

## REVISED PROFORMA FOR ANNUAL REPORT – 2015-16

### 1. GENERAL INFORMATION ABOUT THE KVK

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

Address	Telephone		E mail	Website
	Office	FAX		
Krishi Vigyan Kendra Central Institute for Cotton Research (ICAR), Post Bag No. 2, Shankar Nagar P.O., <b>Nagpur – 440010</b> (Maharashtra)	07103– 275549/ 275617/ 275536	07103– 275529	<a href="mailto:kvkdicnagpur@gmail.com">kvkdicnagpur@gmail.com</a> ,	<a href="http://www.kvknagpur.org.in">www.kvknagpur.org.in</a>

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

Address	Telephone		E mail	Website
	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	<a href="mailto:cicrngp@rediffmail.com">cicrngp@rediffmail.com</a>	<a href="http://www.cicr.org.in/">http://www.cicr.org.in/</a>

#### 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	<a href="mailto:rbsingandhupe@gmail.com">rbsingandhupe@gmail.com</a>

#### 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 31<sup>st</sup> March, 2016)

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	15600-39100 GP-8000	-	01.06.2011	Permanent	OBC
2	Subject Matter Specialist	Vacant	SMS	Horticulture	-	-	-	-	-
3	Subject Matter Specialist	Vacant	-	Agronomy	-	-	-	-	-
4	Subject Matter Specialist	Dr. S.S Patil	SMS	Extension	15600-39100 GP-5400	-	30.09.1996	- do -	OBC
5	Subject Matter Specialist	Dr.U.V. Galkate	SMS	Veterinary Science	15600-39100 GP-5400	-	10.01.1997	- do -	ST
6	Subject Matter Specialist	Vacant	SMS	Plant protection	-	-	-	-	-
7	Subject Matter Specialist	Smt.S.N. Chauhan	SMS	Home Science	15600-39100 GP-5400	-	07.01.1997	- do -	Other
8	Programme Assistant	Mr.Harish Kumbhalkar	Programme Assistant	Soil Science	9300-34800 GP-4200	-	01.10.2010	- do -	OBC On Study leave
9	Computer Programmer	Smt. Vandana Satish	Programme Assistant (Computer)	Computer Science	9300-34800 GP-4200	-	29.01.2011	- do -	Other
10	Farm Manager	Dr.P.B. Deulkar	Farm Manager	Veterinary Science	9300-34800 GP-4600	-	07.04.1997	- do -	SC
11	Accountant / Superintendent	Ejaj Ahmed	Office Suptd.	-	9300-34800 GP-4600	-	07.12.2010	- do -	Others
12	Stenographer	Vacant	Stenographer	-	-	-	-	-	-
13	Driver	A. K. Sherkar	T-1 (Driver)	-	5200-20200 GP-2000	-	10.02.1998	- do -	ST
14	Driver	Naresh Raut	T-1 (Driver)	-	5200-20200 GP-2000	-	29.12.2010	- do -	OBC
15	Supporting staff	Vacant	-	-	-	-	-	-	-
16	Supporting staff	Vacant	-	-	-	-	-	-	-

### 1.6. Total land with KVK (in ha)

:

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

## 1.7. Infrastructural Development:

### A) Buildings

S. No.	Name of building	Source of funding	Stage					
			Complete			Incomplete		
			Completion Date	Plinth area (Sq.m)	Expenditure (Rs.)	Starting Date	Plinth area (Sq.m)	Status of construction
1.	Administrative Building	ICAR	19/03/1999	511.88	-	-	-	Completed
2.	Farmers Hostel	KVK	-			2012	-	Under construction
3.	Staff Quarters (6)	-	-	-	-	-	-	-
4.	Demonstration Units (2) -Goat Shed with fencing	KVK	Dec 1998	16 X 6 m	590000		-	Completed
	-Vermicompost unit (Portable)	CICR	Feb 2006	25 X 30 ft.	40000		-	Completed
	-Nutrition garden unit	CICR	July 1998	18 X 44 m	-		-	Completed
	-Guava garden unit	KVK	July 1996	2 acres	10000		-	Completed
	- Fruit cafeteria	CICR	July 1999	1.5 acres	7000		-	Completed
	- Teak plantation	CICR	July 1999	Field Border	-		-	Completed
5	Fencing	CICR	Jan 2014	Field No. E-59 & E-60	180000		-	Completed
6	Rain Water harvesting system	CICR	June 2001	60mX45mX 3.5 m Capacity- 95 lakh litres	3.5 lakhs		-	Completed
7	Threshing floor	-	-	-	-		-	-
8	Farm godown	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	240312 km	Running condition
Tractor – Mahindra (Arjun)	March 2009	4.86 lakh	2640km	Running condition

### C) Equipments & AV aids

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

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

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

Sl.No.	Date	Name and Designation of Participants	Salient Recommendations	Action taken
1.	22/7/14	<ul style="list-style-type: none"> <li>• Dr. K. R. Kranthi, Director, CICR, Nagpur</li> <li>• Mrs. Sandhya Kranthi, HOD Crop Protection, CICR, Nagpur</li> <li>• Dr. R.B. Singandhupe, Principal Scientist &amp; Programme Coordinator, KVK, CICR, Nagpur</li> <li>• Dr. Chari Appa, Principal Scientist, ZPD, Hyderabad</li> <li>• Dr. S.N. Rokde, P.S., Crop Production, CICR, Nagpur</li> <li>• Dr. Vilas Khrche, Associate Dean, College of Agriculture, Nagpur</li> <li>• Mrs. Pranita Kulkarni, Demonstration Officer-II, CFNEU, Nagpur</li> <li>• Sh. Manoj Puri, Asstt. Director, Central IPM Centre, Govt. of India, Nagpur</li> <li>• Sh. Shriram Didel, Asstt., Plant Protection Officer, CIPMC, Nagpur.</li> <li>• Sh. Kishor Santosh Kuradkar, Farmers Representative, Nagpur</li> <li>• Shri. Atul Bhusari, Doordarshan Kendra, Nagpur</li> <li>• Sh. Mahendra Wasudeo Karbhari, Farmers Representative, Nagpur</li> <li>• Mr. Sachin V. Deotale, Asstt. Director, Coordinating MAVIM, Nagpur.</li> <li>• Sh. Sudhir N Dhanvijay, AGM, NABARD, Nagpur</li> <li>• Mrs. Sangita Arajpure, AIR, Nagpur</li> <li>• Miss. J. A. Bhutange, Technical Officer Representative of DSAO, Nagpur</li> <li>• R. W. Rewatkar, Live Stock Development Officer, Representative of DAHO, Z.P., Nagpur</li> <li>• Sh. M. P. Goswami, Asstt. Director, CIPMC, Nagpur</li> <li>• Dr. V. S. Tekade, Nagpur</li> <li>• Dr. Vaishali V. Banthiya, Nagpur</li> <li>• Dr. U. V. Galkate, SMS, Vet-Sci, KVK, Nagpur</li> <li>• Dr. Gulbir Singh, SMS, Horti, KVK, Nagpur</li> <li>• Dr. S. S. Patil, SMS, Extn. KVK, Nagpur</li> <li>• Smt. Sunita Chauhan, SMS, Home-Sci, KVK, Nagpur</li> <li>• Dr. P.B. Deulkar, KVK, Nagpur</li> <li>• Dr. U. A. Nandankar, KVK, Nagpur</li> <li>• Sh. Harish Kumbhalkar, Prg. Asstt., Soil-Sci., KVK, Nagpur</li> <li>• Smt. Vandana Satish, Prg. Asstt. Computer, KVK, Nagpur</li> </ul>	<ol style="list-style-type: none"> <li>1. Inclusion of ICT in Action Plan programme of KVK for the benefit of farmers.</li> <li>2. Prepare crop contingency plan for Nagpur district to combat with adverse climatic situation occurred due to delayed monsoon.</li> <li>3. Popularized Phule Dhanwantri desi cotton variety, immune to pest and diseases as well as biotic and abiotic stresses by cultivating it in farmers field of the district.</li> <li>4. Promote IPM technologies while cultivation of crops for safe ecosystem.</li> <li>5. Varietal demonstration on PKV Shatak, Variety of maize should be conducted at instructional farm of KVK.</li> <li>6. Impact studies of KVK activities may be carried out.</li> </ol>	<ol style="list-style-type: none"> <li>1. KVK, Nagpur is providing (KMAS) Kisan Mobile Advisory Services to the farmers of Nagpur district. As well as weather based agro-advisory is being uploaded on KVK's site every week. Apart from that E-Kapas facility is also provided to the farming community and farmers were advised on insect pest &amp; disease management of crops by through Whats app messages.</li> <li>2. Crop contingency plan prepared to combat with adverse climatic situation during Kharif 2016</li> <li>3. KVK is popularizing Phule Dhanwantari desi cotton variety through HDPS programme.</li> <li>4. KVK is promoting IPM technologies in cotton, pigeonpea, chickpea, soybean and other crops.</li> <li>5. Demonstration on PKV Shatak maize crop was conducted on KVK's instructional farm during Rabi season 2015</li> <li>6. Impact study on FLD – Oilseed &amp; pulses was conducted.</li> </ol>

