KRISHI VIGYAN KENDRA

CICR, NAGPUR

ANNUAL PROGRESS REPORT

(April, 2011 to March, 2012)

KRISHI VIGYAN KENDRA

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

ANNUAL REPORT – 2011-12 (1.4.2011 to 31.3.2012)

1. GENERAL INFORMATION ABOUT THE KVK

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. ., **Nagpur – 440 010 (Maharashtra)**	Office 07103 – 275549 / 275617 / 275536 Ext. 350	FAX 07103 – 275529	kvkcicrnagpur@gmail.com, kvk_cicr2007@rediffmail.com

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 30th March 2011)

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	37400-67000	49,010	01.06.2011	Permanent	OBC
2	Subject Matter Specialist	Sh. Gulbir Singh	SMS	Horticulture	15600-39100	26,070	30.09.1996	- do -	Others
3	Subject Matter Specialist	Dr. A.S. Tayade	SMS	Agronomy	15600-39100	26,070	30.09.1996	- do -	SC
4	Subject Matter Specialist	Sh. S.S Patil	SMS	Extension	15600-39100	26,070	30.09.1996	- do -	OBC
5	Subject Matter Specialist	Dr. U.V. Galkate	SMS	Veterinary Science	15600-39100	27710	10.01.1997	- do -	ST
6	Subject Matter Specialist	Dr.R.R. Gupta	SMS	Plant protection	15600-39100	32,280	30.09.1996	- do -	Other
7	Subject Matter Specialist	Smt. S.N. Chauhan	SMS	Home Science	15600-39100	2554o	07.01.1997	- do -	Other
8	Farm Manager	Dr. P.B. Deulkar	Farm Manager	Veterinary Science	9300-34800	13700+ 4200 +25% NPA	07.04.1997	- do -	SC
9	Programme Assistant	Mr. Harish Kumbhalkar	Programme Assistant	Soil Science	9300-34800	13910	01.10.2010	- do -	OBC
10	Computer Programmer	Smt. Vandana Satish	Programme Assistant (Computer)	Computer Science	9300-34800	13500	29.01.2011	- do -	Other
11	Accountant / Superintendent	Ejaj Ahmed	Office Suptd.	-	9300-34800	15980	07.12.2010	- do -	Others
12	Stenographer	Sh. S. S. Chalkhure	Jr. Steno – cum-computer operator	-	5200-20200	10170+ 2400	07.11.1998	- do -	SC
13	Driver	A. K. Sherkar	T-1 (Driver)	-	5200-20200	9290+ 2800	10.02.1998	- do -	ST
14	Driver	Naresh Raut	T-1 (Driver)	-	5200-20200	6,460	29.12.2010	- do -	OBC
15	Supporting staff	Sh. Shalik Sahare	SS. Grade-1	-	5200-20200	7390 +1800	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 (Horticulture)	6.60 ha
3.	Under Crops	7.40 ha
4.	Orchard/Agro-forestry	6.00 ha
5.	Others (specify)	-
	Total	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	-	-	-	-	-	-	-
3.	Staff Quarters (6)	-	-	-	-	-	-	-
4.	Demo Units : -Goat (Temporary shed)	CICR	Dec 1998	26.6 ' X 13.6'	10000	Completed	-	-
	-Vermicompost unit (Portable)	CICR	Feb 2006	25'X30'	40000	Completed	-	-
	-Nutrition garden unit	CICR	July 1998	18 X 44 m	-	Completed	-	-
	-Guava garden unit	CICR	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	-	-	-	-	-	-	-
6	Rain Water harvesting system –Farm ponds - 1	CICR	June 2001	60mX45 mX 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	100000 km	Running condition
Tractor – Mahindra (Arjun)	March 2009	4.86 lakh	831.7 km	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. Pulveriser	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

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

Sl.No.	Date	Name and Designation of Participants	Salient Recommendations	Action taken
1	12/07/2011	1. Dr. K.R. Kranthi, Director, CICR 2. Dr. Sandhya Kranthi, Head, Crop Protection, CICR 3. Dr. Jagvir Singh, I/c Head, DCP, CICR 4. Dr. Mrs. Sumanbala Singh,I/c Head, DCI, CICR 5. Dr. Venugopalan, P.S., DCP, CICR 6. Dr. Pattiwar, Extn Agronomist, Dr. PDKV, Akola 7. Dr. Dinesh Kumar, Sr. Sci., NRCC, Nagpur 8. Dr. Raja Pathak, R/o DAHO, Z.P. 9. Devalsa Uike (Farmer) 10. Shri. Kathane (Farmer) 11. JDA, Office Representative	1. Pressurize irrigation system in various crops may be demonstrated 2. The variety of pigeon pea developed by Dr. PDKV, Akola may be popularized through FLD's or OFT's among the farmers of Nagpur district 3. More FLDs and programmes should be conducted on horticultural crops and livestock 4. Colourful poster, booklets, brochers on various technologies may be prepared for the benefit of farmers 5. Osmanabadi goat unit may be strengthened for availability of kids on large quantity for the farmers purchasing goats through government organization. 6. Advisory services to the stakeholders may be provided through print and electronic media 7. Pure seed of improved onion variety . may be made available through KVK. (Farmers) 8. The horticulture nursery produce should be developed & sold to the farmers	1. Demonstrations on pressurize irrigation (sprinklers) in gram, drip irrigation in cotton and arhar has conducted in Manori, Mandwa and Bhagwanpur villages. 2. In FLD and OFT trials BSMR-736 Pigeonpea variety was included. 3. FLDs on rejuvenation of moderate decline Nagpur mandarin, gummosis & preharvest fruit drop management as well as FLDs on detection of mastitis, urea treatment of straws and chelated mineral were conducted 4. Colour full display boards on various crop technologies were prepared and 1 book on mealy bug management and 3 leaflets published by KVK 5. Osmanabadi goat unit is being strengthened by construction of goat shed having capacity for accommodating more than 70 goats. 6. Advisory services provided on cotton, soybean, horticultural crops and livestock through leading news papers like Agrowon, Aadhunik Kisan, Krushokonnati, Godwa, etc. In addition to this 12 radio talks delivered on various agriculture and allied topics 7. Bulb of Akola safed variety of onion has been retained for seed production during coming season 8. Tuberose 58 kg, Garlic clobs 30 kg, Onion 70 kg developed & sold to the farmers.

2. DETAILS OF DISTRICT (2011-11)

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	33000	344000	1041
2	Rabi Jowar	2900	1500	532
3	Rice	46000	69100	1502
4	Tur	52900	33500	634
5	Gram	73700	45300	615
6	Cotton	67500	84000	212
7	Soybean	263500	346600	1315
8	Wheat	65200	73000	1119
9	Groundnut (K)	6100	5800	945
10	Groundnut (Sum)	600	500	915
11	Sunflower	2500	2100	850

Sources: O/o SAO, Nagpur

2.5. Weather data

Weather Data during the crop season (2011-12)

KVK , CICR, Nagpur **Location of the weather station** : **CICR,** Nagpur **Year:** 2011-12

Date & Month	Met. week	Rainfall (mm)	No. of rainy days	Sun shine hrs	Temperature (^{0}c)		R.H. (%)	
					Max.	Min.	Mor.	Even.
4-10 June,2011	23	14.0	2	8.3	38.4	26.7	73	43
11-17	24	110.0	5	6.4	37.4	24.4	74	46
18-24	25	4.0	1	4.3	34.3	25.9	69	56
25-01 July	26	20.0	4	7.7	30.1	24.5	84	69
Total		**148.0**						
02-08 July	27	5.0	2	2.5	34.7	25.1	85	55
09-15	28	36.0	2	4.6	33.1	24.9	85	66
16-22	29	43.0	5	1.7	30.0	24.5	91	82
23-29	30	32.0	3	1.5	29.7	24.6	89	70
30-05 Aug.	31	53.0	2	2.7	31.7	25.1	91	75
Total		**169.0**						
06-12 Aug.	32	78.0	4	0.5	29.8	2430	91	78
13-19	33	79.0	5	2.8	28.9	23.6	93	78
20-26	34	60.0	**3**	4.2	31.6	2447	91	70
27-02 Sept.	35	105.0	6	1.4	29.4	24.4	94	85
Total		**322.0**						
03-09 Sept.	36	70.0	6	0.0	29.6	23.8	94	82
10-16	37	56.0	3	6.0	316	24.3	95	74
17-23	38	23.0	3	7.1	31.9	23.8	88	62
24-30	39	00.0	0	8.4	34.1	23.4	82	46
Total		**149.0**						
1-7Oct	40	0.0	0	8.5	34.4	21.7	79	43
8-14	41	0.0	0	7.9	33.7	22.9	98	43
15-21	42	0.0	0	7.6	34.5	21.0	75	36
22-28	43	0.0	0	8.6	33.1	18.0	72	29
29-04Nov	44	0.0	0	8.7	31.4	18.0	70	24
Total		**00.0**						
5-11	45	0.0	0	9.4	33.9	16.0	68	24
12-18	46	0.0	0	9.1	32.5	16.5	67	25
19-25	47	00.0	0	9.1	31.0	14.9	75	32
26-02Dec	48	0.0	0	8.3	30.3	15.6	76	34
Total		**00.0**						
3-9	49	0.0	0	8.9	30.6	14.6	76	31

10-16	50	0.0	0	8.5	30.0	12.6	72	30
17-23	51	0.0	0	8.6	28.0	11.2	59	26
24-31Dec 2011	52	0.0	0	8.8	28.6	13.0	57	32
Total		**00.0**						
01-07Jan2012	01	0.0	0	8.9	28.1	18.1	85	54
8-14	02	0.0	0	9.3	26.8	10.1	72	24
15-21	03	9.0	1	9.6	28.6	9.9	70	25
22-28	04	0.0	0	9.1	27.1	13.7	77	43
29-04Feb2012	05	0.0	0	6.0	26.9	13.9	80	42
Total		**09.0**						
Total Rainfall		**797.0 mm**						

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

Category	Population	Production	Productivity
Cattle			
Crossbred	88180	2500-3000 l/lactatiion	**-**
Indigenous	890755	800-900 l/lactatiion	**-**
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	**-**

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

2.6 Details of Operational area / Villages (2011-12)

S. No.	Taluka	Name of the block	Major crops & enterprises	Major problems identified
1	Umred & Bhivapur	Umred & Bhivapur	Soybean, Cotton, pigeonpea, wheat, chickpea, jowar, vegetable crops like tomato, chilli, brinjal, okra & tinda, orchard-Nagpur mandarin	**Crop Production:** **Low productivity of cotton, Soybean, Pigeonpea & 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 pigeonpea 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, semilooper and hairy caterpillars in soybean 5. Incidence of *Phytophthora*, black fly, psylla and fruit moth in citrus. **6.** Incidence of shoot and fruit borer in brinjal
4				**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..7 Priority/thrust areas

Crop/Enterprise	Thrust Area
Cotton	Plant density optimization, Integrated nutrient management and in situ water conservation and sucking pest management
Soybean	Weed management, IPM and INM
Pigeonpea 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 generative Activity
Use of Non conventional devices	Skill Development ,Energy resource management
NADEP Compost Making	Conservation of Agro Waste
Dairy Cow	Nutrition management
Jersey cross bred	Disease management
First calf heifer	Nutrition management and deworking
Cross bred cows	Feed management
Goats	Ecto & endo parasitic management

3. TECHNICAL ACHIEVEMENTS

3.A. Details of target and achievements of mandatory activities by KVK during 2011-12

OFT				FLD			
1				2			
Number of OFTs		Number of Farmers		Area of FLDs		Number of Farmers	
Targets	Achievement	Targets	Achievement	Targets	Achievement	Targets	Achievement
Home Science							
		2	2	2	2		
Crop production							
1	1	5	5	5	5	32	32
Horticulture							
1	1	10	10	4	3	51	51
Veterinary Science							
2	2	20	20	3	3	30	30
Crop Protection							
1	1	10	10	4	4	95	95

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	45	45	1232	1232	14	15	1966	4251
Rural youth	19	19	508	508	2	2		
Extn. Functionaries	09	09	250	250				

Seed Production (Qtl.)		Planting material (Nos.)	
5		6	
Target	Achievement	Target	Achievement
3	2	50,000	50,000

3. B. Abstracts of interventions undertaken

S. No	Thrust area	Crop/ Enterprise	Identified Problem	Interventions					
				Title of OFT	Title of FLD if any	Title of Training	Title of training for EF	Extension Activities	Supply of seeds, planting materials etc.
1	Irrigation Management	Cotton	Low cotton productivity		Irrigation management in Bt cotton	Fertigation in cotton			Water soluble fertilizer
2	INM	Cotton	Low cotton productivity		INM in Bt cotton	Foliar spray of micronutrient			Fertilizers
3	Varietal	Wheat	Lack improved Varieties		Assessment of Raj 4037	Irrigation management in wheat		Identification CRI stage in Wheat	Seed of Raj 4037
4	Varietal	Linseed	Lack improved Varieties		Assessment of NL 260	Sowing techniques in linseeds			Seed of NL 260
5	Varietal	Pigeonpea	Lack improved Varieties		Assessment of PKV Tara	Phosphorous management in pigeon pea		Diagnostic survey on fusarium wilt	Seed of PKV Tara
6	Crop management	Cotton	Suboptimal Plant density	Optimization of plant density in Bt cotton	-	-	-	Field day	Seed
7	Nutrition management	Dairy cow	Low milk yield, low conception rate	Supplementation of vitamin mineral & deworming	-	Nutrition management	-	Field visit, Group discussion	Vitamin mineral powder + Broad spectrum anthelmetic
8	Nutrition management	Lactating does (goat)	Low milk yield, Poor wt. gain of pre-weaned kids	Supplementary concentrate feeding	-	Feed management of lactating does	-	Group discussion	Concentrate feed
9	Nutrition management	CB Cows	Low milk yield, temporary infertility		Supplementation of chelated mineral in the diet	Feed supplementation with chelated mineral	-	Field visit, training, group discussion	Chelated mineral

