KRISHI VIGYAN KENDRA
CICR, NAGPUR

ANNUAL PROGRESS REPORT

(April, 2013 to March, 2014)

KRISHI VIGYAN KENDRA

Central Institute for Cotton Research
Post Bag No. 2, Shankar Nagar P.O.,
Nagpur 440010 , Maharashtra

Content

ANNUAL REPORT – 2013-2014

1. GENERAL INFORMATION ABOUT THE KVK, NAGPUR

1.1. Name and address of KVK with phone, fax and e-mail

Address	Telephone		E mail
Krishi Vigyan Kendra Central Institute for Cotton Research (ICAR), Post Bag No. 2, Shankar Nagar P.O., **Nagpur – 440010 (Maharashtra)**	Office 07103 – 275549 / 275617 / 275536	FAX 07103 – 275529	kvkcicrnagpur@gmail.com, kvk_cicr2007@rediffmail.com Website: www.kvknagpur.org.in

1.2 .Name and address of host organization with phone, fax and e-mail

Address	Telephone		E mail
	Office	FAX	
Central Institute for Cotton Research (ICAR), Post Bag No. 2, Shankar Nagar P. O., Nagpur – 440 010 (Maharashtra)	07103 – 275549 / 275617 / 275536	07103 – 275529	cicrngp@rediffmail.com

1.3. Name of the Programme Coordinator with phone & mobile No

Name	Telephone / Contact		
	Residence	Mobile	Email
Dr. R.B. Singandhupe	Anjali Apartment, Plot No. 180 (F2), Trimurtinagar, Nagpur-440022	09421660322	rbsingandhupe@gmail.com

1.4. Year of sanction:
The Indian Council of Agriculture Research has sanctioned the Krishi Vigyan Kendra (KVK) at the Central Institute For Cotton Research (ICAR) at Nagpur for the Nagpur District of Maharashtra State vide letter No. F.No. 5(28)/93-KVK-AE-II dated October 4, 1994.

1.5. Staff Position (as on 31st March, 2014)

Sl. No	**Sanctioned post**	**Name of the incumbent**	**Designation**	**Discipline**	**Pay Scale (Rs.)**	**Present basic (Rs.)**	**Date of joining**	**Permanent /Temporary**	**Category (SC/ST/ OBC/ Others)**
1	Programme Coordinator	Dr.R.B. Singandhupe	Pr. Sci & I/c KVK	Agronomy	54490+ 10000	37400-67000	01.06.2011	Permanent	OBC
2	Subject Matter Specialist	Sh.Gulbir Singh	SMS	Horticulture	29650+ 7600	15600-39100+ 7600	30.09.1996	- do -	Others
3	Subject Matter Specialist	Vacant	-	Agronomy	-	-	-	-	-
4	Subject Matter Specialist	Sh. S.S Patil	SMS	Extension	29650+ 7600	15600-39100+ 7600	30.09.1996	- do -	OBC
5	Subject Matter Specialist	Dr.U.V. Galkate	SMS	Veterinary Science	32700+ 7600	15600-39100+ 7600	10.01.1997	- do -	ST

6	Subject Matter Specialist	Dr.R.R. Gupta	SMS	Plant protection	27650	15600-39100+6600	30.09.1996	- do -	Other
7	Subject Matter Specialist	Smt.S.N. Chauhan	SMS	Home Science	26450	15600-39100+6600	07.01.1997	- do -	Other
8	Farm Manager	Dr.P.B. Deulkar	Farm Manager	Veterinary Science	17710+5400	15600-39100+5400	07.04.1997	- do -	SC
9	Programme Assistant	Mr.Harish Kumbhalkar	Programme Assistant	Soil Science	10560+4200	9300-34800+4200	01.10.2010	- do -	OBC
10	Computer Programmer	Smt. Vandana Satish	Programme Assistant (Computer)	Computer Science	10130+4200	9300-34800+4200	29.01.2011	- do -	Other
11	Accountant / Superintendent	Ejaj Ahmed	Office Suptd.	-	13270+4200	9300-34800+4200	07.12.2010	- do -	Others
12	Stenographer	Sh.S.S. Chalkhure	Stenographer	-	16020	5200-20200+2400		-do-	SC
13	Driver	A. K. Sherkar	T-1 (Driver)	-	11020+2800	5200-20200+2400	10.02.1998	- do -	ST
14	Driver	Naresh Raut	T-1 (Driver)	-	7260+2000	5200-20200+2400	29.12.2010	- do -	OBC
15	Supporting staff	Sh.Shalik Sahare	SS. Grade-1	-	9080	5200-20200+2400	31.12.2008	- do -	SC
16.	Supporting staff	Vacant	-	-	-	-	-	-	-

1.6. Total land with KVK (in ha) :

S. No.	Item	Area (ha)
1	Under Buildings	511.88 sq. m.
2.	Under Demonstration Units	6.60 ha
3.	Under Crops	7.40 ha
4.	Orchard/Agro-forestry	6.00 ha
5.	Others (specify)	-
		20 ha

1.7. Infrastructural Development:
A) Buildings

S. N	Name of building	Source of funding	Stage					
			Complete			Incomplete		
			Completion Date	Plinth area (Sq.m)	Expe-nditure (Rs.)	Starting Date	Plinth area (Sq.m)	Status of construc-tion
1.	Administrative Building	ICAR	19/03/1999	511.88	-	-	-	Completed
2.	Farmers Hostel	KVK	-			2012	-	Under construction
3.	Staff Quarters (6)	-	-	-	-	-	-	-
4.	Demo Units : -Goat Shed with fencing	KVK	Dec 1998	16 X 6 m	590000		-	Completed

	-Vermicompost unit (Portable)	CICR	Feb 2006	25 X 30 ft.	40000		-	Completed
	-Nutrition garden unit	CICR	July 1998	18 X 44 m	-		-	Completed
	-Guava garden unit	KVK	July 1996	2 acres	10000		-	Completed
	- Fruit cafeteria	CICR	July 1999	1.5 acres	7000		-	Completed
	- Teak plantation	CICR	July 1999	Field Border	-		-	Completed
5	Fencing	CICR	Jan 2014	Field No. E-59 & E-60	180000		-	Completed
6	Rain Water harvesting system – Farm ponds - 1	CICR	June 2001	60mX45mX 3.5 m Capacity- 95 lakh litres	3.5 lakhs		-	Completed
7	Threshing floor	-	-	-	-		-	-
8	Farm godown -2 rooms	CICR	1996	10'X15' each	80000		-	Completed

B) Vehicles

Type of vehicle	Year of purchase	Cost (Rs.)	Total kms. Run	Present status
TATA Sumo Victa	March 2007	4.30 lakh	168340km	Running condition
Tractor – Mahindra (Arjun)	March 2009	4.86 lakh	1220km	Running condition

C) Equipments & AV aids

Name of the equipment	Year of purchase	Cost (Rs.)	Present status
Establishment of soil testing lab			
1. pH meter	2007	12094	Working condition
2. Chemical balance	2007	8437	Working condition
3. Physical balance	2007	7312	Working condition
4. Ultra pure water system	2007	180000	Working condition
5. Refrigerator	2007	140800	Working condition
6. Flame photometer	2007	41490	Working condition
7. Lab benches	2008	1,53,000	Working condition
8. Computer table with chair	2008	7,200	Working condition
9. Rotary shaker	2008	30,750	Working condition
10. Hot air oven, Hot plate	2008	34,144	Working condition
11. Fume hood chamber	2008	94,900	Working condition
12. Computer with printer	2008	79,916	Working condition
13. Palvalizer	2008	44,651	Working condition
14. Spectrophotometer	2008	2,93,288	Working condition
15. Online UPS	2009	2,37,543	Working condition
16. LCD Projector	2009	89,026	Working condition
17.Soil testing Mobile Van with all necessary equipments	2013	30,05,831	Working condition

* This Van received to KVK from Superintending Agriculture Officer, District, Nagpur under Human Development Programme, Government of Maharashtra on 31st March, 2013

1.8. A). Details SAC meeting conducted in the year

Sl.No.	Date	Name and Designation of Participants	Salient Recommendations	Action taken
1	19/07/2013	1. Dr. R.B. Singandhupe, P.S. & P.C. KVK, CICR, Nagpur 2. Dr. A. R. Raju R/o HOD, DCP, CICR, Nagpur 3. Dr. R. Loknathan, I/c HOD, DCI, CICR, Nagpur 4. Dr. Mrs. Sandhya Kranti HOD, Crop Protection, CICR, Nagpur 5. Shri. Anil Arjunkar, Asst. Commissioner of Fisheries, Nagpur 6. Shri. Ravindra J. Manohare, Dy-Director of Agril., Nagpur 7. Shri. S. P. Sewatkar, APPO Central I.P.M. Centre, Nagpur 8. Dr. S.S. Meshram, LDO, R/o DAHO, ZP, Nagpur 9. Shri. S. E. Kawalkar, District Dairy Development Officer, Nagpur 10. Shri. Atul Bharambe, College of Agriculture, Nagpur 11. Dr. V. S. Tekade Prof. Ext. Edu,. College of Agril., Nagpur 12. Mrs. R. Rawat, Asso. Professor, LAD College, Nagpur 13. Mrs. G. Thomas, LAD College, Nagpur 14. Shri. Sudhir Dhanvijay, AGM, NABARD, Nagpur 15. Dr. S. N. Rokde, Principal Scientist, CICR, Nagpur 16. Smt. Shameem Bano Sheikh Abdul Kareem, Tulsi Mahila Bachat Gat, Kamptee 17. Shri. S. V. Arajpure, AIR, Nagpur	1. It is suggested that mulch demonstration in horticultural crops may be conducted for effective weed control and in-situ soil moisture conservation. 2. KVK's website may be developed in Marathi version along with existing Hindi and English version. 3. Farmers should be advised to go for sowing crops on ridges/raised bed in heavy soil to avoid crop losses due to waterlogged in such ill drained soil. 4. It is advised to replace metasystox, triazophos like organo phosphate insecticides with newer and safer insecticides viz. ulala and difenthiuron along with other management remedies in FLD's, to be conducted on sucking pest management in Bt cotton crop under plant protection discipline. 5. KVK should take up the activities viz. technology transfer, farmers club, capacity building programme, etc, in collaboration with NABARD. 6. It is advised by the chairman that technology assessment and refinement by KVK should be added with the	1. Demonstration of polythene mulch on tomato, cowpea, brinjal, chilli and okra has been conducted on instructional farm. Several farmers visited these demonstrations during Krishi Vasant Exhibition. 2. So as to have wide acceptability, a version in a national language is included in KVK's website. 3. Farmers of the adopted villages and Nagpur district were advised to go for sowing crops on ridges and furrows in water logged soils. In this regard trainings were imparted to practicing farmers and extension functionaries and SMS were sent to registered farmers of the district through Kisan Mobile Advisory service (KMAS). 4. In FLD cotton, twenty five demonstrations were conducted on control of sucking pests by spraying ulala and difenthiuron. 5. Farmers from the adopted villages are motivated for formation of farmers club through group discussion and trainings. Transfer of technology is done through method demonstrations, FLDs, OFTs, field visits and Kisan goshti. 6. Parameters of economics were added in the observation of Technology Assessment and refinement.

		18. Dr. R. M. Bhojane, Asstt. Comm., Dept. of Horticulture, Nagpur	parameter of economics so as to assess viability and sustainability of the certain technologies in agriculture and allied sciences. 7. It is suggested that more and more dairy farmers should be encouraged to have an impact of technologies in animal husbandry and to enhance the milk productivity of the village. 8. Farmers should be advised to check the ground water quality in the surrounding areas where the industries are established. Because industrial effluents /waste may pollute ground water. 9. Official from fishery department suggested for encouragement of fish production activities by KVK wherever feasible	7. More and more farmers were motivated to go for livestock based enterprises like dairy farming, goat farming and poultry farming. During this year 11 goat units, 2 dairy units and 10 backyard poultry units were established in Nagpur district. 8. KVK officials advised the farmers to check the quality parameters frequently if polluted by industrial effluents. In this regard training programmes were organized to bring awareness among farmers. 9. Farmers & Rural youth from the adopted villages motivated for fish farming through group discussions and personal contact.

2. DETAILS OF DISTRICT (2013-14)

2.1 Major farming systems/enterprises (based on the analysis made by the KVK)

S. No	Farming system/enterprise
1	Agri – Horti – Livestock farming system

2.2 Description of Agro-climatic Zone & major agro ecological situations (based on soil and topography)

S. No	Agro-climatic Zone	Characteristics
1	AESR-6.3 - Hot moist, semi-arid eco-sub region	Eastern Maharashtra Plateau. Hot moist, semi-arid eco - sub region with medium and deep clayey black soils (shallow, loamy to clayey black soils as inclusions), medium to high AWC and LGP of 120 to 150 days

S. No	Agro ecological situation	Characteristics
1	Hot semi-arid eco region	Hot semi-arid eco region with shallow and medium (with inclusion of deep) black soils, GP 90 – 150 days

2.3 Soil type/s

S. No	Soil type	Characteristics	Area in ha
1	Very shallow	Low in N, P, organic matter & rich in K	2.05 lakhs
2	Shallow	Low in N, P, organic matter & rich in K	0.64 lakhs
3	Medium deep	Medium in N & P, low in OC & rich in K	0.96 lakhs
4	Very deep	Medium in N & P, low in OC & rich in K, high clay content	2.80 lakhs
		Total	**6.45 lakhs**

2.4. Area, Production and Productivity of major crops cultivated in the district

S. No	Crop	Area (ha)	Production (M. tone)	Productivity (kg /ha)
1	Kharif Jowar	5000	1900	374
2	Rabi Jowar	2100	1200	594
3	Rice	78800	120800	1533
4	Tur	44700	21300	476
5	Gram	93400	58100	622
6	Cotton	124700	31700	254
7	Soybean	222400	92800	417
8	Wheat	84500	78300	926
9	Groundnut (K)	2800	1300	465

Sources: O/o SAO, Nagpur

2.5. Weather data

Weather Data during the crop season(2013-14) KVK , CICR, Nagpur
Location of the weather **station : CICR, N**agpur

Date & Month	Met. week	Rainfall (mm)	No. of rainy days	Wind velocity(Km/hr)	Sun shine hrs	Temperature (^{0}c)		R.H. (%)	
						Max.	Min.	Mor.	Even.
4-10 June,2013	23	23	1	9.0	6.5	41.1	23.6	68.7	44.6
11-17	24	120	6	6.7	5.0	33.0	24.0	82.6	69.3
18-24	25	48	2	6.5	1.6	34.0	25.3	82.4	60.6
25-01 July	26	235	3	7.0	7.1	30.1	24.6	83.6	71.6
Total		**426**							
02-08 July	27	35	1	6.2	5.4	31.2	23.6	86.7	66.0
09-15	28	204	7	4.3	3.0	30.4	23.9	97.3	81.7
16-22	29	186	4	4.7	2.0	30.3	24.3	90.6	79.1
23-29	30	33	4	5.0	0.0	31.0	24.4	88.9	78.9
30-05 Aug.	31	160	4	4.1	0.0	28.9	23.4	89.7	81.1
Total		**618**							
06-12 Aug.	32	33	3	5.1	1.0	30.5	24.0	87.0	73.0
13-19	33	41	5	4.4	7.0	31.2	24.5	90.4	71.7
20-26	34	63	4	3.5	7.5	27.1	22.5	90.3	88.0
27-02 Sept.	35	05	3	3.0	5.0	31.0	23.7	88.6	64.7
Total		**142**							
03-09 Sept.	36								
10-16	37								
17-23	38								
24-30	39								
Total									
1-7Oct	40	79	3			30.7	23.8	91.3	78.5
8-14	41	20	2			31.3	23.5	87.2	68.5
15-21	42	00	0			32.6	21.4	83.1	51.1
22-28	43	00	0			29.1	22.3	80.8	66.7
29-04Nov	44	00	0			31.7	17.8	80.3	45.7
Total		**99**							
5-11	45	00	0			30.4	17.1	72.2	60.3
12-18	46	00	0			27.9	13.5	77.5	72.7

19-25	47	00	0			29.9	16.5	74.7	54.9
26-02Dec	48	00	0			29.6	15..1	72.3	44.9
Total		**00.0**							
3-9	49	00	0			28.6	12.6	80.7	58.2
10-16	50	00	0			27.2	9.7	70.0	29.1
17-23	51	00	0			28.9	11.0	76.9	31.8
24-31Dec 2013	52	00	0			28.2	13.5	86.4	44.8
Total		**00.0**							
01-07Jan2014	01	21	2			28.0	13.2	81.7	42.0
8-14	02	4	1			28.6	14.6	78.9	46.8
15-21	03	00	0			29.1	15.9	85.4	58.8
22-28	04	00	0			27.8	14.8	85.6	85.9
29-04Feb2014	05	00	0			29.3	10.3	83.4	84.4
Total		**25**							
Total Rainfall (mm)		**1310**							

2.6. Production and productivity of livestock, Poultry, Fisheries etc. in the district

Category	**Population**	**Production**	**Productivity**
Cattle			
Crossbred	88180	2500-3000 l/lactation	-
Indigenous	890755	800-900 l/lactation	-
Buffalo	103965	1500-1800 l/lactation	-
Sheep			
Crossbred	-	-	-
Indigenous	9168	Wool prod.: 200-250 g/shearing	-
Goats	336219	Avg. Milk yield: 750 ml/day Avg. Body wt. at market age: 20 kg/8 months	-
Pigs	-	-	-
Crossbred	**239**	Avg. Body wt. at market age**:** 90-100 kg in 5 to 6 months	-
Indigenous	**9258**	Avg. Body wt. at market age**:** 50-70 kg in 5 to 6 months	-
Rabbits	-	-	-
Poultry – Chicken (Excluding farm chicken)			
Desi	170326	Egg Prod. (Annual): 60 Body wt at market age: 1.5 kg/1.5 yr	-
Improved	14916	Egg Prod. (Annual): 110 Body wt at market age: 1.5 kg/6 month	-
Ducks	-	-	-
Quails	-	Egg Prod. (Annual): 250-280 Body wt at market age: 150-180 g in 5 wks	-

(Source : O/o District Animal Husbandry Officer, Nagpur)

Category	**Area**	**Production**	**Productivity**
Fish	-	-	-
Marine	-	-	-
Inland	-	-	-
Prawn	--	-	-
Scampi	-	-	-
Shrimp	-	-	-

2.7 Details of Operational area / Villages (2013-14)

S. No.	Taluka	Name of the block	Major crops & enterprises	Major problems identified
1	Umred & Bhivapur	Umred & Bhivapur	Soybean, Cotton, pigeon pea, wheat, chickpea, jowar, vegetable crops like tomato, chilli, brinjal, okra & tinda, orchard-Nagpur mandarin	**Crop Production:** **Low productivity of cotton, Soybean, Pigeon pea & chick pea under rainfed situation :** 1. Imbalance use of nutrients in cotton 2. Water stress in cotton and soybean. 3. Poor germination and low plant population in soybean. 4. Weed menace. 5. Fusarium wilt in pigeon pea and chickpea. 6. Reddening of leaves in cotton. 7. Phosphorous fixation in vertisol .
2				**Horticulture :** **Low yield & poor fruit quality of Nagpur mandarin and low productivity of vegetables & flowers.** 1. Non availability of disease free saplings of citrus 2. Irregular bearing in Nagpur mandarin. 3. Scarcity of water & poor management 4. Unawareness of inter cropping cultivation in orchards 5. Improper fertilizer schedule. 6. Low production in tomato due to damping off disease. 7. Low production & poor quality in Okra due to Yellow vein Mosaic virus & fruit borer respectively. 8. Poor flower quality in roses due to improper pruning & thrips & mites incidence. 9. Low productivity & poor fruit quality in brinjal due to sucking pests & fruit borer. 10. Water logging condition in citrus orchard during rainy season. 11. Low productivity in chilly due to sucking pest incidence.
3				**Plant Protection :** **Low productivity & poor quality in rainfed cotton, pigeonpea, soybean, vegetables, chickpea and citrus** 1. Incidence of sucking pests and bollworms in cotton. 2. *Fusarium* wilt in chickpea and pigeonpea. 3. Incidence of *Helicoverpa armigera* in pigeonpea & chickpea 4. Incidence of girdle beetle, semiloopers, stemborer and hairy caterpillars in soybean 5. Incidence of *Phytophthora*, Thrips, mites, , psylla and fruit moth in citrus. **6.** Incidence of shoot and fruit borer in brinjal
4			Dairy, Goat rearing & Poultry	**Veterinary Science :** **Low productivity in Cattle, Buffaloes & goats.** 1. Low genetic potential of indigenous livestock. 2. Poor/ conventional management practices adopted by farmers. 3. Lack of awareness regarding disease, ecto & endo parasites management in livestock. 4. Decreasing area of grazing land. 5. Non-availability of quality roughage during summer. 6. Poor reproductive performances of livestock due to protein & micronutrient deficiency in diet.

5				**Home Science :** **Lack of technical know - how in different enterprises in agriculture & allied fields, malnutrition in children & women, value addition, drudgery in farmwomen.** 1. Practicing conventional methods in weeding, fertilizer application and harvesting of crops. 2. Practicing conventional techniques in back yard poultry, goat rearing and milk production. 3. Malnutrition in farmwomen & children. 4. Lack of awareness about value addition. 5. Woman's facing drudgery while weeding and harvesting of crops. 6. Unawareness regarding use of non-conventional fuel conservation devices among rural women. **7.** Lack of involvement of farmwomen in decision making.
6				**Extension :** 1. Lack of knowledge about improved technologies in agriculture and allied fields. 2. Lack of knowledge regarding recycling of farm waste. 3. Unawareness regarding rainwater harvesting. **4.** Lack of marketing knowledge.