\* Attach a copy of SAC proceedings along with list of participants

## **2. DETAILS OF DISTRICT (2015-16)**

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

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

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

<b>S. No</b>	<b>Agro-climatic Zone</b>	<b>Characteristics</b>
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

### **2.3 Soil types**

<b>S. No</b>	<b>Soil type</b>	<b>Characteristics</b>	<b>Area in ha</b>
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
		<b>Total</b>	<b>6.45 lakhs</b>

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

<b>S. No</b>	<b>Crop</b>	<b>Area (ha)</b>	<b>Production (ton)</b>	<b>Productivity (kg /ha)</b>
1	Kharif Jowar	4900	4300	869
2	Rabi Jowar	1200	500	413
3	Rice	92800	133900	1443
4	Tur	51500	23300	452
5	Gram	66000	45300	687
6	Cotton	196900	53000	269
7	Soybean	129400	48300	373
8	Wheat	81300	103100	824
9	Groundnut (K)	2200	2000	923

**Sources: O/o SAO, Nagpur**

## 2.5. Weather data

Date & Month	Met. week	Rainfall (mm)	No. of rainy days	Temperature (°c)		R.H. (%)	
				Max.	Min.	Mor.	Even.
4-10 June,2015	23	0	0	41.05	27.19	64.47	38.17
11-17	24	86	6	36.4	25.3	83.8	49.2
18-24	25	232	6	31.9	23.6	87.3	71.6
25-01 July	26	22	1	35.04	25.37	72.66	56.31
<b>Total</b>		<b>340</b>	<b>13</b>				
02-08 July	27	28	1	34.97	26.11	77.17	54.49
09-15	28	17	2	32.9	25.9	82.0	68.7
16-22	29	14	4	32.3	26.0	86.6	66.8
23-29	30	119	4	30.41	23.83	87.84	80.47
30-05 Aug.	31	105	1	29.46	23.97	82.74	63.67
<b>Total</b>		<b>283</b>	<b>12</b>				
06-12 Aug.	32	62	3	31.11	23.96	91.06	76.90
13-19	33	162	2	30.64	25.17	86.50	78.17
20-26	34	0	0	33.1	24.1	86.2	60.1
27-02 Sept.	35	60	2	30.5	24.8	92.5	76.1
<b>Total</b>		<b>284</b>	<b>7</b>				
03-09 Sept.	36	97	2	34.11	24.63	87.64	66.04
10-16	37	30	1	34.3	24.5	88.4	55.0
17-23	38	88	3	32.27	23.93	90.63	61.70
24-30	39	0	0	33.24	22.29	85.83	67.50
<b>Total</b>		<b>215</b>	<b>6</b>				
1-7Oct	40	0	0	32.53	22.59	92.54	67.24
8-14	41	0	0	35.56	19.93	85.20	61.04
15-21	42	0	0	34.7	21.0	82.9	53.1
22-28	43	0	0	34.36	21.46	87.53	51.20
29-04Nov	44	16	1	30.91	19.31	90.90	59.14
<b>Total</b>		<b>16</b>	<b>1</b>				
5-11	45	0	0	32.84	18.77	83.83	42.99
12-18	46	0	0	32.56	16.17	76.54	44.63
19-25	47	0	0	31.46	15.34	72.31	46.24
26-02Dec	48	0	0	32.21	18.05	80.34	61.74
<b>Total</b>		<b>0</b>	<b>0</b>				
3-9	49	0	0	31.22	12.86	84.49	36.23
10-16	50	0	0	30.2	16.3	71.4	55.8
17-23	51	0	0	28.8	14.4	75.3	44.4
24-31Dec 2015	52	0	0	28.4	9.6	73.8	24.7
<b>Total</b>		<b>0</b>	<b>0</b>				
01-07Jan2016	1	0	0	31.8	11.4	77.2	39.0
8-14	2	0	0	30.4	11.3	78.1	38.3
15-21	3	0	0	28.2	13.1	88.2	44.6
22-28	4	0	0	28.7	7.9	76.3	35.4
<b>Total</b>		<b>0</b>	<b>0</b>				
29-04Feb2016	5	0	0	33.2	14.4	68.2	32.7
5-11	6	0	0	31.2	13.9	73.8	41.7
12-18	7	0	0	33.0	17.4	69.1	39.1
19-25	8	0	0	35.2	18.4	54.0	47.5
<b>Total</b>		<b>0</b>	<b>0</b>				
<b>Total Rainfall</b>		<b>1138</b>	<b>39</b>				

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

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

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

## 2.7 Details of Operational area / Villages (2015-16)

Sl.No.	Taluk	Name of the block	Name of the village	Major crops & enterprises	Major problem identified	Identified Thrust Areas
	Umred & Bhivapur	Umred & Bhivapur	Ranmangali, Thana, Navegaon Sadhu, Tirpura, Manori, Pipra	Soybean, Cotton, pigeon pea, wheat, chickpea, jowar, vegetable crops like tomato, chilli, brinjal, okra & tinda, orchard- Nagpur mandarin	<b>Crop Production:</b> <b>Low productivity of cotton, Soybean, Pigeon pea &amp; chick pea under rainfed situation :</b> <ol style="list-style-type: none"> <li>1. Imbalance use of nutrients in cotton</li> <li>2. Water stress in cotton and soybean.</li> <li>3. Poor germination and low plant population in soybean.</li> <li>4. Weed menace.</li> <li>5. Fusarium wilt in pigeon pea and chickpea.</li> <li>6. Reddening of leaves in cotton.</li> <li>7. Phosphorous fixation in vertisol</li> </ol>	Plant density optimization, Integrated nutrient management, In situ water conservation and sucking pest management Weed management, IPM and INM Disease management, <i>Helicoverpa</i> management, INM Pests & Disease management , Nursery management and INM Nursery management Insect pests & disease management , Nursery management and INM Drudgery Reduction ,skill development Nutrition management Value Addition, Income generation Activity Skill Development ,Energy resource management Conservation of Agro Waste Supplementation of by-pass fat to avoid negative energy balance in just calved cows Disease management New improved breeds of poultry Nutrition management and deworming Feed management Ecto & endo parasitic management, feed management
					<b>Horticulture :</b> <b>Low yield &amp; poor fruit quality of Nagpur mandarin and low productivity of vegetables &amp; flowers.</b> <ol style="list-style-type: none"> <li>1. Non availability of disease free saplings of citrus</li> <li>2. Irregular bearing in Nagpur mandarin.</li> <li>3. Scarcity of water &amp; poor management</li> <li>4. Unawareness of inter cropping cultivation in orchards</li> <li>5. Improper fertilizer schedule.</li> <li>6. Low production in tomato due</li> </ol>	