10	Feeds & fodder	Cows	Low milk yield, scarcity of green fodder		Urea treatment of straw	Urea Rx of rice straw		Group discussion	Urea & jiggery
11	Disease management	Dairy cows	Inflammation of udder, curding of milk		Detection of mastitis	CMT Technique	-	-	CMT reagent
12	Drudgery reduction	Women labourer	Drudgery	Drudgery reduction	-				Improved cotton picking bags
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	School going children	Nutritional deficiency	Use of GLV & soybean products for improvement in Hb%	-	Preparation of locally available iron rich veg	-	-	Green leafy vegetables & soybean, ragi, jaggary
15	Nutrition management	Dairy cow	Low milk yield & reproductive problem	Use of Chelated mineral	-	Feed supplementation	-	Group discussion	Chelated mineral
16	Nutrition management	Dairy cow	Low milk yield, low conception rate	Supplementation of vitamin mineral & deworming	-	Nutrition management	-	Group discussion	Vitamin mineral powder + Broad spectrum anthelmetic
17	Vegetable production	Tomato	Low productivity		Varietal evaluation	(PKM1)	-	Diagnostic Survey	Seed
18	Vegetable production	Okra	Low productivity		Varietal evaluation	(Arka-Anamika)	-	Diagnostic Survey	Seed
19	Vegetable production	Onion	Low productivity		Varietal evaluation	(Akola Safed)	-	Diagnostic Survey	Seed
20	Orchard management	Nagpur mandarin	Low productivity		Rejuvenation of decline trees of Nagpur mandarin	-	-	Diagnostic Survey	Bordeaux mixture
21	IPM	Soybean	Incidence of semiloopers	Bicontrol of semiloopers	-	IPM in Soybean	IPM in Soybean	Trg., field day & demo., diagnostic surveys	-
22	IPM	Bt cotton	Sucking pests incidence	-	IPM in Bt cotton	IPM in Bt cotton, PAT	IPM in Bt cotton	Trg., field days, demos & diagnostic surveys	-
23	IPM	Nagpur Mandarin	Gummosis	-	Management of gummosis in Nagpur mandarin	Pest management in Nagpur mandarin	-	Trg, demos diognostic survey	Fungicides
24	Prod. Tech.	Pigeonpea	Pests incidence & nutrient deficiency	-	Production technology I n pigeonpea	Production technology in Pigeonpea	-	Trg., demos field days diagnostic surveys	Seed, fertilizers, pesticides, P. Traps, etc.
25	Prod. Tech.	Chickpea	Pests incidence & nutrient deficiency	-	Production technology in chickpea	Production technology in chickpea	-	Trg., demos field days diagnostic surveys	Seed, fertilizers, pesticides, P. Traps, etc.
26	IPM	Chickpea	Helicorverpa incidence	-	Helicoverpa management in chickpea	Helicoverpa management in chickpea	-	Trg., demos field days diagnostic surveys	P. traps & pesticides

3.B. Abstract of interventions undertaken

3.1 Achievements on technologies assessed and refined

A.1 Abstract of the number of technologies **assessed*** in respect of crops/enterprises (***Kharif 2011, Rabi & Summer 2011-12)***

Thematic areas	Cereals	Oilseeds	Pulses	Commercial Crops	Vegetables	Fruits	Flower	Plantation crops	Tuber Crops	School going children	TOTAL
Varietal Evaluation	-	-									
Seed / Plant production	-	-									
Weed Management											
Integrated Crop Management	-	-	-	1	-	-	-	-	-	-	1
Integrated Nutrition Management											
Integrated Farming System											
Mushroom cultivation											
Drudgery reduction											
Farm machineries											
Nutrition Management	-	-	-	-	-	-	-	-	-	1	1
Integrated Pest Management											
Integrated Disease Management											
Resource conservation technology											
Small Scale income generating enterprises											
TOTAL											

* *Any new technology, which may offer solution to a location specific problem but not tested earlier in a given micro situation.*

A.2. Abstract of the number of technologies **refined*** in respect of crops/enterprises ***(Kharif 2010, Rabi & Summer 2010-11)***

Thematic areas	**Cereals**	**Oilseeds**	**Pulses**	**Commercial Crops**	**Vegetables**	**Fruits**	**Flower**	**Plantation crops**	**Tuber Crops**	**Farmwomen**	**TOTAL**
Varietal Evaluation											
Seed / Plant production											
Weed Management											
Integrated Crop Management											
Integrated Nutrient Management											
Integrated Farming System											
Mushroom cultivation											
Drudgery reduction	-	-	-	-	-	-	-	-	-	1	1
Farm machineries											
Post Harvest Technology											
Integrated Pest Management											
Integrated Disease Management											
Resource conservation technology											
Small Scale income generating enterprises											
TOTAL	-	-	-	-	-	-	-	-	-	1	1

***** *Technology that is refined in collaboration with ICAR/SAU Scientists for improving its effectiveness.*

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								
Nutrition Management	1	-	-	1	-	-	-	2
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	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
Nutrition Management	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
Disease of Management	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
Value Addition	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
Production and Management	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
Feed and Fodder	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
Small Scale income generating enterprises	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
TOTAL	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil

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

II. Technology Assessed

Trial 1 (Crop Production)

1. **Title:** Optimization of plant density in Bt cotton
2. **Problem Diagnosed/define:** Low yield in Bt cotton.
3. **Details of technologies:**

   T1: Farmers Practice (90 cm x 90 cm)

   T2: Recommended practice (120 cm x45 cm)

T3: Planting Bt. cotton at (150 cm x60 cm)

4. **Source of technology:** Dr.PDKV Akola
5. **Production System:** Rainfed cotton based system
6. **Thematic Area:** Integrated crop Management

7. **Performance of :** Sowing of Bt cotton at plant spacing of 120cm x45 cm recorded significantly higher seed cotton yield of 25.00 q/ha than 90 cm X 90 cm and 150 cm X 60 cm plant spacing.

8. **Final recommendation for micro level situation:** Bt cotton may be grown at plant spacing of 120cm x45 cm on rainfed medium black cotton soils of Nagpur district.

9. **Constraints identified and feedback for research:** As compared to square planting sowing of Bt cotton 120x45 cm was found beneficial in improving the seed cotton yield hence research on ultra narrow planting of Bt cotton is required .

10. Farmers were involved in planning, executing, monitoring evaluation of the trials and in the upcoming years ready to increase the area in this technology

11. Result of OFT

Crop/ enterprise	Farming situation	Problem diagnosed	Title of OFT	No of Trials	Technology Assessed	Parameters of assessment	Data on the Parameter Seed cotton yield (q/ha)	Result of the assessment	Feedback from the farmer
Bt cotton	Rainfed	Low productivity of Bt cotton	Optimization of plant density in Bt cotton	05	T1: Farmers Practice (90 cm x 90 cm) T2: Recommended practice (120 cm x45 cm) T3: Planting Bt. cotton at (150 cm x60 cm)	Seed cotton yield	T1: 20.10 T2: 25.00 T3:18.70	Higher seed cotton was recorded by planting cotton at 120x45 cm spacing	This planting can easily adopted in Bt cotton

Technology Assessed	Production per unit (q/ha)	Net return(profit) in Rs/ha/Unit	BC ratio
T1: Farmers Practice (90 cm x 90 cm)	20.10	32380	1.69
T2: Recommended practice (120 cm x45 cm)	25.00	50000	2.11
T3: Planting Bt. cotton at (150 cm x60 cm)	18.70	26000	1.57

Discipline : Crop Protection

A. Technology Assessment

Trail 1

1. **Title**	**:**	Biocontrol of semiloopers in Soybean
2. Problem identified	**:**	Low productivity of soybean due to heavy incidence of semiloopers
3. Details of technologies Selected for assessment	**:**	a) first foliar spray of Beauveria bassiana @ 1.0 kg/ha followed by b) 2nd spray of Azadiractin 1500 ppm @ 25 ml/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	**:**	IPM
7. Performance of the Technology with performance indicators	**:**	**The trial could not be conducted due to the semilooper population was under ETL during the crop period.**
8. Final recommendation for micro level situation	**:**	
9. Constraints identified and feedback for research	**:**	Time period is limited for biocontrol
10. Process of farmers participation and their reaction	**:**	Farmer participation was taken in working out ETL (i.e. 3-4 larvae/metre row length) Meeting with farmers and training was organized before start of the trial.

Discipline: Home Science

Trial 1

1. **Title** : Use of Green leafy vegetable and soybean products for improvement in Hb% of school going children (10-11 yrs age group)
2. **Problem diagnose/defined** : Nutritional deficiency in school going children (10-!1)
   Ignorance about intake of green leafy vegetables in regular diet.
3. **Details of technologies selected for assessment** : Lack of awareness about balanced diet
   Poor economic condition
   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** : Nutrition Expert Group , ICMR
5. **Production system thematic area : -**
6. **Thematic area** : Iron deficiency management.(Nutrition management)
7. **Performance of the Technology with performance indicators** :
   The refined practice of diet fortification has improved the haemoglobin percentage by 0.6 % to 1.2 & increase in weight by 1 to 2 kg per child compared with local method of consumption of food.
8. **Final recommendation for micro level situation:**
   Cereals -200 g , pulses -20g, , Green leafy vegetables 75 g , other vegetables – 50 g ,fruits – 50 g , milk -250ml , fats 30g,Sugar & jiggery 10gm. Soyladdu (Soybean flour 50g + Wheat flour 50g, g, Jaggary40g+fats 15), Consumption of Green leafy vegetables (GLVs)/meals – *Beta vulgaris*, *Portuluca oleracia*, *amaranthus blitum*,*Cicer-arietinum, Brassica oleracia,colocacia anti-quorum, Peucedanum-graveolenfleaves, Rubela vasela alternatively*) improves the body weight and haemoglobin % of school going children leads to increase in Hb%.

9. Constraints identified and feedback for research:

Lack of awareness about nutritional management/ anaemia. Location specific iron rich diet need to be formulated.

10. Process of farmers participation and their reaction :

The participation/ coopration of school going children (10-11yrs) and school authority is found satisfactory. They cooperated in bringing awareness in inclusion of iron rich diet in their daily diet during observation period. Students 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)	Increase in Weight(Kg)	Increase in 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	11.0	23	0.40	Cereals -200 g , pulses -25g, , Green leafy vegetables 75 g , other vegetables – 50 g ,fruits – 50 g , milk -250ml , fats 15g,Sugar & jaggary 10gm. ICMR)SoyLaddu/meal (Soyflour 50 g+ Wheat flour 50 g,, Jaggary 40 g +fats 15g (Consumption of Green leafy vegetables/meals – *Beta vulgaris*, *Portuluca oleracia*, *amaranthus blitum*,*Cicer-arietinum, Brassica oleracia,colocacia anti-quorum, Peucedanum-graveolenfleaves, Rubela vasela alternatively*) / school going 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- 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)		10.9	26	0.47		
% increase in parameter			13.0	17.5		

A. Technology Assessed

Discipline: Veterinary Science

Trial: 1

1. **Title of On-farm trial:** Supplementary feeding for improving production performance of lactating does (goat)

2. **Problem diagnosed:** Low milk yield, poor weight gain in pre-weaned kids

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

   T_1 – Grazing for 8 hours

   T_2 - T1 + concentrate feed @ 150 g/day/head in the diet for 3 months

4. **Source of technology:** Central Institute for Research on Goats (CIRG), Makhdoom
5. **Production system:** Small ruminant Production System

6. **Thematic area –** Nutrition management

7. **Performance of the Technology with performance indicators:**
   Semi-intensive feeding method i.e. supplementary feeding of concentrate feed @ 150 g/day/head in lactating does, increased milk yield by 18.18% and growth of pre-weaned kids by 11% over local check. In addition 5% growth in body weight of lactating does receiving concentrate feed was also observed.
8. **Final recommendations for micro level situation:**
   Supplementary feeding of concentrate mixture @ 150 g/day/head in the diet lactating does may be recommended for 3 months to improve milk production and achieve increase in growth rate of pre-weaned kids.
9. **Constraints identified and feedback for research:** Majority of landless labourers and small farmers are having goats. They are rearing these goats with traditional extensive method and not including the concentrate feed in the diet of goats due to ignorance, lack of knowledge and short of money.
   Feedback: Farmers found this technology easy to adopt. They observed improvement in milk yield and pre-weaned weight of kids.
10. **Process of farmer's participation and their reaction:** Farmers were involved personally in the trial of 90 days and recorded the milk yield and weight of goats promptly.

