9/7/2011	5	10	750	5
5	Reaper	6/6/2011	4	8	750	4
6	Sprinkler set	23/07/2011	5	5	50	5
	Total		**35**	**65**	**2850**	**42**

KVK Bilaspur

S. No.	Name of implements	Date of Purchase	Operational performance		Revenue Generated (Rs.)	No. of Farmers benefited
			No. of hrs.	Area covered (ha)		
1	Reaper	31/3/2011	15	6.07	7875	15
2	Rotavator	31/3/2011	2	0.8	-	2
		Total	**17**	**6.87**	**7875**	

KVK Morena

S. No.	Name of implements	Date of Purchase	Operational performance		Revenue Generated (Rs.)	No. of Farmers benefited
			No. of hrs.	Area covered (ha)		
1	Zero till seed drill,	20/02/2012	315	189	6500	350
2	Seed cum fertilizer drill	20/02/2012	148	20	1500	210
3	Tractor drawn bad planter	20/02/2012	180	24	2500	120
4	Multi crop turbo seeder	20/02/2012	35	9.6	2500	25
5	Tractor drawn land leveler	27/02/2012	35	12	3200	22
6	Disc Tractor drawn	27/02/2012	30	5	2300	45
7	Tractor drawn disk harrow	27/02/2012	28	5.24	2200	40
8	High Power sprayer	21/03/2012	15	5	3120	24
9	Power sprayer cum duster	27/02/2012	34	15	2500	140
10	Hand sprayer	27/02/2012	58	15	2600	40
11	Seed treated drum	27/02/2012	5	3	1200	25

			883	302.84	30120	1041

KVK Satna

S. No.	Name of implements	Date of Purchase	Operational performance		Revenue Generated (Rs.)	No. of Farmers benefited
			No. of hrs.	Area covered (ha)		
1	MB Plough	02/12/11	45	5	4500	20
2	Seed cum fertilizer drill	30/03/11	110	29.8	11000	43
3	Rotavator	02/12/11	26.5	8	3550	11
4	Conoweeder	02/12/11	-	-	-	-
5	Sprinkler Set	02/12/11	-	-	-	-
6	Land leveler	30/03/11	-	-	-	-
7	Thresher	-	34	8	3400	20
8	Cultivator	-	105.5	20.8	10550	31
	Total		**321**	**71.6**	**33000**	**125**

KVK Bhatapara

S. No.	Name of implements	Date of Purchase	Operational performance		Revenue Generated (Rs.)	No. of Farmers benefited
			No. of hrs.	Area covered (ha)		
1	Sprinkler Set	29-03-11	2 days	3	600	4
2	HDPE Pipe	29-03-11	20 days	15	5380	22
3	Adaptor	29-03-11	-	-	-	-
4	Nozzle	29-03-11	-	-	-	-
5	Connecting Nipple	29-03-11	-	-	-	-
6	Tee Coupler	29-03-11	-	-	-	-
7	Bend	29-03-11	-	-	-	-
8	Seed Drill cum fertilizer	26-03-11	2 days	-	1050	2
9	Multi- crop Thresher	28-03-11	1 hr	2	250	2
10	Chaff cutter	26-03-11	-	-	-	-
11	MB Plough	26-03-11	-	-	-	-
12	TD Leveler	26-03-11	1	1.21	100	1
13	Cycle wheel hoe	31-03-11	-	-	-	-
14	Hand hoe	31-03-11		-	-	-
15	Sprayer	-	3 days	2	120	2
16	Power tiller	29-03-11				
		Total	**27 days 2 hr**	**23.21**	**7500+1800 = 9300**	**33**

KVK Ganjam

S. No.	Name of implements	Date of Purchase	Operational performance		Revenue Generated (Rs.)	No. of Farmers benefited
			No. of hrs.	Area covered (ha)		
1	Sprinkler (2 Nos)	31/03//2011	12	6	800	15
2	Power tiller	31/03//2011	72	18	2880	43
3	Power sprayer	31/03//2011	20	8	600	16
4	Diesel Water pump Set	31/03//2011	30	6	900	16
5	MB plough	31/03//2011	20	4	400	12
6	Garuda Mini weeder	31/03//2011	18	3	900	12
		Total	**172**	**45**	**6480**	**114**

KVK Jhasuguda

S. No.	Name of implements	Date of Purchase	Operational performance		Revenue Generated (Rs.)	No. of Farmers benefited
			No. of hrs.	Area covered (ha)		
1	Power Tiller	31.03.2011	20	6.2	6000	16
2	Power Ripper	31.03.2011	20	7	6000	16
3	Power Sprayer	31.03.2011	4 days	0.8	200	4
		Total	**40**	**14**	**12200**	**36**