					<p>to damping off disease.</p> <ol style="list-style-type: none"> <li>7. Low production &amp; poor quality in Okra due to Yellow vein Mosaic virus &amp; fruit borer respectively.</li> <li>8. Poor flower quality in roses due to improper pruning &amp; thrips &amp; mites incidence.</li> <li>9. Low productivity &amp; poor fruit quality in brinjal due to sucking pests &amp; fruit borer.</li> <li>10. Water logging condition in citrus orchard during rainy season.</li> <li>11. Low productivity in chilly due to sucking pest incidence.</li> </ol>	
					<p><b>Plant Protection :</b>  <b>Low productivity &amp; poor quality in rainfed cotton, pigeonpea, soybean, vegetables, chickpea and citrus</b></p> <ol style="list-style-type: none"> <li>1. Incidence of sucking pests and bollworms in cotton.</li> <li>2. <i>Fusarium</i> wilt in chickpea and pigeonpea.</li> <li>3. Incidence of <i>Helicoverpa armigera</i> in pigeonpea &amp; chickpea</li> <li>4. Incidence of girdle beetle, semiloopers, stemborer and hairy caterpillars in soybean</li> <li>5. Incidence of <i>Phytophthora</i>, Thrips, mites, , psylla and fruit moth in citrus.  Incidence of shoot and fruit borer in brinjal</li> </ol>	
	Katol	Nagpur	Wai (Buzurg), Wai (Khurd) Mendhepathar, Lakholi, Kohali Kondhasawali	Dairy, Goat & back yard poultry as livestock farming	<p><b>Veterinary Science</b></p> <p>Lower productivity, High cost of inputs, reproductive problems viz. infertility, delayed maturity, anoestrus, etc., low body weight gain, Ecto &amp; endoparasitic infestation, low genetic potential and imbalanced nutrition in poultry</p>	Nutrition management, Feed & fodder management, Storage technique, Disease management
					<p><b>Home Science :</b>  <b>Lack of technical know - how in different enterprises in agriculture &amp; allied fields, malnutrition in children &amp; women, value addition, drudgery in farmwomen.</b></p> <ol style="list-style-type: none"> <li>1. Practicing conventional methods in weeding, fertilizer application and harvesting of crops.</li> <li>2. Practicing conventional techniques in back yard poultry, goat rearing and milk production.</li> </ol>	

					<p>3. Malnutrition in farmwomen &amp; children.</p> <p>4. Lack of awareness about value addition.</p> <p>5. Woman's facing drudgery while weeding and harvesting of crops.</p> <p>6. Unawareness regarding use of non-conventional fuel conservation devices among rural women.</p> <p>Lack of involvement of farmwomen in decision making.</p>	
					<p><b>Extension :</b></p> <p>1. Lack of knowledge about improved technologies in agriculture and allied fields.</p> <p>2. Lack of knowledge regarding recycling of farm waste.</p> <p>3. Unawareness regarding rainwater harvesting.</p> <p>Lack of marketing knowledge.</p>	

## 2.8 Priority/thrust areas

Crop/Enterprise	Thrust area
Cotton	Plant density optimization, Integrated nutrient management, In situ water conservation and sucking pest management
Soybean	Weed management, IPM and INM
Pigeon pea and chickpea	Disease management, <i>Helicoverpa</i> management, INM
Santra Orchards	Pests & Disease management , Nursery management and INM
Onion	Nursery management
Tomato ,Brinjal and chilly	Insect pests & disease management , Nursery management and INM
Cotton ,Soybean , Rice, Wheat harvesting tool	Drudgery Reduction ,skill development
Anaemic child, Nutrition Garden,	Nutrition management
Soybean, Aonla , Karvand , Rose Petals Processing	Value Addition, Income generation Activity
Use of Non conventional devices	Skill Development ,Energy resource management
NADEP Compost Making	Conservation of Agro Waste
Cow	Nutrition management
	Feed and fodder management
Goat	Disease management
	Integrated farming system
Poultry	Breed evaluation
	Nutrition management

\* An example for guidance only

### 3. TECHNICAL ACHIEVEMENTS (Vet)

#### 3.A. Details of target and achievements of mandatory activities by KVK during 2015-16

OFT (Technology Assessment and Refinement)				FLD (Oilseeds, Pulses, Cotton, Other Crops/Enterprises)			
1				2			
Number of OFTs		Number of Farmers		Number of FLDs		Number of Farmers	
Targets	Achievement	Targets	Achievement	Targets	Achievement	Targets	Achievement
<b>Crop Production</b>							
-	-	-	-	-	-	-	-
<b>Crop protection</b>							
2	2	24	24	3	3	110	110
<b>Horticulture</b>							
-	-	-	-	-	-	-	-
<b>Veterinary Science</b>							
2	2	80	80	2	2	60	60
<b>Home Science</b>							
1	1	20	29	3	3	60	60

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	11	22	380	658	11	21	1670	3518
Rural youth	14	17	180	440				
Extn. Functionaries	5	6	55	112				

Seed Production (Qtl.)		Planting material (Nos.)	
5		6	
Target	Achievement	Target	Achievement
--		-	Stem cuttings of fodder Hybrid Napier i) CO4 variety – 3500 ii) DHN-10 - 3500 ii) BHN-6 – 1000

### 3.B. Abstract of interventions undertaken

S. No	Thrust area	Crop/ Enterprise	Identified Problem	Interventions					
				Title of OFT if any	Title of FLD if any	Title of Training if any	Title of training for extension personnel if any	Extension activities	Supply of seeds, planting materials etc.
1	Plant density	Cotton	Low productivity of rainfed cotton	HDPS	-	HDPS demonstrations in cotton	Field visits	Field visits, training	Seed
	Feed & fodder management	Dairy/Cow	Low milk yield during scarcity of fodder	Feeding bag silage to milking cows	-	Preparation of bag silage & its use in cow's ration	Bag silage technique	Field day, Field visits, Group discussions, Training	Prolypropylene silage bags
2	Nutrition management	Dairy milch cows	Reproductive problems, Low milk yield	Feeding area specific mineral mixture	-	Use of specific MM in cattle diet	Effect of specific MM in cattle & buffaloes	Field day, Field visits, Group discussions, Training	Formulated specific mineral mixture
3	Feed management	Dairy milch cows	Sudden milk drop just after calving		Feeding of by-pass fat	Nutrition management, Management of Metabolic diseases	Nutrition management by advanced feeding technique	Field visits, group discussion, Trainings	By-pass fat
4	Disease management	Goats	Low weight gain, emaciation & constipation, inferior hide quality	Control of ecto & endo parasites	Control of ecto & endo parasites	Deworming & Dipping in goats	-	Field visits, group discussions, Training	Liq. Closantel (15%) @ 1 ml/10kg body wt.
7	Vegetable Production	Tomato	Low productivity	Varietal evaluation	High yielding variety (Kashi vishesh)	Production technology	Diagnostic survey	Field visits, Field days, Training	Seed
		Okra	-do-	-do-	-do - (Akola Bahar)	Production technology	-do-	-do-	-do-
		Onion	-do-	-do-	-do - (Akola Safed)	Nursery management	-do-	-do-	-do-
		Garlic	-do-	-do-	-do - (Yamuna Safed-4)	Production technology	-do-	-do-	-do-
8	Orchard Management	Nagpur Mandarin	Low productivity	-	Weed management	Citrus production technology	-	-do-	-do-
9	Prod. Tec	Redgram	Low productivity	-	Prod. Tech. in redgram	Seed treatment, wilt, pest management	IPM in redgram	Field day, Field visit, diagnostic survey	Seed, Rhizobium, Tricoderma, PSB, quinalphos, emamectinbenzoate
10	Prod. Tec	Chickpea	Low productivity	-	Prod. Tech. in redgram	Seed treatment, wilt, pest management	IPM in chickpea	Field day, Field visit, diagnostic survey	Seed, quinalphos, emamectinbenzoate
11	Recycling of Agro waste	Cotton	Expensive cooking fuel	Assessment of briquetted charcoal from cotton stalk					Charcoal briquettes
12	Drudgery reduction	Women Labourer	Drudgery	Assessment of Cotton stalk pallets	Drudgery reduction of farm women by women friendly tools	*attached separate sheet	Techniques of soybean processing for making soy flour and soy -nut.	Demonstration	
13	Drudgery reduction	Women Laborer	Drudgery	Drudgery reduction through Cotton picking bag		Clean cotton picking method		Women In Agriculture Day	Improved Cotton picking bag