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
Local goats	Small ruminant production system	Low milk yield, poor weight gain of pre-weaned goats	Supplementary feeding for improving production performance of lactating does (goat)	10	T_1 - Grazing for 8 hours T_2 - T1 + concentrate feed @ 150 g/day/head in the diet for 3 months

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
		T_1	T_2			
Milk production and growth rate of kids	Av. Milk yield/doe/day (lit.)	0.55	0.65	Improved milk yield and pre-weaned weight of kids	Not applicable	Not applicable
	Pre-weaned Average body weights in kids (kg)	12.72	14.12			
	Av. body weight of does (kg)	21.40	22.47			

Technology Assessed	*Production per unit (lit/doe/day)	Net Return (Profit) in Rs/doe/yr	BC Ratio
13	14	15	16
T_1 - Grazing for 8 hours	0.55	3180	2.05
T_2 - T1 + concentrate feed @ 150 g/day/head in the diet for 3 months	0.65	3530	2.90

Discipline: Veterinary Science

Trail 2

1. **Title of On-farm trial :** Vitamin mineral feed supplementation & deworming for avoiding anoestrus in first calf heifer

2. **Problem diagnosed:** Temporary infertility, low conception rate, failure of oestrus, high cost of
treatment

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

T_1 – Feeding of locally available feeds and fodders (FP)

T_2 - T1 + Vitamin supplementation @ 30 g/cow/day 30day & fenbendozole @ 5 mg/kg body wt. Repeated after 15 days

4. **Source of technology:** Dept of Animal Gynaecology & obstetrics, MAFSU, Nagpur
5. **Production system:** Large Animal Production System

6. **Thematic area –** Nutrition management

7. **Performance of the Technology with performance indicators:**
Results revealed that feeding of vitamin & deworming with broad spectrum anthelmintic increased milk yield by 16.66%. Highest milk yield (10.50 l/cow/day), conception rate (100%) and B:C ration (3.0) was recorded as compared to farmers practice

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

Diet of dairy cow may be supplied with vitmin powder @ 30 g/cow/day & repeated deworming may be done after 15 days

9. **Constraints identified and feedback for research:**
Constraints: High cost of vitamin powder & deworming drugs in shops of village & taluka places.
Feedback: Majority of farmers have shown keen interest for adopting this technology for higher milk production. Though the cost of inputs is high, farmers found it economical as far as the cost of treatment and decrease in milk production is concern.

11. **Process of farmer's participation and their reaction:** Farmers were involved enthusiastically in 90 days trial & recorded milk yield 2 times a day & observed the reproductive performance promptly.

12. 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	Large animal production system	Temporary infertility, low conception rate, failure of oestrus, high cost of treatment	Evaluation of feed supplemention	10	T_1 – Locally available feeds & fodder T_2 – T1 + Vitamin @ 30 g/cow/day + deworming repeated after 15 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				
Milk yield (l/cow/day)	9.00	10.5	Increase in milk yield B:C Ratio observed with achievement of 100% conception	Some cows showed slight decrease in milk yield for 3 to 4 days after administration of deworming drugs	Not applicable	Not applicable
Conception rate	90%	100%				

Technology Assessed	*Production per unit (lit/cow/day)	Net Return (Profit) in Rs/cow/yr	BC Ratio
13	14	15	16
T_1 – Locally available feeds & fodder	9.00	27110	2.6
T_2 – T1 + Vitamin @ 30 g/cow/day + deworming repeated after 15 days	10.50	28225	3.0

B. Technology Refinement

Discipline: Home Science

1. **Title of on-farm trial :** Reduction of farm women drudgery through cotton picking bags
2. **Problem diagnosed:** Experienced discomfort in upper arm and knee

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

   T1- Traditional cotton picking bag

   T2- Recommended practice- CCS, HAU, Hissar

   T3- Refined Practice-KVK,CICR, NAGPUR cotton picking bag..

   Source of technology: CCS, HAU, Hissar

5. **Production system thematic area:** Cotton + Soybean based cropping system
6. **Thematic area –** Drudgery reduction
7. **Performance of the Technology with performance indicators:**

   Ergonomically designed improved cotton picking bag, designed by KVK, CICR are found more comfortable while carrying load in the field improves the efficiency as compared with cotton picking bag of CCS, HAU.

   Performance Indicators: Heart rate before and after picking, area covered/ m^2/hr, cotton picked/kg/hr

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

   Ergonomically designed improved cotton picking bag, designed by KVK, CICR collects more cotton , covers head, more economical .It is comfortable while carrying load & largely preferred due to less increase in heart rate, equal distribution of load to the body, result no pain in mid, lower back and knee. It increases in the efficiency of cotton pickers as compared with local & CCS, HAU bag during 2011-12.

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

   Constraints: Unawareness about ergonomically designed cotton picking bags. **Feedback** :Ergonomically designed improved cotton picking bag, designed by KVK, CICR collects more cotton , covers head, more economical .It is comfortable while carrying load & largely preferred due to less increase in heart rate, equal distribution of load to the body, result no pain in mid, lower back and knee. It increases in the efficiency of cotton pickers as compared with local & CCS, HAU bag during 2011-12.

   Process of farmers participation and their reaction: Cotton picking laborers of all age group showed keen interest in using different type of cotton picking bags. They does not like MAU, Parbhani bag due to poor ventilated, front loaded only having

only 3 -5 kg carrying capacity, difficult in tying ,emptying, disturbing in walking and searching balls, causing pain upto 30% in mid and lower back. Hence its results are not presented. HAU bag is having 10% pain in right and left shoulder. On the basis of result and drudgery data ergonomically designed improved cotton picking bag, designed by KVK, CICR is well ventilated, covers head, economical in mass multiplication, easy in tying and emptying, back loaded and is having more carrying capacity. It is liked by middle and aged farm women.

Particulars	Farming situation	Problem Diagnosed	Title of OFT	No. of trials	Technology Refinement
1	2	3	4	5	6
Farm women	-	Experienced back pain, poor ventilation, less carrying capacity, discomfort in right and left shoulder, loading and unloading problem of seed cotton while using traditional, MAU & CCS,HAU Cotton picking bags.	Reduction of farm women drudgery through cotton picking bags	47	Improved cotton picking bag designed by KVK, CICR.

Parameters of assessment	Data on the parameter	Results o Refinement	Feedback from the farmer	Any refinement done	Justification for refinement
7	8	9	10	11	12
Heart rate difference, Area covered/m^2/hr, cotton picked/kg/hr		It is inferred that the Improved cotton picking bag designed by KVK, CICR is more preferred by the middle age group of 30-55 years compared to MAU< Parbhani, HAU bag and local farm practiced. The picking rate was more in Improved cotton designed bag (6 -7Kg hr^{-1}) and lesser increase in heart rate of farm women (Δ HR10.5 $beatsm^{-1}$) with no pain in mid, lower back, knee & shoulders .	Ergonomically, economical CCS, HAU cotton picking bag need to be designed as per the anthropometric requirements of farm women. Ergonomically designed improved cotton picking bag, designed by KVK, CICR is well ventilated, covers head, economical in mass multiplication, easy in tying and emptying, back loaded and is having more carrying capacity. It is liked by middle and aged farm women.	-	To suggest ergronomical, economical cotton picking bag to suit vidharbha region.

11. Results of On Farm Trials

Technology Refined	*Production per unit			Net Return (Profit) in Rs. / unit	BC Ratio
13	14			15	16
	∆ Heart rate (beats/min)	Area covered/m^2/hr	cotton picked/kg/hr		
T1- Traditional cotton picking bag	13.1	33.0	3.585±0.542	-	-
T2- Recommended practice- Improved cotton picking bags , CCS, HAU, Hissar	11.4	40.2	3.80±0.53	-	-
T3 KVK, CICR cotton picking bag.	10.5	42.3	4.2620±0.612		
CD	0.54	0.53	0.612		

3.2 Achievements of Frontline Demonstrations *(Kharif 2011, Rabi & Summer 2011-12)*

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

List of technologies demonstrated during previous year and popularized during 2011-12 and recommended for large scale adoption in the district

S. 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	Cotton	Irrigation management	Drip and fertigation in Bt cotton	Demonstrations ,field visits, field days	3	05	12.0
2	Cotton	Integrated nutrient management	INM	Demonstrations ,field visits, field days	2	10	4.0
3	Wheat	Varietal	Raj 4037	Demonstrations ,field visits, field days	2	7	10.0
4	Linseed	Varietal	NL 260	Demonstrations ,field visits, field days	2	04	1.6
5	Bt cotton	IPM	IPM	Demos,field visits,field days,trgs., kisan melas	6	110	60
6	Nagpur Mandarin	IPM	Gummosis Management	Demos,field visits,field days,trgs., kisan melas	5	18	9

7	Redgram	ICM	Production Technology	Demos,field visits,field days,trgs., kisan melas	6	85	35
8	Bengalgram	ICM	Production Technology	Demos,field visits,field days,trgs., kisan melas	7	88	37
9	Chilli	Varietal evaluation	Varietal (Tejas)	Demonstration, Training & Group discussion	3	14	5
10	Tomato	Varietal evaluation	Varietal (PKM1)	Demonstration, Training & Group discussion	3	14	4.5
11	Onion	Varietal evaluation	Varietal (N-241))	Demonstration, Training & Group discussion	3	7	2
12	Nagpur Mandarin	Orchards management	Rejuvenation of moderate backline citrus trees	Demonstration, Training & Group discussion	5	20	7
13	Dairy (CB Jersey cows)	Nutrition management	Supplemen-tation of chelated mineral	Demoonstration Training Field visit	6	44	-
14	Dairy (Local cows)	Feed & fodder	Urea treatment of wheat straw	Demonstrations Field visit, Training	5	31	-
15	Dairy (CB Jersey cows)	Disease management	Detection of mastitis	Demonstration Training	5	29	-

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

b. Details of FLDs implemented during 2011-12 (Information is to be furnished in the following **three tables** for **each category** i.e. **cereals, horticultural crops, oilseeds, pulses, cotton and commercial crops**)

Sl. 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	Cotton	Integrated crop management	Drip irrigation	Kharif 2011	2.0	2.0	02	03	05	-
2	Cotton	Integrated nutrient management	INM	Kharif 2011	4.0	4.0	7	03	10	-
3	Wheat	Varietal	Raj 4037	Rabi 2011	3.0	3.0	02	05	07	-
4	Linseed	Varietal	NL 260	Rabi 2011	2.4	2.4	03	03	06	-
5	Pigeonpea	Varietal	PKV Tara	Kharif 2011	1.6	1.6	01	03	04	
10	Chili	Varietal evaluation	Varietal (Tejas)	Kharif						
11	Tomato	Varietal evaluation	PKM2	Kharif						
12	Onion	Varietal evaluation	Akola safed	Rabi						
13	Pigeonpea	ICM	Production technology	Kharif	12.0	12.0	14	16	30	-
14	Chickpea	ICM	Production technology	Rabi	12.0	12.0	12	18	30	-
15	Bt cotton	IPM	IPM	Kharif	10.0	10.0	8	17	25	-
19	Nagpur Ma	IDM	Gummosis management	Kharif-Rabi	4.0	4.0	3	7	10	-

	nda rin			(A mbi a)						
	Dai ry	Nutrition manageme nt	Chelate d mineral feeding		20	20	10	-	10	-
20	Dai ry	Feed & fodder	Urea treatme nt	Su mm er	20	20	7	3	10	-
21	Dai ry	Disease mgmt	Detecti on of maints	Win ter	20	20	8	2	10	-

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					
Cotton	Kharif	Irrigated	Medium black cotton	Low	Low	High	Soybean	First week of June	January first week	797	56
Cotton	Kharif	Rainfed	Medium black cotton	Low	Low	High	Soybean	3rd week of June	January first week	797	56
Wheat	Rabi	Irrigated	Deep black cotton soil	Medium	Low	High	Soybean	Second week of Nov	March first week	797	56
Linseed	Rabi	Rainfed	Deep black cotton soil	Medium	Low	High	Soybean	Second week of Nov	March first week	797	56
Pigeon pea	Kharif	Rainfed	Deep Vertisols	Medium	Low	High	Soybean	Second week of June	January first week	797	56
Nagpur Mandarin	Kharif-rabi	irrigated	Medium deep black	Low	Low	High	-	Age between 15-20 yrs.	January	797	56
Bengal gram	Rabi	Iprotective irrigation	Medium deep black	Low	Low	High	Soybean	4th week of Nov., 2011	March 3rd week, 2012	797	56

Performance of Frontline Demonstration on Field and horticultural Crops

Year	Season	Major Group	Category	Crop	Thematic Area	Name of the technology demonstrated	No. of Farmers	Yield (q/ha)		% Increase	Date on other Parameters		*Economics of demonstration (Rs./ha)				Economics of check (Rs.ha)			
								Demo	Check		Demo	Local Check	Gross Cost	Gross Return	Net Return	** BCR	Gross Cost	Gross Return	Net Return	** BCR
2011-12	Kharif	Horticultural crop	Vegetable	Tomato	Vegetable production	High yielding variety	10	85.5	74.8	15.54	-	-	17500	42750	25250	2.44	17000	37000	20,000	2.17
2011-12	Rabi	Horticultural crop	Vegetable	Chilli (dry)	Vegetable production	High yielding variety	15	15.00	12.70	18.11	-	-	19500	60,000	40500	3.09	18000	50800	32800	2.82
2011-12	Perennial Crop	Horticultural crop	Fruit Crop	Nagpur mandarin	Fruit Production	Rejuvenation of moderate decline trees of Nagpur mandarin	80 Plants	66.48	33.24	50	-	-	30000	132960	102960	4.43	30000	66480	36480	2.21
2011-12	Kharif	Pulse crop	Pulse	Redgram	ICMt	Production Technology	30	17.20	13.44	27.98	-	-	27,538	56,000	28,462	2.08	27,135	43,968	16,833	1.62
2011-12	Kharif	Fibre crop	Fibre crop	Bt cotton	IPM	IPM	25	19.37	17.75	9.13	-	-	27,700	71,669	43,969	1.59	28,800	65,675	36,875	1.28
2011-12	Rabi	Pulse crop	Pulse	Bengalgram	ICM	Production Technology	30	15.85	11.88	33.42	-	-	16,988	50,720	33,732	2.99	15,550	38,016	22,466	2.44
2011-12	Kharif-rabi	Horticultural crop	Fruit crop	Nagpur mandarin	IDM	Gummosis Management	10	53.40	39.10	36.57	-	-	30,800	1,06,800	76,000	2.47	26,250	78,200	51,950	2.06