2.8 Priority/thrust areas

Crop/Enterprise	**Thrust Area**
Cotton	Plant density optimization, Integrated nutrient management, In situ water conservation and sucking pest management
Soybean	Weed management, IPM and INM
Pigeon pea and chickpea	Disease management, *Helicoverpa* management, INM
Santra Orchards	Pests & Disease management , Nursery management and INM
Onion	Nursery management
Tomato ,Brinjal and chilly	Insect pests & disease management , Nursery management and INM
Cotton ,Soybean , Rice, Wheat harvesting tool	Drudgery Reduction ,skill development
Anaemic child, Nutrition Garden,	Nutrition management
Soybean, Aonla , Karvand , Rose Petals Processing	Value Addition, Income generation Activity
Use of Non conventional devices	Skill Development ,Energy resource management
NADEP Compost Making	Conservation of Agro Waste
Dairy Milch Cow	Supplementation of by-pass fat to avoid negative energy balance in just calved cows
Jersey cross bred	Disease management
Poultry (BYP)	New improved breeds of poultry
First calf heifer	Nutrition management and deworming
Cross bred cows	Feed management
Goats	Ecto & endo parasitic management, feed management

3. TECHNICAL ACHIEVEMENTS

3.A. Details of target and achievements of mandatory activities by KVK during 2013-14

OFT (Technology Assessment and Refinement)				FLD (Oilseeds, Pulses, Cotton, Other Crops/Enterprises)			
1				2			
Number of OFTs		Number of Farmers		Number of FLDs		Number of Farmers	
Targets	Achievement	Targets	Achievement	Targets	Achievement	Targets	Achievement
Crop Production							
1	1	30	30	3	3	54	54
Crop protection							
2	2	12	12	3	3	85	85
Horticulture							
Veterinary Science							
2	2	20	20	4	4	40	40
Home Science							
2	2	34	34	4	4	64	64

Training (including sponsored, vocational and other trainings carried under Rainwater Harvesting Unit)					Extension Activities			
3					4			
Number of Courses			Number of Participants		Number of activities		Number of participants	
Clientele	Targets	Achievement	Targets	Achievement	Targets	Achievement	Targets	Achievement
Farmers	50	62	1500	1786	80	94	5000	5314
Rural Youth	15	23	300	488	42	47	3000	3360
Extension functionaries	10	11	200	295	33	39	700	740

Seed Production (Qtl.)		Planting material (Nos.)	
5		6	
Target	Achievement	Target	Achievement
--	22 quintals wheat (Raj-4037) seed produced on two adapted farmer's field on 0.8 ha. land in Daheli and Manori village of Nagpur district during 2013-14, for further seed multiplication in 2014-15 on farmer's fields.	-	Tuberose – 31 kg Marigold seedling – 30,000

3.B. Abstract of interventions undertaken

S. No	Thrust area	Crop/ Enterprise	Identified Problem	Interventions					
				Title of OFT if any	Title of FLD if any	Title of Training if any	Title of training for extension personnel if any	Extension activities	Supply of seeds, planting materials etc.
1.	Plant density	Cotton	Low productivity of rainfed cotton	HDPS	-	HDPS demonstrations in cotton	Field visits	Field visits, training	Seed
2.	IPM	Soybean	Semiloopers incidence	Biocontrol of semiloopers	_			Field visits, trg. and diagnostic surveys	-
3.	IPM	Bt cotton	Incidence of sucking pests	-	Sucking pests management in Bt cotton	Sucking pests management in Bt cotton	Sucking pests management in Bt cotton	Field visits, trg. and diagnostic surveys	-
4.	Prod. Tech.	Redgram	Low productivity	_	Prod. Technology in Redgram	Seed treatment ,wilt and pest management	-	Field visits and diagnostic surveys , field day	Seed,DAP,urea, Gr sulphur, PSB, Rhizobium,Trichoderma,avaunt and quinalphos
5.	Prod. Tech.	Bengalgram	Low productivity	_	Prod. Technology in bengalgram	Seed treatment , wilt and pest management	-	Field visits and diagnostic surveys , field day	Seed, ,Rhizobium, Trichoderma,
6.	Feed management	Dairy milch cows	Sudden milk drop just after calving	Feeding of by-pass fat	-	Nutrition management, Metabolic diseases		Field visits, group discussion, film show	By-pass fat
7.	Poultry breed assessment	Backyard poultry	Low egg production & low body wt. gain	Assessment of Swarnadhara breed	-	Disease and its control, feed management	-	Field visit, Field days, Training	Chicken of Swarnadhar breeds

8.	Feed management	Lactating does (goat)	Low milk yield, Poor wt. gain of pre-weaned kids	-	Supplementary concentrate feeding	Feed management of lactating does	Assessment of Swarnadhara Chicken	Group discussion, Field visits, feeding demo.	Concentrate feed
9.	Feed management & deworming	Dairy cow	Low milk yield, low conception rate	-	Supplementation of vitamin mineral & deworming	Nutrition management	-	Group discussion, field visits	Vitamin mineral powder + Broad spectrum anthelmetic
10.	Feed management	Dairy cow	Low milk yield & reproductive problem	-	Use of Chelated mineral	Feed supplementation	-	Group discussion, field visit	Chelated mineral
11.	Disease management	Dairy cows	Inflammation of udder, curding of milk		Detection of mastitis	CMT Technique	-	Demonstration of CMT, Group discussion	CMT reagent
12.	Drudgery reduction	Women labourer	Drudgery	Drudgery reduction	-				Maize Sheller Serrated sickle, Bhidi & Brinjal plucker
13.	Drudgery reduction	Women labourer	Drudgery	Drudgery reduction through cotton picking bag	-	Clean cotton picking method	-	Women In Agriculture day	Improved cotton picking bag
14.	Nutrition management	Anganwadi children	Nutritional deficiency	Use of soybean products for improvement in Hb%	-	Preparation of locally available iron rich laddu	-	-	Soybean & wheat flour, jaggary fat

3.1 Achievements on technologies assessed and refined

A.1 Abstract of the number of technologies **assessed*** in respect of crops/enterprises

Thematic areas	**Cereals**	**Oilseeds**	**Pulses**	**Commercial Crops**	**Vegetables**	**Fruits**	**Flower**	**Plantation crops**	**Tuber Crops**	**TOTAL**
Varietal Evaluation					1					1
Seed / Plant production										
Weed Management										
Integrated Crop Management				1						1
Integrated Nutrient Management										
Integrated Farming System										
Mushroom										

cultivation										
Drudgery reduction										
Farm machineries										
Value addition			1							1
Integrated Pest Management		1				1				2
Integrated Disease Management										
Nutritional management		1								1
TOTAL		**2**	**1**	**1**	**1**	**1**				**6**

A.2. Abstract of the number of technologies refined* in respect of crops/enterprises

Thematic areas	**Cereals**	**Oilseeds**	**Pulses**	**Commercial Crops**	**Vegetables**	**Fruits**	**Flower**	**Plantation crops**	**Tuber Crops**	**TOTAL**
Varietal Evaluation										
Seed / Plant production										
Weed Management										
Integrated Crop Management										
Integrated Nutrient Management										
Integrated Farming System										
Mushroom cultivation										
Drudgery reduction										
Farm machineries										
Post Harvest Technology										
Integrated Pest Management										
Integrated Disease Management										
Resource conservation technology										
Small Scale income generating enterprises										
TOTAL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL

A.3. Abstract of the number of technologies assessed in respect of livestock / enterprises

Thematic areas	**Cattle**	**Poultry**	**Sheep**	**Goat**	**Piggery**	**Rabbitary**	**Fisheries**	**TOTAL**
Evaluation of Breeds		1						1
Nutrition Management	1							1
Disease of Management								
Value Addition								
Production and Management								
Feed and Fodder								
Small Scale income generating enterprises								
TOTAL	1	1						2

A.4. Abstract on the number of technologies refined in respect of livestock / enterprises

Thematic areas	Cattle	Poultry	Sheep	Goat	Piggery	Rabbitry	Fisheries	TOTAL
Evaluation of Breeds								
Nutrition Management								
Disease of Management								
Value Addition								
Production and Management								
Feed and Fodder								
Small Scale income generating enterprises								
TOTAL	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil

B. Details of each On Farm Trial to be furnished in the following format

A. <u>Technology Assessment</u>

Trial 1 (Crop Production)

1. Title : High Density Planting System (HDPS) in Cotton

2. Problem diagnose/defined : Low productivity of rainfed cotton in Vidarbha region.

3. Details of technologies selected for assessment /refinement :

T-1: Farmers Practice (90 cm x 90 cm)

T-2: Recommended Practice (60 cm x 10 cm)

4. Source of technology : Central Institute for Cotton Research, Nagpur.

5. Production system : Rainfed cotton based system

6. Thematic area : Plant Density

7. Performance of the Technology with performance indicators : Sowing of Non-Bt straight varieties of cotton at plant spacing of 60 cm x 10 cm recorded significantly higher seed cotton yield of 14.97 q/ha than 90 cm x 90 cm plant spacing of Bt cotton in rainfed areas of Vidarbha.

8. Final recommendation for micro level situation : Under HDPS at 60 cm x 10 cm spacing , Non-Bt straight varieties of cotton having compact growth habit and zero monopodia may be grown under light, shallow/marginal soil of Nagpur district in rainfed condition.

9. Constraints identified and feedback for research : At flowering and boll formation stage control measures against spotted bollworm and American bollworm is necessarily required for effective seed cotton yield in Non-Bt straight varieties under High Density Planting System Progamme.

10. Process of farmers participation and their reaction : Farmers were involved in planning, executing, monitoring and evaluation of the trials and in the upcoming years they are very much eager to increase the area under this technology.

11). Results of On Farm Trials

Crop/ enterprise	Farming situation	Problem Diagnosed	Title of OFT	No. of trials*	Technology Assessed	Parameters of assessment	Data on the parameter of assessment Seed cotton yield (q/ha)	Results of assessment	Feedback from the farmer
1	2	3	4	5	6	7	8	9	10
Non-Bt Cotton Varieties	Rainfed	Low productivity rainfed cotton in Vidarbha region	High Density Planting System (HDPS) in Cotton	30	T-1 : Farmers Practice (90 cm x 90 cm) T-2 : Recommended Practice (60 cm x 10 cm)	No. of bolls/plant, Plant height, Seed cotton yield	T-1 : 12.95 T-2 : 14.97	Higher seed cotton yield was recorded by planting cotton at 60 cm x 10 cm spacing	This planting can easily adopted in non-Bt straight varieties of cotton

**** No. of farmers***

Technology Assessed	Production per unit (kg/ha)	Net Return (Profit) in Rs/ha/ unit	BC Ratio
11	12	13	14
T-1 : Farmers Practice (90 cm x 90 cm)	1295	33500	2.07
T-2 : Recommended Practice (45 cm x 10 cm)	1497	48600	2.85

****Field crops – kg/ha, * for horticultural crops -= kg/t/ha, * milk and meat – litres or kg/animal, * for mushroom and vermi compost kg/unit area.***

***** Give details of the technology assessed or refined and farmer's practice***

A. Technology Assessment

Trial 1. Crop Protection

1) Title : Management of thrips and mites in Nagpur Mandarin

2.) Problem diagnosed : Reduction in yield and quality of fruits

3) Details of technologies selected for assessment:

T-1 : Farmers Practice : Indiscriminate use of chemical pesticides

T-2 : Recommended Practice : a) Application of two foliar sprays of monocrotophos @ 10 ml/10 lit.for thrips at fruit setting stage and dicofol @ 15 ml/10 lit.

4) Source of technology : NRCC,, Nagpur.

5) Production system : Irrigated, perriniel with or without intercrops

6) Thematic area : Pest Management

7) Performance of the technology : a) Yield T1 :5.467 t (LC), T2-6.362 t (Demo.), Increase in yield -16.37 % with performance indicators

b) Cost of cultivation /ha : LC- Rs.33,500/- ; Demo.- Rs.32,375/-

c) Gross profit : LC:Rs 1,19,793/-(@) Rs 21,900/-), Demo.-Rs.1,43,100/- (@)Rs 22,500/-), d) Net Profit:LC-Rs.86,293/-,Demo.- Rs.1,10,725/- e) C:B ratio: LC-1:3.58, Demo- 1:4.42

8) Final recommendation for : micro level situation Under T2 Constraints identified and : Constraint : NIL

Feedback for research :Feedback : Majority of farmers showed their keen interest for adopting this technology

9) Process of farmers :

Results of On Farm Trials

Crop/ enterprise	Farming situation	Problem Diagnosed	Title of OFT	No. of trials/farmers	Technology Assessed	Parameters of assessment	Data on the parameter of assessment yield (t/ha)	Results of assessment	Feedback from the farmer
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
Nagpur Mandarin	Irrigated	Reduction in yield and quality of fruits	Management of thrips and mites in Nagpur Mandarin	06	**T-1 :** Farmers Practice - Indiscriminate use of chemical pesticides **T-2** : Recommended Practice - Application of two foliar sprays of monocrotophos @ 10 ml/10 lit.for thrips at fruit setting stage and dicofol @ 15 ml/10 lit.	Yield, % fruit damage, C:B ratio	T-1 : 5.47 T-2 : 6.36 Fruit damage % LC:5.20%, T2 – 1.85%	C:B ratio Demo : 1:4.42 LC : 1:3.58	Farmers felt that if spray of chemical insecticide done at proper time we can improve quality of fruits as well as enhance fruit yield also

Technology Assessed	Production per unit (t/ha)	Net Return (Profit) in Rs/ha/ unit	BC Ratio
11	**12**	**13**	**14**
T-1 : Farmers Practice	5.47	86,293/-	1:3.58
T-2 : Recommended Practice	6.36	1,10,725/-	1:4.42

Field crops – kg/ha, * for horticultural crops -= kg/t/ha, * milk and meat – litres or kg/animal, * for mushroom and vermi compost kg/unit area.
***** Give details of the technology assessed or refined and farmer's practice***

A. Technology Assessment

Trial 2. Crop Protection

1) Title : Biocontrol of semiloopers in Soybean

2) Problem diagnosed : Low productivity of soybean due to heavy incidence of semiloopers

3) Details of technologies selected for assessment : T1 : Farmers practice : Indiscriminate use of chemical insecticides

T2 : First foliar spray of Beauveria bassiana @ 1.0 kg/ha followed by 2nd spray of Azadiractin 1500 ppm @ 25ml/10 litres of water after 15 days interval

4) Source of technology : Dr. PDKV., Akola.

5) Production system : Rainfed – Soybean – Cotton cropping system

6) Thematic area : Pest Management

Performance of the Technology with performance indicators:

AV. Semiloopers population /metre row length could not reached upto ETL therefore their was no need of spray due to heavy & continues rainfall.

7) Final recommendation for micro level situation: Biocontrol of semiloopers should be done at right time as per ETL at 70 % or above RH

8) Constraints identified and : Constraint : Time period is limited for biocontrol

9) Feedback for research : Feedback : Majority of farmers showed their keen interest for adopting Entomopathogenic fungal pesticides but spray was not done because the population of semi loppers was below ETL during the crop period.

10) Process of farmers : Farmer participation was taken in working out ETL (i.e. 3-4 larvae/meter row length) Meeting with farmers and training was organized before start of the trial.

Results of On Farm Trials (Plant Protection)

Crop/ enterprise	Farming situation	Problem Diagnosed	Title of OFT	No. of trials*	Technology Assessed	Parameters of assessment	Data on the parameters of assessment yield (q/ha)	Results of assessment	Feedback from the farmer
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
Soybean Variety JS-335	Rainfed	Low productivity of soybean due to heavy incidence of semiloopers	Biocontrol of semiloopers in Soybean	06	T-1 : Farmers Practice : Indiscriminate use of chemical insecticides T-2 : Recommended Practice: First foliar spray of Beauveria bassiana @ 1.0 kg/ha followed by 2nd spray of Azadiractin 1500 ppm @ 25ml/10 litres of water after 15 days interval	Semiloopers population, no. of sprays, yield, net & gross profit, C:B ratio	N.A.	Spray of Beauveria bassiana and Azadiractin was not done because the semi lopper population was not reached upto ETL.	-

Technology Assessed	Production per unit (kg/ha)	Net Return (Profit) in Rs/ha/ unit	BC Ratio
11	**12**	**13**	**14**
T-1 : Farmers Practice	-	-	-
T-2 : Recommended Practice	-	-	-

A) Technology Assessment

Discipline: Veterinary Science

Trail 1

1. **Title of On-farm trial:** Feeding of by-pass fat to avoid negative energy balance phenomenon in just calved high yielding cows

2. **Problem diagnosed:** Sudden drop of milk production, low fat content of milk, fertility problems and increased risk of metabolic diseases like ketosis

3 **Details of technologies selected for assessment:**

T_1 – Feeding of locally available feeds and fodders (FP)
T_2 - T1 + By-pass fat @200 g/cow/day X 90 days

4. **Source of technology:** NDRI, Karnal

5. **Production system:** Large ruminant Production System

6. **Thematic area –** Feed management

7. **Performance of the Technology with performance indicators:**

Results revealed that feeding of By-pass fat increased milk yield by 22.16. Highest milk yield (13.50/cow/day), conception rate (100%) and B:C ration (3.00) was recorded as compared to farmers practice

8. **Final recommendations for micro level situation:**

By-pass fat may be fed to the high yielding cows before 15 day of parturition @ 200g/cow/day for the period of 90 days to avoid sudden milk drop due to negative energy balance in just calved cows,.

9. **Constraints identified and feedback for research:**

Constraints: High cost of bypass fat and rare availability in shops of village & taluka places.

Feedback: Though the cost of input is high, farmers found it beneficial as sudden drop in milk yield just after calving is avoided as well as even in summer season farmers could able to maintain the milk production. The milk fetched remunerative prices due to increase in fat content. No incidence of metabolic disease observed in treated group.

10. **Process of farmer's participation and their reaction:** Farmers were involved enthusiastically in 90 days trial & recorded milk yield 2 times a day. The relatives, friends and other farmers of village also appreciated the performance of feeding by-pass fat and willing to incorporate by-pass fat in their cattle's diet. Beneficiary farmers continued to feed by pass fat to their cows even after completion of the trial.

11. Results of On - Farm Trials

Particulars	Farming situation	Problem Diagnosed	Title of OFT	No. of trials	Technology Assessed
1	2	3	4	5	6
Dairy Jersey (Cross bred cows)	Large ruminant production system	Sudden drop of milk production, low fat content of milk, fertility problems, increased risk of metabolic diseases like ketosis	Evaluation of performance of feeding by-pass fat	10	T_1 – Locally available feeds & fodder T_2 – T1 + By-pass fat @200 g/cow/day X 90 days

Parameters of assessment	Data on the parameter		Results of assessment	Feedback from the farmer	Any refinement done	Justification for refinement
7	8		9	10	11	12
	T1	**T2**				
i) Av. Milk yield (l/cow/day)	11.10	13.04	Increase in milk yield, B:C Ratio observed with achievement of 100% conception rate	By-pass fat is easy to feed and results are good but its availability is a problem at village and tahsil level	Not applicable	Not applicable
ii) Fat content (%)	3.5	4.0				
iii) Incidence of metabolic diseases (%)	1	0				
iv) Conception rate	90	100%				

Technology Assessed	*Production per unit (lit/cow/day)	Net Return (Profit) in Rs/cow/lactation	BC Ratio
13	14	15	16
T_1 – Locally available feeds & fodder	11.10	34600	2.60
T_2 – T1 + By-pass fat @200 g/cow/day X 90 days	13.04	43240	3.00

A. <u>Technology Assessment</u>

Discipline: Veterinary Science

Trail 3

1. **Title of On-farm trial:** Assessment of performance of deshi breed of layer Chicken – **Swarnadhara** in Back Yard Poultry (BYP)

2. **Problem diagnosed:** Low productivity i.e. egg production and weight gain in native chicken

3 **Details of technologies selected for assessment:**

T_1 – BYP with local native chicken
T_2 - BYP with Swarnadhara breed

4. **Source of technology:** Department of Avian Production and Management (DVPM), Karnataka Veterinary, Animal and Fishery Sciences University (KVAFSU), Banglore

5. **Production system:** Free range system under BYP

6. **Thematic area –** Breed Assessment

7. **Performance of the Technology with performance indicators:**

Rearing improved poultry breed i.e. Swarnadhara under free range system resulted in higher weight gain. Live body weight of matured hen observed as 3.1 kg, whereas, body weight of cock observed as 3.8 kg.

8. **Final recommendations for micro level situation:**

Rearing of native chicken under BYP may be replaced by improved breed- Swarnadhara which performed well in micro level situation of villages of Nagpur district..

9. **Constraints identified and feedback for research:**

Constraints: Availability of Swarnadhara breed in Nagpur district is rare. Limited supply of breed is available only in Regional Hatcheries in Nagpur district.

Feedback: Body weight gain in Swarnadhara breed is quite high. But these birds remain in separate cluster from native chicken. This breed is active and capable of protecting themselves from predators

10. **Process of farmer's participation and their reaction:** The client farmers, their neighbours and farmers from surrounding villages appreciated the breed due to its attractive coloured plumage, high weight gain and healthy cock. These farmers are willing to rear this breed for BYP.

11. Results of On - Farm Trials

Particulars	Farming situation	Problem Diagnosed	Title of OFT	No. of trials	Technology Assessed
1	2	3	4	5	6
Poultry	Free range system under BYP system	Low productivity i.e. egg production and weight gain in native chicken	Assessment of performance of Swarnadhara breed	10	T_1 – BYP with local native chicken T_2 – BYP with Swarnadhara breed

Parameters of assessment	Data on the parameter		Results of assessment	Feedback from the farmer	Any refinement done	Justification for refinement
7	8		9	10	11	12
	T1	T2				
i) Average Live Body weight of matured hen	2.10	3.05	High weight gain, and egg production in Swarnadhara chicken	Body weight gain in Swarnadhara breed is quite high. But these birds remain in separate cluster from native chicken. This breed is active and capable of protecting themselves from predators	Not applicable	Not applicable
ii) Average Live Body weight of cocks	2.75	3.80				
iii) Average Egg production/ 6 months	49	88				
iv) Egg weight	45	75				
v) Hatchability %	70	75				
vi) Survivability (%)	60	70				

Technology Assessed	*Production per unit (Avr. Body wt. of matured hen & cock)	Net Return (Profit) in Rs/unit/trial	BC Ratio
13	14	15	16
T_1 – BYP with local native chicken	Hen – 2.10 kg, Cock – 2.75 kg	2375	2.08
T_2 – BYP with Swarnadhara breed	Hen – 3.05 kg, Cock – 3.80 kg	3530	2.47

Trial 1. Home Science

1. Title : Assessment of Bio- Briquettes: An alternative cooking fuel

2. Problem diagnose/defined: Decreasing availability of fuel wood causing health hazards & Drudgery

3. Details of technologies selected for assessment : T-1 : Farmers Practice (Use of charcoal)
T-2: Refined Practice (Bio–Briquettes)

4. Source of technology : CIRCOT, Mumbai.

5. Production system : Rainfed cotton based system

6. Thematic area : Recycling of Agro waste/Value addition

7. Technology with performance indicators : Home makers found Bio –Briquettes more eco Friendly, economical and cooks food faster by 31 & 18% respectively as compared to coal.

8. Final recommendation for micro level situation:
Bio Briquettes made from cotton stalk or other unused agro residue may be used for cooking in place of coal/wood.

9. Constraints identified and feedback for research: Nil

10. Process of farmers' participation and their reaction:-Cotton growing farmers are identified and motivated for stocking cotton stalks on field.

11) Results of On Farm Trials

Crop/ enterprise	Farming situation	Problem Diagnosed	Title of OFT	No. of trials*	Technology Assessed	Parameters of assessment	Data on the parameter of assessment Seed cotton yield (q/ha)	Results of assessment	Feedback from the farmer
1	2	3	4	5	6	7	8	9	10
Bio-Briquettes	Rainfed	Decreasing availability of fuel wood causing health hazards & drudgery.	Assessment of Bio-l Briquettes: An alternative cooking fuel	20	T-1 : (Use of wood/charcoal) T-2 : Recommended Practice (Bio – Briquettes)	Cost of coal, cooking time required, Ash produced, Drudgery .	cost of coal (Rs) Time Required (min) Ash produced (g)	Bio Briquettes having higher thermal value saves time, economical and ecofriendly .	This is income generative unit can easily be adopted by cotton cultivators.