### 3.1 Achievements on technologies assessed and refined

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

Thematic areas	Cereals	Oilseeds	Pulses	Commercial Crops	Vegetables	Fruits	Flower	Plantation crops	Women	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										
Value addition										
Integrated Pest Management		1		1						2
Integrated Disease Management										
Resource conservation technology										
Small Scale income generating enterprises										
<b>TOTAL</b>		1		2						3

\* 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 - ' Nil'

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

Management										
Integrated Farming System										
Mushroom cultivation										
Drudgery reduction										
Farm machineries										
Post Harvest Technology										
Integrated Pest Management										
Integrated Disease Management										
Resource conservation technology										
Small Scale income generating enterprises										
<b>TOTAL</b>	<b>Nil</b>									<b>Nil</b>

\* *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
Disease of Management								
Value Addition								
Production and Management								
Feed and Fodder	1							1
Small Scale income generating enterprises								
<b>TOTAL</b>	<b>2</b>							<b>2</b>

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

Thematic areas	Cattle	Poultry	Sheep	Goat	Piggery	Rabbitary	Fisheries	TOTAL
Evaluation of Breeds								
Nutrition Management	NA							
Disease of Management								
Value Addition								
Production and Management								
Feed and Fodder								
Small Scale income generating enterprises								
<b>TOTAL</b>	<b>NA</b>							<b>NA</b>

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

**A. Technology Assessment**

**Crop Protection : Trial 1**

SN	Title	:	Management of sucking pest in Bt. cotton
1	Title	:	Management of sucking pest in Bt. cotton
2	Problem diagnose/defined	:	Heavy attack of sucking pests in cotton
3	Details of technologies selected for assessment /refinement	:	<p><b>T-1: Farmers Practice</b> : 3 to 4 sprays of insecticides like monocrotophos 50 ml or + Dimethoate 50 ml or Imidacloprid 10 ml in 15 liters of water</p> <p><b>T-2: Recommended Practice</b> :</p> <ol style="list-style-type: none"> <li>1. Sowing of trap crops like maize and cow pea around the crop.</li> <li>2. Installation of yellow sticky traps 10-12/ha (when pest observed)</li> <li>3. Spraying of 5% NSKE or Neem oil 50 ml in 10 litres of water or Verticillium lecani 4 ml/litres of water</li> <li>4. Spraying of Acetamiprid (25 SP) 4 gm in 10 lit of water at an ETL of average 10 pests/leaf.</li> </ol>
4	Source of technology	:	Dr. PDKV, Akola
5	Production system thematic area	:	Rainfed cotton based system
6	Thematic area	:	Integrated Pests Management
7	Performance of the Technology with performance indicators	:	Recommended practice for management of sucking pests on Bt cotton recorded significantly higher yield 18.74 q/ha than farmers practice 15.56 q/ha. Infestation of sucking pests like aphide, jassid & whitefly was lower in recommended practices than the farmers practice.
8	Final recommendation for micro level situation	:	Trap crop like maize, cowpea around cotton play significant role in trapping the sucking pests. Bio-pesticide like Verticillium lecani found effective in suppressing the sucking pests population.
9	Constraints identified and feedback for research	:	Bio-pesticide needs more atmospheric humidity for its effectiveness under dry condition it is less effective.
10	Process of farmers participation and their reaction	:	Farmers were involved in planning, executing, monitoring and evaluation of the trials and in the upcoming years they are very much eager to increase the area under this technology.

1). Results of On Farm Trials

Crop/enterprise	Farming situation	Problem Diagnosed	Title of OFT	No. of trials*	Technology Assessed	Parameters of assessment	Data on the parameter of assessment Seed cotton yield (q/ha)	Results of assessment	Feedback from the farmer
1	2	3	4	5	6	7	8	9	10
Bt cotton Varieties	Irrigated	Heavy attack of sucking pests in cotton	Management of sucking pests in Bt cotton	12	<p><b>T-1: Farmers Practice</b> : 3 to 4 sprays of insecticides like monocrotophos 50 ml or + Dimethoate 50 ml or Imidacloprid 10 ml in 15 liters of water</p> <p><b>T-2: Recommended Practice</b> :</p> <ol style="list-style-type: none"> <li>Sowing of trap crops like maize and cow pea around the crop.</li> <li>Installation of yellow sticky traps 10-12/ha (when pest observed)</li> <li>Spraying of 5% NSKE or Neem oil 50 ml in 10 litres of water or Verticilium lecani 4 ml/litres of water</li> <li>Spraying of Acetamiprid (25 SP) 4 gm in 10 lit of water at an ETL of average 10 pests/leaf.</li> </ol>	No. of sucking pests/ leaf, natural enemies/plant, yield/ha & B:C ratio	<p>T-1 : 15.56</p> <p>T-2 : 18.74</p>	Higher seed cotton yield was recorded less infestation of sucking pests compared to farmers practice.	Recommended practice of sucking pests management is effective, economical & ecofriendly.

\* No. of farmers

Technology Assessed	Production per unit (kg/ha)	Net Return (Profit) in Rs/ha/unit	BC Ratio
11	12	13	14
T-1 : Farmers Practice	15.56	18075	1:1.29
T-2 : Recommended Practice	18.74	35134	1:1.63

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

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

**Crop Protection : Trail 2**

<b>SN</b>	<b>Title</b>	<b>:</b>	<b>Management of girdle bittle in soybean</b>
<b>1</b>	Title	:	Management of girdle bittle in soybean
<b>2</b>	Problem diagnose/defined	:	Heavy attack of girdle bittle in soybean
<b>3</b>	Details of technologies selected for assessment /refinement	:	<p><b>T-1: Farmers Practice</b> : 2 to 3 sprays of insecticides like Quinalphos 25 EC 50ml, Trizophos + Deltamethrin 40ml or Chlorpyphos + Cypermethrin 50ml in 15 liters of water</p> <p><b>T-2: Recommended Practice</b> : Two sprays of propenophos 50 EC 20ml/10 lit water at 15 days interval at initiation of pest incidence</p>
<b>4</b>	Source of technology	:	Dr. PDKV, Akola
<b>5</b>	Production system thematic area	:	Rainfed cotton based system
<b>6</b>	Thematic area	:	Integrated Pests Management
<b>7</b>	Performance of the Technology with performance indicators	:	Recommended practice for management of girdle bittle in soybean recorded significantly higher yield 8.12 q/ha than farmers practice 7.43 q/ha. Infestation of girdle bittle was lower in recommended practices than the farmers practice.
<b>8</b>	Final recommendation for micro level situation	:	Two sprays of Propenophos 50 EC 20ml 10 liter of water was found more effective in managing the girdle bittle under ETL than farmers practice.
<b>9</b>	Constraints identified and feedback for research	:	-
<b>10</b>	Process of farmers participation and their reaction	:	Farmers were involved in planning, executing, monitoring and evaluation of the trials and in the upcoming years they are very much eager to increase the area under this technology.