Demonstrations on Hybrids varieties of different crops

Sr. No.	Crops	Thematic area	Technology demonstration		Horizontal		
					No of villages	No. of farmers	Area (ha)
1	Onion	Varietal evaluation	High yielding less bulting variety of onion (Akola Safed)	Field demonstration, diagnostic survey, group discussion, trainings	3	20	8
2	Tomato	Varietal evaluation		Field demonstration, diagnostic survey, group discussion, trainings	2	10	4

Performance of FLD

Sl.No.	Crop/ Implements	Technology Demonstrated	Variety	No. of Farmers	Area (ha.)	Demo. Yield Qtl/ha			Yield of local Check Qtl./ha	Increase in yield (%)	Data on parameter in relation to technology demonstrated (BC Ratio)	
						H	L	A			Demo	Local
1	2	3	4	5	6	7	8	9	10	11	12	13
1	Cotton	Drip irrigation	NCS 145 Bt	05	2.5	45.00	37.00	41.00	27.50	49.09	90 bolls	62 bolls
2	Cotton	INM	NCS 145 Bt	10	4.0	19.00	16.00	17.50	14.00	25.00	48 bolls	37 bolls
3	Wheat	Varietal	Raj 4037	07	3.0	37.00	30.50	33.75	26.00	29.80	4-6 tillers	4 tillers
4	Linseed	Varietal	NL 260	06	2.4	11.0	8.5	9.75	7.50	26.66	Big capsule	Small capsule
5	Pigeon pea	Varietal	PKV Tara	04	1.6	17.00	13.60	15.30	12.0	27.50	-	-
10	Ch	Varietal	Arka Anamika									
11	Tomato	Varietal	PKM-2	10	4.0							
12	Onion	Varietal	Akola safed									
13	Pigeon pie	Production Technology	BSMR 736	30	12.0	21.25	14.50	17.20	13.44	27.98	2.08	1.62
14	Chickpea	Production Technology	Vijay	30	12.0	20.00	13.72	15.85	11.88	33.42	2.99	2.44
15	Bt-cotton	IPM	Jay-Bt	25	10.0	23.75	16.25	19.37	17.75	9.13		
19	Nagpur Mandarin	Gummosis management in declined orchards	Nagpur Mandarin (3rd year)	10	4.0	58.50	45.00	53.40	39.10	36.57	2.47	2.06

NB: Attach few good action photographs with title at the back with pencil

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
46000	37000	155800	104500	109800	67500	3.39
37500	34300	66500	53200	29000	18900	1.77
15400	13200	37125	28600	21725	15400	2.41
7500	6300	24375	18750	16875	12450	3.25
27000	26800	48195	37800	21195	11000	1.78
27,538	27,135	56,000	43,968	28,462	16,833	2.08
16,988	15,550	50,720	38,016	33,732	22,466	2.99
30,800	26,250	1,06,800	78,200	76,000	51,950	2.47

Front Line Demonstration (Home Science)

Drudgery reduction of farm women through Gujarat sickle

Sr. No	Name of Technology	No of farmers	Crop	Performance of technology on different parameters.						Result increase in Output(%)	Percent reduction in drudgery
				∆HR beats min^{-1}		Strokesmin^{-1}		Output $m^{2/h}$			
				Demo	Local check	Demo	Local check	Demo	Local check		
1	Gujarat sickle	18	Soybean	17	15	38	34	47	35	34	13
2	Gujarat sickle	18	Rice	11	13.9	43	39	138	128	08	16

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	Fertigation+Drip	Irrigated	41.00	27.50	49.09
Cotton	Kharif	INM in Bt Cotton	Rainfed	17.50	14.00	25.00
Wheat	Rabi	Raj 4037	Irrigated	33.75	26.00	29.80
Linseed	Rabi	NL 260	Rainfed	9.75	7.50	26.66
Pigeonpea	Kharif	PKV Tara	Rainfed	15.30	12.0	27.50
Okra	Kharif	Seed	Rainfed			
Tomato	Kharif	Seed	Rainfed			
Onion	Rabi	Seed	Irrigated			
Bt cotton	Kharif	IPM	Rainfed	19.37	17.70	9.13
Redgram	Kharif	Production Technology	Rainfed	17.20	13.44	27.98
Nagpur Mandarin	Kharif	Gummosis management	Rainfed	53.40	39.10	36.57
Bengalgram	Rabi	Production Technology	Rainfed	15.85	11.88	33.42

Technical Feedback on the demonstrated technologies

S. No	Feed Back
1	Drip irrigation in Bt cotton was found economically viable and enhance seed cotton yield by 49.09 per cent over conventional irrigated Bt cotton.
2	Maintenance of recommended plant population of 18518 per hectare was found beneficial in improving the productivity of Bt cotton by 28.08 per cent in medium deep black cotton soil under rainfed farming situation.
3	Integrated nutrient management and integrated crop management in Bt cotton has increased seed cotton yield by 2.85 and 3.6 q/ha respectively over farmers practice, respectively.
4	Soybean net profitability was increased by 6850 Rs /ha over farmers practice
5	Improved cotton picking bag designed by KVK, CICR, Nagpur is easy comfortable, while loading and unloading , economical having more carrying capacity .
6.	
7	Linseed variety NL 260 recorded higher yield by 36.90 per cent over local variety.
8	Un uniformity in bulb size of Akola safed (Onion)
9	Fadening of colour in dry chilli of Jayanti variety and very light in weight

Farmers' reactions on specific technologies

S. No	Feed Back
1	Installation charges for drip irrigation in drip was very high
2	Quality bio fertilizers need to be made locally available
3	
4	NL 260 was high yielding linseed variety
5	Akola safed variety of onion has good yield potential and storage quality with good market price
6	Scientific vegetable nursery management reduces the phytophthora infection in field

Extension and Training activities under FLD

Sl.No.	Activity	No. of activities organised	Date	Number of participants	Remarks
1	Field day	01	3/10/ 2011	50	Pigeonpea
	Field day	01	8./11/2011	60	Cotton
	Field day	01	11/01/2011	70	Chickpea
2	Farmers trainings	03		120	
3	Media coverage	03	-	-	Technology week, Farmers training, ATMA collaborative programme
4	Training on extension functionaries	03		135	
5	Kisan Mela	01	21.01.2012	150	

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		
Dairy (Chelated mineral feeding)	CB Jersey Cow	10	20	a) Avg. milk yield (lit/cow/day) b) Milk fat (%) c) BC Ratio	12.7 4.0 2.80	11.0 3.85 2.10	15.5 - 	Increase in milk yield and fat content observed

Dairy (Urea treatment)	CB Jersey Cow	10	20	a) Avg. milk yield (lit/cow/day) b) Milk fat (%) c) BC Ratio	8.7 3.9	7.8 3.8	12 -	Increase in milk yield and fat content observed
Dairy (Detection of mastitis)	Jersey cross bred cows	10	20	Avg. milk yield lit/cow/day	9.50	5.90	37.89	Losses of 37.89% saved due to detection of mastitis

**** 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	Nil							
Apiary								
Sericulture								
Vermi compost								

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

A) 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	2	69	-	69	21	8	29	90	8	98
Weed Management										
Resource Conservation Technologies										
Cropping Systems										
Crop Diversification										
Integrated Farming										
Water management										
Seed production										
Nursery management										
Integrated Crop Management										
Fodder production										
Production of organic inputs										
II Horticulture										
a) Vegetable Crops										
Production of low volume and high value crops										
Off-season vegetables										
Nursery raising										
Exotic vegetables like Broccoli										
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										
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										
IV Livestock Production and Management										
Dairy Management										
Poultry Management	1	22	2	13	5	2	7	16	4	20
Piggery Management										
Rabbit Management										
Disease Management										
Feed management	1	19	1	20	7	1	8	26	2	28
Production of quality animal products										
V Home Science/Women empowerment										
Household food security by kitchen gardening and nutrition gardening	1	13	13	26	4	17	21	17	30	47
Design and development of low/minimum cost diet										
Designing and development for high nutrient efficiency diet										
Minimization of nutrient loss in processing	1	2	20	22	1	7	8	3	27	30

Gender mainstreaming through SHGs										
Storage loss minimization techniques										
Value addition										
Income generation activities for empowerment of rural Women	2	8	14	22	6	19	25	14	33	47
Location specific drudgery reduction technologies										
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										
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										
Group dynamics										

Formation and Management of SHGs										
Mobilization of social capital										
Entrepreneurial development of farmers/youths										
WTO and IPR issues										
XI Agro-forestry										
Production technologies										
Nursery management										
Integrated Farming Systems										
TOTAL	11	114	46	160	38	35	73	152	81	233
(B) RURAL YOUTH										
Mushroom Production										
Bee-keeping										
Integrated farming										
Seed production										
Production of organic inputs										
Integrated Farming										
Planting material production										
Vermi-culture										
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										
Production of quality animal products										

Dairying	1	15	2	17	4	0	4	19	4	23
Sheep and goat rearing	1	14	2	16	4	0	4	18	2	20
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										
Post Harvest Technology										
Tailoring and Stitching										
Rural Crafts										
TOTAL	07	45	49	94	19	47	66	66	101	167
(C) Extension Personnel										
Productivity enhancement in field crops	2	32	9	41	15	4	19	47	13	60
Integrated Pest Management	01	18	00	18	04	00	04	22	00	22
Integrated Nutrient management										
Rejuvenation of old orchards										
Protected cultivation technology										

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	1	14	2	16	7	1	8	21	3	24
Livestock feed and fodder production	1	17	2	19	6	2	8	23	4	27
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	07	76	35	111	27	17	44	121	34	155

B) 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	03	80	31	111	29	15	43	109	46	155
Weed Management										
Resource Conservation Technologies	02	30	12	42	7	3	10	37	15	52
Cropping Systems										
Crop Diversification										
Integrated Farming										
Water management	02	21	9	30	5	9	14	30	18	48
Seed production										
Nursery management										
Integrated Crop Management	02	50	07	57	14	01	15	64	08	72
\Fodder production										
Production of organic inputs										
II Horticulture										
a) Vegetable Crops										

Production of low volume and high value crops	4	52	-	52	14	-	14	56	-	56
Off-season vegetables										
Nursery raising	3	34	-	34	10	-	10	44	-	44
Exotic vegetables like Broccoli										
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	3	53	-	53	9	-	9	62	-	62
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										
IV Livestock Production and Management										
Dairy Management										

Poultry Management										
Goat Management	1	15	2	17	4	0	4	19	4	23
Rabbit Management										
Disease Management	2	34	0	34	11	0	11	45	0	45
Feed management	1	18	2	20	6	0	6	24	2	26
Production of quality animal products										
V Home Science/Women empowerment										
Household food security by kitchen gardening and nutrition gardening	1	13	13	26	4	17	21	17	30	47
Design and development of low/minimum cost diet										
Designing and development for high nutrient efficiency diet										
Minimization of nutrient loss in processing	1	2	20	22	1	7	8	3	27	30
Gender mainstreaming through SHGs										
Storage loss minimization techniques										

Value addition										
Income generation activities for empowerment of rural Women	2	8	14	22	6	19	25	14	33	47
Location specific drudgery reduction technologies										
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	04	83	09	92	17	03	20	100	12	112

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										
Group dynamics										
Formation and Management of SHGs										
Mobilization of social capital										
Entrepreneurial development of farmers/youths										
WTO and IPR issues										
XI Agro-forestry										
Production technologies										
Nursery management										
Integrated Farming Systems										
TOTAL	32	450	101	551	125	53	177	578	166	744
(B) RURAL YOUTH										
Mushroom Production										
Bee-keeping										
Integrated crop management	05	105	11	116	27	03	30	132	14	146
Seed production										
Production of organic inputs										
Integrated Farming										

Planting material production										
Vermi-culture										
Sericulture										
Protected cultivation of vegetable crops										
Commercial fruit production										
Repair and maintenance of farm machinery and implements										
Nursery Management of Horticulture crops	2	25	-	25	7	-	7	32	-	32
Training and pruning of orchards										
Value addition										
Production of quality animal products										
Dairying										
Sheep and goat rearing										
Quail farming										
Piggery										
Feed management	1	11	4	15	5	2	7	16	6	22
Poultry production	1	9	1	10	10	5	15	19	6	25
Ornamental fisheries										

Para vets	2	14	0	14	7	0	7	21	0	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	14	169	31	200	62	30	92	231	54	295
(C) Extension Personnel										
Productivity enhancement in field crops	01	21	8	29	8	8	16	29	16	45
Integrated Pest Management	01	3	8	11	4	8	12	7	16	23
Total	02	21	8	29	8	8	16	29	16	45

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	5	149	31	180	50	23	72	199	54	253
Weed Management										
Resource Conservation Technologies	2	30	12	42	7	3	10	37	15	52
Integrated farming										
Water management	2	21	9	30	5	9	14	30	18	48
Seed production										
Nursery Management										
Integrated Crop Management	02	50	07	57	14	01	15	64	08	72
Exotic vegetables like Broccoli										
Grading and standardization										
Production of vegetables crops	4	52	-	52	14	-	14	56	-	56
Nursery management	3	34	-	34	10	-	10	44	-	44
b) Fruits										