**** No. of farmers***

Technology Assessed	cost of coal (Rs)	Time Required (min)	Ash produced (g)	Quantity of food cooked(g)
11	12	13	14	15
T-1 : Farmers Practice (Use of wood/charcoal)	07	40	10	250
T-2 : Recommended Practice (Bio –Briquettes)	05	34	4	250
Increase in Parameter as compared with T I(%)	29	15	16	-

Trial 2. (Home Science)

1. Title:Assessment of soy –laddu for reducing protein calorie malnutrition of 3-6 year old children.

2. Problem diagnose/defined : Children consuming traditional nature of diet & insufficient Consumption of protein, calorie food leads to less weight gain, very slow increase in Hb level.

3. Details of technologies selected for assessment :

T-1 : Farmers Practice (Normal daily Diet) **T-1 Normal daily diet –** Cereals -125 g , pulses 30 g , Green leafy vegetable 25 g , other vegetables – 25 g, Fruits-20 g, milk & its products 75 ml , fat and oil 30 ml, sugar and jaggary 30 g .

T-2- Cereals -250 g , pulses -50g, , Green leafy vegetables 75 g, other vegetables – 50 g, fruits – 50 g , milk -250ml , fats 30g,Sugar & jaggary 50gm . (ICMR)

4. Source of technology : ICMR

5. Production system : Rainfed cotton based system

6. Thematic area : Nutritional management

7. Technology with performance indicators : The refined practice of diet fortification has improved the haemoglobin Percentage by 13 % & increase in weight by 14 % as compared with local method of consumption of food.

Final recommendation for micro level situation: Cereals -250 g , pulses -50g, , Green leafy vegetables 75 g , other vegetables – 50 g ,fruits – 50 g , milk -250ml , fats 30g,Sugar & jaggery 10gm. Soyladdu (Soybean flour 20g + Wheat flour 20g, g, Jaggary20g+fats 15), improves the body weight and haemoglobin % of 3-6 year old school going children leads to increase in Hb%.

Process of farmers participation and their reaction & feedback: The participation/ coopration of Anganwadi worker , children (3-6 years) and family members is found satisfactory. They cooperated in bringing participation and their reaction awareness inclusion of iron rich diet in their daily diet during observation period. Anganwadi worker & family members willingly enrolled their names for giving information on daily intake pattern, Hb% and cooperated in giving anthropometric measurement during three months treatment. The adoptability of refined intervention was found 80% during 3 months treatment trial

Results of On Farm Trials

Technological Options	No.of Trials	Result and Recommendation			Acceptability in existing farming system	
		Age (Yrs)	Average			
			Body Weight(Kg)	Hb%		
T-1 Normal daily diet – Cereals -125 g , pulses 30 g , Green leafy vegetable 25 g , other vegetables – 25 g, Fruits-20 g, milk & its products 75 ml , fat and oil 30 ml, sugar and jaggary 30 g .	18	3.6	10.01	8.01	Cereals -230 g , pulses -30g, , Green leafy vegetables 75 g , other vegetables – 50 g ,fruits – 50 g , milk -250ml , fats 15g,Sugar & jaggary 10gm. ICMR)SoyLaddu/meal (Soyflour 20 g+ Wheat flour 20 g,, Jaggary 20 g +fats 10g) consumed by 3-6 year old children for 3 months treatment helped significantly in weight gain & improved haemoglobin percentage	Refined treatment is low in cost, highly nutritious which was locally available.
T-2- Recommended treatment Cereals -250 g , pulses -50g, , Green leafy vegetables 75 g , other vegetables – 50 g ,fruits – 50 g , milk -250ml , fats 30g,Sugar & jaggary 50gm . (ICMR)		3.6	11.35	9.14		
% increase in parameter			13.28	14.0		

ON FARM TRAILS – 2013-14






OFT ON COTTON (HIGH DENSTIY PLANTING SYSTEM)

SEED PRODUCTION PLOT OF WHEAT (RAJ-4037)

ON FARM TRAILS – 2013-14

Distribution of Green leafy vegetables and *Soyladdu* to the clients

Food cooked through Bio-Briquettes

ON FARM TRIAL ON SWARNADHARA LAYER CHICKEN

Farmers reairing Swarnadhara chicken as back yard poultry

Eggs of Swarnadhara

Swarnadhara layer birds

Cows fed with bypass fat under OFT

3.2 Achievements of Frontline Demonstrations (Kharif 2012, Rabi & Summer 2012-1

a. Follow-up for results of FLDs implemented during previous years

List of technologies demonstrated during previous year and popularized during 2013-14 and recommended for large scale adoption in the district

Sr. No.	Crop/ Enterprise	Thematic Area*	Technology demonstrated	Details of popularization methods suggested to the Extension system	Horizontal spread of technology		
					No. of villages	No. of farmers	Area in ha
1	Pigeonpea	ICM	BSMR-736	Demonstration, field visits, field days	6	30	6
2	Linseed	ICMl	NL-260	Demonstration, field visits, field days	4	12	2.4
3	Wheat	ICM	AKAW-4627	Demonstration, field visits	7	12	4.8
4	Redgram	ICM	Prod. Technology	Demos.,trg., diagonostic field visits, field days	20	210	81
5	Chickpea	ICM	Prod. Technology	Demos.,trg., diagonostic field visits, field days	22	130	160
6	Bt cotton	IPM	IRM	Demos.,trg., diagonostic field visits, kisan melas	25	350	726
7	Nagpur Mandarin	IDM	Gummosis management	Demos.,trg., diagonostic field visits	10	45	95
8	Dairy	Feed manag ement	Chelated mineral feeding	Demonstrations, field visits	12	97	-
9	Dairy	Feed manag ement	Vitamin-mineral and deworming	Demonstrations, field visits, group discussion, field day	18	125	-

**** Thematic areas as given in Table 3.1 (A1 and A2)***

A .Details of FLDs implemented during 2013-14 (Information is to be furnished in the following **three tables** for **each category** i.e. **cereals, horticultural crops, oilseeds, pulses, cotton and commercial crops**.)

Sr. No.	Crop	Thematic area	Technology Demonstrated	Season and year	Area (ha)		No. of farmers/ demonstration			Reasons for shortfall in achievement
					Proposed	Actual	SC/ST	Others	Total	
1	Pigeonpea	ICM	BSMR-736	Kharif-2013	6.0	3.0	6	24	30	Trails on 3 ha. area was vitiated due to heavy rains during June- July
2	Linseeed	Varietal	NL-260	Rabi-2013	2.4	2.4	3	9	12	NA
3	Wheat	ICM	AKAW-4627	Rabi-2013	4.8	4.8	2	10	12	NA
4	Redgram	ICM	Prod. Technology	Kharif 2012	12.0	12.0	13	17	30	NA
5	Bengalgram	ICM	Prod. Technology	Rabi 2012-13	12.0	12.0	7	23	30	NA
6	Bt cotton	IPM	IRM	Kharif 2012	8	10	9	16	25	NA
8	Nagpur Mandarin	Fruit Prod.	Rejuvenation	Kharif-rabi 12-13	2.4	2.4	-	10	10	NA
9	Nagpur Mandarin	Fruit Prod.	Management of preharvest fruit drop	Kharif-rabi 12-13	2.4	2.4	-	10	10	NA

Details of farming situation

Crop	Season	Farming situation (RF/Irrigated)	Soil type	Status of soil			Previous crop	Sowing date	Harvest date	Seasonal rainfall (mm)	No. of rainy days
				N	P	K					
Redgram	Kharif 2013	Protective irrigation	Medium black	low	low	high	Cotton, chickpea, soybean	15-26th June,13	20 Jan-10/2/14	860	53
Wheat	Rabi 2013	Protective irrigation	Medium black	low	low	high	Soybean	15 Nov-3 Nov, 2013	15 Feb-31 Mar, 2014	860	53
Lineseed	Rabi 2013	Protective irrigation	Medium black	low	low	high	Paddy/Soy bean	15 Oct-10 Nov, 2013	5-15 Feb, 2014	860	53
Bengalgram	Rabi 2013-14	Protective irrigation	Medium black	low	low	high	soybean	20-25 Nov.,13	05-15March,14	860	53
Bt cotton	Kharif 2013-14	Protective irrigation	Medium black	low	low	high	chickpea, soybean	15-25 June.,13	Feb.,14	860	53
Nagpur Mandarin	Kharif-rabi 12013	Protective irrigation	Medium black	low	low	high	Perennial pulse as intercrop	-		860	53
Nagpur Mandarin	Kharif-rabi 12013	irrigation	Medium black	low	low	high	Perennial crop	-		860	53

Performance of FLD

S.N.	Crop	Technology Demonstrated	Variety	No. of Farmers	Area (ha.)	Demo. Yield Qtl/ha			Yield of local Check Q/ha	Increase in yield (%)	Data on parameter in relation to technology demonstrated	
						H	L	A			Demo	Local
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**
1	Pigeonpea	Varietal	BSMR-736	30	6.0	17.50	12.25	14.87	10.50	29.38	3.31	2.66 (Seed price 3900/q)
2	Wheat	Varietal	AKAW-4627	12	4.8	34.0	29.0	31.5	23.75	24.60	2.66	2.13 (Seed price 1900/q)
3	Linseed	Varietal	NL-260	12	2.4	10.0	7.5	8.25	6.25	24.24	3.75	3.12 (Seed price = 5000/q)
4	Redgram	Prod. Technology	BSMR 736	30	12.0	25.00	15.56	19.62	14.50	35.31	C:B Ratio 1:2.99	(grain rate=4150/q) C: Ratio 1:2.43
5	Bengalgram	Prod. Technology	Vijay	30	12.0	19.38	14.80	17.50	13.65	28.20		(grain rate=2850/q)
6	Bt cotton	Sucking pests management in Bt cotton (IRM based)	Mallik.a 207	25	10.0	27.50	18.50	23.60	19.40	21.65	1.9 (Av. No. of spray)	2.8(seed cotton rate=5100/q)
7	Nagpur Mandarin	Weeds management	Nagpur Mandarin	10	2.4	60.0	48.0	54.0	45.00	20.00	2.33	2.03
8	Nagpur Mandarin	Management of preharvest fruit crop	Nagpur Mandarin	10	2.4	65.0	51.0	60.0	49.00	22.44	2.59	2.21
9	Okra	Varietal	Akola Bahar	10	2.4	49.0	42.3	46.78	40.00	16.95	2.34	2.07
10	Onion	Varietal	Akola Safed	11	2.8	9.35	80.0	84.0	71.00	18.30	3.20	2.92

Economic Impact (continuation of previous table)

Average Cost of cultivation (Rs./ha)		Average Gross Return (Rs./ha)		Average Net Return (Profit) (Rs./ha)		Benefit-Cost Ratio (Gross Return / Gross Cost)
Demonstration	Local Check	Demonstration	Local Check	Demonstration	Local Check	
14	**15**	**16**	**17**	**18**	**19**	**20**
17500	15000	57993	39900	40493	24000	3.31 (Demo), 2.66 (LC)
22500	20000	59850	42750	37350	22750	2.66 (Demo), 2.13 (LC)
11000	10000	41250	31250	30250	21250	3.75 (Demo), 3.12 (LC)
27,190	24,800	81,423	60,175	54,233	35,375	2.99(demo),2.43(LC)
25,077	23,312	49,875	38,902	24,798	15,590	1.99(demo),1.67(LC)
34,220	35,350	1,17,056	96,224	82,836	60,874	3.42 (demo), 2.72 (LC)
44,000	42,000	1,02,600	85,500	58,600	43,500	2.33(demo), 2.03(LC)
44,000	40,000	1,14,000	93,100	70,000	53,100	2.59(demo), 2.21(LC)
14,000	13,500	32,746	28,000	18,746	14,500	2.34 (demo) 2.07 (LC)
18,000	17,000	58,800	49,700	40,800	32,000	3.20 (demo) 2.92 (LC)

FRONT LINE DEMONSTRATIONS ON LINSEED. WHEAT & TUR






FRONT LINE DEMONSTRATIONS ON GOATS


Lactating doe feeding on concentrate fed **Pre weaned kids of goat**

Performance of FLD during (2013-14) Home Science

Sr. No	Name of Technology	No of farmers	Crop	Performance of technology on different parameters.								Result increase in Out put(%)	Percent reduction in drudgery
				ΔHR beats min-1		Strokesmin-1		Area covered m2/h		Output m2/h			
				Demo	Local check	Demo	Local check	Demo	Local check	Local check	Local check		
1	Maize Sheller	16	Maize	08	18	Nil	Nil	Nil	Nil	340g/m^2	285g/m^2	19	19
2	Improved cotton picking bag	16	Cotton	11	16.1	Nil	Nil -	42.9	35.2	5.2	4.0	30	30
3	Bhendi & Brinjal plucker	16	Brinjal	19	15	Nil -	Nil -	Nil -	Nil	23	19	21	14
4	Gujarat sickle	16	Rice	11	13.9	43	39	Nil	Nil	39	28	08	16

FLD on drudgery reduction of farm women by use of Maize Sheller and KVK, CICR improved Cotton Picking Bag

Analytical Review of component demonstrations (details of each component for rainfed / irrigated situations to be given separately for each season).

Crop	Season	Component	Farming situation	Average yield (q/ha)	Local check (q/ha)	Percentage increase in productivity over local check
Cotton	Kharif	High Density Planting System (HDPS)	Rainfed	14.97	12.95	13.49
Linseed	Rabi	Varietal	Rainfed	8.25	6.25	24.24
Pigeon pea	Kharif	Varietal	Rainfed	14.87	10.50	29.38
Wheat	Rabi	Varietal	Irrigated	31.50	23.75	24.60
Redgram	Kharif	Prod. technology	Rainfed	19.62	14.50	35.31
Bengalgram	Rabi	Prod. technology	Rainfed	17.50	13.65	28.20
Bt cotton	Kharif	IRM	Rainfed	23.60	19.40	21.65
Nagpur Mandarin	Kharif/RabiI	Gummosis management	Protective irrigation	63.62	54.67	16.37

Technical Feedback on the demonstrated technologies

S. No	Feed Back
1	Maintaining the spacing of 60 cm x 10 cm in Non-Bt straight varieties of cotton was found beneficial in improving the productivity of cotton by 13.49 percent over Bt cotton in light, shallow/marginal soils under rainfed farming situation in Vidarbha region.
2	Linseed variety NL-260 recorded higher yield by 24.24 percent over local variety.
3	Pigeon pea variety BSMR-736 recorded higher yield by 29.38 percent over local variety.
4	Wheat variety AKAW 4627, suitable for late sowing condition in Vidarbha region, recorded higher yield by 24.60 percent over local check.
5	Use of pheromone traps was found helpful in monitoring the pests.
6	Av. No. of sprays for sucking pests have been reduced.
7	Chickpea varieties with resistance to high temperature and moisture stress should be developed for rainfed areas.
8	Efforts should be made to develop resistance in short duration varieties of chickpea and redgram against Helicoverpa armigera.
9	Root rot and wilting incidence was noticed more in chickpea when the rainfall received at early crop stage.
10	Recommendations on package of practices of cultivation of red gram and chickpea on raised-bed with drip irrigation should be developed for medium and heavy black soils in central India (Dist..Nagpur, M.S.)

Farmers' reactions on specific technologies

S. No	Feed Back
1	Among three varieties under HDPS cotton, Suraj and NH-615 were the best varieties in case of seed cotton yield.
2	NL-260 was high yielding linseed variety having higher no. of branches than local check
3	Farmers with facility of protective irrigation were ready to cultivate sole redgram crop.
4	Farmers appreciated wheat variety AKAW-4627 for late sowing having higher yield potential and rust tolerant.
5	Farmers like chickpea variety vijay over others due to soil moisture stress tolerance.
6	After priming of seed farmers feel difficulty in sowing of chickpea seed by their conventional equipment **TIFFAN**.
7	Farmers realize that grains should be sold after few months of threshing to get good price of grains.

8	Cotton farmers were easily ready not to spray chemical pesticides 60 days after sowing in cotton
9	The adoption of seed priming in chickpea realizes better germination, plant population and yield by the farmers
10	Farmers were not interested in dry sowing or polybag raising or sowing on drip of redgram due to inconvenience.
11	Farmers with the facility of protective irrigation were ready to cultivate sole redgram crop.
12	Farmers fetched Rs.300-400 per q. more price of their redgram grain due to 15-20 days early harvest of the crop.
13	Farmers realized that they should have storage structure to fetch better market price of their pulse grains (chickpea and redgram).

Extension and Training activities under FLD

Sl.No.	**Activity**	**No. of activities organised**	**Date**	**Number of participants**	**Remarks**
1	Field days (Tur & Soybean)	07	12.04.13, 22.06.13, 20.11.13, 26.11.13, 27.11.13	450	-
2	Farmers Training	12	April 13 – March 14	221	-
3	Media coverage	14	April 13 – March 14	-	-
4	Training for extension functionaries	07	April 13 – March 14	152	-

c. Details of FLD on Enterprises

(i) Farm Implements

Name of the implement	crop	No. of farmers	Area (ha)	Performance parameters / indicators	* Data on parameter in relation to technology demonstrated		% change in the parameter	Remarks
					Demon.	Local check		
Nil								

**** Field efficiency, labour saving etc.***

(ii) Livestock Enterprises

Enterprise	Breed	No. of farmers	No. of animals, poultry birds etc.	Performance parameters / indicators	* Data on parameter in relation to technology demonstrated		% change in the parameter	Remarks
					Demon.	Local check		
Goat rearing (Concentrate feed @ 150g/doe/ day x 3 months)	Local goats	10	20	a) Avg. milk yield (l/doe/day) b) Avg. preweaned body wt. in kids of 5 months age (kg) c) Avg. body weight of does (kg)	0.56 13.10 22.95	0.45 11.40 21.85	24.44	Increase in milk yield ultimately leads to increase in pre-weaned body weights of kids of either sex.

Dairy (Vitamin-mineral @30g/day feed supplementation and Deworming-repeated after 2 weeks)	Jersey Crossbred cows	10	20	a) Avg. Milk yield (lit/cow/day) b) No. of heifers in oestrus at the end of trial c) No. of heifers conceived d) Avg. No of days required for onset of oestrus in treated heifers e) BC Ratio	8.90 10 10 15-17 2.80	7.55 8 8 -- 2.25	17.88 25.00 30.00 -- --	Some cows showed slight decrease in milk yield for 3 to 4 days after administration of deworming drugs. However, average milk yield increased in addition to higher conception rate in treated group
Dairy (Detection of mastitis by California Mastitis Test)	Jersey cross bred cows	10	40	Avg. milk yield lit/cow/day	8.10	4.80	68.75	Early detection by CMT saved cost of treatment as well as prevented further fibrosis in udder of infected cows
Dairy (Chelated mineral feeding)	CB Jersey Cow	10	20	a) Avg. milk yield (lit/cow/day) b) Milk fat (%) c) BC Ratio	11.30 3.5 2.95	9.70 3.00 2.30	16.49 16.67 -	Increase in milk yield and fat content observed. Increased fat content fetched more price to milk.

**** Milk production, meat production, egg production, reduction in disease incidence etc.***

(iii) Other Enterprises

Enterprise	Variety/ breed/Species /others	No. of farmers	No. of Units	Performance parameters / indicators	Data on parameter in relation to technology demonstrated		% change in the parameter	Remarks
					Demon.	Local check		
Mushroom	-	-	-	-	-	-	-	-
Apiary	-	-	-	-	-	-	-	-
Sericulture	-	-	-	-	-	-	-	-
Vermi compost	-	-	-	-	-	-	-	-

3.3 Achievements on Training (Including the sponsored, vocational, FLD and trainings under Rainwater Harvesting Unit) :

- **ON Campus**

Thematic area	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
(A) Farmers & Farm Women										
I Crop Production										
Weed Management in cotton	01	22	04	26	19	06	25	41	10	51
Resource Conservation Technologies										
Cropping Systems										
Crop Diversification										
Integrated Farming										
Water management										
Seed production										
Nursery management										
Integrated Crop Management	01	23	02	25	08	03	11	31	05	36
Fodder production										
Production of organic inputs	01	24	06	30	10	04	14	34	10	44
II Horticulture										
a) Vegetable Crops										
Production of low volume and high value crops	01	20	03	23	10	04	14	30	07	37
Off-season vegetables	02	14	00	14	05	00	05	19	00	19
Nursery raising										
Exotic vegetables like Broccoli										
Export potential vegetables										
Grading and standardization										
Protective cultivation (Green Houses, Shade Net etc.)	01	18	00	18	05	00	05	23	00	23
b) Fruits										
Training and Pruning										
Layout and Management of Orchards										
Cultivation of										

Fruit										
Management of young plants/orchards										
Rejuvenation of old orchards										
Export potential fruits										
Micro irrigation systems of orchards										
Plant propagation techniques										
c) Ornamental Plants										
Nursery Management										
Management of potted plants										
Export potential of ornamental plants										
Propagation techniques of Ornamental Plants										
d) Plantation crops										
Production and Management technology										
Processing and value addition										
e) Tuber crops										
Production and Management technology										
Processing and value addition										
f) Spices										
Production and Management technology										
Processing and value addition										
g) Medicinal and Aromatic Plants										
Nursery management										
Production and management technology										
Post harvest technology and value addition										
III Soil Health and Fertility Management										
Soil fertility management										

Soil and Water Conservation										
Integrated Nutrient Management										
Production and use of organic inputs										
Management of Problematic soils										
Micro nutrient deficiency in crops										
Nutrient Use Efficiency										
Soil and Water Testing	06	92	12	104	39	09	48	131	21	152
IV Livestock Production and Management										
Dairy Management	02	44	00	44	18	00	18	62	00	62
Poultry Management										
Piggery Management										
Rabbit Management										
Disease Management										
Feed management										
Production of quality animal products	01	12	00	12	04	00	04	16	00	16
V Home Science/Women empowerment										
Household food security by kitchen gardening and nutrition gardening	01	00	18	18	03	09	12	03	27	30
Design and development of low/minimum cost diet										
Designing and development for high nutrient efficiency diet										
Minimization of nutrient loss in processing										
Gender mainstreaming through SHGs										
Storage loss minimization techniques										

Value addition	01	00	09	09	00	12	12	00	21	21
Income generation activities for empowerment of rural Women										
Location specific drudgery reduction technologies	02	27	86	113	12	26	38	39	112	151
Rural Crafts										
Women and child care										
VI Agril. Engineering										
Installation and maintenance of micro irrigation systems										
Use of Plastics in farming practices										
Production of small tools and implements										
Repair and maintenance of farm machinery and implements										
Small scale processing and value addition										
Post Harvest Technology										
VII Plant Protection										
Integrated Pest Management	07	123	00	123	39	00	39	162	00	162
Integrated Disease Management										
Bio-control of pests and diseases										
Production of bio control agents and bio pesticides										
VIII Fisheries										
Integrated fish farming										
Carp breeding and hatchery management										
Carp fry and fingerling rearing										
Composite fish culture										
Hatchery management and culture of freshwater prawn										
Breeding and culture of										

ornamental fishes										
Portable platic carp hatchery										
Pen culture of fish and prawn										
Shrimp farming										
Edible oyster farming										
Pearl culture										
Fish processing and value addition										
IX Production of Inputs at site										
Seed Production										
Planting material production										
Bio-agents production										
Bio-pesticides production										
Bio-fertilizer production										
Vermi-compost production										
Organic manures production										
Production of fry and fingerlings										
Production of Bee-colonies and wax sheets										
Small tools and implements										
Production of livestock feed and fodder										
Production of Fish feed										
X Capacity Building and Group Dynamics										
Leadership development										
Group dynamics										
Formation and Management of SHGs	01	00	57	57	00	21	21	00	78	78
Mobilization of social capital										
Entrepreneurial development of farmers/youths										
WTO and IPR issues										
XI Agro-forestry										
Production technologies										
Nursery management										