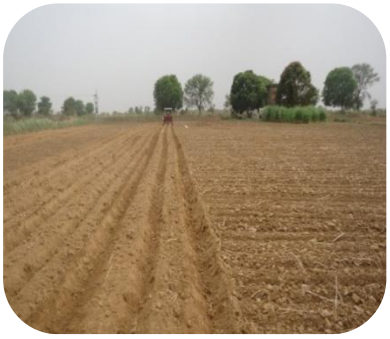
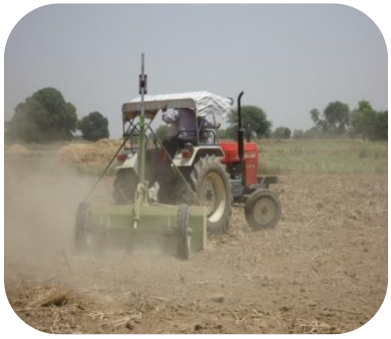
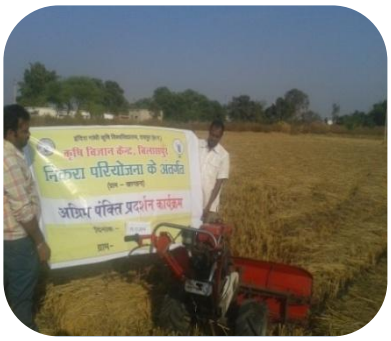
KVK Sonepur

S. No.	Name of implements	Date of Purchase	Operational performance		Revenue Generated (Rs.)	No. of Farmers benefited
			No. of hrs.	Area covered (ha)		
1	Tractor drawn Land leveler	2010-11	9	3	900	5
2	Tractor drawn M.B. plough	2010-11	12	4.5	1200	8
3	Tractor drawn Rotavator	2010-11	15	7	3000	12
4	Seed cum Fertilizer drill	2010-11	-	-	-	-
5	Self-propelled riding type reaper	2010-11	14	7.5	2800	16
6	High capacity multi-crop thresher	2010-11	-	-	-	-
7	Power Weeder	2010-11	-	-	-	-
8	Diesel pump set (	2010-11	28	11.2	1400	16
9	Sprinkler 63 mm dia pipe	2010-11	8	6	400	3
10	Knapsack Sprayer’	2010-11	22	11	1100	24
11	Weather station	2010-11				
12	GPS	2010-11				
13	Laptop with accessories	2010-11				

		Total	108	50.2	10800	84

Glimpses of Custom Hiring Services in NICRA





8. Monitoring of NICRA Projects

Name of KVK	Name of NICRA Village	Name & designation of visitors	Date of visit
Balaghat	Koste	Dr. S R K Singh, Sr. Scientist ICAR-ZPD Zone VII Jabalpur, M.P Sh. S S Maravi, Project Director ATMA Balaghat	16.07.2014
Bhatapara	Bakulahi	Dr. K.L. Nandeha, pr. Scientist, DES, IGKV, Raipur	24.07.14
Bhatapara	Bakulahi	Dr. U.s. Gautam, pr. Scientist, zonal project director, jabalpur	16.09.14
Bhatapara	Bakulahi	Dr. Premchand senior scientist, zonal project director, jabalpur	19.09.14
Chhatarpur	Chaukhda	Dr. S.S. Tomar –Director Extension Services RVSKVV, Gwalior Dr.S.R.K Singh –Senior Scientist, Zonal Project Directorate Zone Vii, Jabalpur	20.01.2015
Datia	Sanora Barodi	Dr. U P S Bhadoria Joint Director Extension, RVSKVV, Gwalior	4.4.2014
Datia	Sanora Barodi	Dr. U C Singh Professor & Head, COA Gwalior	4.4.2014
Datia	Sanora Barodi	Dr. V S Kandelkar Principal Scientist COA Gwalior	4.4.2014
Datia	Sanora Barodi	Dr. Prem Chand Scientist, ZPD Zone 7, Jabalpur	17.7.2014
Datia	Sanora Barodi	Dr. S K Srivastava Director Extension Services, RVSKVV, Gwalior	23.12.2014
Datia	Sanora Barodi	Dr. Shobhna Gupta Depty Director Extension Services, RVSKVV, Gwalior	17.7.2014
Ganjam-I	Chopara	Dr. Nitin Soni, R.A , ZPD, Zone-VII, Jabalpur	18.11.2014
Guna	Sarkho	Dr. U.P.S. Bhadoria, Jt. Director Extension, RVSKVV, Gwalior, Dr. S.S. Tomar, ADR, Morena	22.04.2014
Guna	Sarkho	Shri U.S. Tomar D.D.A, Guna & PD ATMA	16.07.2014
Guna	Sarkho	Dr. Shobhna Gupta, DDE,RVKSVV, Gwalior	23.07.2014
Guna	Sarkho	Dr. S.R.K. Singh, Sr. Scientist and Dr. Nitin Soni, RA, Member, ZMC-NICRA, ICAR, Jabalpur	22.01.2015
Guna	Sarkho	Dr. S.S. Tomar, Dean & Chairmen, ZMC-NICRA, ICAR, Jabalpur	22.01.2015
Jharsuguda	Bhoimunda	Dr. Subash Chandra Mohapatra, Jt. Director, DEE, OUAT, Bhubaneswar	16.07.2014
Jharsuguda	Bhoimunda	Sri Chittaranjan Sahoo, ADH, Jharsuguda	19.01.2014