Layout and Management of Orchards										
Cultivation of Fruit	3	53	-	53	9	-	9	62	-	62
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										
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										
Nutrient Use Efficiency										

Dairying										
Poultry Management	1	11	2	13	5	2	7	16	4	20
Sheep and goat rearing	1	15	2	17	4	0	4	19	4	23
Disease Management	2	34	0	34	11	0	11	45	0	45
Feed management	2	37	3	40	13	1	14	50	4	54
Production of quality animal products										
Household food security by kitchen gardening and nutrition gardening	1	13	13	26	4	17	21	17	30	47
Design and development of low/minimum cost diet	2	5	28	33	5	15	20	10	43	53
Designing and development for high nutrient efficiency diet										
Minimization of nutrient loss in processing										
Gender mainstreaming through SHGs	1	0	8	8	2	12	14	2	20	22
Storage loss minimization techniques										
Value addition	1	0	7	7	2	10	12	2	17	19
Income generation activities for empowerment of rural Women	3	11	21	32	9	27	36	20	48	68

Location specific drudgery reduction technologies	2	18	30	48	10	20	30	28	50	78
Integrated Pest Management	04	83	09	92	17	03	20	100	12	112
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										
Group dynamics										
Formation and Management of SHGs										

Mobilization of social capital										
Entrepreneurial development of farmers/youths										
WTO and IPR issues										
XI Agro-forestry										
Production technologies										
Nursery management										
Integrated Farming Systems										
TOTAL	43	564	147	711	163	88	250	730	247	977
(B) RURAL YOUTH										
Mushroom Production										
Bee-keeping										
Integrated farming										
Seed production										
Production of organic inputs										
Planting material production										
Vermi-culture										
Integrated crop management	05	105	11	116	27	03	30	132	14	146
Protected cultivation of vegetable crops										
Commercial fruit production										
Repair and maintenance of farm										

machinery and implements										
Nursery Management of Horticulture crops	2	25	-	25	7	-	7	32	-	32
Training and pruning of orchards										
Value addition	1	0	7	7	3	10	13	3	17	20
Production of quality animal products										
Dairying	1	15	2	17	4	0	4	19	4	23
Sheep and goat rearing	1	14	2	16	4	0	4	18	2	20
Quail farming										
Piggery										
Rabbit farming	1	11	4	15	5	2	7	16	6	22
Poultry production	1	9	1	10	10	5	15	19	6	25
Ornamental fisheries										
Para vets	2	14	0	14	7	0	7	21	0	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	25	283	77	360	100	65	165	383	135	528
(C) Extension Personnel										
Productivity enhancement in field crops	2	32	9	41	15	4	19	47	13	60
Integrated Pest Management	01	18	00	18	04	00	04	22	00	22
Integrated Nutrient management										
Rejuvenation of old orchards										
Protected cultivation technology										
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	1	3	8	11	4	8	12	7	16	23
WTO and IPR issues										
Management in farm animals	1	14	2	16	7	1	8	21	3	24
Livestock feed and fodder production	1	17	2	19	6	2	8	23	4	27
Household food security	1	2	20	22	1	7	8	3	27	30
Women and Child care										
Low cost and nutrient efficient diet designing	1	5	28	33	5	15	20	10	43	53
Production and use of organic inputs										
Gender mainstreaming through SHGs										
TOTAL	**8**	97	43	140	35	25	60	150	50	200

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

Date (MM/DD /yy)	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 participangs		
							Male	Female	Total	Male	Female	Total	Male	Female	Total
16/06/2011	PF	Production Technology in Pigeonpea	Crop Protection	ICM	1	off	22	6	28	6	1	7	28	7	35
07/13/11	PF	Layout & management of nutrition garden for improving nutritional status	Home Science	Nutritional management	2	On	13	23	36	4	17	21	17	40	57
18/06/2011	PF	Management of insect pests in Nagpur Mandarin	Crop Protection	IPM	1	off	12	o	12	2	0	2	14	0	14
22/6/2011	PF	INM in Soybean	Crop production	Crop production	1	Off	20	5	25	5	0	5	25	5	30
15/07/2011	PF	Pest Management in Soybean	Crop Protection	IPM	1	off	27	3	30	5	1	6	32	4	36
15/07/2011	PF	Bt cotton production technologies	Crop production	Crop production	1	Off	10	6	16	7	2	8	17	8	25
12/08/2011	PF	Pests Management in Brinjal	Crop Protection	IPM	1	off	17	2	19	4	1	5	21	3	24
16/08/2011	PF	Pests Management in Chilli	Crop Protection	IPM	1	off	27	4	31	6	1	7	33	5	38
20/08/2011	PF	Production Technology in Chickpea	Crop Protection	ICM	1	off	28	1	29	8	0	8	36	1	37
09/06/11	RY	Detection of food adulteration	Home science		2	On	13	23	36	4	17	21	17	40	57
6/9/2011	PF	Moisture conservation techniques in cotton	Crop production	Resource conservation technique	1	off	18	7	25	4	3	7	22	10	32
9/11/11	RY	Use of household energy devices	Home science	Fuel conservation	2	On	0	8	8	2	12	14	2	20	22
09/23/11	PF	Use of improved sickle for reducing drudgery	Home Science	Drudgery reduction	2	Off	4	9	13	2	10	12	6	29	35

19/09/2011	RY	Management of Gummosis in Nagpur Mandarin	Crop Protection	IPM	1	off	16	0	16	2	0	2	18	0	18
21/09/2011	RY	Management of insect pests in Soybean	Crop Protection	IPM	1	off	18	3	21	8	1	9	26	4	30
23/09/2011	PF	Recycling of farm waste	Crop production	Resource conservation technique	1	off	12	5	17	3	0	3	15	5	20
19/9/2011	PF	Foliar application of micronutrient in cotton	Crop production	Crop production	1	Off	30	10	40	7	3	10	37	13	50
03/10/2011	RY	Identification of pests and natural enemies in Cotton	Crop Protection	IPM	1	off	21	4	25	7	2	9	28	6	34
10/21/11	PF	Technique of Soybean processing	Home science	Low cost and nutrient efficient diet designing	2	Off	5	9	14	3	12	15	8	21	29
17/10/2011	PF	Irrigation management in chickpea	Crop production	Irrigation management	1	Off	11	5	16	2	5	7	13	10	23
20/10/11	PF	Method of clean cotton picking	Home Science	Drudgery reduction	2	Off	14	21	35	8	10	18	22	31	53
20/10/2011	RY	Sucking pests management in Bt cotton	Crop Protection	IPM	1	off	28	4	32	6	0	6	34	4	38
8/11/2011	PF	Irrigation management in Wheat	Crop production	Irrigation management	1	Off	10	4	14	3	4	7	17	8	25
11/22/11	EF	Women friendly improved tools & equipments	Home Science	Drudgery Reduction	1	Off	3	8	11	4	8	12	7	16	23
29/11/2011	PF	Bt cotton production Technologies	Crop production	Crop production	1	On	10	0	10	8	0	8	18	0	18
30/11/2011	PF	Bt cotton production Technologies	Crop production	Crop production	1	On	25	0	25	2	0	2	27	0	27
12/08/11	PF	Enrichment of NADEP compost with rock phophate	Home Science	Compost making	2	On	2	20	22	1	7	8	3	27	30
12/12/11	RY	Techniques of Aaonla candy and Murabba	Home Science	Value Addition	2	On	3	7	10	3	8	11	6	18	24

		preparation for SHG,s													
12/15/11	RY	Preparation of squash and pickles	Home Science	Value Addition	1	On	0	7	7	2	10	12	4	17	21
12/29/11	RY	Awareness of hygiene and adolescent girls	Home Science	Women & child	1	Off	3	7	10	3	8	11	6	8	24
1/12/12	RY	Prepartion technique of soy-laddu for anaemic person	Home Science	Low cost &High nutrient	2	Off	2	8	10	3	12	15	5	20	25
19/1/12	PF	Soybean production Technologies	Crop production	Crop production	1	On	4	0	04	8	8	16	12	8	20
20/01/2012	RY	Pesticide application technology in Cotton	Crop Protection	IPM	1	off	22	0	22	4	0	4	26	0	26
08/02/12	EF	Technique of soybean processing for making soy flour and soy nut	Home Science	Low cost & high nutrient	1	On	2	20	22	1	7	8	3	27	30
2/03/2012	EF	Sucking Pest Management in Bt Cotton	Crop Protection	IPM	1	off	18	0	18	4	0	4	22	0	22
9/3/2012 12/3/2012	PF	Bt Cotton production	Crop production	Crop production	2	On	30	0	30	3	0	3	33	0	33
13/3/2012	Ex	INM In Bt cotton	Crop production	Crop production	1	On	14	0	14	0	0	0	14	0	14
6/29/11	PF	Nursery management of Chilli & Tomato	Horticulture	Nursery management	1	off	12	0	12	3	0	3	15	0	15
7/4/11	PF	Nursery management of Chilli & Tomato	Horticulture	Nursery management	1	off	10	0	10	4	0	4	14	0	14
7/13/11	PF	Transplanting of vegetable seedlings	Horticulture	Vegetable Production	1	Off	13	0	13	3	0	3	15	0	15
3/2/11	PF	Management of preharvest fruit drop in citrus	Horticulture	Fruit production	1	Off	15	o	15	2	0	2	17	0	17
3/3/11	PF	Harvesting, Grading &Storing of Onion	Horticulture	Vegetable Production	1	Off	14	0	14	2	0	2	16	0	16
9/21/11	PF	INM in Citrus	Horticulture	Fruit production	1	Off	14	0	14	3	0	3	17	0	17
9/24/11	PF	INM Vegetable	Horticulture	Vegetable Production	1	Off	11	0	11	2	0	2	13	0	13

11/29/11	PF	Scientistific cultivation of onion & garlic	Horticulture	Vegetable Production	1	Off	12	0	12	5	0	5	17	0	17
03/03/12	PF	Harvesting grading & marketing of onion & garlic	Horticulture	Vegetable Production	1	Off	15	0	15	5	0	5	20	0	20
09/17/11	RY	Technique of budding and grafting	Horticulture	Fruit Production	1	Off	11	0	11	3	0	3	14	0	14
03/17/12	RY	Establishment of nursery for self employment	Horticulture	Nursery management	1	Off	14	0	14	4	0	4	18	0	18
10/14/11	EF	Management of ambia bhahr	Horticulture	Fruit Production	1	On	15	5	20	6	4	10	30	0	30
03/16/12	EF	Marketing of citrus fruit	Horticulture	Fruit Production	1	On	14	6	20	7	3	10	30	0	30
04/28/11	RY	Scientific goat farming for rural area	Vet. Sci.	Goat Management	1	On	14	2	16	4	0	4	18	2	20
05/05/11	PF	Detection of mastitis in crossbred cows	Vet. Sci.	Disease Management	1	Off	17	0	17	5	0	5	22	0	22
06/29/11	PF	Use of mineral mixture and common salt in the diet of cows & buffelows	Vet. Sci.	Feed management	1	Off	18	2	20	6	0	6	24	2	26
08/11/11	PF	Spraying technique for control of ectoparasite	Vet. Sci.	Disease management	1	Off	17	0	17	6	o	6	23	0	23
14/2/12	PF	UP gradation of local goats by crossing with Osmanabadi breed	Vet. Sci.	Goat Management	1	Off	15	2	17	4	o	4	19	4	23
09/06/11	PF	Enrichment of low quality roughage	Vet. Sci	Feed management	1	On	19	1	20	7	1	8	26	2	28
12/16/11	RY	Introduction of improved breed in rural back yard poultry	Vet. Sci	Poultry production	1	Off	9	1	10	10	5	15	19	6	25
11/29/11	RY	Low cost feed formulation for cows and buffaloes for economic production	Vet. Sci	Feed management	1	Off	11	4	15	5	2	7	16	6	22
12/09/11	RY	Paraveterinary aids for general diseases in livestock	Vet. Sci	Disease management	2	Off	14	0	14	7	0	7	21	0	21
01/10/12	RY	Supply chain	Vet. Sci	Dairying	1	On	15	2	17	4	o	4	19	4	23

		management in dairy production													
01/17/12	PF	Management of back yard poultry	Vet. Sci	Poultry Management	1	On	11	2	13	5	2	7	16	4	20
02/06/12	EF	Fodder cultivation and its cultivation	Vet. Sci	Livestock Feed and fodder production	1	On	17	2	19	6	2	8	23	4	27
02/09/12	EF	Integrated dairy farming	Vet. Sci	Livestock management	1	On	14	2	16	7	1	8	21	3	24

(D) Vocational training programmes for Rural Youth

Crop / Enterprise	Date	Training title*	Identified Thrust 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	
Nil											

*training title should specify the major technology /skill transferred

(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	6.6.11	IPM in Bt cotton	Crop protection	IPM	01	EF	01							34	10	44	RAMETI, Nagpur	-
2	30.11.11	Sucking Pest Management in Bt Cotton	Crop protection	IPM	01	Cotton farmers	01							27	0	27	SDA, UP	-
3	19.1.12	Sucking Pest Management in Bt Cotton	Crop protection	IPM	01	Cotton farmers	**01**							10	0	10	SDA, MP	-
4	28.2.12	Sucking Pest Management in Bt Cotton	Crop protection	IPM	01	Cotton farmers	**01**							115	0	115	SDA,Kamptee,Nagpur	-
5	9.3.12	IPM in Bt cotton	Crop protection	IPM	01	Cotton farmers	**01**							32	0	32	SDA, Kalahandi, Odisha	-