1). Results of On Farm Trials

Crop/enterprise	Farming situation	Problem Diagnosed	Title of OFT	No. of trials*	Technology Assessed	Parameters of assessment	Data on the parameter of assessment Seed cotton yield (q/ha)	Results of assessment	Feedback from the farmer
1	2	3	4	5	6	7	8	9	10
Soybean	Rainfed	Heavy attack of girdle bittle in soybean	Management of girdle bittle in soybean	12	<p><b>T-1: Farmers Practice :</b> 2 to 3 sprays of insecticides like Quinalphos 25 EC 50ml, Trizophos + Deltamethrin 40ml or Chlorpyphos + Cypermethrin 50ml in 15 liters of water</p> <p><b>T-2: Recommended Practice :</b> Two sprays of propenophos 50 EC 20ml/10 lit water at 15 days interval at initiation of pest incidence</p>	Girdle bittle incidence/MRL yield/ha & B:C ratio	<p>T-1 : 7.43</p> <p>T-2 : 8.12</p>	Higher yield was recorded less infestation of girdle bittle compared to farmers practice.	Recommended practice of girdle bittle management is effective and economical

\* No. of farmers

Technology Assessed	Production per unit (kg/ha)	Net Return (Profit) in Rs/ha/unit	BC Ratio
11	12	13	14
T-1 : Farmers Practice	7.43	2115	1:1.05
T-2 : Recommended Practice	8.12	5104	1:1.24

### Trial 1 Veterinary Science

SN	Title	:	
1	Title	:	Assessment trial on feeding of bag silage to milking cows
2	Problem diagnose/defined	:	<ul style="list-style-type: none"> <li>i) For smallholder farmers with limited production capacity, finding enough feed in the winter and summer months to maintain good milk production is always a problem</li> <li>ii) Wastage of available fodder</li> <li>iii) Low milk yield</li> </ul>
3	Details of technologies selected for assessment /refinement	:	In the process of ensiling, plant sugars (carbohydrates) are consumed (oxidized) by plant cells in the presence of oxygen to yield carbon dioxide, water and heat. Lactic acid produced during the process avoids silage from spoiling.
4	Source of technology	:	Department of Animal Nutrition, Nagpur Veterinary College, MAFSU, Nagpur
5	Production system thematic area	:	Large ruminant Production System - Dairying
6	Thematic area	:	Feed and fodder management
7	Performance of the Technology with performance indicators	:	Results showed 8% and 7.83% increase in milk yield and fat content in T2 group, respectively. Feed intake was more in a group T2 fed with silage prepared in polypropylene bags due to its increased palatability and succulence.
8	Final recommendation for micro level situation	:	Livestock owners may be evoked to ensile fodder crops in a polypropylene bags during its ample availability and to feed to the animals in the period of scarcity to maintain their production performances even in summer
9	Constraints identified and feedback for research	:	<p><b>Constraints:</b> Silage bags are not easily available in the market</p> <p>Feedback: Feeding silage to the cows not only increased the milk yield but also the fat content of the milk. Feed intake improved plus wastage of fodder avoided</p>
10	Process of farmers participation and their reaction	:	Farmers were imparted training how to prepare the silage in polypropylene bags and after preparation of silage fed to the cows @ 6 kg/day. Milk yield was recorded for 2 times a day. The other farmers also showed their interest to participate in the activity of silage making.

### 11. Results of On - Farm Trials

Particulars	Farming situation	Problem Diagnosed	Title of OFT	No. of trials	Technology Assessed
1	2	3	4	5	6
Dairy Jersey (Cross bred cows)	Large ruminant production system	i) For smallholder farmers with limited production capacity, finding enough feed in the winter and summer months to maintain good milk production is always a problem ii) Wastage of available fodder iii) Low milk yield	Assessment trial on feeding of bag silage to milking cows	T1: 10  T2: 10	T1 - Feeding of locally available feeds & fodder  T2 - Feeding of bag silage @6 kg/cow/day & other feeds

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
i) Av. Milk yield (l/cow/day)	T1 7.00	T2 7.56	8% increase in milk yield & 7.83% increase in fat content	Technology is suitable to maintain milk production & its quality even in the summer months	Not applicable	Not applicable
ii) Fat content in milk (%)	3.96	4.27				

Technology Assessed	*Production per unit (lit/cow/day )	Net Return (Profit) in Rs/cow/lactation	BC Ratio
13	14	15	16
T1 - Feeding of locally available feeds & fodder	7.00	14150	1.43
T2 - Feeding of bag silage 6 kg/cow/day & straws	7.56	17688	1.53

## B. Technology Assessment

### Trial 2 Veterinary Science

SN	Title	:	
1	Title	:	Feeding of Area Specific Mineral Mixture (ASMM) to lactating cows of Nagpur district.
2	Problem diagnose/defined	:	: i) Prolonged inter-calving period in cows ii) Delayed ovulation iii) Low milk yield iv) Late maturity in heifers
3	Details of technologies selected for assessment /refinement	:	In a Nagpur district, analysis of soils, plants and blood samples of livestock for estimation of mineral content revealed wide gap between availability and requirement of minerals in livestock Supplementation of minerals in a proper proportion as per the livestock requirement through area specific mineral mixture (Ca – 18.24%, P – 9%, Na – 11.99%, Fe – 0.40%, Mn – 0.99%, Zn – 0.30%, Cu – 0.08%, Co – 0.009%, I – 0.020%, Pb – 22 ppm max., As – 08 ppm max., Moisture i.e. Moi – 5% max., F – 0.05% max., Acid insoluble Ash i.e. Aia – 3% max., Total ash i.e. TA – 78.85%) leads to improve production performances of livestock.
4	Source of technology	:	Department of Animal Nutrition, PGI of Veterinary Sciences (MAFSU), Akola
5	Production system thematic area	:	Large ruminant Production System - Dairying
6	Thematic area	:	Nutrition management
7	Performance of the Technology with performance indicators	:	Results revealed 5.41% increase in milk yield with achievement of 93.33% conception rate in T2 group as compared to 83.33% i T1 group. Inter-calving period reduced by 59 days. It indicates slight improvement in milk production but significant improvement in reproductive performances with least occurrence of metabolic diseases due to inclusion of specific mineral premix supplied to the cows under trial
8	Final recommendation for micro level situation	:	Specific mineral mixture prepared for Nagpur district as per formulation given by MAFSU is recommended @50g/cow/day.
9	Constraints identified and feedback for research	:	<b>Constraints:</b> Non availability of area specific mineral mixture in the market <b>Feedback:</b> Increased milk yield as well as number of days in milking of treated cattle. Animals maintained on area specific mineral premix showed heat symptoms within 55-60 days after calving. Technology is easily and highly acceptable among farmers as no extra efforts to be done in addition to their routine dairy management practices.
10	Process of farmers participation and their reaction	:	Farmers were involved enthusiastically in 100 days trial & recorded milk yield 2 times a day. The relatives, friends and other farmers of village also appreciated the performance of feeding area specific mineral premix and willing to incorporate this premix in their cattle's diet.