Integrated Farming Systems										
TOTAL	28	419	197	616	172	94	266	591	291	882
(B) RURAL YOUTH										
Mushroom Production										
Bee-keeping										
Integrated farming										
Seed production	01	17	00	17	08	00	08	25	00	25
Production of organic inputs										
Integrated crop management										
Planting material production										
Vermi-culture	01	13	18	31	00	00	00	13	18	31
Sericulture										
Protected cultivation of vegetable crops										
Commercial fruit production										
Repair and maintenance of farm machinery and implements										
Nursery Management of Horticulture crops										
Training and pruning of orchards										
Value addition	01	03	14	17	03	07	10	06	21	27
Production of quality animal products										
Dairying										
Sheep and goat rearing	01	21	05	26	08	02	10	29	07	36
Quail farming										
Piggery										
Rabbit farming										
Poultry production										
Ornamental fisheries										
Para vets										
Para extension workers										
Composite fish culture										
Freshwater prawn culture										
Shrimp farming										
Pearl culture										
Cold water fisheries										
Fish harvest and										

processing technology										
Fry and fingerling rearing										
Small scale processing	01	07	10	17	03	03	06	10	13	23
Post Harvest Technology	01	04	11	15	03	07	10	07	18	25
Tailoring and Stitching										
Rural Crafts										
TOTAL	**06**	**65**	**58**	**123**	**25**	**19**	**44**	**90**	**77**	**167**
(C) Extension Personnel										
Productivity enhancement in field crops	01	18	03	21	06	02	08	24	05	29
Integrated Pest Management										
Integrated Nutrient management	01	20	04	24	05	03	08	25	07	32
Management of ambia bahar in Nagpur mandarin										
Protected cultivation technology										
Formation and Management of SHGs	02	00	76	76	07	27	34	07	103	110
Group Dynamics and farmers organization										
Information networking among farmers										
Capacity building for ICT application	01	21	00	21	09	00	09	30	00	30
Care and maintenance of farm machinery and implements										
WTO and IPR issues										
Management in farm animals										
Livestock feed and fodder production	01	12	07	19	03	02	05	15	09	24
Household food security										
Women and Child care										
Low cost and nutrient efficient diet designing										

Production and use of organic inputs										
Gender mainstreaming through SHGs										
TOTAL	**06**	**71**	**90**	**161**	**30**	**34**	**64**	**101**	**124**	**225**

OFF Campus

Thematic area	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
(A) Farmers & Farm Women										
I Crop Production										
Weed Management	01	16	04	20	08	02	10	24	06	30
Resource Conservation Technologies										
Cropping Systems	01	270	40	310	65	25	90	335	65	400
Crop Diversification										
Integrated Farming										
Water management	02	29	05	34	07	03	10	36	08	44
Seed production										
Nursery management										
Integrated Crop Management	01	115	12	127	19	04	23	134	16	150
Fodder production										
Production of organic inputs	02	46	08	54	09	03	12	55	11	66
II Horticulture										
a) Vegetable Crops										
Production of low volume and high value crops	01	16	00	16	04	00	04	20	00	20
Off-season vegetables	01	17	00	17	06	00	06	23	00	23
Nursery raising	01	14	00	14	05	00	05	19	00	19
Exotic vegetables like Broccoli	01	11	00	11	03	00	03	14	00	14
Export potential vegetables										

Grading and standardization										
Protective cultivation (Green Houses, Shade Net etc.)										
b) Fruits										
Training and Pruning										
Layout and Management of Orchards										
Cultivation of Fruit	02	37	00	37	08	00	08	45	00	45
Management of young plants/orchards										
Rejuvenation of old orchards	01	18	00	18	03	00	03	21	00	21
Export potential fruits										
Micro irrigation systems of orchards										
Plant propagation techniques										
c) Ornamental Plants										
Nursery Management										
Management of potted plants										
Export potential of ornamental plants										
Propagation techniques of Ornamental Plants	01	13	00	13	03	00	03	16	00	16
d) Plantation crops										
Production and Management technology	01	21	00	21	04	00	04	25	00	25
Processing and value addition										
e) Tuber crops										
Production and Management technology										
Processing and value addition										
f) Spices										

Production and Management technology										
Processing and value addition										
g) Medicinal and Aromatic Plants										
Nursery management										
Production and management technology										
Post harvest technology and value addition										
III Soil Health and Fertility Management										
Soil fertility management										
Soil and Water Conservation										
Integrated Nutrient Management										
Production and use of organic inputs										
Management of Problematic soils										
Micro nutrient deficiency in crops										
Nutrient Use Efficiency										
Soil and Water Testing	01	148	18	166	54	07	61	202	25	227
IV Livestock Production and Management										
Dairy Management	03	32	10	42	12	08	20	44	18	62
Poultry Management										
Goat management										
Piggery Management										
Rabbit Management										
Disease Management										

Feed management										
Production of quality animal products	02	15	01	16	08	00	08	23	01	24
V Home Science/Women empowerment										
Household food security by kitchen gardening and nutrition gardening	01	02	16	18	02	15	17	04	29	33
Design and development of low/minimum cost diet										
Designing and development for high nutrient efficiency diet										
Minimization of nutrient loss in processing										
Gender mainstreaming through SHGs										
Storage loss minimization techniques										
Value addition	01	00	22	22	00	14	14	00	36	36
Income generation activities for empowerment of rural Women	01	00	14	14	00	07	07	00	21	21
Women and child care										
VI Agril. Engineering										
Installation and maintenance of micro irrigation systems										
Use of Plastics in farming practices										
Production of small tools and implements										
Repair and maintenance of farm machinery										

and implements										
Small scale processing and value addition										
Post Harvest Technology										
VII Plant Protection										
Integrated Pest Management	07	108	47	155	37	11	48	177	26	203
Integrated Disease Management										
Bio-control of pests and diseases										
Production of bio control agents and bio pesticides										
VIII Fisheries										
Integrated fish farming										
Carp breeding and hatchery management										
Carp fry and fingerling rearing										
Composite fish culture										
Hatchery management and culture of freshwater prawn										
Breeding and culture of ornamental fishes										
Portable plastic carp hatchery										
Pen culture of fish and prawn										
Shrimp farming										
Edible oyster farming										
Pearl culture										
Fish processing and value addition										
IX Production of Inputs at site										
Seed Production										

Planting material production										
Bio-agents production										
Bio-pesticides production										
Bio-fertilizer production										
Vermi-compost production										
Organic manures production										
Production of fry and fingerlings										
Production of Bee-colonies and wax sheets										
Small tools and implements										
Production of livestock feed and fodder										
Production of Fish feed										
X Capacity Building and Group Dynamics										
Leadership development	01	00	25	25	00	27	27	00	52	52
Group dynamics										
Formation and Management of SHGs										
Mobilization of social capital										
Entrepreneurial development of farmers/youths	01	00	20	20	03	34	37	03	54	57
WTO and IPR issues										
XI Agro-forestry										
Production technologies										
Nursery management										
Integrated Farming Systems										
TOTAL	**34**	**928**	**242**	**1170**	**260**	**160**	**420**	**1220**	**368**	**1588**

(B) RURAL YOUTH										
Mushroom Production										
Bee-keeping										
Integrated farming	02	88	04	92	19	03	22	107	07	114
Seed production	01	21	00	21	05	00	05	26	00	26
Production of organic inputs										
Integrated crop management	06	119	23	142	33	08	41	153	30	183
Planting material production										
Vermi-culture										
Sericulture										
Protected cultivation of vegetable crops	01	08	00	08	02	00	02	10	00	10
Commercial fruit production										
Repair and maintenance of farm machinery and implements										
Nursery Management of Horticulture crops										
Training and pruning of orchards										
Value addition	03	04	43	47	04	27	31	08	70	78
Production of quality animal products										
Dairying	03	32	06	38	16	06	22	48	12	60
Sheep and goat rearing										
Quail farming										
Piggery										
Rabbit farming										
Poultry production										
Ornamental fisheries										
Para vets	01	15	02	17	03	01	04	18	03	21
Para extension workers										
Composite fish culture										
Freshwater prawn culture										

Shrimp farming										
Pearl culture										
Cold water fisheries										
Fish harvest and processing technology										
Fry and fingerling rearing										
Small scale processing										
Post Harvest Technology										
Tailoring and Stitching										
Rural Crafts										
TOTAL	**17**	**287**	**78**	**365**	**82**	**45**	**127**	**370**	**122**	**492**
(C) Extension Personnel										
Productivity enhancement in field crops	01	39	03	42	06	02	08	45	05	50
Integrated Pest Management										
Integrated Nutrient management	01	23	06	29	04	02	06	27	08	35
High yielding varieties of vegetables										
Protected cultivation technology	01	33	00	33	00	00	00	33	00	33
Formation and Management of SHGs										
Group Dynamics and farmers organization										
Information networking among farmers										
Capacity building for ICT application										
Care and maintenance of farm machinery and implements										
WTO and IPR issues										

Management in farm animals	01	22	02	24	10	01	11	32	03	35
Livestock feed and fodder production										
Household food security										
Location specific Drudgery reduction technology	01	01	05	06	07	18	25	08	23	31
Low cost and nutrient efficient diet designing										
Production and use of organic inputs										
Gender mainstreaming through SHGs										
TOTAL	**05**	**118**	**16**	**134**	**27**	**23**	**50**	**145**	**39**	**184**

C) Consolidated table (ON and OFF Campus)

Thematic area	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
(A) Farmers & Farm Women										
I Crop Production										
Weed Management	02	38	08	46	27	08	35	65	16	81
Resource Conservation Technologies										
Cropping Systems	01	270	40	310	65	25	90	335	65	400
Crop Diversification										
Integrated Farming										
Water management	02	29	05	34	07	03	10	36	08	44
Seed production										
Nursery management										
Integrated Crop Management	2	138	14	152	27	07	34	165	21	186
Fodder production										
Production of organic inputs	03	70	14	84	19	07	26	89	21	110
II Horticulture										
a) Vegetable										

Crops										
Production of low volume and high value crops	02	36	03	39	14	04	18	50	07	57
Off-season vegetables	03	31	00	31	11	00	11	42	00	42
Nursery raising	01	14	00	14	05	00	05	19	00	19
Exotic vegetables like Broccoli	01	11	00	11	03	00	03	14	00	14
Export potential vegetables										
Grading and standardization										
Seed production										
Protective cultivation (Green Houses, Shade Net etc.)	01	18	00	18	05	00	05	23	00	23
b) Fruits										
Training and Pruning										
Layout and Management of Orchards										
Cultivation of Fruit	02	37	00	37	08	00	08	45	00	45
Management of young plants/orchards										
Rejuvenation of old orchards	01	18	00	18	03	00	03	21	00	21
Export potential fruits										
Micro irrigation systems of orchards										
Plant propagation techniques										
c) Ornamental Plants										
Nursery Management										
Management of potted plants										
Export potential of ornamental plants										
Propagation techniques of Ornamental Plants	01	13	00	13	03	00	03	16	00	16
d) Plantation crops										
Production and Management technology										
Processing and value addition										
e) Tuber crops										
Production and										

Management technology										
Processing and value addition										
f) Spices										
Production and Management technology										
Processing and value addition										
g) Medicinal and Aromatic Plants										
Nursery management										
Production and management technology										
Post harvest technology and value addition										
III Soil Health and Fertility Management										
Soil fertility management										
Soil and Water Conservation										
Integrated Nutrient Management										
Production and use of organic inputs										
Management of Problematic soils										
Micro nutrient deficiency in crops										
Nutrient Use Efficiency										
Soil and Water Testing	01	148	18	166	54	07	61	202	25	227
IV Livestock Production and Management										
Dairy Management	05	76	10	86	30	08	38	106	18	124
Poultry Management										
Sheep & goat rearing										
Piggery Management										
Rabbit Management										
Disease Management										
Feed management										
Production of	02	15	01	16	08	00	08	23	01	24

quality animal products										
V Home Science/Women empowerment										
Household food security by kitchen gardening and nutrition gardening	02	02	34	36	05	24	29	07	56	63
Design and development of low/minimum cost diet										
Designing and development for high nutrient efficiency diet										
Minimization of nutrient loss in processing										
Gender mainstreaming through SHGs										
Storage loss minimization techniques										
Value addition	02	00	31	31	00	26	26	00	57	57
Income generation activities for empowerment of rural Women	01	00	14	14	00	07	07	00	21	21
Location specific drudgery reduction technologies	02	27	86	113	12	26	38	39	112	151
Rural Crafts										
Women and child care										
VI Agril. Engineering										
Installation and maintenance of micro irrigation systems										
Use of Plastics in farming practices										
Production of small tools and implements										
Repair and maintenance of farm machinery and implements										
Small scale processing and value addition										
Post Harvest Technology										

VII Plant Protection										
Integrated Pest Management	14	231	47	278	76	11	87	339	26	365
Integrated Disease Management										
Bio-control of pests and diseases										
Production of bio control agents and bio pesticides										
VIII Fisheries										
Integrated fish farming										
Carp breeding and hatchery management										
Carp fry and fingerling rearing										
Composite fish culture										
Hatchery management and culture of freshwater prawn										
Breeding and culture of ornamental fishes										
Portable plastic carp hatchery										
Pen culture of fish and prawn										
Shrimp farming										
Edible oyster farming										
Pearl culture										
Fish processing and value addition										
IX Production of Inputs at site										
Seed Production										
Planting material production										
Bio-agents production										
Bio-pesticides production										
Bio-fertilizer production										
Vermi-compost production										
Organic manures production										
Production of fry and fingerlings										
Production of Bee-colonies and wax sheets										
Small tools and										

implements										
Production of livestock feed and fodder										
Production of Fish feed										
X Capacity Building and Group Dynamics										
Leadership development	01	00	25	25	00	27	27	00	52	52
Group dynamics										
Formation and Management of SHGs	01	00	57	57	00	21	21	00	78	78
Mobilization of social capital										
Entrepreneurial development of farmers/youths	01	00	20	20	03	34	37	03	54	57
WTO and IPR issues										
XI Agro-forestry										
Production technologies										
Nursery management										
Integrated Farming Systems										
TOTAL	**62**	**1347**	**439**	**1786**	**432**	**254**	**686**	**1811**	**659**	**2470**
(B) RURAL YOUTH										
Mushroom Production										
Bee-keeping										
Integrated farming	02	88	4	92	19	3	22	107	7	114
Seed production	02	38	00	38	13	00	13	51	00	51
Production of organic inputs										
Integrated crop management	06	119	23	142	33	08	41	153	30	183
Planting material production										
Vermi-culture	01	13	18	31	00	00	00	13	18	31
Sericulture										
Protected cultivation of vegetable crops	01	08	00	08	02	00	02	10	00	10
Commercial fruit production										
Repair and maintenance of farm machinery and implements										
Nursery Management of Horticulture crops										
Training and pruning of										

orchards										
Value addition	04	07	57	64	07	34	41	14	91	105
Production of quality animal products										
Dairying	03	32	06	38	16	06	22	48	12	60
Sheep and goat rearing	01	21	05	26	08	02	10	29	07	36
Quail farming										
Piggery										
Rabbit farming										
Poultry production										
Ornamental fisheries										
Para vets	01	15	02	17	03	01	04	18	03	21
Para extension workers										
Composite fish culture										
Freshwater prawn culture										
Shrimp farming										
Pearl culture										
Cold water fisheries										
Fish harvest and processing technology										
Fry and fingerling rearing										
Small scale processing	01	07	10	17	03	03	06	10	13	23
Post Harvest Technology	01	04	11	15	03	07	10	07	18	25
Tailoring and Stitching										
Rural Crafts										
TOTAL	**23**	**352**	**136**	**488**	**107**	**64**	**171**	**460**	**199**	**659**
© Extension Personnel										
Productivity enhancement in field crops	02	57	06	63	12	04	16	69	10	79
Integrated Pest Management										
Integrated Nutrient management	02	43	10	53	09	05	14	52	15	67
Fruit production										
Protected cultivation technology	01	33	00	33	00	00	00	33	00	33
Formation and Management of SHGs	02	00	76	76	07	27	34	07	103	110
Group Dynamics and farmers										

organization										
Information networking among farmers										
Capacity building for ICT application	01	21	00	21	09	00	09	30	00	30
Care and maintenance of farm machinery and implements										
WTO and IPR issues										
Management in farm animals	01	22	02	24	10	01	11	32	03	35
Livestock feed and fodder production	01	12	07	19	03	02	05	15	09	24
Household food security										
Location specific Drudgery Reduction technologies	01	01	05	06	07	18	24	08	23	31
Low cost and nutrient efficient diet designing										
Production and use of organic inputs										
Gender mainstreaming through SHGs										
TOTAL	**11**	**189**	**106**	**295**	**57**	**57**	**114**	**246**	**163**	**409**

Note: Please furnish the details of above training programmes as <u>Annexure</u> in the proforma given below

Date	Clientele	Title of the training programme	Discipline	Thematic area	Duration in days	Venue (Off / On Campus)	Number of other participants			Number of SC/ST			Total number of participants		
							Male	Female	Total	Male	Female	Total	Male	Female	Total
05.4.13	PF	IPM in cotton	Plant Portection	IPM	1	ON	12	0	12	05	0	05	17	0	17
09.4.13	RY	Household technology of food grain storage	Home Science	PHT	1	ON	04	11	15	03	07	10	07	18	23
12.4.13	PF	Production of Azolla as a cattle feed	Veterinary Science	Dairy farming	1	OFF	21	8	29	9	7	16	30	15	45
22.4.13	PF	Sucking pests management in Bt cotton	Plant Protection	IPM	1	ON	36	0	36	14	0	14	50	0	50
06.5.13	PF	Cotton production technology and HDPS cotton production	Crop Production	ICM	1	OFF	270	40	310	65	25	90	335	65	400
13.5.13	PF	Weed management in cotton crop	Crop Production	ICM	1	ON	22	4	26	19	6	25	41	10	51
05.6.13	PF	Layout and management of Nutrition Garden	Home Science	Household food security	1	ON	0	18	18	03	09	11	03	27	30
12.6.13	RY	Techniques for Soybean processing for making soya flour & soyanuts	Home Science	Small Scale Processing	1	ON	07	10	17	03	03	06	10	13	23
12.6.13	PF	Seed treatment in pulses	Plant Protection	IPM	1	OFF	22	4	26	7	1	8	29	5	34
15.6.13	RY	Seed production in pegion pea	Crop Production	Seed Production	1	ON	17	-	17	8	-	8	25	-	25
15.6.13	RY	Management of Phytophthora in Nagpur Mandarin	Plant Protection	IDM	1	OFF	13	3	16	1	1	2	11	4	15
18.6.13	PF	Production technology in pulses	Plant Protection	ICM	1	OFF	23	4	27	9	0	9	32	4	36
19.6.13	PF	Production technology in pulses	Plant Protection	ICM	1	OFF	17	2	19	5	1	6	22	3	25
19.6.13	EF	Improved production practices for cotton	Crop Production	ICM	1	ON	18	3	21	6	2	8	24	5	29
22.06.13	PF	Raising of disease free seedling of chilli	Horticulture	Nursery management	1	OFF	5	-	5	14	-	14	19	-	19

22.6.13	RY	Management of Swarnadhara as back yard poultry	Veterinary Science	Rural poultry production	1	OFF	7	2	9	5	4	9	12	6	18
27.6.13	PF	Management of thrips & mites in Nagpur Mandarin	Plant Protection	IPM	1	OFF	11	0	11	2	0	2	13	0	13
28.6.13	RY	Preparation of Karvanda Murabba	Home Science	Value addition	1	OFF	00	14	14	00	12	12	00	26	26
06.7.13	RY	Detection of mastitis in cross bred cows	Veterinary Science	Disease management in livestock	1	OFF	11	3	14	6	1	17	17	4	21
03.7.13 12.7.13	PF	Clean milk production	Veterinary Science	Production of quality animal products	2	OFF	15	1	16	8	-	8	23	1	24
16.7.13	PF	Sucking pests management in Bt cotton	Plant Protection	IPM	1	ON	05	0	05	02	0	02	07	0	07
22.7.13	RY	Pesticide application technology in cotton	Plant Protection	IPM	1	OFF	14	4	18	7	1	8	21	5	26
23.7.13	PF	Weed management in soybean	Crop Production	ICM	1	OFF	16	4	20	8	2	10	24	6	30
24.7.13	EF	Women friendly improved tools & equipment	Home Science	Drudgery Reduction	1	OFF	01	05	06	07	18	24	08	23	31
31.7.13	EF	Pest management in Soybean	Plant Protection	IPM	1	OFF	18	4	22	7	1	8	25	5	30
01.8.13	RY	Pest management in Soybean	Plant Protection	IPM	1	OFF	14	5	19	5	1	6	19	6	25
02.8.13	EF	Integrated nutrient management in cotton	Crop Production	ICM	1	ON	20	4	24	5	3	8	25	7	32
05.8.13	RY	Scientific goat farming	Veterinary Science	Goat production	1	ON	21	5	26	8	2	10	29	7	36
13.8.13	PF	Integrated Dairy farming	Veterinary Science	Livestock production	1	ON	17	-	17	6	-	6	23	-	23
13.8.13	EF	Sucking pests management in Bt cotton	Plant Protection	IPM	1	ON	17	0	17	03	0	03	20	0	20
13.8.13	PF	Management of Mrig bahar in Nagpur Mandarin	Horticulture	Fruit production	1	OFF	16	-	16	4	-	4	20	-	20

14.8.13	PF	Weed management in Citrus	Horticulture - -	Weed management	1	OFF	17	-	17	6	-	6	23	-	23
14.8.13	PF	Cotton production technology and INM in Cotton	Crop Production	ICM	1	ON	23	2	25	8	3	11	31	5	36
17.5.13 01.6.13 06.6.13 23.8.13 07.11.13 21.12.13 04.2.14 05.3.14	PF & RY	Soil Health Campaign, Soil sampling technique, Importance of soil testing and Integrated Nutrient Management in Cotton	Soil Science	Soil Testing	8	OFF	148	18	166	54	7	61	202	25	227
31.8.13	PF	Irrigation management in wheat	Crop Production	Water Management	2	OFF	29	5	34	7	3	10	36	8	44
31.8.13	EF	Role of bypass fat and bypass protein in dairy production	Veterinary Science	Dairy farming	1	OFF	22	2	24	10	1	11	32	3	35
02.9.13	PF	Training Pruning and fertigation in roses	Horticulture	Flower production	1	OFF	13	-	13	3	-	3	16	-	16
04.9.13	PF	Management of Preharvest fruit drop in Nagpur Mandarin	Horticulture	Fruit production	1	OFF	21	-	21	4	-	4	25	-	25
05.9.13	RY	Establishment of Nursery for self employment	Horticulture	Nursery management	1	ON	25	-	25	6	-	6	31	-	31
05.9.13	PF	Leadership development	Extension	Leadership development	1	OFF	00	25	25	00	27	27	00	52	52
10.9.13	RY	Identification of pests and natural enemies in cotton	Plant Protection	IPM	1	OFF	21	4	25	5	2	7	26	6	32
13.9.13	RY	Sucking pests management in Bt-cotton	Plant Protection	IPM	1	OFF	18	4	22	8	0	8	26	4	30
17.9.13	PF	Rejuvenation of moderate decline trees of Nagpur Mandarin	Horticulture	Reguvenation	1	OFF	18	-	18	3	-	3	21	-	21
17.9.13	PF	Sucking pests management in Bt cotton	Plant Protection	IPM	1	ON	24	0	24	06	0	06	30	0	30