6	13.3.12	IPM in Bt cotton	Crop protection	IPM	01	**EF**	**01**							14	0	14	CIPMC, Nagpur	-
7	16.3.12	IPM in cotton	Crop protection	IPM	01	Cotton farmers	**01**							20	0	20	SDA, Halda, MP	-
	16.3.12	IPM in cotton	Crop protection	IPM	01	Cotton farmers	**-**							75	0	75	SDA,Parseoni, Nagpur	-
8	28.3.12	Sucking Pest Management in Bt Cotton	Crop protection	IPM	01	Cotton farmers	**01**							70	0	70	SDA, Bhivapur, Nagpur	-
9	30.3.12	Sucking Pest Management in Bt Cotton	Crop protection	IPM	01	Cotton farmers	**01**							30	0	30	SDA, Bhivapur, Nagpur	-
		TOTAL					**09**	**-**	**-**	**-**	**-**	**-**	**-**	427	10	437	-	-

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	**Pigeonpea**	**01**	**35**	**10**	**45**	**14**	**05**	**19**	**02**	**-**	**02**	**51**	**15**	**66**
2.	Field Day	**Chickpea**	**01**	**32**	**7**	**39**	**11**	**05**	**16**	**02**	**01**	**03**	**45**	**13**	**59**
3.	Kisan Mela on 21.01.2012	**Pigeonpea, chickpea, cotton**	**01**	**122**	**28**	**150**	**25**	**10**	**35**	**06**	**00**	**06**	**128**	**28**	**156**
4.	Kisan Ghosthi	Soybean, cotton, livestock, pigeonpea, chilli, brinjal	4	300	50	350	40	15	55	0	0	0	340	55	390
5.	Exhibition		6	2000	500	2500	-	-	-	-	-	-	2000	500	2500
6.	Film Show	IPM, INM Vermicompost production, dry land horticulture, etc	10	300	40	340	-		-	-	-	-	300	40	340
7.	Method Demonstrations	Seed treatment, irrigation management,Nursery growing	12	425	75	500	-	-	-	-	-		425	75	500
8.	Group meetings	Cotton, pigeonpea & chilli farmers Chelated mineral, mastitis detection	4	200	30	230	-	-	-	-	-		200	30	230
9.	Lectures delivered as resource persons	Cotton. ,soybean, Goat etc	15	300	50	350	-	-	-	-	-		300	50	350
10.	Newspaper coverage	Technology week, SAC meet	2	-	-	-	-	-	-	-	-	-	-	-	
11.	Radio talks	Important crops, food and animal health related topics	11	-	-	-	-	-	-	-	-	-	-	-	
12.	TV talks	-	-	-	-	-	-	-	-	-	-	-	-	-	
13.	Popular articles	Agriculture & allied sciences	21	-	-	-	-	-	-	-	-	-	-	-	-

14.	Extension Literature	Meally bug, soy products, Lucerne	03	-	-	-	-	-	-	-	-	-	-	-	-
15.	Advisory Services	Agriculture & allied fields	-	1200	625	1825	300	100	400	0	0	0	1500	725	2225
16.	Scientific visit to farmers field		30	520	100	620	110	20	130	0	0	0	630	120	750
17.	Farmers visit to KVK	Visit to technology park & goat unit	10	300	120	420	40	10	50	0	0	0	340	130	470
18.	Diagnostic visits		77	650	26	676	75	08	83	-	-	-	725	34	759
19.	Exposure visits		--	-	-	-	-	-	-	-	-	-	-	-	-
20.	Ex-trainees Sammelan	Goat farming, Citrus	2	52	-	52	10	-	10	-	-	-	62	-	-
21.	Soil health Camp	Awareness camp	2	156	21	177	15	02	17	-	-	-	171	23	194
22.	Animal Health Camp	Vaccination & Deworming	1	115	15	130	20	02	22	-	-	-	135	17	152
23.	Agri mobile clinic	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24.	Soil test campaigns	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25.	Farm Science Club Conveners meet	IPM in cotton Bt. production technology	1	67	20	87	15	12	27	-	-	-	82	32	114
26.	Self Help Group Conveners meetings	Soybean processing	2	0	26	26	0	0	0	0	0	0	0	26	26
27.	Mahila Mandals Conveners meetings	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28.	Celebration of important days (specify)	Women in Agriculture Day,	1	3	30	33	1	12	13	-	-	-	4	42	46
	Grand Total														

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**	**Raj-4037, Vimal, MACS-6222**	**0.66**	**700**	**To be use in KVK farm**
OILSEEDS	**Lineseed**	**NL-260**	**0.50**	300	**To be use in KVK farm**
PULSES					
FLOWER CROPS	**Tube rose**	**Local**	**58 kg (bulbs)**	**3000**	**To be use in KVK farm and distributed in farmers**
OTHERS (Specify)	**Dhaincha**	**Local**	**0.70**	**400**	**To be use in KVK farm**

SUMMARY

Sl. No.	Major group/class	Quantity (qtl.)	Value (Rs.)	Provided to No. of Farmers
1	CEREALS	**0.66**	**700**	**To be use in KVK farm**
2	OILSEEDS	**0.50**	**300**	**To be use in KVK farm**
3	PULSES			
4	FLOWER CROPS	**58 kg (bulbs)**	**3000**	**To be use in KVK farm**
5	OTHERS	**0.70**	**400**	**To be use in KVK farm**
TOTAL		**300 kg**	**4,900**	

PLANTING MATERIALS

Major group/class	Crop	Variety	Quantity (Nos.)	Value (Rs.)	Provided to No. of Farmers
SPICES					
VEGETABLES (Seedlings)	**Tomato**	**PKM-1**	**5000**	**-**	**6**
	Brinjal	**Pusa P-Round**	**5000**	**-**	**7**
FOREST SPECIES					
ORNAMENTAL CROPS					
PLANTATION CROPS					
Others (specify)	**Marigold**	**African**	**50,000**	**500**	**32**

SUMMARY

Sl. No.	Major group/class	Quantity (Nos.)	Value (Rs.)	Provided to No. of Farmers
1	SPICES	_	_	_
2	FOREST SPECIES	_	_	_
3	ORNAMENTAL CROPS	_	_	_
4	PLANTATION CROPS	_	_	_
	TOTAL			

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	**Goat**	**Osmanabadi**	**9 bucks**	**250 kg**	**31250**	**6 farmers**
POULTRY	**-**	**-**	**-**	**-**	**-**	**-**
FISHERIES	**-**	**-**	**-**	**-**	**-**	**-**
Others (Specify)						

SUMMARY

Sl. No.	Type	Breed	Quantity		Value (Rs.)	Provided to No. of Farmers
			Nos	Kgs		
1	CATTLE					
2	GOAT	**Osmanabadi**	**9 bucks**	**250 kg**	**31250**	**6 farmers**
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.)

(B) Literature developed/published

Item	Title	Authors name	Number of copies
	Research papers		
1.	Farmers Participatory Evaluation on Transgenic Bt Cotton in Nagpur District of Maharashtra through Institute Village Linkage Programme. J. Soils and Crops, 21(1) : 60-64	A.S. Tayade, A.R. Raju and M.K. Meshram	Not applicable
2.	Studies on correlation and path coefficient analysis in Bt and non Bt cotton hybrids (*Gossypium hirsutum* L.). J. Cotton Res. Dev., 25(2) : 186-196	A.S. Tayade, A.R. Raju and M.V. Dhoble	Not applicable
3.	Rain water harvesting as strategic tool for drought mitigation in cotton. J. Soils and Crops, 21(2) : 244-247 .	A.R. Raju, G. Majumdar, S.K. Thakare, A.R. Reddy, A.S. Tayade, P.R. Vijaya Kumari, S.N. Chauhan, P.S. Mahalle and J.R. Katore	Not applicable
4.	Effect of nutrient and pest management modules on fibre qualities of Bt and non Bt cotton (*Gossypium hirsutum* L.) hybrids. J. Soils and Crops, 21(2) : 244-247	A.S. Tayade, A.R. Raju and M.V. Dhoble	Not applicable
5.	Effect of Bt and non Bt cotton hybrids, nutrient and pest management on ginning outturn, seed and lint indices. J. Cotton Res. Dev., 26(1) : 96-98	A.S. Tayade, and M.V. Dhoble	Not applicable
6.	Sensory Evaluation of soymilk and soy nut The Indian journal of Nutrition and Dietetics 49 (2): 59-67.	Sunita Chauhan,Arjun Tayade,P.R.Deoghare and M.K.Meshram	Not applicable
7.	Effect of dietary AFB1 on growth performance, carcass traits and meat sensory attributes in broiler chicken. *Indian Journal of Poultry Sciences*, Vol. 45 (3), p 353-56.	Itankar, V.A., Galkate, U.V., Deshmukh, G.B., Rokde, S.N.	Not applicable
8.	Cost of feeding crossbred calves under different housing systems and probiotic supplementation. *PKV Res. J.*, Vol. 35 (1) : 2011, P.P. 122 – 125.	Rokde, S.N., Galkate, U.V., Zinjarde, R.M. and Thote, S.G.	Not applicable
9.	Citrus based intercropping published in Souvenir on National Dialogue on Citrus Improvement, Production and Utilization, page No. 187, published by ISC and NRCC, Nagpur	**Gulbir Singh**	Not applicable
Total			-
	Technical reports/ Books		-
1	Kapasiwaril Mealybug Vavasthapan (Managemnt of Mealybug in cotton)	Dr.Vishlesh Nagarare**,Dr.Arjun Tayade** , Dr.Ram Ratn Gupta Dr.Sandhya Kranthi and Dr.Keshav Raj Kranthi.	1000

	Popular Articles		
1.	Soy Milk-alternative for cow milk. Krushokunnoti , 2 8 July 2011	Sunita Chauhan,, P.B Deolkar	Not applicable
2.	August mahinyat kapoos and soyabean pikachi kalaji aasi ghya. Lokshahi varta	Dr. Ramratan Gupta, Dr. Arjun Tayade	
3.	Kapsawaril Rog Vyavasthapan Deshonnati, Krishak Jagar,19 Sep,2011.	Dr.Sandhya Kranthi,Dr.Blaise,Dr.Seeba and Dr.Arjun Tayade	
4.	Kapasiteel Bondkuj rogache Niyantran. Deshonnati,Krishak Jagar,03,Oct,2011	Dr.Anuradha and Dr.Arjun Tayade	
5.	Kapashiwaril Bondkujiche Niyantran .Agro-won	Dr.Sandhya Kranthi,Dr.Blaise,Dr.Seeba and Dr.Arjun Tayade	
6.	Kapashiwaril Para wilt,Pandhrya mashiche Vyavasthapan .agro won	Dr.Sandhya Kranthi,Dr.Blaise,Dr.Seeba and Dr.Arjun Tayade	
7.	Lalya Vikruti war ase kara upay . Agro-won October,13,2011	Arjun Tayade,J.Anni Seeba,V.Cheennababu Nayak,D.Blaise and .Sandhya Kranthi,	
8.	Aatach Rokha Pane gundalnarya Alila **.** Agro-won, October,14,2011	Arjun Tayade,J.Anni Seeba,V.Cheennababu Nayak,D.Blaise and .Sandhya Kranthi,	
9.	Niyojan dubhatya gaichya khadyache. Agro-won, October 22 ,2011	Ulhas Galkate and Sunil Rokde	
10.	Walalelya charyawar prakriya karnyachi paddhat. Agro-won, October 23 ,2011	Ulhas Galkate and Sunil Rokde	
11.	Kapashiwaril Mealy Bug che Niyantran. Agro-won October,27,2011	Dr.Vishlesh Nagrare,Anant Deshmukh,Dr.C.B.Nayak,Dr.Sandhya Kranthi ,Dr.Keshavraj Kranthi and Dr.Arjun Tayade	
12.	Kapashiwaril Mealy Bug che Niyantran . Agro-won , November 4, 2011	Dr.Vishlesh Nagrare,Anant Deshmukh,Dr.C.B.Nayak,Dr.Sandhya Kranthi ,Dr.Keshavraj Kranthi and Dr.Arjun Tayade	
13.	Pikanchya wadhisathi Ekatmik Annadravya Vyavsthapanche Ghatak wa tyache Mahatwwa. Loksahi Warta, November21, 2011	Harish B.Kumbhalkar and Dr.Arjun Tayade	
14.	Duidhal janawaransathi khadya niyojan kase karave? Agro-won , November 24, 2011	Ulhas Galkate	
15.	Maati Parishanachi Aavshyakta . Loksahi Warta, November,28,2011	Harish B.Kumbhalkar and Dr.Arjun Tayade	
16.	Koradwahu Kapus utpadanasathi saghan Lagwad faideshir . Agro-won December,26,2011	Dr.K.R.Kranthi,Dr.Arjun Tayade and Dr.M.V.Venugopalan	

17.	Parasatil Kombdi palanasathi Vanraj,Giriraj ani Kadaknath. Agro-won January 14, 2012	Galkate, Ulhas and Shrirame Kamlesh	
18.	Kapasachi Saghan Lagwad Padhhat Shetkaryanna Vardan. Agro-won Vidarbha Vishesh,2012,January,26,2012	Dr.K.R.Kranthi,Dr.Arjun Tayade and Dr.M.V.Venugopalan	
19.	Controll of metabolic diseases in dairy animals, Krushokunnoti weekly,20 Sep.-26 Sep.2011	Dr P.B.Deulkar &Dr.S.N.Rokade	
20.	Scientific management of cross-bred cows for higher productivity, Godwa Sheticha monthly magazine,January 2012, p.p.86-89	Dr.S.N.Rokde,Dr.U.V.Galkate & DR.P.B.Deulkar	
21.	Diagnosis of poisoning in livestock,Adhunik Kisan weekly,15 March-12 (Part-1) & 22March-12 (Part-2)	Dr.S.N.Rokde, Dr.P.B.Deulkar & U..V.Galkate	
Leaflets/folders	Lucerne-Nutritious green fodder crop for goats(Priced folder)	Dr.P.B.Deulkar	1000
Total			1400
Grand TOTAL	Leaflet-03, popular article – 21, research article -09, Book-01		

*** an example for guidance only**

N.B. Please enclose a copy of each. In case of literature prepared in local language please indicate the title in English

(C) Details of Electronic Media Produced

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

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

Success Story 1

INNOVATIVE FARMER (Entrepreneurship: Dairy farming)

Name : Rajendra Gulabrao Mahant
Address : Gondi digras, Post- Yenwa,
Tah – Katol, Dist- Nagpur
Age : 41 Years
Education : 10th pass

Farmers initial situation:

He was having 3 acres of land. Income obtaining from 3 acres of land was insufficient to meet expenses of his family (wife, son & parents). Hence he decided to start dairy entrepreneurship. He purchased one crossbred Jersey cow in 2007. During next year, he received one crossbred Jersey cow under Vidarbha Development Package.