### 11. Results of On - Farm Trials

Particulars	Farming situation	Problem Diagnosed	Title of OFT	No. of trials	Technology Assessed
1	2	3	4	5	6
Dairy Jersey (Cross bred cows)	Large ruminant production system	i) Prolonged inter-calving period in cows ii) Delayed ovulation iii) Low milk yield iv) Late maturity in heifers	Feeding of area specific mineral mixture to lactating cows	T1: 30 T2: 30	T1 - Feeding of mineral mixture available in local market @ 50 g/cow/day T2 - Feeding of area specific mineral mixture @ 50 g/cow/day X 100 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
	<b>T1</b>	<b>T2</b>				
i) Av. Milk yield (l/cow/day)	8.63	9.10	5.41% increase in milk yield & 12.5% increase in fat content with achievement of 93.33% conception rate. Inter-calving period reduced by 59 days.	Technology is easy to adopt and improved productive performances of cows.	Not applicable	Not applicable
ii) Inter calving period (days)	397	338				
iii) Onset of oestrus after parturition (days)	115-120	55-60				
iv) No. of cows conceived	25	28				
v) Conception rate (%)	83.33	93.33				
vi) Incidence of metabolic diseases (%)	6.67	0				
vii) Fat content in milk (%)	4.0	4.5				

Technology Assessed	*Production per unit (lit/cow/day)	Net Return (Profit) in Rs/cow/lactation	BC Ratio
13	14	15	16
T1 – Feeding of mineral mixture available in local market @ 50 g/cow/day	8.63	21242	1.56
T2 – Feeding of area specific mineral mixture @ 50 g/cow/day X 100 days	9.10	23812	1.63

## Home Science

### A. Technology Assessment

#### Trial 1

- 1) Title : Assessment of Cotton Pallets from cotton Stalk – An alternative cooking fuel
- 2) Problem diagnose/defined : Decreasing availability of fuel wood causing health hazards & drudgery
- 3) Detail of technologies : T:1 : Farmers Practice (Use of Char-coal)  
selected for assessment T:2 : Refined Practice ( Cotton Pallets)  
:
- 4) Source of technology : CIRCOT, Mumbai
- 5) Production system  
thematic area : Rainfed Cotton based system
- 6) Thematic area : Recycling of Agro waste  
Technology with  
Performance indicators : Home makers found Cotton pallets cost effective more eco –friendly by 56% &  
7) 50% respectively
- 8) Final recommendation for micro level situation : Cotton pallets made from cotton stalks or other unused agro  
9) residue may be used for cooking in place of coal.
- 10) Constraints identified and  
Feedback for research : Nil.
- 11) Process of farmers  
Participation and  
their reaction : Cotton growing farmers are identified and motivated for using cotton pallets .  
They are also motivated in stocking cotton stalks on field for making cotton  
pallets to save & for generating additional income .

Crop/enterprise	Farming System (Irrigated/Rainfed)	Problem Diagnosed	Title of OFT	No. of trials*	Technology Assessed	Parameters of assessment	Data on the parameter	Results of assessment	Feedback from the farmer
1	2	3	4	5	6	7	8	9	10
Cotton Pallets	Rainfed	Decreasing availability of fuel wood & its burning causing health hazards & drudgery	Assessment of Cotton Pallets from cotton Stalk – An alternative cooking fuel	20	T1 : FP Use of wood/ charcoal T-2 Recommended Practice : Cotton Pallets	Cost of coal, cooking time required, ash produced, drudgery	Cost of coal (Rs) , Time required (min) Ash produced (g)	Cotton pallets having more thermal value saves time , economical and eco-friendly	Cotton pallets are eco-friendly , economical , saves time drudgery free.

\* No. of farmers

Technology Assessed	Quantity of food grains (grams)	Quantity of Coal (grams)	Cost of Coal(Rs)	Time required for cooking (minute)	Ash recovered (grams)
11			12	13	14
1. Use of wood/ charcoal for cooking food (Farmers Practice)	250	260	3.9	23	2.5
2. Cotton Pallets (Recommended Practice)	250	310	8.7	29	6

Result: - Food cooked through cotton pallets is cost effective & ecofriendly by 56% & 50% respectively.

**OFT on feeding Area Specific Mineral Mixture & Silage to lactating cows**



**ON Farm Trial**  
**Food cooked through Bio Briquettes is cost effective & eco-friendly by 56 % and 58 % respectively**



### 3.2 Achievements of Frontline Demonstrations

a. Follow-up for results of FLDs implemented during previous years 2014-15

List of technologies demonstrated during previous year and popularized during 2014-15 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	IPM	Integrated pests management	Training/ group discussion/ Field visit/ Field day	3	50	20
2	Pigeonpea	IPM	BSMR-736/ Integrated pests management	Demonstration, field visits, field days	2	30	12
3	Chickpea	IPM	Prod. Tech	Demo, trg, field day, field visit	2	30	12
4	Dairy Farming	Nutrition management	Inclusion of bypass fat @ 200g/day in the diet of just calved cows)	Trainings, field visits, group discussion, field day	24	195	Dairy Farming
5	Goat rearing	Nutrition management	Supplementation of Concentrate feed @ 150g/doe/ day x 3 months	Demonstrations, field visits, group discussions, field day,	18	210	Goat rearing
6	Dairy farming	Feed and fodder management	Supplementation of azolla @ 1-2 kg/day/cow	Field visits, group discussions, Scientists-farmers meet, extension literature	17	70	Dairy farming
7	Poultry	Breed improvement	Performance of improved breeds Swarnadhara and Giriraja in backyard farming	Field visits, group discussions, Scientists-farmers meet, extension literature	55	199	Poultry
8	Okra	Drudgery Reduction	Bhindi Plucker	Demonstration , field visits , field days	3	20	
9	Cotton	Drudgery Reduction	KVK, CICR, Cotton Harvesting bag	Demonstration , field visits , field days	4 tahsil	300	
10	Maize	Drudgery Reduction	Maize sheller	Demonstration , field visits , field days	4	35	

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

- b. Details of FLDs implemented during 2015-16 (Information is to be furnished in the following **three tables** for each category i.e. cereals, horticultural crops, oilseeds, pulses, cotton and commercial crops.)

Sr. No.	Crop	Thematic area	Technology Demonstrated	Season and year	Area (ha)		No. of farmers/ demonstration			Reasons for shortfall in achievement
1 2	Cotton	IPM	IPM	Kharif -15	20	20	22	28	50	NA
3	Pigeonpea	IPM	BSMR-736	Kharif -15	12	12	12	18	30	NA
4	chickpea	ICM	Tech Demo	Kharif 15-16	12	12	7	23	30	NA
5	Okra	Drudgery Reduction	Bhindi Plucker	Kharif -15			9	11	20	NA
6	Cotton	Drudgery Reduction	KVK, CICR, Cotton Harvesting bag	Kharif -15			9	11	20	NA
7	Maize	Drudgery Reduction	Maize sheller	Kharif -15				8	12	NA

#### Details of farming situation

Crop	Season	Farming situation (RF/Irrigated)	Soil type	Status of soil			Previous crop	Sowing date	Harvest date	Seasonal rainfall (mm)	No. of rainy days
				N	P	K					
Cotton	Kharif 2015	Rainfed	Medium black	low	low	high	Soybean	22-25 June,15	15 Jan-16	1138	39
Redgram	Kharif 2015	Protective irrigation	Medium black	low	low	high	Cotton, chickpea, soybean	20-26 <sup>th</sup> June,15	28 Jan-10/2/16	1138	39
Chickpea	rabi	Protective irrigation	Medium black	low	low	high	soybean,	25-30/11/15	25/3/16 to 5/4/15	1138	39