27.9.13	PF	Sucking pests management in Bt cotton	Plant Protection	IPM	1	ON	09	0	09	07	0	07	16	0	16
27.9.13	RY	Seed production in Chickpea	Crop Production	Seed Production	1	OFF	21	-	21	5	-	5	26	-	26
01.10.13	PF	Seed production techniques in Okra	Horticulture	Seed production	1	OFF	11	-	11	3	-	3	14	-	14
04.10.13	PF	Demonstration of clean cotton picking	Home Science	Drudgery Reduction	1	ON	13	46	59	07	16	23	20	62	82
07.10.13	EF	Enrichment of low quality roughage	Veterinary Science	Feed & Fodder	1	ON	12	7	19	3	2	5	15	9	24
09.10.13	EF	Formation and management of SHG	Home Science	SHG formation	1	ON	00	19	19	07	06	13	07	25	32
16.10.13	EF	Management of SHG's	Extension	Management of SHG's	1	ON	00	57	57	00	21	21	00	78	78
24.10.13	RY	Vermiculture production technology	Extension	Vermiculture	1	ON	13	18	31	00	00	00	13	18	31
28.10.13	PF	Use of bio-fertilizer in chickpea	Crop Production	ICM	1	ON	24	6	30	10	4	14	34	10	44
06.11.13	PF	Scientific cultivation of Onion and Garlic	Horticulture	Vegetable production	1	OFF	16	-	16	4	-	4	20	-	20
07.11.13	PF	Demonstration clean cotton picking	Home Science	Drudgery Reduction	1	OFF	14	40	54	05	10	15	19	50	69
13.11.13	PF	*Helicovarpa* Management in Cheakpea	Plant Protection	IPM	1	OFF	22	5	27	9	1	10	31	6	37
20.11.13	RY	Para veterinary aids for general diseases in livestock	Veterinary Science	Disease management	1	OFF	15	2	17	3	1	4	18	3	21
26.11.13 27.11.13	PF	Scientific cultivation of vegetable for higher production	Horticulture	Vegetable production	2	ON	14	-	14	5	-	5	19	-	19
26.11.13 27.11.13	PF	Feed & disease management in dairy production	Veterinary Science	Dairy farming	2	OFF	11	2	13	3	1	4	14	3	17
12.12.13	PF	Entrepreneurship development of farmer and youth	Extension	Entrepreneurship development	1	OFF	20	00	20	34	03	37	54	03	57
12.12.13	RY	Preparation Technique of Orange Squash &	Home Science	Value addition	1	OFF	04	13	17	04	12	16	08	27	35

		Lemon pickle													
12.12.13	EF	Application of information communication technology in animal husbandry	Veterinary Science	Capacity building for ICT application	1	ON	21	-	21	9	-	9	30	-	30
14.12.13	PF/RY	Improved cotton production technology	Crop Production	ICM	1	OFF	115	12	127	19	4	23	134	16	150
17.12.13	RY	Preparation Technique of Soya laddu for anemic person	Home Science	Value addition	1	ON	03	14	17	03	07	10	06	21	27
21.12.13	PF/RY	High Density Planting System in Cotton (Sheti Din)	Crop Production	ICM	1	OFF	39	3	42	6	2	8	45	5	50
27.12.13	PF	Low cost feed production for livestock	Veterinary Science	Feed management	1	ON	27	-	27	12	-	12	39	-	39
10.1.14	PF/RY	High Density Planting System in Cotton	Crop Production	ICM	1	OFF	43	2	45	7	3	10	50	5	55
12.1.14	PF	Leadership Development	Extension	Leadership Development	1	OFF	25	0	25	35	0	35	60	0	60
27.1.14	PF	Pest management in Brinjal & Chilli	Plant Protection	IPM	1	OFF	20	3	23	5	0	5	25	3	28
19.2.14	PF	Cultivation techniques of Onion and Garlic for quality and higher production	Horticulture	Vegetable production	1	ON	18	-	18	5	-	5	23	-	23
19.2.14	RY	Vermiculture production technology	Extension	Vermiculture	1	ON	15	0	15	0	0	0	15	0	15
20.2.14	PF	Paneer making	Veterinary Science	Production of quality animal product	1	ON	12	-	12	4	-	4	16	-	16
22.2.14	RY	Use of mineral mixture & common salt in the diet of cattle	Veterinary Science	Nutrient management	1	OFF	14	1	15	5	1	6	19	2	21
05.3.14	EF	Post harvest management of Citrus fruits	Horticulture	Fruit production	1	OFF	33	-	33	-	-	-	33	-	33
09.3.14	PF	Formation and management of SHG's	Extension	Management of SHG's	1	ON	32	0	32	06	0	06	38	0	38

11.3.14	RY	Production technology for Bt Cotton	Crop Production	ICM	1	OFF	23	6	29	4	2	6	27	8	35
21.3.14	PF	Seed inoculation technique in Soybean	Crop Production	ICM	2	OFF	46	8	54	9	3	12	55	11	66
25.3.14	RY	Preparation technique of Synthetic Syrup	Home Science	Value addition	1	OFF	00	11	11	00	08	08	00	19	19
26.3.14	PF	Preparation technique of Aonla Candy & Murabba	Home Science	Value addition	1	OFF	00	22	22	00	14	14	00	36	36
27.3.14	PF	Preparation technique of Tamrind Sauce	Home Science	Value addition	1	ON	00	09	09	00	12	12	00	21	21
31.3.14	PF	Sucking pests management in Bt cotton	Plant Protection	IPM	1	ON	18	0	18	04	0	04	22	0	22
22.5.13 13.8.13 11.9.13 27.11.13 02.12.13 15.1.14	PF & RY	Importance of Soil testing and INM in Cotton, Soil sampling technique, Benefits of soil testing and Soil test based fertilizer recommendations to crops.	Soil Science	Soil Testing	6	ON	92	12	104	39	9	48	131	21	152

ON and OFF Campus Trainings conducted by KVK

(D) Vocational training programmes for Rural Youth

Crop / Enterprise	Date	Training title	Thematic Area	Duration (days)	No. of Participants			Self employed after training			Number of persons employed else where
					Male	Female	Total	Type of units	Number of units	Number of persons employed	
Horticulture	09.10.13	Estiblisment of nursery for self employment	Nursery management	1	12	-	12	-	-	-	-
Veterinary Science	22/06/13	Management of Swarnadhara layer chicken in BYP	Breed Assessment	2	12	4	16	Back yard poultry unit	10	10	-
Veterinary Science	26/11/2013	Dairy farming	Dairy management	2	22	4	26	Dairy units	4	2	-
Home Science	21.05.13	Biomass charcoal Briquetting	Re-cycling of Agro –waste	2	10	45	55	Bio-Briquettes	1	3	-
Home Science	5.01.14	Soybean Processing Technology	Income Generation	5	0	09	09	Soy processing unit	1	9	-
Plant Protection	24.01.14	Pest management in vegetable crops in shednet	IPM	1	10	0	10	Shednet veg. cultivation	-	-	-

(E) Sponsored Training Programmes

Sl. No	Date	Title	Discipline	Thematic area	Duration (days)	Client (PF/RY/EF)	No. of courses	No. of Participants									Sponsoring Agency	Amount of fund received (Rs.)
								Others			SC/ST			Total				
								Male	Female	Total	Male	Female	Total	Male	Female	Total		
1	6.05.13	Bt cotton production and Importance of soil testing	Soil Science	Crop Production	1	RY	1	270	40	310	65	25	90	335	65	400	KVK, Kharpudi, Jalna.	--
2	04.02.14	Soil sampling technique and INM in cotton	Soil Science	Crop Production	1	RY	1	92	12	104	39	9	48	131	21	152	NGO World Vision, Umrer	--
3	20.03.14	Prepration of fruit sapling for self employment	Horticulture	Nursery Management	2	RY	2	23	-	23	06	-	06	29	-	29	NGO World Vision, Umrer	-
4	25.03.14 27.03.14	Vegetable & fruit processing	H.Sci.	Value addition	3	RY	1	-	19	19	-	17	17	-	36	36	ATMA, Nagpur	-

3.4. Extension Activities (including activities of FLD programmes)

Sl. No.	Nature of Extension Activity	Purpose/ topic and Date	No. of activities	Participants											
				Farmers (Others) (I)			SC/ST (Farmers) (II)			Extension Officials (III)			Grand Total (I+II+III)		
				Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
1	Field Day	Pulses	2	107	18	125	38	5	43	4	0	4	111	18	129
2	Kisan Mela	Pigeonpea, chickpea, cotton	1	515	212	727	117	70	187	15	4	19	647	286	933
3	Kisan Ghosthi	Santra Orchard, Packing &marketing of flowers, Seed production of Onion , Garlic Soybean processing, drudgery reduction tools	8	427	62	489	72	26	98	0	0	0	499	88	587
4	Exhibition		6	400000	100000	600000	150000	50000	200000	2000	800	2800	552000	150800	702800
5	Film Show	Marigold cultivation, Sugarcan cultivation IPM, INM Vermicompost production, dry land horticulture, etc	12	340	155	495	0	0	0	0	0		340	155	495
6	Group meetings	Marketing of flowers HDPS in Cotton ,pigeon pea chili farmers Chelated mineral, mastitis detection, infertility in cows	8	285	42	327	22	17	39	0	0	0	307	59	366
7	Lectures delivered as resource persons	Drudgery reduction tools, Bio briquettes technology, Cotton. ,soybean, Goat, dairy, azolla production, etc	21	372	135	507	0	0	0	0	0	0	372	135	507
8	Newspaper coverage	Exhibitions, Kisan Mela, Field day, Popular articles, Advisory, etc	23	-	-	-	-	-	-	-	-	-	-	-	-
9	Radio talks	Important crops, food and animal health related topics	8	0	0		0	0	0	0	0	0	0	0	0
10	TV talks	Drudgery reduction of farm women through cotton picking bag	5	0	0		0	0	0	0	0	0	0	0	0
11	Popular articles	Agriculture & allied sciences	7	0	0		0	0	0	0	0	0	0	0	7

12	Extension Literature	Bio Briquettes making technology, Milibug	3	0	0	0	0	0	0	0	0	0	0	0	3
13	Advisory Services	Agriculture & allied fields	0	1500	750	2250	600	200	800	0	0	0	2100	950	3050
14	Scientific visit to farmers field		33	525	130	655	190	42	232	-	-	-	715	172	887
15	Farmers visit to KVK	Visit to technology park & goat unit	36	700	220	920	340	110	450	0	0	0	1040	330	1370
16	Diagnostic visits	Root rot in chilli, Nagpur mandarin, Agriculture & allied fields	65	650	220	870	165	105	270	0	0		815	325	1140
17	Exposure visits	green house, Soybean processing,drudgery reduction tools	3	60	18	78	0	0	0	0	0	0	60	18	78
18	Ex-trainees Sammelan	Goat farming, Citrus	2	31	5	36	8	3	11	0	0	0	39	8	47
19	Soil health Camp	Awareness camp	8	148	18	166	54	7	61	0	0	0	202	25	227
20	Animal Health Camp	Vaccination & Deworming	2	88	12	100	42	8	50	0	0	0	130	20	150
21	Agri mobile clinic	-	0	0	0	0	0	0		0	0	0	0	0	0
22	Soil test campaigns	-	4	80	5	85	22	3	25	0	0	0	102	8	110
23	Farm Science Club Conveners meet	IPM in cotton Bt. production technology	1	67	20	87	15	12	27	0	0	0	82	32	114
24	Self Help Group Conveners meetings	Fruit & Vegetable processing	2	0	36	36	0	0	0	0	0	0	0	36	36
25	Mahila Mandals Conveners meetings	Mahila Mandals Conveners meetings	1	4	210	214	4	157	161	4	190	194	12	557	569
26	Celebration of important days (specify)	Women in Agriculture Day	1	3	36	36	1	32	33	0	0	0	4	69	69
	Grand total		262	405902	102304	608203	151690	50797	202487	2023	994	3017	559577	154091	713674

Kisan Melas organized by KVK


Kisan Mela organized at Boruzwada, Tahsil- Soaner, Dist. Nagpur

Shivar Feri


Diagnostic Survey


Farmers visit to KVK Technology Park






Exhibition

Deputy Chief Minister of Maharashtra Sh. Ajit Pawar & EGS Minister Sh. Nitin Raut visited CICR Stall during MGNREGA WORKSHOP cum Agriculture exhibition at Krida Sankul, Nagpur

SMS & PC, KVK addressing the participant during crop awareness programme at Pardi Deshmukh

Participation in Agro-Vision 2013 at Nagpur

Visit of Director CICR, Nagpur to KVK Stall in a State Level Exhibition held at Dikshabhoomi, Nagpur

KVK's Stall in an Agriculture Exhibition held on occasion of 'Kapus Parishad' at Jalgaon

Fruit crops and KVK Farm

Guava (L-49)

Pomogranate (Bhagva)

Mango (Pushari)

Orange (Nagpur Mandarin)

Sapota (Kalipatti)

Custer Apple (Balanagar)

Kisan Mobile Advisory Services

Major Group	Category	Crop/ enterprise	Thematic Area	Date	Name of the message	No. of Messages	No. of Farmers								
							Others			SC/ST			Total		
							Male	Female	Total	Male	Female	Total	Male	Female	Total
Horticulture	Commercial Crop	Orange, chilli, garlic	Integrated management of crops	01.4.13 to 31.3.14	Drainage channel in orange gardens, deepening of vegetable seedlings in 1% bavistin solution	2	25	07	32	0	0	0	25	07	32
Livestock	Goats Cows Buffaloes	Dairy Goat	Livestock production & protection	April 13 – March 14	Vaccination, feed management, disease management, A.I.. etc	16	304	39	343	221	12	233	525	51	576
Plant Protection	Crop Protection	Cotton wheat, chickpea , redgram	IPM	01.4.13 to 31.3.14	IPM, IDM, PAT, sucking pests management in Bt-cotton, vegetables, citrus, etc, gummosis management, seed treatment, biocontrol of semiloopers in soybean	28	128	107	235	99	97	196	227	204	431
Soil Science	Soil testing/Crop production	Cotton/Soybean/ Gram	Soil testing	10/04/13 ,15/05/13, 14/09/13 and March-2014	Different crops and about Integrated Nutrient Management	12	150	91	241	63	51	114	213	142	355
Home Science	Hygiene	Rural women	Women &child care	13.07.13 -12.2.14	Remedies for housefly nuisance	04	128	107	235	99	97	196	227	204	431

Details on Technology Week Celebrations

Types of Activities	Title/topic/technology	Date	No. of Activities/quantity	No. of participants/beneficiaries		
				Male	Female	Total
Gosthies	-	-	-	-	-	-
Lectures organized						
Exhibition						
Film show						
Fair						
Farm Visit						
Diagnostic Practical's						
Distribution of Literature (No.)						
Distribution of Seed (q)						
Distribution of Planting materials (No.)						
Bio Product distribution (Kg)						
Bio Fertilizers (q)						
Distribution of fingerlings (No)						
Distribution of Livestock specimen (No.)						

3.5 Production and supply of Technological products

SEED MATERIALS

Major group/class	Crop	Variety	Quantity (qtl.)	Value (Rs.)	Provided to No. of Farmers
CEREALS	**Wheat**	**AKAW-4627**	**5.4**	**17,820**	**12**
OILSEEDS	**Lineseed**	**NL-260**	**0.65**	**6,500**	**12**
PULSES	Pigeon pea	BSMR-736	0.80	6,400	30
VEGETABLES	**-**	**-**	**-**	**-**	**-**
OTHERS (Specify)	**-**	**-**	**-**	**-**	**-**

SUMMARY

Sl. No.	Major group/class	Quantity (qtl.)	Value (Rs.)	Provided to No. of Farmers
1	CEREALS	**Wheat**	**17,820**	**12**
2	OILSEEDS	**Lineseed**	**6,500**	**12**
3	PULSES	Pigeonpea	6,400	**30**
4	VEGETABLES (Onion bulbs)	-	-	-
5	FLOWER CROPS	-	-	-
6	OTHERS	-	-	-
TOTAL			**30,720**	**54**

PLANTING MATERIALS

Major group/class	Crop	Variety	Quantity (Nos.)	Value (Rs.)	Provided to No. of Farmers
SPICES	-	-	-	-	-
VEGETABLES (Seedlings)	Okra	Akola bahar	15 kg	2000	13
FOREST SPECIES	-	-	-	-	-
ORNAMENTAL CROPS	Tuberose	-	30 kg	-	3
PLANTATION CROPS	-	-	-	-	-
Others (specify)	Marigold	African	300 gm	-	9

SUMMARY

Sl. No.	Major group/class	Quantity (Nos.)	Value (Rs.)	Provided to No. of Farmers
1	SPICES	-	-	-
2	VEGETABLES (Seedlings)	15 kg	2000	13
3		-	-	-
4	FOREST SPECIES	-	-	-
5	ORNAMENTAL CROPS	30 kg	-	3
6	PLANTATION CROPS	-	-	-
7	Others (specify)	300 gm	-	9

VARIETAL FIELD DEMONSTRATIONS OF WHEAT AND CHICKPEA

PLANTING MATERIALS

BIO PRODUCTS

Major group/class	Product Name	Species	Quantity		Value (Rs.)	Provided to No. of Farmers
			No	(kg)		
BIOAGENTS	-	-	-	-	-	-
BIOFERTILIZERS	-	-	-	-	-	-
BIO PESTICIDES	-	-	-	-	-	-

SUMMARY

Sl. No.	Product Name	Species	Quantity		Value (Rs.)	Provided to No. of Farmers
			Nos	(kg)		
1	BIOAGENTS	-	-	-	-	-
2	BIO FERTILIZERS	-	-	-	-	-
3	BIO PESTICIDE	-	-	-	-	-
	TOTAL	-	-	-	-	-

LIVESTOCK

Sl. No.	Type	Breed	Quantity		Value (Rs.)	Provided to No. of Farmers
			(Nos	Kgs		
Cattle	-	-	-	-	-	-
SHEEP AND GOAT	-	-	-	-	-	-
POULTRY	-	-	-	-	-	-
Others (Specify)						

SUMMARY

Sl. No.	Type	Breed	Quantity		Value (Rs.)	Provided to No. of Farmers
			Nos	Kgs		
1	CATTLE					
2	SHEEP & GOAT	-	-	-	-	-
3	POULTRY					
4	FISHERIES					
5	OTHERS					
	TOTAL					

3.6. Literature Developed/Published (with full title, author & reference)

(A) KVK News Letter ((Date of start, Periodicity, number of copies distributed etc.)
KVK matter is publishing along with CICR news letter .

(B) Literature developed/published

Item	Title	Authors name	Number of copies
Research Papers	**1.** Innovative Cotton Harvesting Bags (2013) International Journal of Agriculture Innovations and Research Vol.2, issue 1, ISSN (online) 2319-1473 : 108-111.	Chauhan, Sunita, Raju, A.R.	–
	2. Participatory Evaluation of Ergonomically designed cotton picking bags (2014) Journal of Cotton Research Development. 28(1) : 140-144	Chauhan, Sunita, Raju, A.R.	–
Total	2		
Popular Articles	Gramin Mahilanchya Sablikarnachye Upaya, Godva Sheticha, July 2013, pp 17-19	Rokde S.N. & Chauhan S.N.	
	Bakriyon ke khan pan ki vyavastha	Sunil Rokde and Galkate Ulhas	-
	Kurbani bakra aise taiyar kare'	Sunil Rokde, Galkate Ulhas and Deulkar Pundlik	-
	Khetihar bailo ki dekhbhal	Sunil Rokde and Galkate Ulhas	-
Total	4		
Booklet			
Total	-		
Grand TOTAL	**6**		-

(C) Details of Electronic Media Produced

S. No.	Type of media (CD / VCD / DVD / Audio-Cassette)	Title of the programme	Number
	Nil		

3.7. Success stories/Case studies, if any (two or three pages write-up on each case with suitable action photographs)

Brief success story of an Innovative Cotton Farmer (2013-14)

Name of the farmer::Tejaswi Shivram Zade; **Village** : Boruzwada; **Taluka:** Saoner, **Distt**. Nagpur

Total land holding = 1.62 ha.; **Soil type :** light calcareous

Bt. Hybrids grown: Mallika-207Bt.

Yield of seed cotton Kharif (2013-14) = 92 q/ha.

Gross Income = Rs. 3,68,000/- per ha.

Expenditure = Rs. 1,08,000/- per ha

Net Income = Rs. 2,60,000/- per ha.

The following management practices followed by this farmer: Cotton cultivation made on raised bed of 15" height and 24" width with drip irrigation. **Spacing:** 150 x 30 cm; **No. of plants :** 22,222 / ha.

Seed Treatment : Wonder ST (germinator) @ 5 ml/2.5 kg seed and liquid PSB + Azotobactor + KMB (Potasium based) @ 100 ml each /5 kg seed.

Weed Management **: a)** Soil application of Pendimethalin before sowing + hand weeding - twice.

Nutrient Management :

a. **Soil application of fertilizers/ha** – City- compost before bed formation - 463 kg; 10:26:26 – 154.32 kg (**equivalent to N:P:K 15.43 : 40.12 : 40.12 Kg/ha**); ZnSO4 – 9.26 kg; Humic Acid Gr. – 9.26 kg + MgSO4--15.43 kg; Vizard (sulphur bio) -463g; Mycorrhyza (VAM)– 3.09 kg/ha each.

b. Fertigation : Since 1st week of Oct. to Nov. 2012- Urea 20.73 kg; 19:19:19 – 15.43 kg; 12:61:0 - 21.6 kg; 13:0:45 – 24.69 kg; White Potash – 30.86 kg, Sulphate of Potash – 12.35 kg, liquid Sulphur (20%) – 12.35 lit., 0:52:34-24.6kg, urea-14.2 kg (**equivalent to N:P:K 36.21 : 29.41 :44.52 Kg/ha**); ; humic acid – 9.88 lit**./ha each**

Use of growth Regulators & nutrients: Waranty–Tech(80% humic acid) 5 g + 19:19:19 foliar spray at 20 DAS; at 50 DAS., Biozyme – 100 ml; , at 100 DAS-Nitrobenzene @ 40 ml/15 Lit. + Livosin @ 3ml/15 lit + foliar application of micronutrients @ 50 ml/15 lit.; at 125 DAS foliar spray of KNO3 (13:0:45) + Ca(NO3)2 (20:12) @ 100gm/15 lit; foliar spray of GA-3.

Plant Protection : Foliar application of Thiomathoxam @ 10g /15 lit at 50 DAS; at 80- DAS Healine(Parachlotrobin (20%) @ 30 g /15 lit. + Acetamiprid @ 5g/15 lit; ; Propaconzol @ 1 ml/lit + Wonder (nitrobenzene)@ 10g/15 lit; Diafenthuron (Polo) @ 20g/15 lit + microla.