Innovative approach of the farmer:

Under the guidance of Krishi Vigyan Kendra, CICR, Nagpur, he started maintaining his dairy farm on scientific basis. He followed following practices.

1. Adoption of strict vaccination schedule.
2. Regular deworming and dipping.
3. Scientific feeding and watering.
4. Storing medicines for emergency use.
5. Adoption of Artificial Insemination technique.
6. Producing clean milk by using milking machine.
7. On KVK's advice he cultivated fodder crops by using improved varieties.

Kharif : Hybrid fodder jowar (SSG) + fodder maize (African tall) + Perennial grass Napier (Jaywant phule)

Rabi : Berseem / lucern
Summer : fodder jowar

His greed for knowledge & development

He is maintaining continuous contact with KVK, Dept. of Animal Husbandry, NABARD officials & Bank Officials, for seeking advisory services and benefit of schemes.

Achievement of his efforts

He purchased two more cows out of resources generated by selling milk. In addition he purchased 3 high yielding cows out of loan received Rs. 3.75 lakh under NABARD scheme. in 2011.

Income generated from dairy farm

Addition of new high yielding cows increased his milk production from 50-55 lit/day to 90-95 lit / day. He is supplying milk to Nagpur based Dinshaw Company @ Rs. 20.25 / lit (for 5% fat containing milk) and @ Rs. 17.00 / lit (for 4% fat containing milk). His monthly gross income is Rs. 54,000/-

His interest in extension activities

A week long training programme was organized for 45 intensive milk producing farmers of Katol tahsil on his farm in collaboration with KVK and LDO (Extn.), Panchayat Samiti, Katol. A live demonstration of urea treatment of wheat straw was conducted on his farm.

His initiative to motivate other farmers of adjoining area:

Three rural youth of his village established dairy farming due to his motivation and 18 milk producing farmers from surrounding villages joined him to supply milk to Dinshaw Company.

His expectations

Now he is extending his efforts to register this g group as a co-operative society. KVK is providing its all possible support to make this endeavour successful. To fetch remunerative prices for their produce, this group is looking forward to open their own outlet in Katol city.

Benefit of consistent income from dairy farming

Unfortunately, his house caught fire on 19th March, 2012. But he didn't loose his courage and repaired his house by spending Rs. 1.00 lakh.

Now he is very proud to say,

'I don't find any need to borrow money to overcome such calamity as I am getting consistent income from my dairy farming'.

Success Story 2

Self Help Group Installed Soy-Cow Plant

Self help group of backward class named as TULSI MAHILA BACHAT GAT has established in year 2010. All the members of this group are previously doing labour work they are in search of some income generative activity.

Hence Home Science SMS had motivated them to learn the skill of preparing soymilk, tofu, soyflour, soynuts and okara based soygulab jamun and soysev in Feb, 2011.

They had applied for loan in Nagar Parishad, Kamtee. Their application was processed SBI, Nagpur. They had received loan of Rs. Seven lakh from "Swarna Jayanti Shahari Swa-Rojgar Yojna". They had started this unit in Jan, 2012. They are preparing 5000 to 7000 bottles (200 ml capacity each) per month and gaining profit of Rs. 18000 to 22000 per month.

Success Story 3

Name Of The Farmer : Shri Mahender Vasudeoji Karbhari

Entrepreneur ship : Horticulture Nursery

Introduction :

Sh. Mahender Vasudeoji Karbhari, age 31 years is a resident of village Post- Ubali, Tah- Kalmeshwar, Dist- Nagpur. is a middle class farmer. He has 21 acre of land out of this 7.5 acre land is irrigated. Earlier he was during traditional farming with less irrigation facilities. His agriculture annual net income was about Rs. 22-25 thousand and he was taking loans from Banks and other Societies for agriculture needs and other social welfare. Some times he was unable to repaid the installments of loans and again taking loan from his relatives for paying the banks loans.



Establishment of Horticulture Nursery

Sh. Mahender Vasudeoji Karbhari started horticulture nursery six year (2005-2006) back with the small rose nursery and some ornamental plants and his earlier income was very low. Then Mr. Karbhari came with the contract with Krishi Vigyan Kendra, CICR, Nagpur. KVKprovided him all the technical guidance and arranged training programmes and exposure visits.



Present Status of nursery

Presently he has horticulture nursery on about 5 acre of land including lawns of grasses, medicinal and ornamental plants, rose nursery and fruit plants. He has developed sprinklers, drip and micro-irrigation system and about 1000 sq. mts area under covered shed net.


Present social status of Shri Mahender Karbhari

- Net profit about Rs. One lac per year by selling the nursery produce.
- He has purchased one motor cycle and other Agricultural implements.
- He has sprinklers, drip and micro irrigation system
- He has covered area of about 1000 sq. mts with shed net.
- He is repaying installments of loans of bank and other loans with the income generated from nursery.
- He is sending his nursery produces to Nagpur city.
- He has purchased bullock pairs and other animals
- He has mobile and Telephone connection.

KVK Suggestions for further strengthen of nursery

Krishi Vigyan Kendra have suggested for establishment of mother plants of Guava(L-49) and Sapota (Kalipatti)and Mango (Kasar/Dashhari) during this year so that saplings of these plants can be developed. KVK has also provided him 10 Kg. bulbs of Tuberose for multiplication.

Utility : Nagpur city has very good demands of Horticultural Nursery produces for beautification and garden development.

Spread : Neighbouring farmers benefited.

Success Story : Farmers were not cultivating sole redgram crop in KVKadopted village Manori, taluka Umred, Dist. Nagpur. With the inspiration of KVK Shri Vishool Goverdhan Moon,an adopted farmer under NFSM Production Technology on Pulses demonstrations,has cultivated redgram as sole crop first time. He was cultivating redgram conventionally as intercrop in cotton. The details are as follows:

Name of the farmer	: Shri Bishool Goverdhan Moon	
Crop	:Redgram (variety- BSMR 736)	
Area of demo.	:0.4 ha	
Soil type	:Medium deep black	
Weather situation	: Rainfed	
DOS	: 25.6.2011	
Date of harvest	: 22.1.2011	
Grain yield (q/ha)	: Demo - 21.25	LC - 15.25
Increase in yield (%)	: 39.34	
Gross return (Rs.)	: Demo 68,000/-	LC 48,800/-
Cost of cultivation (Rs./ha)	: Demo 27,900/-	LC 25,000/-
C : B ratio	:Demo 1 : 2.44	LC 1 : 1.95
Net return (Rs.)	:Demo 40,100/-	LC 23,800/-
Additional benefit (Rs. /ha)	:16,300/-	

1.8 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

1.9 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

- Based on diagnostic surveys, the need based training programmes were chalked out and lectures were followed by practical field demonstrations. Live specimens, preserved, 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 : 04

ii. No. of farm families selected : 260

iii. No. of survey/PRA conducted : 03

3.12. Activities of Soil and Water Testing Laboratory

1. Status of establishment of Lab : Soil and water testing laboratory KVK, CICR, Nagpur
2. Year of establishment : 2008
3. List of equipments purchased with amount : As given below

Sl. No	Name of the Equipment/Material	Qty.	Cost
1	Plastic wares (Test tube stand, Aspirator bottle, Conical flasks, Funnels, pipette stand etc.)	As per requiremen	3120
2	Glass wares (Volumetric flasks, Measuring cylinder Burette)	-	6835
3	Chemicals for analysis of soil and water samples.	-	6062
Total			**16017**

3. **Details of samples analyzed so far** :

Details	No. of Samples	No. of Farmers	No. of Villages	Amount realized
Soil Samples	299	295	19	Samples were collected from fields of adapted farmers from different village of the district (FLD beneficiaries)
Water Samples	52	52	12	
Plant Samples	120 (Cotton leaf sample)	Institute sample	Field expt. Sample	
Petiole Sample	120 (Stem & Burr sample)	Institute sample	Field expt. Sample	
Total	591	347	31	

On and off campus trainings conducted

Two hundred & ninety nine soil samples were collected from adopted villages of Nagpur districts and analyzed for different soil testing parameters, and 295 soil health cards were distributed among the beneficiaries suggesting soil test based fertilizer recommendation for their Kharif and rabi crops. Seven off-campus and four on-campus training programmes were conducted for 350 farmers and extension functionaries of the district.

Radio talks delivered

Shri. H.B. Kumbhalkar delivered a radio talk on “Soil and water testing” (in Marathi) in a programme ‘ Maza Ghar Maza Wavar’ broadcasted by All India Radio, Nagpur on 03.03.2012 at 7.30 PM.

Providing KMAS through SMS to farmers about soil testing and Integrated Nutrient Management

10 need based messages were sent through SMS to farmers of the district regarding soil testing and soil sampling technique, fertilizer management for different crops and about Integrated Nutrient Management throughout the year.

Popular articles published

Published three popular articles in daily newspaper Lokshahi varta for the benefit of farmers of the district on topic, “Importance of soil testing”, “Components of Integrated Nutrient Management and its importance to crops”, and “Seed classification and care while purchasing seed from market”.

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	155	85	12,000	18,000
INM in Cotton	25	60	10000	16000

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)

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

Impact analysis on IPM in cotton

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.)
Nil			

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	Imparting training	Training imparted to farmers
3	Monthly workshop with district collector	Participation in meeting	District 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	10+1	Osman abadi	Kids	17	4700	84138	Good by protected to the farmer

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.(q)	Cost of inputs	Gross income	
Cereals Wheat	Oct 2010	Feb 2011	0.3	Raj 4037,AKW 3722 and MACS 6222	Seed	0.66	500	1500	
Rice	-	-	-	-	-	-	-	-	-
Pulses									
Pigeonpea	Jun 2011	Jan 2012	0.25	Vipula	Seed	.1.30	300	4500	-
Oilseeds									
Linseed	Oct 2010	Jan 2011	0.10	Nl 260	Seed	0.50	200	2000	-
Fibers	25.06.10	Jan-2011	0.3	Bunny Bt	Seed cotton	3.0 q	5,000	15,000	-
Dhaincha	July 2010	Dec 2010	0.5	Local	Seed	0.70	800	1750	-
Spices & Plantation crops									
Marigold	20.07.10	Oct-10	On bunds	Suman	Flowers	10 kg	50	200	
Fruits	1994	Nov-10	0.1	L-147	Fruits	Auctioned	1000	45000	-
Sweet Orange	2000	Oct-10	-	New Cellar	Fruits	8 kg	-	160	-
Lemon	2000	Oct-10	-	Local	Fruits	390 Nos	-	390	
Vegetables									
Bhendi	July 2010	Oct-10	0.1	Arka-Anamika	Pods	76.5 kg	200	1224	-
Brinjal	July 2010	Dec-10	200 sqm	Pusa P-Round	Fruits	133.5 kg	300	1629	-
Others Vegetables	July 2010	Sep-10 to Feb-11	-	-	-	166 kg	400	1556	
Others (specify)									
-	-	-	-	-	-	-	-	-	-

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	
-	-	-	-	-	-

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	Goats	Osmanabadi	Breeding budes & does	43	4,200	84,138	Bucks sold to the farmers for upgradation of local goats

6.5 Rainwater Harvesting:

Training programmes conducted by using Rainwater Harvesting DemonstrationUnit

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

6.5 Utilization of hostel facilities : Not Applicable

Accommodation available (No. of beds): Not applicable as Farmer's Hostel is under construction

Months	Title of the training course/Purpose of stay	No. of trainees stayed	Trainee days (days stayed)	Reason for short fall (if any)
April, 2010				
Total				
May, 2010				
Total				
June, 2010				
Total				
July, 2010				
Total				
August, 2010				
Total				
September, 2010				
Total				
October, 2010				
Total				
November, 2010				
Total				
December, 2010				
Total				
January, 2011				
Total				
February, 2011				
Total				
March, 2011				
Total				
Grand total				

5 X 25= 125 (Duration of the training course X No. of traininees)

7. 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 2012
	Kharif 2011-12	Rabi 2011-12	Kharif 2011-12	Rabi 2011-12	
Inputs	NIL				
Extension activities					
TA/DA/POL etc.					
TOTAL					