#### Performance of FLD

S.N.	Crop	Technology Demonstrated	Variety	No. of Farmers	Area (ha.)	Demo. Yield Qtl/ha			Yield of local Check Q/ha	Increase in yield (%)	Data parameter in relation to technology demonstrated	
						H	L	A			Demo	Local
1	2	3	4	5	6	7	8	9	10	11	12	13
1	Cotton	IPM	Suraj	50	20	10.2	5.52	8.57	8.1	5.8	1:1.63	1:1.29
1	Pigeonpea	IPM	BSMR-736	30	12	13.25	8.30	10.25	8.85	15.81	1:3.69	1:2.93
5	Chickpea	IPM	Jaki-9218	30	12	22.50	16.00	18.91	16.70	13.23	1:3.21	1:2.70

**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
16295	20873	34340	32410	18075	11530	1:2.1 (Demo), 1:1.15 (LC)
22200	24400	82000	70800	59800	46400	1:3.69 (Demo), 1:2.93 (LC)
29275	26300	94435	78375	65160	52075	1:3.21 (Demo), 1:2.70 (LC)

**Performance of FLD during (2015-16) Home Science**

Sl.No.	Crop	Technology Demonstrated	No. of Farmers	Performance of technology on different parameter							
				Delta beats / min		Area covered m2h		Output m2/h		Result increase in out put (%)	% reduction in drudgery
				Demo	Local	Demo	Local	Demo	Local	Demo	Local
1	Bhindi / Brinjal plucker	20	Bhindi plucker	15	18	20	33	26	27	5.06	4.1
2	Improved Cotton Picking bag	20	Cotton	12	16	25	42.9	35.2	22	5.4	4.2
3	Maize Sheller	20	Maize	11	14	21	--	---	--	400g/m	310g/m

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

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	IPM	Rainfed	8.57	8.10	5.8
Pigeon pea	Kharif	IPM	Rainfed	10.25	8.85	15.81
Chickpea	Rabi	IPM	Protective irrigation	18.91	16.70	13.23

### Technical Feedback on the demonstrated technologies

S. No	Feed Back
1	KVK, CICR ,Cotton Harvesting Bag & CIAE maize Sheller was found beneficial in improving efficiency by 25 & 29 percent respectively over traditional method .
2	Pigeon pea variety BSMR-736 recorded higher yield by 15.81 percent over local variety.
3	Chickpea varieties with resistance to high temperature and moisture stress should be developed for rainfed areas.

### Farmers' reactions on specific technologies

S. No	Feed Back
1	Among all released cotton harvesting bags KVK, CICR, cotton harvesting bag is best cotton harvesting bag in terms of drudgery reduction & economical too.
2	Maize Sheller is best for shelling maize grown in less area in terms of drudgery reduction & economical too.
3	Suraj variety under HDPS cotton, was found best in case of seed cotton yield, earliness and big size boll and suited for rainfed tract of Vidarbha region.
4	Farmers with facility of protective irrigation were ready to cultivate sole redgram crop, profuse branching, high yielding.
5	Two protective irrigation at critical stages i.e at flowering and pod formation stgs enhance the yield.
6	After priming of seed farmers feel difficulty in sowing of chickpea seed by their conventional equipment <b>TIFFAN</b> .
7	Farmers realize that grains should be sold after few months of threshing to get good price of grains.
8	The adoption of seed priming in chickpea realizes better germination, plant population and yield by the farmers
9	Farmers with the facility of protective irrigation were ready to cultivate sole redgram crop.
10	Farmers realized that they should have storage structure to fetch better market price of their pulse grains (chickpea and redgram).

### Extension and Training activities under FLD

Sl.No.	Activity	No. of activities organised	Date	Number of participants	Remarks
1	Media coverage	4	17/11/15, 20/12/15 21/02/16		TV talk & Radio Talk
2	Training for extension functionaries	1	7/11/15	32	
3	Field days (Cotton, Tur & Gram,)	3	05/12/15, 14/12/15, 14/01/16	700	-
4	Farmers Training	6	07/08/15, 21/08/15, 08/10/15, 21/10/15, 05/11/15, 18/12/15	227	-
5	Media coverage				-
6	Training for extension functionaries	1	27/11/15	20	-

### 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 Farming (Inclusion of bypass fat @ 200g/day in the diet of just calved cows)	Jersey Cross breed	10	20 cows	a) Av. Milk yield (l/cow/day)	11.43	9.60	19.06	Farmers found this technology beneficial as sudden drop in milk yield just after calving is avoided and farmers could able to maintain the milk production
				b) Fat content (%)	4.30	3.86	11.40	
				c) No. of cases of metabolic diseases	0	1	-	
				d) No. of cows conceived	10	9	10.00	
				e) BC Ratio	1.75	1.62	-	
Goat rearing (Oral administration of single dose of liquid closantel (15%) @ 1ml/10 kg b. wt. for ecto & endo parasitic control)	Local goats	10	40 goats	i) Average body weight gain in 2 months (kg)	4.43	3.45	28.40	28.40% increase was observed in live body weight gain of goat, where as hide quality improved which ultimately leads to fetch higher selling price of goats. In addition incidence of diarrhea reduced to 10% in demonstration group as compared to 45% incidence in local check. Faecal examination after 21 days of oral administration of closantel showed no worm infestation in demo group.
				ii) Faecal examination for Tape worm & roundworm eggs & larvae				
				➤ Pre experimental	+ ve for Haemonchus & Trichostrongylus	+ ve for Haemonchus & Trichostrongylus	-	
				➤ Post experimental (21 days)	-ve	+ ve for Haemonchus & Trichostrongylus	100	
				iii) Incidence of diarrhoea (%)	10	45	-	
				iv) Gradation of hide quality				
➤ At the beginning of expt.	Inferior	Inferior	-					
➤ At the end of expt.	Excellent	Inferior	-					
v) BC Ratio	1.76	1.38						

\* 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								

**FLD on Single dose oral administration of Closantel (Dewormer)**



**FLD on feeding of Bypass fat**



## Front Line Demonstrations



**FLD on IPM in HDPS Cotton**



**Cluster FLD on Chickpea**



**CIAE Maize**



**KVK, CICR Cotton**

### 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
<b>(A) Farmers &amp; Farm Women</b>										
<b>I Crop Production</b>										
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										
<b>II Horticulture</b>										
<b>a) Vegetable Crops</b>										
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>b) Fruits</b>										
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										

<b>c) Ornamental Plants</b>										
Nursery Management										
Management of potted plants										
Export potential of ornamental plants										
Propagation techniques of Ornamental Plants										
<b>d) Plantation crops</b>										
Production and Management technology										
Processing and value addition										
<b>e) Tuber crops</b>										
Production and Management technology										
Processing and value addition										
<b>f) Spices</b>										
Production and Management technology										
Processing and value addition										
<b>g) Medicinal and Aromatic Plants</b>										
Nursery management										
Production and management technology										
Post harvest technology and value addition										
<b>III Soil Health and Fertility Management</b>										
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										
<b>IV Livestock Production and Management</b>										
Dairy Management	1	21	0	21	40	0	40	61	0	61
Poultry Management										
Piggery Management										
Rabbit Management										