3.8 Give details of innovative methodology/technology developed and used for Transfer of Technology during the year

- Adoption of high yielding variety of wheat i.e. AKW-3722 & NIW-917
- Use of marigold as trap crop in cotton for Heliothis management.
- Use of pheromone trap in cotton, pegionpea and chickpea.
- Use of bio-fertilizers for cotton, soybean and chickpea.
- Demonstration of Bt. cotton varieties BNBt. & hybrid NHH-44 Bt.
- Adoption of AKT 8811 pigeonpea high yielding variety.
- Adoption of new variety of chickpea Saki-9516.
- Adoption of new variety of chilli Jayanti.
- Adoption of new variety of Onion – Akola safed
- Adoption of new variety of Bhindi – Akola bahar
- Use of HNPV in chickpea.
- Adoption of JS-335 soybean high yielding variety.
- Processing technique of soybean for preparation of soynut and soymilk
- Use of *Trichoderma viridae* in composting.
- Use of Osmanabadi bucks to improve genetic potential of local goats.
- Use of chelated mineral mixture and salt in the diet of cattle to enhance milk production and to avoid infertility.
- Washing of lesions by using 2% copper sulphate or alum solution and local application of turmeric, butter/coconut oil on scabby lesions around muzzle and lips in case of contagious echthyma.
- Budding of local ber by Umran & Gola variety
- Bio -briquettes production from cotton stalk

3.9 Give details of indigenous technology practiced by the farmers in the KVK operational area which can be considered for technology development (in detail with suitable photographs)

S. No.	Crop / Enterprise	ITK Practiced	Purpose of ITK
1	Cotton & Pigeonpea	Spray of extract of garlic, chilly, tobacco and kerosene	To control bollworm
2	Cotton, Pigeonpea, chickpea, etc.	Spray of Amrutpani	For sucking pest & nutrient enrichment
3	Cotton	Spray of extract of Ipoemia (Besharum), Lantena camera leaves & tobacco	To control bollworm
4	Chickpea	Sowing by deshi plough rather than seeddrill.	For placing seeds in deeper soil zone
5	Cotton, soybean, chickpea	Crop rotation for two years (Cotton-soybean-chickpea)	For restoring soil fertility

3.10 Indicate the specific training need analysis tools/methodology followed for

- damaged/infested material, coloured photographs, charts, etc. were shown to the farmers. Folders were supplied to the beneficiaries. Working out of ETL in various crops was taught to the trainees.
- **Identification** – Based on surveys, needs were identified on priority basis and accordingly courses for practicing farmers/farmwomen were designed and then live demonstrations were conducted
- **Rural youth** –On the basis of need based surveys priority areas were identified and accordingly skill oriented training programmes followed by demonstrations were conducted.
- **In service personnel** - Group discussion and individual contact with in-service personnel in various training areas were identified and conducted.

3.11 Field activities

i. Number of villages adopted : 05
ii. No. of farm families selected :240
iii. No. of survey/PRA conducted :04

3.12. Activities of Soil and Water Testing Laboratory

Status of establishment of Lab : Soil and Water Testing Lab – KVK, CICR, Nagpur

1. Year of establishment : 2008 Onwards
2. List of equipments purchased with amount :

Sl. No	Name of the Equipment	Qty.	Cost (Rs.)
Nil	Nil	Nil	Nil
Nil	**Nil**	**Nil**	**Nil**
Nil	**Nil**	**Nil**	**Nil**
Nil	**Nil**	**Nil**	**Nil**
Total			

3. Details of samples analyzed so far :

Details	**No. of Samples**	**No. of Farmers**	**No. of Villages**	**Amount realized**
Soil Samples	401	390	48	Soil samples were collected from fields of adapted farmers from different talukas of Nagpur district viz, Katol, Umred, Ramtek, Bhivapur etc and from fields of FLD/OFT beneficiaries.
Water Samples	--	--	--	
Plant Samples	-	-	-	
Petiole Samples	--	--		
Total	**401**	**390**	**48**	

Four hundred and one soil samples were collected from adopted villages of Nagpur district and analyzed for different soil testing parameters and 390 soil health cards were distributed among the beneficiaries suggesting soil test based fertilizer recommendation for their kharif and rabi crops. Eight off-campus and Six on-campus training programmes were conducted for 379 farmers/rural youths of the district, depicting importance of soil testing.

Functioning of Mobile Soil Testing Van in Nagpur District :

A well equipped mobile soil testing van delivered to KVK, CICR, Nagpur under "Human Development Programme" has start functioning, specially in Ramtek and Katol blocks of the Nagpur district for soil sampling, soil testing and analysis. Subsequently, the other blocks of the Nagpur district will also be cover under this programme for soil testing and analytical work and will provide the soil test based fertilizer recommendation to the farmers in the form of soil health cards. The mobile soil testing van was moved in different talukas of Nagpur district and collected 401 soil samples, analyzed the same and distributed 390 soil health cards depicting soil test based fertilizer recommendation to the beneficiaries

Visit of beneficiaries/cotton grower to KVK soil testing lab :

More than 250 farmers/rural youths/students visited to soil testing laboratory and got benefited about soil sampling technique, soil health, integrated nutrient management, fertilizer application and crop production technologies of the kharif and rabi crops.








SOIL TESTING ACTIVITIES

3.13. Activities under rainwater harvesting

Date	Nature of Activity	Title	Client (PF/ RY/ EF)	No. of Courses	No. of Participants including SC/ST			No. of SC/ST Participants			Total Participants		
					Male	Female	Total	Male	Female	Total	Male	Female	Total
18.04.2013	Training	Rain water harvesting methods for increased crop yield	PF	1	20	0	20	5	0	5	25	0	25
02.02.2014	Demonstration	Farm Ponds and utility	PF	1	10	0	10	0	0	0	10	0	10

4.0 IMPACT

4.1. Impact of KVK activities (Not to be restricted for reporting period).

Name of specific technology/skill transferred	No. of participants	% of adoption	Change in income (Rs.)	
			Before (Rs./Unit)	After (Rs./Unit)
IPM in Cotton	125	65	18000	21000
HDPS in Cotton	100	80	18000/Acre	24000
Use of Gujarat Sickle for harvesting soybean, wheat, chickpea and rice	108	82%	Required more draft, constant sharpening of sickle	Reduction of farm women drudgery, saving in time, utilizing their energy in other activity (Bishop & Carlott scale
Picking Techniques of Cotton through KVK, CICR DESIGNED – IMPROVED COTTON PICKING BAG	65	80%	Bending, stooping while picking cotton, back pain,	Reduction of farm women drudgery, saving in time, utilizing their energy in other activity (Bishop & Carlott scale)
Azola as a cattle feed	18	50 %	22000/Cow/Lactation	25000/Cow/Lactation
Use of Bypass fat in the diet of Milch Cow	22	60 %	31000/Cow/Lactation	34000/Cow/Lactation

NB: Should be based on actual study, questionnaire/group discussion etc. with ex-participants.

4.2. Cases of large scale adoption
(Please furnish detailed information for each case)

High Density Planting System in Nagpur district

Even in light to medium textured soil , famers have been growing Bt cotton since inception of Bt cotton in 2002 and producing very low seed cotton yield as the Bt crops needs substantial amount of plant nutrient and soil moisture after recedes of monsoon rain. Being a long duration in nature, Bt cotton continues up January February under rain fed condition and up to April under irrigated condition. Majority of the farmers grow this crop under rain fed condition and after monsoon, this crop undergoes in to moisture and nutrient stress. With the results, Bt cotton growers harvest very low yield and enters in to financial stress. To avoid such yield loss / financial loss from Bt cotton cultivation, straight varieties have been introduced in such soils as the straight

variety requires low input matures early also . To assess the performance of straight varieties developed in research institutions, agric. universities, high density planting system was adopted in three block of Nagpur district viz Hingna, Kalmeswar and Saoner. The varieties undertaken for testing were Suraj, NH615, AKA07, PKV 081. In Hingna block 50 , in Kalmeswar block 60 and in Saoner block 59 demonstrations were taken in farmers field by involving 169 farmers. However due to heavy rains particularly in the month of July and August 2013, total 63 demonstrations (25 in Saoner and 38 in Hingna) were damaged . In some of the areas, the farmer could not complete inter-culture operation due to saturated soil and lot of weeds was emerged in the field. With the result the yield were drastically reduced. In Kalmeswar block, out of 40 farmers, 10 farmers harvested seed cotton yield in the range of 2.25 to 7.15 quintal /acre . The farmers, who harvested 7.15 quintal seed cotton yield, earned Rs 37895.00 from the variety Suraj. Rest of the 30 farmers produced satisfactory seed cotton yield from their farm. In Hingna block, twelve farmers produced seed cotton yield in the range of 0.40 to 3.00 quintal / acre. Low seed cotton yield was obtained in G. arboretum variety AK07 and comparatively higher yield was obtained in G. hirsutum variety Suraj, and NH615 followed by PKV081. In Saoner block variety NH615 performed better than Suraj and seed cotton yield of this variety was as high 5.00 quintal /acre. In this area, the farmers applied surface irrigation water to this crop and continued up to February, 2014.

Krishi-Vasant Expo 2014

A National Agri-expo "KRISHI VASANT – 2014" was organized at CICR Nagpur during 9 – 13 February 2014. This event was organized by Confederation of Indian Industries in collaboration with Ministry of Agriculture, Govt. of India and Maharashtra State Agriculture and Animal Husbandry Department. KVK, CICR, Nagpur played a vital role in this event. Responsibility of depicting demonstrations of 54 crops and its 312 varieties including vegetables, oilseeds, pulses, fiber crop, cereals, fodder crops and fruit crops was given to KVK by Director, CICR, Nagpur. Responsibility of management of animals during exhibition period was also given to KVK. The crops were grown in three different locations. KVK staff was involved in management of these crop demonstrations. More than 7 lakhs farmers visited these demonstrations.


Crop
Demonstration s
at Krishi Vasant
Expo
तेलबिया पिके
Oilseed Crops

4.3 Details of impact analysis of KVK activities carried out during the reporting period

Impact were analysed on the basis of structured questionnaire, field processing unit visit.

5.0 LINKAGES

5.1 Functional linkage with different organizations

S.No	Name of the Orgainsation	Nature of linkage
1	Veterinary College, Nagpur	For imparting training and technical know how
2	College of Agriculture Nagpur	For imparting training & technical know how
3	Doordarshan	Publicity/TV talk
4	All India Radio	Publicity/Radio Talk
5	Panchayat Samiti & Zilla Parishad, Nagpur	Information and imparting training to extension functionaries
6	NRCC Nagpur	Information, imparting training & technical know how
7	NBSS & LUP, Nagpur	For imparting training & technical know how
8	State agriculture department	For imparting training & know how, participation in world food day, meetings
9	Press Information Bureau	Publicity
10	Indian Institute of Youth Welfare,Nagpur	Imparting training & other know-how
11	Community food & nutrition office	Involvement in training
12	Vanrai	For development of social forestry
13	Magnum Foundation	Participation in Scientific Advisory Committee
14	Rural Institute for Science	Know How
15	District Sericulture Office	For technical know-how & SAC
16	Regional Biofertilizer Station	Information and supply of biofertilizers
17	Rashtriya Chemical & Fertilizers ltd.	Farmers mobilization for KVK activity
18	District Forest Officer	Member of Scietific Advisory Committee
19	District Fisheries Office	- do -
20	State agriculture polyclinic, Gondkhairi	Know How
21	Centre of science for villages,Wardha	Supply of material and Know-how on honey bees
22	Office of DAHO, Z.P.,Nagpur	HRD of Extension functionaries
23	Cattle breeding farm, Nagpur	For collecting Technical Information
24	Maharashtra Technical Education Training Centre, Nagpur	For imparting training to rural youths on goat production technology
25	State Govt. nursery,Kaim Bagh Nagpur	Supply of seedlings
26	CIRCOT (ICAR),Nagpur	Know How and Other Systems
27	LAD & SRP college for Women , Seminary Hills , Nagpur	Vocational training for P.G Home – Science Extension students on Women in Diversified Agriculture
28	Central Integrated Pest Management Centre, Nagpur	Training in IPM in cotton for extension functionaries of different states.

NB The nature of linkage should be indicated in terms of joint diagnostic survey, joint implementation, participation in meeting, contribution received for infrastructural development, conducting training programmes and demonstration or any other

5.2 List special programmes undertaken by the KVK, which have been financed by State Govt./Other Agencies

Name of the scheme	Date/ Month of initiation	Funding agency	Amount (Rs.)
Construction of Silage making unit of rectangular shape (10 X 10 X12 ft)	January, 2014	State Animal Husbandry Dept.	1,05,000
Community Pond of 500 m^3 capacity of size 14 x 14 x 3.4 m	January, 2014	State Agriculture Dept.	65,500

5.3 Details of linkage with ATMA

a) Is ATMA implemented in your district Yes

S. No.	Programme	Nature of linkage	Remarks
1	Bench mark survey	As a member AES team	Survey conducted
2	Trainings on Agriculture and Livestock Production	Facilitators	Training imparted to farmers
3	Monthly workshop with district collector	Participation in meeting	District cropping plan
4	Monthly meeting with TAO's	Participation in meeting	Tahsil wise Cropping plan/contingency cropping plan

5.4 Give details of programmes implemented under National Horticultural Mission

S. No.	Programme	Nature of linkage	Constraints if any
	NIL		

5.5 Nature of linkage with National Fisheries Development Board

S. No.	Programme	Nature of linkage	Remarks
	NIL		

6. PERFORMANCE OF INFRASTRUCTURE IN KVK

6.1 Performance of demonstration units (other than instructional farm)

Sl. No.	Demo Unit	Year of estt.	Area	Details of production			Amount (Rs.)		Remarks
				Variety	Produce	Qty.	Cost of inputs	Gross income	
1	Goat	1998	16 x 6 m	Osmanabadi	Bucks & females	13 Nos.	7200	50,000/-	13 goats are ready for sale
2	Nutrition Garden	1998	44x18mtr	Seasonal hybrid	Vegetables	258 Kg	690/-	2559/-	Provided in FLD input & sold among CICR staff
3	NADEP compost	2011	5x3 ft		Compost	3 tonn	110/-	3000/-	Utilized in Nutrition and Horticulture garden

6.2 Performance of instructional farm (Crops) including seed production

Name Of the crop	Date of sowing	Date of harvest	Area (ha)	Details of production			Amount (Rs.)		Remarks
				Variety	Type of Produce	Qty.	Cost of inputs	Gross income	
Cereals									
Wheat	Nov.13	Feb.14	0.1	HI-1544	Cereal	50 kg	500/-	500/-	
Wheat	Nov.13	Feb.14	0.1	NIAW-917(Tapovan)	Cereal	60 kg	500/-	700/-	
Wheat	Nov, 13	Feb, 14	0.1	AKAW-4627	Cereal	60 kg	500/-	700/-	
Pulses									
Pigeonpea	June.13	Jan.14	0.48	BSMR-736	Pulse	2 q	1000/-	8000/-	
Pigeonpea	June,13	Jan, 14	0.1	PKV Tara, Vipula, BSMR-736, ICPL-187, ICPL-85063	Seed	70 kg	700/-	2450/-	
Gram	Oct.13	Feb.14	0.1	Vijay,	Seed	30 kg	400/-	650/-	
Gram	Oct.13	Feb.14	3.0	Virat	Seed	6 q	14000/-	7000/-	
Oilseeds									
Linseed	Oct.13	Jan.14	0.1	PKV-NL-260	Seed	10 kg	300/-	200/-	
Fibers									
Spices & Plantation crops									
Floriculture									
Merigold	July 13	Nov.14	0.1	African	flower	9 kg	200/-	150/-	
Fruits									
Gauva	-	-	200 plant	L-49	Fruits	Auctioned	-	23000/-	
Mango	-	-	5 plant	Keshar	Fruits	57 kg	-	850/-	
Custard Apple	-	-	5 plants	Balanagar	Fruits	27 kg	-	1325/-	
Sapota	-	-	5 plants	Kalipatti	Fruits	84 kg	-	1670/-	
Sweet Orange	-	-	5 plants	Newseller	Fruits	30 kg	-	1200/-	
Vegetables									
Vegetable Cafeteria	July.13	Upto Mar.14	0.2	-	Vegetables	-	2000/-	14727/-	
Crop demonstration in vegetable (Krishi Vasant-2014)	Oct.13	Upto Aprl.14	1.0	-	Vegetables	-	-	22541/-	

Others (specify)									
Fodder jowar	July13	Oct.13	0.4	Heera	Fodder	8 ton	500/-	7,500/-	
Fodder maize	July13	Oct.13	0.4	African Tall	Fodder	6 ton	500/-	5,500/-	
Berseem	Nov.13	Jan.14 to April14	0.2	Mescavi	Greens	9 ton	1000/-	9000/-	

6.3 Performance of production Units (bio-agents / bio pesticides/ bio fertilizers etc.,)

Sl. No.	Name of the Product	Qty	Amount (Rs.)		Remarks
			Cost of inputs	Gross income	
	NIL				

6.4 Performance of instructional farm (livestock and fisheries production)

Sl. No	Name of the animal / bird / aquatics	Details of production			Amount (Rs.)		Remarks
		Breed	Type of Produce	Qty.	Cost of inputs	Gross income	
1	Goat	Osmanabadi	Bucks	13	7200	50000	13 goats ready for sale

6.5 Rainwater Harvesting: NA

Training programmes conducted by using Rainwater Harvesting Demonstration Unit

Date	Title of the training course	Client (PF/RY/EF)	No. of Courses	No. of Participants including SC/ST			No. of SC/ST Participants		
				Male	Female	Total	Male	Female	Total
-	-	-	-	-	-	-	-	-	-

6.6 Utilization of hostel facilities: Not Applicable

Accommodation available (No. of beds):60

Months	**Title of the training course/Purpose of stay**	**No. of trainees stayed**	**Trainee days (days stayed)**	**Reason for short fall (if any)**
April 2013				
Total				
May 2013				
Total				
June 2013				
Total				
July 2013				
Total				
August 2013				
Total				
September 2013				
Total				
October 2013				
Total				
Grand total				

4 X 25= 125 (Duration of the training course X No. of trainees)

6.7 Utilization of hostel facilities : Under construction

FINANCIAL PERFORMANCE

7.1 Details of KVK Bank accounts

Bank account	Name of the bank	Location	Account Number
With Host Institute	State Bank of India	Ramdaspeth, Nagpur	01000005041
With KVK	-do-	-do-	-do-

7.2 Utilization of funds under FLD on Oilseed *(Rs. In Lakhs)*

Item	Released by ICAR		Expenditure		Unspent balance as on 1st April 2014
	Kharif 2013-14	Rabi 2013-14	Kharif 2013-14	Rabi 2013-14	
Inputs	-	-	-	-	-
Extension activities					
TA/DA/POL etc.					
TOTAL					

7.3 Utilization of funds under FLD on Pulses *(Rs. In Lakhs)*

Item	Released by ICAR		Expenditure		Unspent balance as on 1st April 2014
	Kharif 2013-14	Rabi 2013-14	Kharif+Rabi 2013-14		
Inputs+Drip Irrigation	-	-	-	-	-
contracrtual services					
TA/DA/POL etc.					
TOTAL					

Utilization of funds under FLD on Cotton *(Rs. In Lakhs)* ***N.A***

Item	Released by ICAR	Expenditure	Unspent balance as on 1st April 2014
	Kharif 2013-14	Kharif 2013-14	
Inputs	-	-	-
Extension activities			
TA/DA/POL etc.			
TOTAL			

7.4 Utilization of KVK funds during the year 2012-13 and 2013-14 (upto March, 2014) (year-wise separately) (current year and previous year)

S. No.	Particulars	Sanctioned (Rs.)	Released (Rs.)	Expenditure (Rs.)
A. Recurring Contingencies				
.1	**Pay & Allowances**	1,12,00,000	1,12,00,000	1,11,49617
2	**Traveling allowances**	2,25,000	2,25,000	1,10,479
3	**Contingencies**	16,00,000	16,00,000	15,22,122
A	Stationery, telephone, postage and other expenditure on office running, publication of Newsletter and library maintenance (Purchase of News Paper & Magazines)			
B	POL, repair of vehicles, tractor and equipments			
C	Meals/refreshment for trainees (ceiling upto Rs.40/day/trainee be maintained)			
D	Training material (posters, charts, demonstration material including chemicals etc. required for conducting the training)			
E	Frontline demonstration except oilseeds and pulses (minimum of 30 demonstration in a year)			
F	On farm testing (on need based, location specific and newly generated information in the major production systems of the area)			
G	Training of extension functionaries			
H	Maintenance of buildings			
I	Establishment of Soil, Plant & Water Testing Laboratory			
J	Library			
TOTAL (A)		**1,30,25,000**	**1,29,87,212**	**1,27,82,218**
B. Non-Recurring Contingencies				
1	**Works**			
2	**Equipments including SWTL & Furniture**			
3	**Vehicle** (Four wheeler/Two wheeler, please specify)			
4	**Library** (Purchase of assets like books & journals)			
TOTAL (B)				
C. REVOLVING FUND				
GRAND TOTAL (A+B+C)		**1,30,25,000**	**1,29,87,212**	**1,27,82,218**

7.5 Status of revolving fund (Rs. in lakhs) for the three years

Year	Opening balance as on 1st April	Income during the year	Expenditure during the year	Net balance in hand as on 1st April of each year
April 2010 to March 2012			-	
April 2011 to March 2013	1,37,788	40,369	178157	178157
April 2012 to March 2014	178157	-	-	-

7.6 Traning/Capacity building programme attended by the KVK staff during the year under report (01.04.2013 to 31.03.2014)

S.No.	Name of the training programme	Name of the Institute	Duration		Name of the staff along with designation
			From	To	
1	Planning And Of Management Sustainable Rural Livelihoods	MANAGE, Hyderabad At SAMETI, Civil Lines, Nagpur.	10.07.12	12.07.12	Sunita Chauhan (SMS-H.Sc)
2	How to become a Plant Doctor	Dr..M.S. Swaminathan Foundation &CABI, London ,UK	24.09.12	29.09.12	R.R.Gupta (SMS-PP)
3	Plant parasitic Nemetode and their management	M.P.K.V. Rahuri	15.01.13	17.01.13	R.R.Gupta(SMS-PP)

8.0 Please include information which has not been reflected above (write in detail).

8.1 Constraints

(a) Administrative Nil
(b) Financial Nil
(c) Technical Nil

Annexure-I

1. District Profile

1. General census

Population (000's) (2001 Census)

Sr. No.	Particular	Population		
		Male	Female	Total
1	Rural	1153876	1093874	2247750
2	Urban	1234816	1170605	2405421
3	Total	2388692	2264479	4653121

Sr. No.	Population Information	
2	Population Density/ Sq.km	331
3	Population Below Poverty Line (families in Lakhs)	1.09
4	Schedule Caste Population & Percentage	619 (18.84 %)
5	Schedule Tribes Population & Percentage	458 (13.92%)
6	Sex ratio	1000 : 934
7	Literacy	84.18 %

Agricultural and allied census

I.	**Area and Land Statistic**	
1	Total Geographical Area	: 9892 Sq. Km
2	Forest	: 2947 Sq. Km
3	Cultivable Land	: 680400 ha
4	Kharif Cropping Area	: 548200 ha
5	Rabi and Summer Cropping Area	: 148645 ha
II.	**Human Population**	
1	Total Population	: 4051444
2	Male	: 2095489
3	Female	: 1955955
4	Rural Population	: 1044082
5	Urban Population	: 3007362
6	Population density/Sq. Km	: 331
7	SC Population	: 619000
8	ST Population	: 458000
9	Total Taluka	: 14
10	Total villages	: 1892
III.	**Livestock Population**	
1	Cows and Bullocks	: 638650
2	He and She Buffaloes	: 94334
3	Sheep and Goats	: 345688
4	Poultry	: 676080

Source: Directorate of Economics & Statistics.