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

Information included in table No. 7.5- Utilization of KVK funds

Item	Released by ICAR		Expenditure		Unspent balance as on 1st April 2012
	Kharif 2011-12	Rabi 2011-12	Kharif 2011-12	Rabi 2011-12	
Inputs					
Extension activities					
TA/DA/POL etc.					
TOTAL (Pigeonpea + Chickpea Production Technology)					

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

Item	Released by ICAR	Expenditure	Unspent balance as on 1st April 2011
	Kharif 2010	Kharif 2010	
Inputs	65000	35000	30000
Extension activities	15000	13065	1935
TA/DA/POL etc.	-	-	-
TOTAL	80000	48065	31935

7.5 Utilization of KVK funds during the year 01.04.2011 to 31.03.2012

S. No.	Particulars	Sanctioned (. In lakhs)	Released (. In lakhs)	Expenditure (. In Rs.)
A. Recurring Contingencies				
1	**Pay & Allowances**	96.00		92,07,993
2	**Traveling allowances**	1.00		64,967
3	**Contingencies**			
A	Stationery, telephone, postage and other expenditure on office running, publication of Newsletter and library maintenance (Purchase of News Paper & Magazines)	9.00		8,76,586
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	Maintenance of farm			
H	Technology Demonstration on Pulses			
TOTAL (A)		**106.00**		**10149546**
1	**Works – Farmers hostel**	25.00		25,00,000
	Demo units	5.00		4,99,500
2	**Equipments including SWTL & Furniture LCD Projector**	0.00		
3	**Vehicle** (Four wheeler/Two wheeler, please specify) Tractor	0.00		
4	**Library** (Purchase of assets like books & journals)	0.00		
TOTAL (B)		**30.00**		**29,99,500**
C. REVOLVING FUND				
GRAND TOTAL (A+B+C)		**136.00**	**136.00**	**1,31,49,046**

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
1st April 2009 to 31st March 2010	-	-	-	-
1st April 2010 to 31st March 2011	100000	31,570	14,700	116870
1st April 2011 to 31st March 2012	116870	20,918	0	137788

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	746	698	1444
2	Urban	1349	1258	2607
3	Total	2095	1956	4051

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 Check this grade	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.solubilser @ 25 g/kg of seed is recommended for wheat crop.	Wheat	-	Dr.PDKV Akola	Major research achievements of DR.PDKV,Akola.
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	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) 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	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 of tur pod borer.	Pigeonpea	-	Dr.PDKV Akola	Major research achievements of DR.PDKV, Akola.
19	High yielding mid late of wilt resistance pigeon-pea Cv. PDKV 9303	Pigeonpea	2007-08	Dr.PDKV Akola	Major research achievements of DR.PDKV, Akola.
20	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 Pigeonpearecommended	Pigeonpea	-	Dr.PDKV Akola	Major research achievements of DR.PDKV, Akola.
21	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)
22	Application of FYm@5t/ha+100%RDF(90:45:45 kg NPK/ha)	Cotton	2005-06	AICCIP (Dr.PDKV, Akola)	Recommendation of AICCIP
23	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
24	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)
25	BN Bt cotton straight variety	Cotton	2008	CICR ,Nagpur	GEAC approval No.12/130/2007-08/02-05-2008
26	planting of cotton 90 x 45 cm		2009	Dr.PDKV Akola	RRC Agronomy ,Dr.PDKV recommendation
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 at early crop growth phase (need based) at ETL with 5% NSKE or conven\tional insecticides,	Cotton	-	CICR, Nagpur	-
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	Nagpur Mandarin	-	NRCC Nagpur	-

	same dose twice at 40 days interval alternatively				
10	**a.)Gummosis** : Sterilize the effected portion by 1 %KMnO4 @ 100 grm 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 @ o.2 % Or Captain @ o.4 % after removing rotted roots by removing the plant basin soil and then drench the above fungicide in the soil after covering the roots.**.** **c.)Die-back:** Cut and burn the dry and effected twigs/branches before monsoon. Foliar spray of Carbendazim o.1 % or copper oxychloride @ o.3 % or bordo mixture @ o.6 %. Follow 2 foliar sprays after 15 to 20 days interval	Nagpur Mandarin	-	Dr PDKV	Krishi Samvadani 2009, p 238,239
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	**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

13	**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 endosulfan 20 ml 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 Endosulfan @ 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
14	Spray of Bt @ 750 ml/ ha at ETL.	Chickpea	-	Dr PDKV	Inventory No 4(16)
15	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 endosulfan @ 1000 ml / ha or 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 yeilding	Okra	2004	Dr. PDKV, Akola	Major Research achievement, Director of Research, Dr. PDKV, Akola
3	**Jayanti** Suitable in irrigated	Chilli	1994	Dr. PDKV, Akola	Major Research achievement,

	condition for green and red chilli, tolerant to major diseases				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% FeSo **Nursery management** Treated seed shown on raised beds in line , apply 200 g N+ 10 g P_2O_5+ 10g K_2O, half dose of fertilizer at the time seed sowing and half after 20-25 days after sowing, 2 kg FYM / Sq. M. 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.+ P500g K per plant. **Steps:** ❖ Removal of dry/diseased woods before onset of mansoon in June ❖ Apply Bordeaux	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 Dr.PDKV Akola NRCOG, Rajguru nagar	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 Krishi savadini-2009 Annual report(2006-07) of NRCOG, Rajgurunagar

	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 100 0ppm + 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				
	Discipline: Veterinary Science				
1	Use of chelated minerals	Cattle rearing	-	NDRI, Karnal	Recommendations of NDRI
2	Urea treatment of low quality roughage	Cattle	-	NDRI, Karnal	Recommendations of NDRI
3	Supplementation of mineral mixture	Cow	-	MAFSU, Nagpur	Recommendations of MAFSU, Nagpur
4	Use of ecto & endoparasiticidal drugs	Goats	2004	Div. of parasito., Vet. Sci. & Anim. Husban., Jammu	Recommendations of Div. of parasito., Vet. Sci. & Anim. Husban., Jammu
5	Vanraja deshi breed	Poultry	-	PDP, Hyderabad	Rural poultry farming published by PDP, Hyderabad
6	Giriraja deshi breed	Poultry	-	UAS, Banglore	Rural poultry farming published by PDP, Hyderabad

	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	1) Imbalance fertilizer application 2) Sub-optimal plant density 3) high cost of Bt cotton hybrids	1)Application of recommend dose of Nutrients 2)optimization of plant population in Bt cotton 3) Introduction of BN Bt cotton straight variety	1)Single component FLD to demonstrate effect of recommended dose of nutrients 2) OFT on optimization of plant density 3) OFT on assessment of BN Bt	1. Sl. No. 23 of Technology Inventory 2. Sl. No.26 of technology Inventory 3. Sl. No. 25 of Technology inventory
Soybean	Low productivity of cotton under rainfed medium black soils of Nagpur	1) Imbalance and suboptimal fertilizer use	1) Application recommended dose of fertilizer along with FYM and micronutrient	1) FLD on INM in soybean	1 Sl. No. 1 of Technology Inventory inventory
Pigeonpea	Low productivity of pigeonpea under rainfed medium black soils of Nagpur	1) Heavy incidence of fusarium wilt 2) incidence of Bollworm	1) Use of wilt resistant varieties PDKV TAT 9329 2) Seed treatment with bioagent viz.*T.harzanium* or *T. viridae* @ 4g/kg seed before sowing 3) Integrated pest management	1) Single component FLD to demonstrate yield potential of recommended wilt resistant variety 2)Diagnostic Field Visit under FLD	1 Sl. No. 19 of Technology Inventory 2 Sl. No.20,21 of technology Inventory 3 Sl. No. 16, 17, 18 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 2)Suboptimal use of Nutrients 3) Limited irrigation	1Use of high wheat variety 2)Nutrient management 3) Scheduling irrigation as per critical growth stages	1) Single component FLD to demonstrate yield potential of recommended variety 2 Oft on nutrient management wheat 3)Training on irrigation management	1Sl. No. 8 of Technology Inventory 2Sl. No.11 of technology Inventory 3Sl. No. 9 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 cotton 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	1Sl. No. 14 of Technology Inventory 2Sl. No.15 of technology Inventory
Discipline: Plant protection					
Cotton	Low productivity of cotton under rainfed medium black soils of Nagpur region	a) Sucking pests incidence & b) Bollworms incidence	a) Seed treatment + use of NSE/ conventional insecticides at ETL b) Use of Bt Cotton	a) Single component FLD b) Training and field programmes on IPM. c) Diagnostic visits	Ser 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 fruit 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 fruit 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 fruit 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 3. Inadequate pruning practices	1. Improved cultivation practices 2. Rejuvenation of old trees 3. Application of Bordeaux paste 4. Recommended dose of fertilizer	1. Training on improved cultivation practices **2. FLD on rejuvenation of old trees** 3. Training on Application of Bordeaux paste & recommended dose of fertilizer	Dr.PDKV, Akola

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.Applicationof 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 due to imbalanced nutrition	1. Enrichment of diet with protein & micronutrients 2. Cultivation of	1. **OFT** on use of **chelated minerals** and **FLD** on supplementation of **mineral mixture** in the diet of cows **& training** on low	NDRI, Karnal & MAFSU, Nagpur NDRI, Karnal

		2. Scarcity of feeds & fodders 3. Traditional/ Poor management practices	fodder crops & their conservation 3. Adoption of improved/scientific management practices	cost feed formulation 2. **FLD on urea treatment, Training & demonstration** on fodder crops production 3. **Training & health camps** for livestock	MAFSU, Nagpur
Goats	Low body weight gain, low milk yield, low prolificacy	1. Low genetic potential of local goats 2. Lack of balanced nutrition due to extensive method of rearing 3. Ecto & endoparasitic infestation 4. High mortality during monsoon season	1. Upgradation of local goats by crossing with productive pure breed. 2. Inclusion of concentrate feed in their diet 3. Ecto & endo parasitic control by using new generation ectendo-parasiticidal drugs 4. Adoption of strict schedule for vaccination, deworming & dipping	1. **Training** on improvement of genetic potential 2. **Training** on low cost feed formulation for goats 3. **FLD & training** on effective use of ecto & endoparasiticidal drugs 4. Organizing **treatment, vaccination & ecto-endoparasitic control camps**	MPKV, Rahuri MAFSU, Nagpur Div. of Parasitology, Vet. Sciences & A.H., Jammu MAFSU, Nagpur
Back yard Poultry	Low egg production, slow growth rate, high mortality.	1. Low genetic potential 2. Poor management practices & High incidence of diseases 3. Inadequate/ poor feeding	1. Introduction of improved deshi breeds 2. Adoption of prophylactic measures for disease control 3. Inclusion of balanced feed	1. **Training** on improved deshi breed/breeds. 2. **Training** on improved management practices & 3. **Training** on balanced feeding	PDP, Hyderabad UAS, Banglore PDP, Hyderabad
Discipline: Home Science					
Pregnant Women	Anaemia in Farm Women	Deficiency of iron	Use of locally available Iron rich vegetable	Training and OFT on Fortification of iron in the diet of pregnant women with leafy vegetables	Sl. No. 1 of Technology Inventory
School going children	Low Hb%,weight gain & deficiency	Deficiency of iron	Use of locally available Iron rich 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	BN Bt cotton straight variety	Straight variety seed can be used up to three years. Seed cost is comparatively less as compared to other variety. Early maturing suitable under double cropping system.	Recommended for Central Zone
2	FLD	AKW 3722(Vimal)	Better resistance to rust. High protein with good chapatti making quality	Recommended for Vidarbha region
3	FLD	High yielding mid late of wilt resistance pigeon-pea Cv. 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
4	FLD	Jaki -9218	Suitable under minimum tillage / no tillage	Recommended for Vidarbha region
5	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
6	FLD	SYE 116-53-22-8 (PKV Khamang)	Short stature ,non lodging and short duration paddy variety	Recommended for Vidharbha region
7	FLD	NL 260	High yielding, alternaria blight and powdery mildew disease tolerance linseed variety	Recommended for Vidarbha region

8	OFT	Management of weed in SRI method of paddy cultivation	Use of cono weeder	Recommended under SRI method paddy cultivation (ANGRU)
9	FLD	INM in cotton	Application of FYm@5t/ha+100%RDF(90:45:45 kg NPK/ha)	Recommended for central zone by AICCIP
10	OFT	Optimization of plant density of Bt cotton	Planting Bt cotton at 90 x45 cm	RRC 2009 Recommendation of DR.PDKV AKOLA.
11	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	Chelated minerals	Increases bioavailability of minerals. Improves fertility, reproductive performance, and immunity & herd health.	Recommended by NDRI, Karnal for cows and buffaloes
2	FLD	Urea treated poor quality roughage	Urea acts as a low cost protein source. Cellulose makes available to take part in digestion process. Animals yielding milk up to 6 litres/day can be maintained without concentrate feed.	Recommended by NDRI, Karnal for large ruminants
3	FLD	Use of anthelmintics and ectoparasiticides	Anthelmintics acts against roundworm, tapeworm and liver flukes, while ectoparasiticides acts against ticks, mites and lice resulting in increased production performance	Recommended by Division of parasitology, Veterinary Sciences & Animal Husbandry, Jammu
4	FLD	Mineral mixture	Compensates the losses of minerals especially calcium & phosphorus secreted through milk and increases milk production.	Recommended by Maharashtra Animal & Fisheries Sciences University, Nagpur