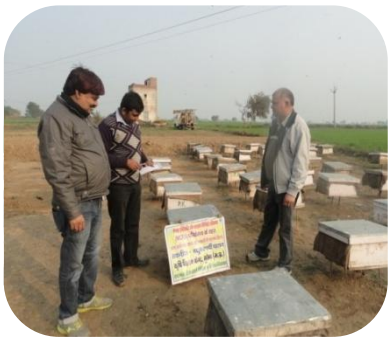
Jharsuguda	Bhoimunda	Sri S. Kerketta, DDA, Jharsuguda	16.07.2014
Jharsuguda	Bhoimunda	Dr. Nitin Soni, R.A , ZPD, Zone-VII, Jabalpur	20.11.2014
Jharsuguda	Bhoimunda	Dr. Tapas Kumar, Nodal Officer, CDVO, Jharsuguda	19.01.2015
Kendrapara	Kasotibali	Nitin Soni, Research Associate	17.01.2015
Morena	JIGNI	Dr. S.S.Tomar Director of Extension Service R.V.S.K.V.V. Gwalior (M.P.)	24.4.2014
Morena	NIDHAN , JIGNI	ADG DR. Subbaroa, & ADG NRM DR. S.K. chaudhary Delhi	28/05/2014
Morena	JIGNI,	International Scientist Dr. V.B. Singh, Dr. Notyal, Pant nagar	09/06/2014
Morena	JIGNI	General Secretary Dr. Sinha &Hon'able V.C Prof. AK, Sing R.V.S.K.V.V. Gwalior (M.P.)	09/07/2014
Morena	JIGNI, NIDHAN	Dr. U.P.S. Bhadauriya Join director of .Extension Service R.V.S.K.V.V. Gwalior (M.P.)	15/07/2014
Morena	JIGNI, NIDHAN	Shooting Team NICRA Villages	18 to 21.09.2014
Morena	JIGNI	Dr. S.K. Shrivastava Director of Extension Service R.V.S.K.V.V. Gwalior (M.P.)	12.12.2014
Morena	JIGNI	Dr. S.K. Shrivastava Director of Extension Service R.V.S.K.V.V. Gwalior (M.P.)	19.01.2015
Satna	Bhargawan& Motwa	Dr. Nandita Pathak (Director Udamita Vidyapeeth Deendayal Research Institute Chitrakoot MP)	16.07.2014
Satna	Bhargawan	Smt. Aprajita Sarangee (Joint Secretary , Ministry of Rural development, Govt. of India)	09.09.14
Satna	Maihar	Sri Arvind Kaushal, Additional Secretary, DARE and Secretary of ICAR, Govt.	28.09.14
Satna	Bhargawan & Motwa	Dr. P.J Khankhane (Sr.Sci DWSR Jabalpur), Dr. S.R.K. Singh(Sr.Sci & PI NICRA Zone-VII Jabalpur), Dr. S. S. Tamar(Dean, Rajmata Vijayaraje Scindia Krishi Vishwa Vidyalaya, Gwalior MP), Dr. Nitin Soni (RA NICRA Zone-VII Jabalpur)	19.01.15
Sonepur	Badmal	Dr. S. S. Nanda, Dean Extension Education, OUAT, Bhubaneswar	19.09.2014
Sonepur	Badmal	Mr. Nitin Soni, RA, NICRA	18.11.2014
Tikamgarh	Kanti	Dr. S.R.K. Singh (Senior Scientist and PI-NICRA, ZPD zone VII) ICAR, Jabalpur	21.01.15
Tikamgarh	Kanti	Dr. S.S. Tomar, Dean, College of Agriculture, Gwalior , Rajmata Vijayraje Sindhiya Krishi Vishwa Vidalaya,Chairman, ZMC committee	21.01.15
Tikamgarh	Kanti	Japani agricultural scientists visited the Kanti village	07.02.15

Glimpses of Monitoring of NICRA KVKs










8. Budget allotted and utilized

S. No.	Name of the ZPD/KVK	Opening balance	BE	RE	Total release	Expenditure	Closing balance
1	ZPD,ZoneVII		825000	825000			
2	Balaghat		826130	926130			
3	Bilaspur	403384	710800	561600	276080	673418	6046
4	Chhattarpur			560000			
5	Dantewara	**(-)** 212368	840800	890800	835850	623482	(-)99190
6	Datia	6129	960800	1160800	966721	935859	36991
7	Ganjam	18000	870800	970800	858080	796000	80080
8	Guna	**(-)** 63476	864134	864134	816413	590591	225822
9	Jharsuguda	**(-)** 31404	810800	810800	711080	609600	70076
10	Kendrapara	14404	900800	970800	855080	717602	151882
11	Morena	885	860800	960800	820195	645078	176002
12	Raipur Bhatapara	310151	820800	820800	462080	564050	208181
13	Satna	5326	860800	1010800	806080	719871	91535
14	Sonepur	00	860800	910800	846080	846000	80
15	Tikamgarh		874602	604602			
	TOTAL		**12648666**	**12848666**			