2. Agro-climatic zones

Nagpur district is mainly divided into 2 Agroclimatic Zones based on soil types, rainfall, growing period and suitability for certain range of crops.

1. Central Vidarbha region :-

This includes Nagpur, Kamthi, Hingna, Saoner, Katol, Narkhed & Kalmeshwar tahsils of Nagpur district. Soils of these tahsils ranges from medium black, medium heavy to light. Medium black soils are found mainly in Nagpur, Kamthi, Hingna, Saoner & Kalmeshwar tahsils & are suitable for cotton crop. Medium to light soils are best suited for orange cultivation.

Main crops grown in this regions are Cotton, Jowar, Soybean, Tur, Mung, Urid and Paddy.

2. Eastern Vidarbha region :-

This region includes Ramtek, Parshivni, Mouda, Umred, Bhiwapur & Kuhi tahsils of the district. Soils of this region are heavy to medium, average rainfall of this region is 1200 mm.

Main crops grown in this regions are Paddy, Jowar, Soybean, Tur, Mung and Urid.

3. Agro-ecosystems

S. No	Agro- ecosystem	Characteristics
1	Hot semi-arid eco region	Hot semi-arid eco region with shallow and medium (with inclusion of deep) black soils, GP 90 – 150 days

4. Major and micro-farming systems

Major farming systems/enterprises (based on the analysis made by the KVK)

S. No	Farming system/enterprise
1	Agri – Horti – Livestock farming system

5. Major production systems

Major area of Nagpur district is under mono-crop. The cropping pattern is dictated by erratic monsoon. Agriculture is mostly based on rainfed and to a limited extent under irrigation. The irrigation intensity of the district is to be considered as more of subsistence irrigation rather than the usual intensity of irrigation available elsewhere. Production system is Cotton, Soybeans, Rice and Redgram, based cropping system.

6. Major agriculture and allied enterprises

Vidarbha region of Maharashtra is agrarian in character, farming being the predominant section of economy. Nagpur district is one of the nine districts of Vidarbha having Nagpur as a District Head Quarter as well as the second capital of the State. Agriculture takes the prime place among the occupation of the people in the district followed by horticulture, livestock, handlooms and other occupations.

At present there are 11 APMCs spread over 13 blocks in the district. Besides there are 12 sales and purchase co-operative societies in the district for handling the agriculture inputs and produce. Nagpur is the major trading centre for spices and is ranked first by virtue of volumes. There is tremendous potential for export of agro-food products, horticulture, floriculture; International Cargo-hub proposed at Nagpur will boost the exports of these products.

Nagpur is one of the industrial cities of Maharashtra State. Most of the industries of the district are observed in urban area. Cotton ginning, pressing, spinning, handlooms, food products, sugar factories, seed processing, insecticide formulation, fertilizer and micro nutrient manufacturing are the main agro-industries in the district.

Cotton is the important cash crop of the district. There are 7 cotton ginning and pressing units run by Maharashtra State Cotton Federation. In the season of 2005-06, around 39218 Qt. cotton was purchased and ginned in these units. There are 7 spinning mills in the district. There are 454 cotton weavers societies which operate handlooms in the district.

There are 3 sugar factories established in the district but are not running at the full strength. In the production of agro-inputs, 3 insecticides formulation units, 2 seed producing companies, 1 mix fertilizer unit and 3 micronutrient manufacturing units are operating in the district.

There are about 14 food processing units where processing and packaging of fruits, spices and vegetables are done. Processing of Papaya and tomato is mostly done in these processing units. Also there are 6 distillation units established for the extraction of aromatic substances from aromatic plants.

2. Agro-ecosystem Analysis of the focus/target area

1. Names of adopted villages : Ranmangali, Pipra, Manori and Saysar

Agro-Eco system analysis was carried out with the help of space, time, and flow analysis. Over and above, the decision analysis with the involvement of groups of the farmers by applying PRA (Participatory Rural Appraisal) tools.

2. Survey methods used: Participatory Rural Appraisal (PRA)

Selection of villages

Agro ecosystem analysis forms the important aspect of understanding how the people are sustained for many years when the population is increasing in the static ecosystem. It is all the ore important to know about the changing trends that the farmers adopted for their sustenance. They understand the problems and are waiting for the solutions by adopting participatory rural appraisal to meet basic demands. It is necessary for ensuring peaceful coexistence for all the people in developing society.

Selector of villages undertakes Technology Assessment and Refinement through KVK with regards to the technologies so far developed under rainfed ecosystem for the cotton and soybean based production system. Krishi Vigyan Kendra has been actively engaged in the dissemination of technologies developed through trainings, demonstration, OFT & FLD etc. in and around Nagpur.

While conducting the survey all the important ingredients about the development were considered. Pipra,Manori,and Saisar in Umred taluka of Nagpur district about 20 km from the Taluka head quarter and village Ranmanagali in Bhivapuar Taluka is 10 km from Taluka Head Quarter were observed to be less influenced by the urbanization since the people living in the villages depend on agriculture for their livelihood and the number of absentee landlords is minimum. The farming system is complex diverse and risk oriented due to the undulated lands, there are marginal lands and also the better fertile lands. The farmers were found to have spirit of utilizing every opportunity of making best use of the resources at their command. However, they continued with subsistence living due to poor productivity for want of technological adoption.

KVK team therefore considered the cluster as most suitable site for implementing the KVK activities as there is lot of scope for creating awareness for commercial cultivation in the diverse situation which could bring about radical changes in the life style of the villagers. All these factors were the criteria for selection the cluster of villages in the Umred and Bhivapur Taluqas.

3. Various techniques used and brief documentation of process: Rapport Building

KVK team visited the villages and contacted people from all walk of the life including the Sarpanch of Grampanchayat and in three four visits tried to understand weather there is urge for knowing new technologies. The farmers were found to be amenable to new technologies. Accordingly whole programme was discussed with them, after hearing from us, they extend all cooperation.

Transact

Transact was conducted with the help of the young people. KVK team built up excellent rapport with the farmers. Team of KVK scientists collected information from the farmers while conducting the transact cris-crossing the fields. The villages Pipra , Manori and Saisar are on the Bela road in cluster within 3 km distance. Village Ranmangli is on Bhivapur road. The topography of the area in which the villages are situated is undulated with hillocks and the soils are coarse yellow to medium yellow and in the plains medium to deep light black soils. The rainfed ecosystem is typically characterised by the cropping system with soybean, cotton + pigeon pea (as strip intercrop). Since this area happens to be orange tract where ever ground water potential exists, orange plantation is prominently seen to the extent it can be maintained in irrigated horticulture system.

Under irrigated system farmers have started cultivation of chilli, brinjal, tomato and cowpea as there is taluka headquarters within 15 km distance and Nagpur city at 50- 55 km distance which provide markets.

Hillocks are covered with perennial grasses, shrubs and trees. The small fields are clearly demarcated with field boundaries where different shrubs, grasses and other vegetation suitable for grazing are seen. The level of ground water has gone down below 70ft. mostly the dug wells form the major irrigation system.

Sizeable live stock population of the local breeds comprising of bullock pair, cows, buffaloes and Goats grazes on the naturally occurring grasses, bushes and crop residues. Poultry in villages are exists as back yard poultry ranging the numbers from 3 to 5. Due to non adoption of soil and water conservation technologies the sloppy lands and hillocks have badly eroded.

The total geographical area of Pipra,Ranmangli, Manori, and Saisar villages is 3272.49 ha. Of which 2018.15 ha is under cultivation. Rainfed area is 1514.65 ha while 409.36 ha is under irrigation and currently *109.31 ha fallow. Kharif crops are grown in 1492.00 ha area while 11165.51 ha area is under Rabi crops, 21.13 ha area is under vegetable crops and orange plantation is in 47.70 ha. Soybean* is the major crop grown in 1127.65 ha area followed by Cotton and Pigeonpea.

Wealth Ranking

By and large the farming families are generally ranked based on the size of farm holding, level of education, type of farming (irrigated / rainfed) the category of the land and number of family members who are in government jobs. Accordingly wealth ranking can be done irrespective of whether they are genuinely wealthy by urban standards.

Information of adopted villages:

Sr. No.	Description	Name of adopted villages			
I	**POPULATION CHARACTARISTICS**	**Pipra**	**Ranmangli**	**Manori**	**Saisar**
2	Male population of the village	1353	517	432	381
3	Female population of the village	1109	455	404	357
4	Children population of the village	623	186	138	122
5	Schedule cast population	482	98	68	61
6	Schedule tribe population	638	186	126	121
7	Others	1342	678	642	556
II	**LIVESTOCK POPULATION:**				
1	Local cows	173	122	98	71
2	Cross breed cows	28	10	04	02
3	Buffalo	52	28	21	16
4	Goat	382	210	168	128
5	Hen	236	66	62	82
III	**LAND USE PATTERN**				
1	Total geographical area	1194	1232	438.04	408.45
2	Total Cultivated area	1098	215.25	378	326.9
3	Irrigated area	236	59.10	46	68.26
4	Un irrigated area	862	119.65	332	201.60
5	Fallow land	38	115.15	43.08	32.00
6	Area under forest	58	902.46	--	--
7	Orchards	5.2	36.50	1.80	2.4
8	Cotton	124	--	54.26	35.60
9	Soybean	729	90.45	184.66	123.60
10	Arhar	72	4.65	153.80	86.72
11	Wheat	162	9.70	13.26	42
12	Chickpea	674	4.65	153.80	80.72
13	Brinjal	1	--	1	1.26
14	Cowpea	1.5	--	--	0.80
15	Chilli	1	13.5	1	2.12
16.	Linseed	--	5.90	--	--
17.	Paddy	--	19.4	--	--
IV	**LAND HOLDING**				
1	Land holders	628	163	246	239
2	Below 5 acres	438	102	164	169
3	Above 5 acres	190	61	82	70
4	Landless labours	118	98	94	83
5	Below poverty level	68	83	62	69

4. Analysis and conclusions:

Space Analysis

A. Social

Pipra, Manori, Saisar and Ranmangali villages are situated in the Eastern part of Nagpur district, receiving annual rainfall of 1000 mm. The semi-structured interview revealed that the population of Pipra, Ranmangali, Manori and Saisar are 2462, 972, 836 and 738 respectively.

The farm holding ranges between marginal,and small 403 and 873, respectively, to total cultivated area in the village is 2018.15 ha of which 1514.65 ha is under rainfed followed by 409.36 ha under irrigation and 228.23 ha is fallow land.

There are 261 bullock pairs in the village and sizeable number of animals of which 508 cows, 117 buffaloes and 888 goats.

Farming in the village is very diverse; soybean occupies maximum area followed by cotton, pigeonpea under kharif season.While orange crop dominates the horticulture sector occupying 45.9 ha area. Wheat & chickpea is cultivated in 1146.13 ha as Rabi crops. Vegetable crops like, cowpea, chilli, tomato are also cultivated under irrigated condition of which chilli is the main crop occupies 15.62 ha area.

Majority of the farmers have the livestock especially bullocks, cows, however, there are some families exclusively depend on goats as a major source of earning.

B. Social Setting

The social maps of the villages prepared by the farmers indicate various demographic and institutional features of the villages.

Other backward communities comprising of *kunbi, teli, mali* dominates the population to the extent of 64.25 % while scheduled caste consists of *mahar* and *Matang,* have 14.15 % population and scheduled tribes particularly *Gond, Gowari* and *koli* (Fishermen) are 21.30 % of the population. In addition to above there is one family of *Muslim, Marwari* and *Brahmin* each. The people from all the social categories are randomly distributed in the villages, is the testimony of healthy and cordial relations among themselves. There is temple, vihar and 0mosque as places of worships.

sixty eight percent family's hold, marginal & 31.5 % are small holdings.

Out of 1505 families 336 families do not have any livestock with them to supplement income from their production systems.

C. Flow Analysis

Participatory planning is a PRA tool used for identification of various problems in the village settlement, where farmers identified their problems which impeded their crop production system from touching the target and live stock managements as a result the progress in the villages could not become visible and also there is no improvement seen in the living standards. Once the problems are identified with clean conscious they are encouraged for prioritizing them It becomes easy for them to understand the significance of the possible solutions those can solve their problems. Interventions at this stage become operational.

There is no much variation in the annual rainfall over the years however; the pattern has changed off let. In the past three four years substantial rains were received in the months of October to January. Late rains had been the main reason for the low yields of soybean, cotton and sorghum. Area of soybean has come down due to low yields and price, low productivity was due to rust. Area under irrigation has gone up as a result ground water level has gone down up to 120 feet. Sunflower was grown in 1978 but now farmers are not cultivating it due to bird problem and inadequate irrigation facility.

Educated young people who could not see employment in the urban sector seem to have latent interest in agriculture and if they are convinced as to how the adoption of technologies can increase the production under small farming system, they can join hands with the working family members to bring stability.

D. Seasonal analysis

Seasonal analysis was done with regards to rainfall pattern and distribution, vis-à-vis the cropping pattern, availability of fodder, labour and the live stock. Cotton,, Soybean, , pigeonpea and field beans are the major crops during the kharif season. Sowing is completed in the month of June to first week of July. Cotton continues up to Dec.-Jan. along with pigeonpea as intercrop. Wheat, vegetables and chickpea are the crops grown in the rabi season. Sucking pests and bollworms are the major pests of cotton. Among the diseases bacterial blight, grey mildew and bollrot are major. Water logging conditions increase the physiological shedding of fruiting bodies in cotton during Aug. and Sept. Early withdrawal of rains impairs the fibre quality. July-August is the months of continuous and heavy rains which do not allow many farm operations in time, including pest management.

Orange crop suffers due to erratic monsoon and irregular bearing due to faulty nutrient management. Live stock suffers during April to June as the free grazing is not possible and non availability of fodder leads to shortage of milk production.

E. Livelihood Analysis

Rainfed farming system contributed to very small extent to the livelihood of marginal farmers and therefore all family members have to work, also the children during the holidays work to meet the livelihood demands livestock particularly the goats contributed to the income of marginal farmers.

Small dry land farmers meet about 1/3rd livelihood from farming and remaining from the livestock and labour. The irrigated farming system of the large holdings receives income up to 70 % required for livelihood. However the diverse farming and better investment of family income in cash crops provide better living. Such farmers spending are more on social functions, education and maintaining standard.Small & marginal dry land farmers spend more on food than clothing and education & are at subsistence level.

F. Gender Analysis

Participatory farmers in the gender analysis have frankly admitted that ladies devote more time in the various activities in the dry land small production system. It may be up to 70 %. All operation of removal of farm residue, sowing, fertiliser application, weeding, harvesting are attended by the females. Weeding and harvesting are the operations where they are subjected to drudgery and implements which are traditionally used have not helped them to reduce drudgery.

It is note worthy to place an record that girls have to join their parents in the farm activities as against their male counter parts boys, who are speared from such activates to facilitate them to attend school. Males attend farming with regards to land preparation, sowing, intercultivation, threshing and watch & ward. Major activity of marketing is done by males & they do not take into confidence their spouses. Ladies even today have no major say in decision making.

Technology Inventory and Activity Chart

Sl. No	Technology	Crop/ enterprise	Year of release or recommendation of technology	Source of technology	Reference/ citation
Discipline: Crop Production					
1	Application of half RDF+5t FYM+ 20 kg S+2.5 Kg Zn Rhizobium and PSB innoculation	Soybean	2003-04	Dr.PDKV Akola	Krishisavandini 2005 (Dr.PDKV Krishi Margadarshika va daindini 2005 pp342)
2	20:60-80 :20:20 kg NPKS/ha	Soybean	2003	NRCS Indore	Prasar bulletin-7 2003

3	Seed treatment with Bradyrhizobium + Soybean +PSB (5 gm each)	Soybean	2003	NRCS Indore	Prasar bulletin-7 2003
4	Recomeneded dose of fertilizer for soybean 30:75:0	Soybean	2001-2002	Dr.PDKV Akola	Krishisavandini 2002 (Dr.PDKV Krishi Margadarshika va daindini 2002 pp)
5	Application of reduced dose of fertilizer supplemented with seed dressing with rhizobium and PSB (25 g/kg seed each) and ammonium molybdate (4 g/kg seed) is recommended for soybean	Soybean	-	Dr.PDKV Akola	Major research achievements of DR.PDKV,Akola.
6	For yield maximization of soybean foliar spraysof 2% Urea(50 and 70 DAS) along with soil application of RDF is recommended	Soybean	2007	Dr.PDKV	Krishisavandini 2008 (Dr.PDKV Krishi Margadarshika va daindini 2008 pp125)
7	Open furrow after every 3rd row in soybean	Soybean	2001-2002	Dr.PDKV Akola	Krishisavandini 2005 (Dr.PDKV Krishi Margadarshika va daindini 200 8 pp241)
8	Cv. AKW 3722	Wheat	2003-04	Dr.PDKV Akola	Krishisavandini 2005 (Dr.PDKV Krishi Margadarshika va daindini 2005 pp241)
9	Six irrigation at critical growth stages i.e. CRI,tillering ,jointing,boot leaf ,milk and dough stages should be given to irrigated wheat. However, CRI and flowering are the most critical growth stages of wheat hence, irrigation at this should not be missed.	Wheat	-	Dr.PDKV Akola	Major research achievements of DR.PDKV, Akola.
10	AKW-1071 variety suitable late sowing of irrigated wheat up to 15 january	Wheat	2001-2002	Dr. P.D.K.V., Akola	Krishi Margadarshika vadainandini 2003(pp295)
11	Application of 80 kg N and 40 kg P_2O_5 kg/ha supplemented with seed treatment of azospirillum and p.solubiliser @ 25 g/kg of seed is recommended for	Wheat	-	Dr.PDKV Akola	Major research achievements of DR.PDKV,Akola.

	wheat crop.				
12	SYE 116-53-22-8 (PKV Khamang) short stature ,non lodging and short duration paddy variety	Paddy	2006-07	Dr.PDKV Akola	Major research achievements of DR. PDKV, Akola.
13	NL 260- high yielding, alternaria blight and powdery mildew disease tolerance linseed variety	Linseed	2006-07	Dr.PDKV Akola	Major research achievements of DR.PDKV, Akola.
14	CV. Jaki 9516, Vijay	Chickpea	2005	Dr.PDKV	Krishisavandini 2008 Dr.PDKV Krishi Margadarshika va daindini 2008 (pp153)
15	Two irrigations, first at flowering and another at early pod initiation are recommended	Chickpea	-	Dr.PDKV Akola	Major research achievements of DR.PDKV, Akola.
16	For tur pod borer management IPM approach with a)NSKE 5% at ETL b) After 15 days of NSKE application c) HaNPV 250 LE/ha after 15 days of second spray.	Pigeonpea	-	Dr.PDKV Akola	Major research achievements of DR.PDKV, Akola.
17	Three sprays of HaNPV250 LE alternated with one spray NSKE 5% at an interval of 15 days starting from 50%flower is recommended for effective management of of tur pod borer.	Pigeonpea	-	Dr.PDKV Akola	Major research achievements of DR.PDKV, Akola.
18	The spraying of Metarhizium anisopliae(10^{10} or 10^{9}) conidia/ml fungal suspension) 2to 3 ml+Ranipal (0.01%) ml in one litre of water at 50 % flowering is recommended for the management of tur pod borer.	Pigeonpea	-	Dr.PDKV Akola	Major research achievements of DR.PDKV, Akola.
19	High yielding mid late, sterility mosaic and wilt resistance pigeon-pea Cv. BSMR-736/PKV Tara	Pigeonpea	2007-08	Dr.PDKV Akola	Major research achievements of DR.PDKV, Akola.
20	Short duration, high yielding, medium size grain, tolerant to rust and recommended for late sowing – Cv. AKAW-4627	Wheat	2010	Dr. PDKV, Akola	Major research achievements of DR.PDKV, Akola.(Krishisan wadini-2012) (pp 37)

21	For effective control of wilt /rot of mung,tur and gram ,seed treatment with bioagent viz.*T.harzanium* or *T. viridae* @ 4g/kg seed before sowing is recommended	Pigeonpea	-	Dr.PDKV Akola	Major research achievements of DR.PDKV, Akola.
22	Seed inoculation with PSB and supply Phosphorous through DAP rather than Rock Phosphate	Pigeonpea	2006	Dr.PDKV Akola	Krishisavandini 2007 (Dr.PDKV Krishi Margadarshika va daindini 2007 pp 363)
23	Application of FYm@5t/ha+100%RDF(90 :45:45 kg NPK/ha)	Cotton	2005-06	AICCIP (Dr.PDKV, Akola)	Recommendation of AICCIP
24	Application of RDF (90:45:45 kg NPK/ha) +2-3 foliar sprays of 2 % urea +1% $MgSO_4$	Cotton	2007	AICCIP (CICR,Nagpur)	Zonal Recommendation of All India Coordinated cotton improvement Project
25	Foliar spray of 2 % Urea(at flowering) +2% DAP(Boll development stage) in cotton	Cotton	2001-2002	Dr.PDKV Akola	Krishisavandini 2002 (Dr.PDKV Krishi Margadarshika va daindini 2002 pp)
26	planting of cotton 45 x 10 cm or 60 x 10 cm	Cotton	2011	CICR, Nagpur	CICR, Annual Report
27	Use of cono weeder in SRI method of paddy cultivation	Paddy	-	ANGRU	
Discipline: Plant protection					
1	**IPM in cotton** Use of Bt cotton, summer deep ploughing, field sanitation, crop rotation, selection of Bt cotton cultivars tolerant/ resistant to jassid with high yield potential, early sowing, use of recommended spacing and fertilizers, use of inter crop (medium or late tur variety) / border crop (cowpea/ pulses)/ trap crop/ indicator crop of castor for Spodoptera, gap filling of cotton with maize/ sorghum, monitoring of sucking pests and natural enemies, installation of yellow sticky traps for attracting white flies and aphids, sucking pests control	Cotton	-	CICR, Nagpur	-

	at early crop growth phase (need based) at ETL with 5% NSKE or conventional insecticides,				
9	**Management of *Phythophthora*** **Cultural practices: 1)** Timely pests and diseases management 2) Timely application of recommended nutrients 3) Double ring system of irrigation or drip.4) To keep soil well drained 5) To avoid injuries to trunk in roots during farm operations6) Prunning of dry and infected twigs/branches. **Chemical control measures:** 1)Application of Bordeaux paste(1:1:10)on tree trunk twice before (May-June) and after monsoon (Oct.) after scrapping out of foot rot or gummosis affected portions by sharp knife and on cut portions of pruned twigs/ branches. 2) Two sprays(wetting) of Metalaxyl MZ-72 @ 2.7g and Fosetyl-al @ 2.5g/lit alternatively before monsoons on tree trunk and drenching of tree basin soil at 40 days interval 3) Foliar application of the above fungicides at same dose twice at 40 days interval alternatively	Nagpur Mandarin	-	NRCC Nagpur	-
	a.)Gummosis : Sterilize the affected portion by 1 %KMnO4 @ 100 g per 10 liters of water after removing the bark and gum of affected portion and then apply bordeaux-paste.. Spray on the effected portion and foilar spray by ridomil M-Z-72 or eliat @ 0.2% (20 g either of each+ 10 liters of water) **b.) Foot-rot and Root-rot :** Apply ridomil M-Z-72 @ 0.2 % Or Captain @ 0.4 % after removing rotted roots by removing the plant basin soil and then drench the above fungicide in the soil after	Nagpur Mandarin	-	Dr PDKV	Krishi Samvadani 2009, p 238,239

	covering the roots.. **c.)Die-back:** Cut and burn the dry and affected twigs/branches before monsoon. Foliar spray of Carbendazim 0.1 % or copper oxychloride @ 0.3 % or bordo mixture @ 0.6 %. Follow 2 foliar sprays after 15 to 20 days interval				
11	a) Apply Bordeaux paste on affected gummosis portion. b) Foilar spray of copper oxychloride 50 WP @ 1250 g + 500 l water/ ha	Nagpur Mandarin	-	MAU	Krishi Dainandani
12	**Thrips and Mites Management** :Application of two foliar sprays of monocrotophos @ 10 ml/10 lit.for thrips at fruit setting stage and dicofol @ 15 ml/10 lit.	Nagpur Mandarin	2011	NRCC	Booklet on pest management in Nagpur mandarin
13	**Biocontrol of semiloopers :** First foliar spray of Beauveria bassiana @ 1.0 kg/ha followed by 2nd spray of Azadiractin 1500 ppm @ 25 ml/10 litres of water after 15 days interval	Soybean	2012	PDKV Akola	-
14	**For Fusarium wilt**. a) Cultivation of fusariun wilt resistant varieties, like ICCV-2, ICCV-10, **Vijay,** Vishal, Jaki-9218, Saki-9516.S **For Root rot. and wilt control** a) Seed treatment with *T. viridae* or T. harzinum@ 4g/ Kg seed before sowing **Root rot -** 1**)** Treat the seed with Captain @ 3 g / kg seed and *Trichoderma@* 4g /kg seed 2) Destroy affected plant residues by burning	Chickpea	-	MPKVDr PDKV Dr PDKV	Krishi Darshini Inventory, No 4(11) Krishi Samvadani 2009, p 164

15	**Podborer Management** 1)Two applications of Bt(k)8L @ 750 ml/ha or HaNPV 250 LE/ha at an interval of 15 days starting from flower initiation 2) Two foliar sprays alternatively either of (1st spray at 40-50% flowering& 2nd spray after 15 days) 5 % Neem seed extract or or formothion 25 EC 20 ml or Quinalphos 25 EC 20 ml or Phosalone 35 EC 14 ml or Triazophos 35 EC + Deltamethrin 1 EC (mixture)25 ml in 10 lit. of water **or** 1st spray of HaNPV @ 250 LE + 50 g ranipal/ha and 2nd spray of Quinalphos @ 20 ml in 10 lit. of water after 15 days interval	Chickpea	-	Dr PDKV Akola Dr PDKV Akola	Inventory, 2008 No 4(14) (Krishi Samvadani 2009 p-161
16	Spray of Bt @ 750 ml/ ha at ETL.	Chickpea	-	Dr PDKV	Inventory No 4(16)
17	Spray Ha NPV @ 250 LE/ha + Teepol 0.1 % + Jaggery 0.5% 1 Kg/ha thrice at 10-15 days interval on egg-laying or 1st instar stages **OR** Release *Trichogramma chilonis* 2 1.5 lac/ha 4 times. Apply chemical when population cross ETL i.e deltamethrin 2.8 EC @ 750 ml/ha or quinalphos 25 EC @ 1000 ml/ha of chlorpyriphos 20 EC @ 200 ml + acephate 100 ml / ha or polytrin C 44 EC @ 1000 ml/ha or profenophos 50 EC @ 1500 ml/ha	Chickpea	-	JNKVV Jabalpur	WWW
	Discipline: Horticulture				
1	**Akola safed** Less joined bulbs, less bolting , high TSS and good storage quality	Onion	2004	Dr. PDKV, Akola	Major Research achievement, Director of Research, Dr. PDKV, Akola
2.	**Akola bahar** Early maturity, having slender fruits and high yielding	Okra	2004	Dr. PDKV, Akola	Major Research achievement, Director of Research, Dr. PDKV, Akola

3	**Jayanti** Suitable in irrigated condition for green and red chilli, tolerant to major diseases	Chilli	1994	Dr. PDKV, Akola	Major Research achievement, Director of Research, Dr. PDKV, Akola
4	**Recommended dose of fertilizer** i.}800 g N+300 g P+300 g K+ 50 kg FYM+7.5 kg neem cake + 200 g PSB per tree ii.}600 g N + 200 g P + 400 K + 50 kg FYM per tree iii} soil application of 200 g ZnSo4 per tree & foliar spray of 0.25% ZnSO4 +0.2% boron & 0.5% FeSO4 **Nursery management** Treated seed shown on raised beds in line , apply 200 g N+ 10 g P2O5+ 10g K2O, half dose of fertilizer at the time seed sowing and half after 20-25 days after sowing, 2 kg FYM /m^2. Treated seed sown in raised beds and soil treatment with furadon { 5-6 g per Sq. M } and spray of carbosulfan 2 ml. per lit. of water in nursery after 15 days of sowing and spray of neem seed oil in field. **Rejuvenation of old santra trees** i.}Improved cultivation practices + rejuvenation + bordeaux paste on operated part. ii.} application of 50 kg FYM+ 7.5 g. Neem cake+ 500 g N + 500 g. P + 500g K per plant. **Steps:** ❖ Removal of dry/diseased woods before onset of monsoon in June	Nagpur Mandarin Brinjal/ Tomato Brinjal/ Tomato Nagpur mandarin Nagpur mandarin Onion		Dr. PDKV, Akola NRCC, Nagpur CVRI, Banaras CVRI, Banaras Dr. PDKV, Akola NRCC, Nagpur NRCC, Nagpur	Major Research achievement, Director of Research, Dr. PDKV, Akola Krishi Savadini, 2008 Citriculture Technical bulletin no. 5. Technical bulletin no. 5. Research achievement Dr. PDKV, Akola. Citriculture Citriculture

	❖ Apply Bordeaux paste on operated parts (1:1:10)+ FYM+Neemcake ❖ Apply RDF in October ❖ Pruning after one year Improve cultivation practices+ removal of dry woods+ foliar spray of fungicide+ 2 bordeaux paste application. **Management of pre-harvest fruit drop in ambia bahar** I)Spray of 2-4D,15ppm + Bemonyl 1000 ppm + Urea 1 % or GA3 15 ppm + Bemonyl 1000 ppm + 1% Urea/lit.of water in the month of Aug, Sept and Oct. II)3 spray of bavistin @1 gm /lit at 15 day interval before harvesting Application of NAA 10 ppm (10mg/lit of water)from August to October + 1 % Urea **Improvement in bulb size** Spraying of lihocin (6ml/lit) after 60 and 75 days after planting alongwith RDF			Dr.PDKV Akola NRCOG, Rajguru nagar	Krishi savadini-2009 Annual report(2006-07) of NRCOG, Rajgurunagar
	Discipline: Veterinary Science				
1	Feeding of bypass fats to milch cows	Dairy farming	2005	NDRI, Karnal	NDRI Publication No. 22/2005
2	Rearing of New Swaranadhara Chicken breed	Backyard poultry	2005	Dept. of Avian Production & Management, KVAFSU, Hebbal, Banglore	KVAFSU Publication
3	Supplementation of concentrate feed to lactating does	Goat rearing	2008	CIRG, Makhdoom	Goat & Sheep Production Recommendation of CIRG
4	Supplementation of Vitamin - mineral and deworming	Dairy farming	2003	MAFSU, Nagpur	Recommendations of Second joint Animal Science Research Council, 2003

5	California mastitis Test (CMT)	Dairy farming	1996	Division of Microbiology, NVC, Nagpur	Recommendation of MAFSU
6	Use of chelated minerals	Cattle rearing	2006	NDRI, Karnal	Recommendations of NDRI
	Discipline Home science				
1	Iron rich diet	Pregnant women , school going children	Nutrition Expert Group , ICMR	Nutrition Expert Group , ICMR	Nutritive value of Indian Food stuffs , 1999
2	Improved Cotton Picking bag	Cotton	2003	MAU, Parbhani	AGROSCO 2003
3	Improved Cotton Picking bag	Cotton	2004	CCSHAU, Fabricated	AICRP, 2004
4	Gujarat Sickle	Improved Farm Implement	CIAE, Bhopal 2006	Gujarat Agro Industries Corporation& CIAE (ICAR) , Bhopal	CIAE, Bhopal

Activity Chart

Crop/ Animal/ Enterprise	**Problem**	**Cause**	**Solution**	**Activity**	**Reference of Technology**
Discipline: Crop production					
Cotton	Low productivity of cotton under rainfed medium black soils of Nagpur	Sub optimal plant density	Optimization of plant population in Non Bt cotton	OFT on High Density Planting System (HDPS)	1. Sl. No. 26 of Technology Inventory
Soybean	Low productivity of soybean under rainfed medium black soils of Nagpur	1) Imbalance and suboptimal fertilizer use	1) Application of recommended dose of fertilizer along with FYM and micronutrient	1) FLD on INM in soybean	1 Sl. No. 1 of Technology Inventory inventory
Pigeon pea	Low productivity of pigeon pea under rainfed medium black soils of Nagpur	1) Heavy incidence of Fusarium wilt and Sterility Mosaic	1) Use of Fusarium wilt resistant and moderately tolerant to Sterility Mosaic Tur variety PKV Tara/BSMR-736	1) Single component FLD to demonstrate yield potential of recommended wilt resistant and moderately tolerant to sterility mosaic variety	1 Sl. No. 19 of Technology Inventory

Medium deep vertisol	Poor fertility status of medium deep soil in Nagpur district	1) Phosphorous fixation 2) Non adoption soil management practices	1)Soil test based fertilizer recommendation 2)Use of PSB in Kharif and rabi crop	1) soil testing campaign 2) Demonstration on use of Biofertilizers	1 Sl. No. 21 of Technology inventory
Wheat	Low productivity of wheat	1)Low yielding wheat variety with susceptible to rust disease	1Use of high wheat variety with tolerant to rust disease suitable for late sowing	1) Single component FLD to demonstrate yield potential under late sown condition and also to assess the rust disease tolerance	1 Sl. No. 20 of Technology Inventory
Paddy	Low yield of paddy	1) Use of non descript paddy varieties 2) Weed menace	1) Use of SYE 116-53-22-8 (PKV Khamang) short stature ,non lodging and short duration paddy variety 2) Use of cono weeder	1) Single component FLD to demonstrate yield potential of recommended variety 2) OFT on weed management in SRI method	1Sl. No. 12 of Technology Inventory
Linseed	Low yield of linseed	Incidence of alternaria blight and powdery mildew	Use of NL 260- high yielding, alternaria blight and powdery mildew disease tolerance linseed variety	1) Single component FLD to demonstrate yield potential of recommended variety	1Sl. No. 13 of Technology Inventory
Chickpea	Low productivity of chickpea under rainfed medium black soils of Nagpur	1) Heavy incidence of fusarium wilt 2) Limited irrigation	1) Use of wilt resistant varieties 2) Scheduling irrigation as per critical growth stages	1) Single component FLD to demonstrate yield potential of recommended wilt resistant variety 2)Training on irrigation management	1 Sl. No. 14 of Technology Inventory 2 Sl. No.15 of technology Inventory
Discipline: Plant protection					
Bt. Cotton	Low productivity of cotton under rainfed medium black soils of Nagpur region	a) Sucking pests incidence	a) Seed treatment + use of NSE/ conventional insecticides at ETL	a) Single component FLD b) Training and field programmes on IPM. c) Diagnostic visits	Sr. No 1 of Technology Inventory

Pigeonpea	Low productivity of pigeonpea under rainfed medium black soils of Nagpur region	a) wilt incidence b) *Helicoverpa*, Podfly incidence c) Moisture stress	a) Use of resistant varieties b) Seed treatment with Trichoderma spp. c) Need based spray of chemical insecticides.	a) Single component FLD b) Training for seed treatment . c) Field programmes d) Diagnostic visits	Sl. No. 12,13(2) of Technology Inventory
Chickpea	Low productivity of chickpea under rainfed medium black soils of Nagpur region	a) Root rot/ wilt incidence b) Podborer incidence c) Moisture stress	a) Use of resistant varieties b) Seed treatment with *Trichoderma* spp. c) need based spray of insecticides.	a) Single component FLD b) Training for seed treatment and use of pheromone traps. c) Field programmes d) Diagnostic visits	Sl. No. 12,13(2) of Technology Inventory
Nagpur Mandarin	Low productivity in Nagpur Mandarin under Nagpur region	a) Incidence of *Phytophtora*	a) Single component OFT. b) IDM c) Application of recommended dose of fertilizers and other nutrients	a) Single component FLD b) Training c) Field programmes d) Diagnostic visits	Sl. No. 9 of Technology Inventory
Cotton	Low productivity of cotton under rainfed medium black soils of Northern Amaravati	1) Imbalance fertilizer application 2) Pest and disease occurance 3) Flower and boll drop due to micro-nutrient deficiency	1. Application of recommend dose of Nutrients 2. Integrated Pest control 3. Micro-nutrient i.e boron application to control flower and boll drop	1. Single component FLD to demonstrate effect of recommended dose of nutrients 2. Training and FLD programme on integrated pest management of cotton pest 3. OFT on management boron deficiency to control flower and boll drop	1. Sl. No. 6 of Technology Inventory 2. Sl. No. 45 of technology Inventory 3. Sl. No. 99 of Technology inventory
Discipline: Horticulture					
Nagpur mandarin	Decline in yield & quality of fruit	1. Poor management practices 2. Heavy crop load	1. Improved cultivation practices 2. Rejuvenation of old trees	1. Training on improved cultivation practices 2. FLD on rejuvenation of	Dr.PDKV, Akola

		3. Inadequate pruning practices	3. Application of Bordeaux paste 4. Recommended dose of fertilizer	old trees 3. Training on Application of Bordeaux paste & recommended dose of fertilizer	
Nagpur mandarin	Pre harvest fruit drop in ambia bahar	1. Physiological 2. Pathological 3. Entomological (fruit flies)	a. Adoption of improved inter culture operations b. Application of growth hormones Integrated disease & pest management	1. Training on citrus orchard management 2. Training on Integrated disease & pest management 3. FLD on Management of preharvest fruit drop	Dr.PDKV, Akola
Okra	Low productivity & incidence of YVMV	1. selection of low yielding & YVMV susceptible varieties 2. Long duration varieties 3. Imbalance fertilizer application	1. Selection of high yielding YVMV resistant short duration varieties Application of recommended dose of fertilizers	1. FLD on high yielding YVMV resistant short duration varieties of okra { Akola bahar } 2. Training on INM in okra	Dr.PDKV, Akola
Chilli	Low productivity	1. Faulty selection of variety 2. Poor nursery management 3. Improper fertilizer schedule 4. Poor management of disease	1. Selection of improved variety 2. Nursery management 3. Application of recommended dose of fertilizers 4. Disease management	1. FLD on improved variety Jayanti 2. Training on scientific nursery management 3. Training on fertilizer schedule & disease management	DR.PDKV, Akola
Onion	Low productivity & poor % of uniform size of bulb	1. Faulty selection of variety 2. Poor nursery management 3. Improper fertilizer schedule 4. Bolting in onion	1. Selection of improved variety 2. Nursery management 3. Spray of lihocin 4. Application of recommended dose of fertilizers	1. OFT on spray of lihocin to improve the% uniform size of bulb 2. Training on proper nursery management & 3. nutrient management	NRCOG,Rajgurunagar

Discipline: Veterinary Science					
Cows, crossbred cows & buffaloes	Low productivity	1. Nutritional deficiencies i.e. energy, protein and mineral deficient diet	1. Supplementation of diet with protein, bypass fat, dry yeast & micronutrients	1. **OFT** on feeding of **bypass fat** 2. **FLD** on supplementation of **vitamin-mineral** in the diet of cows **& training** on low cost feed formulation 3. **FLD** on use of **chelated minerals**	NDRI, Karnal MAFSU, Nagpur NDRI, Karnal
Goats Goats	Low body weight gain, low milk yield, low prolificacy Low body weight gain, low milk yield, low prolificacy	1. Low genetic potential of local goats	1. Upgradation of local goats by crossing with productive pure breed.	1. **Training** on improvement of genetic potential	MPKV, Rahuri
		2. Lack of balanced nutrition due to extensive method of rearing	2. Inclusion of concentrate feed in their diet	2. **OFT on supplementary feeding & Training** on low cost feed formulation for goats	CIRG, Makhdoom & MAFSU, Nagpur
		3. Ecto & endoparasitic infestation	3. Ecto & endo parasitic control by using new generation ectendo-parasiticidal drugs	**3. Training** & **Demonstrations** on effective use of ecto & endoparasiticidal drugs	Div. of Parasitology & Vet. Sciences A.H., Jamu
		4. High mortality during monsoon season	4. Adoption of strict schedule for vaccination, deworming & dipping	4. Organizing **treatment, vaccination & ecto-endoparasitic control camps**	MAFSU, Nagpur
Back yard Poultry	Low egg production, slow growth rate, high mortality.	1. Low genetic potential	1. Introduction of improved deshi breeds	1. **FLD & Training s**on improved deshi breed/breeds.	PDP, Hyderabad
		2. Poor management	2. Adoption of prophylactic	**2. Training** on improved management practices	UAS, Banglore
		3. practices & High incidence of diseases	3. measures for disease control	3. **Training** on balanced feeding	PDP, Hyderabad
		4. Inadequate/ poor feeding	4. Inclusion of balanced feed		

Discipline: Home Science					
Anganwadi /School going children	Low Hb%,weight gain & deficiency	Deficiency of iron	Use of locally available Iron rich food crops, vegetable	Training and OFT	Sl. No. 1 of Technology Inventory
Cotton	Drudgery in cotton picking	Bulk harvesting and carrying within field of Bt . cotton in shortest duration	Method of Cotton picking Use of Improved cotton picking bag while harvesting	OFT and Training on reduction of Farm Women drudgery in cotton picking	Sl. No.2 and3 of Technology Inventory
Soybean	Drudgery while harvesting	Use of local sickle	Use of improved harvesting aids	Training & FLD	Sl. No. 4 of technology inventory

7. Details of each of the technology under Assessment, Refinement and demonstration

a. Detailed account on varietal/breed characters for each of the variety/breed selected for FLD and OFT
b. Details of technologies that may include formulation, quantity, time, methods of application of nutrients, pesticides, fungicides etc., for technologies selected under FLD and OFTs
c. Details of location/area specificity of recommended technology viz., for each of the variety/breed/technology selected for FLD and OFT

Crop production

Sr. No.	Type of activity	Name of Variety/technology	Prominent Features	Recommendation
Discipline: Crop production				
1	OFT	High Density Planting System in Cotton (HDPS)	Yield maximization, zero monopodial, compact growth habit, medium size boll having medium staple length, straight Non-Bt varieties	Recommended by CICR, Nagpur
2	FLD	AKAW- 4627	Short duration, high yielding, medium size grain, tolerant to rust and recommended for late sowing	Recommended in Vidarbha region for late sowing
3	FLD	PKV- Tara/BSMR-736	High yielding (19-20 q/ha), mid-late, wilt and moderately tolerant to Sterility Mosaic pigeon pea cultivar, matured in 176 days.	Recommended for Vidarbha region
4	FLD	High yielding mid late of wilt resistance pigeon-pea PDKV 9303 + pod borer management	For tur pod borer management IPM approach with a)NSKE 5% at ETL b) Endosulfan0.07after 15 days of NSKE application c)HaNPV 250 LE/ha after 15 days of Endosulfan spray and d) Methyl parathion 2 % dust @ 20 kg/ha15 days HaNPV spray are recommended	Recommended for Vidarbha region
5	FLD	Jaki -9218	Suitable under minimum tillage / no tillage	Recommended for Vidarbha region
6	FLD	INM in soybean	Application of half RDF+5t FYM+ 20 kg S+2.5 Kg Zn Rhizobium and PSB innoculation	Recommended for Vidarbha region

7	FLD	NL 260	High yielding, alternaria blight and powdery mildew disease tolerance linseed variety	Recommended for Vidarbha region
8	FLD	INM in cotton	Application of FYm@5t/ha+100%RDF(90:45:45 kg NPK/ha)	Recommended for central zone by AICCIP
9	OFT	Optimization of plant density of Bt cotton	Planting Bt cotton at 90 x45 cm	RRC 2009 Recommendation of DR.PDKV AKOLA.
10	OFT	IPNS in soybean – wheat cropping system	Application of 50 % RD of N P K S Zn + 5 t FYM + Rhizobium to soybean crop in kharif and 75 % RD of N P K + azospirilum to Wheat	Dr.PDKV recommendation for wheat –soybean cropping system
Discipline: Veterinary Science				
1	OFT	Feeding of By-pass fat to just calved high yielding cows	The fatty acids of fat source are converted to calcium salts of fatty acid, in which form these fatty acids remain inert in the rumen, but as these fatty acids reach the intestine, these are digested and absorbed and thus, provide extra energy for milk production.	Recommended by NDRI, Karnal for cows and buffaloes
2	OFT	Swarnadhara-Deshi breed of layer chicken	Swarnadhara breed has a high egg production potential along with better growth compared to other native chicken	KVAFSU, Hebbal, Banglore
3	FLD	Supplementary feeding of concentrate feed to lactating does	Supplementation of additional energy and protein through concentrate feed improves milk production of lactating does which results into increasing pre weaning growth of the kids	CIRG, Makhdoom
4	FLD	Mineral feed supplementation and Deworming for avoiding anoestrus in cows	Dietary supplementation of VIT-Min compensates vitamin & minerals deficiency and deworming improves health and immunity, which ultimately leads to onset of oestrus by stimulating endocrine glands.	Recommended by Maharashtra Animal & Fisheries Sciences University, Nagpur
5	FLD	Detection of Mastitis in milch cows by CMT	The confirmative diagnosis of suspected cases of clinical and subclinical mastitis will be done by CMT. The sample of affected cases will be tested for Antibiotic sensitivity test and particular antibiotics will be recommended for treatment so as to reduce the cost of treatment	Department of Microbiology, NVC, MAFSU, Nagpur
6	FLD	Chelated mineral feeding	Bonding between a metal ion (mineral) and a legand (protein or amino acid) chelating agent forms a complex which protects minerals from chemical reactions during digestion that would render the mineral unavailable to the animal. Thus, this complex or chelated mineral reaches the plasma intact and separates at the site of action.	National Dairy Research Institute (NDRI), Karnal