Disease Management	1	5	0	5	13	0	13	18	0	18
Feed management										
Production of quality animal products	2	11	3	14	16	3	19	27	6	33
<b>V Home Science/Women empowerment</b>										
Household food security by kitchen gardening and nutrition gardening										
Design and development of low/minimum cost diet										
Designing and development for high nutrient efficiency diet										
Minimization of nutrient loss in processing										
Gender mainstreaming through SHGs										
Storage loss minimization techniques										
Value addition	1	3	9	12	10	14	24	13	23	36
Income generation activities for empowerment of rural Women	2	10	12	22	15	20	35	25	32	57
Location specific drudgery reduction technologies	3	9	37	46	9	18	27	18	55	73
Rural Crafts										
Women and child care										
<b>VI Agril. Engineering</b>										
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										
<b>VII Plant Protection</b>										
Integrated Pest Management	1	4	0	4	11	4	15	15	8	23
Integrated Disease Management										
Bio-control of pests and diseases										
Production of bio										

control agents and bio pesticides										
<b>VIII Fisheries</b>										
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										
<b>IX Production of Inputs at site</b>										
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										
<b>X Capacity Building and Group Dynamics</b>										
Leadership development										
Group dynamics										
Formation and Management of SHGs										
Mobilization of social capital										
Entrepreneurial development of										

farmers/youths										
WTO and IPR issues										
<b>XI Agro-forestry</b>										
Production technologies										
Nursery management										
Integrated Farming Systems										
<b>TOTAL</b>	<b>11</b>	<b>63</b>	<b>61</b>	<b>124</b>	<b>114</b>	<b>59</b>	<b>173</b>	<b>177</b>	<b>124</b>	<b>301</b>
<b>(B) RURAL YOUTH</b>										
Mushroom Production										
Bee-keeping										
Integrated farming										
Seed production										
Production of organic inputs										
Integrated Farming	2	6	6	12	30	6	36	36	12	48
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	1	3	9	12	10	14	24	13	23	36
Production of quality animal products										
Dairying										
Sheep and goat rearing	2	15	3	18	31	6	37	46	9	55
Quail farming										
Piggery										
Rabbit farming										
Poultry production										
Ornamental fisheries										
Para vets										
Para extension workers										
Composite fish culture										
Freshwater prawn culture										
Shrimp farming										
Women Empowerment	1	2	4	6	5	17	22	7	21	28
Pearl culture										
Cold water fisheries										
Fish harvest and processing technology										
Fry and fingerling										

rearing										
Small scale processing										
Post Harvest Technology										
Tailoring and Stitching										
Household food security by kitchen gardening and nutrition gardening	4	0	9	9	9	20	29	9	29	38
Rural Crafts										
<b>TOTAL</b>	<b>10</b>	<b>26</b>	<b>31</b>	<b>57</b>	<b>85</b>	<b>63</b>	<b>148</b>	<b>111</b>	<b>94</b>	<b>205</b>
<b>(C) Extension Personnel</b>										
Productivity enhancement in field crops										
Integrated Pest Management	1	5	0	5	16	0	16	21	0	21
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	1	4	2	6	29	5	34	33	7	40
Care and maintenance of farm machinery and implements										
WTO and IPR issues										
Management in farm animals										
Livestock feed and fodder production	2	16	5	21	52	11	63	68	16	84
Household food security										
Women and Child care										
Low cost and nutrient efficient diet designing	1	0	12	12	9	0	9	9	12	21
Production and use of organic inputs										
Gender mainstreaming through SHGs										
<b>TOTAL</b>	<b>5</b>	<b>25</b>	<b>19</b>	<b>44</b>	<b>106</b>	<b>16</b>	<b>122</b>	<b>131</b>	<b>35</b>	<b>166</b>

**B) OFF Campus**

Thematic area	No. of courses	Participants								
		Others			SC/ST			Grand Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
<b>(A) Farmers &amp; Farm Women</b>										
<b>I Crop Production</b>										
Weed Management										
Resource Conservation Technologies										
Cropping Systems										
Crop Diversification										
Integrated Farming	2	10	5	15	32	4	36	42	9	51
Water management										
Seed production										
Nursery management										
Integrated Crop Management										
Fodder production										
Production of organic inputs										
<b>II Horticulture</b>										
<b>a) Vegetable Crops</b>										
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>b) Fruits</b>										
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										
<b>c) Ornamental Plants</b>										
Nursery Management										
Management of potted plants										
Export potential of ornamental plants										

Propagation techniques of Ornamental Plants										
<b>d) Plantation crops</b>										
Production and Management technology										
Processing and value addition										
<b>e) Tuber crops</b>										
Production and Management technology										
Processing and value addition										
<b>f) Spices</b>										
Production and Management technology										
Processing and value addition										
<b>g) Medicinal and Aromatic Plants</b>										
Nursery management										
Production and management technology										
Post harvest technology and value addition										
<b>III Soil Health and Fertility Management</b>										
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										
<b>IV Livestock Production and Management</b>										
Dairy Management	2	4	1	5	38	4	42	42	5	47
Poultry Management	1	0	35	35	0	5	5	0	40	40
Piggery Management										
Goat Management	2	22	7	29	171	22	193	193	29	222
Disease Management										
Feed management	1	5	1	6	11	2	13	16	3	19
Production of quality animal products										
<b>V Home Science/Women empowerment</b>										
Household food security	1	0	23	23	0	27	27	0	50	50

by kitchen gardening and nutrition gardening										
Design and development of low/minimum cost diet										
Designing and development for high nutrient efficiency diet										
Minimization of nutrient loss in processing										
Gender mainstreaming through SHGs										
Storage loss minimization techniques										
Value addition	1	3	8	11	3	5	8	6	13	19
Income generation activities for empowerment of rural Women	2	0	34	34	3	59	62	3	93	96
Location specific drudgery reduction technologies	9	46	34	80	19	30	49	65	64	129
Rural Crafts										
Women and child care										
<b>VI Agril. Engineering</b>										
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										
<b>VII Plant Protection</b>										
Integrated Pest Management	14	85	22	107	211	32	243	296	54	350
Integrated Disease Management										
Bio-control of pests and diseases										
Production of bio control agents and bio pesticides										
<b>VIII Fisheries</b>										
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										
<b>IX Production of Inputs at site</b>										
Seed Production										
Planting material production										
Bio-agents production										
Bio-pesticides production										
Bio-fertilizer production										
Vermi-compost production	3	13	6	19	63	11	74	76	17	93
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										
<b>X Capacity Building and Group Dynamics</b>										
Leadership development	4	23	0	23	57	4	61	80	8	88
Group dynamics	1	10	0	10	15	5	20	25	5	30
Formation and Management of SHGs	2	9	4	13	29	8	38	38	12	50
Mobilization of social capital										
Entrepreneurial development of farmers/youths	2	12	6	18	33	6	39	45	12	57
WTO and IPR issues										
<b>XI Agro-forestry</b>										
Production technologies										
Nursery management										
Integrated Farming Systems										
<b>TOTAL</b>	<b>47</b>	<b>242</b>	<b>186</b>	<b>428</b>	<b>685</b>	<b>224</b>	<b>910</b>	<b>927</b>	<b>414</b>	<b>1341</b>
<b>(B) RURAL YOUTH</b>										
Mushroom Production										
Bee-keeping										
Integrated farming										
Seed production										

Production of organic inputs										
Integrated Farming										
Planting material production										
Vermi-culture	1	5	0	5	16	0	16	21	0	21
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										
Sheep and goat rearing										
Quail farming										
Piggery										
Rabbit farming										
Poultry production										
Ornamental fisheries										
Para vets										
Para extension workers										
Composite fish culture										
Freshwater prawn culture										
Design and development of low/minimum cost diet	1	4	7	11	0	9	9	4	16	20
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										
<b>TOTAL</b>	<b>2</b>	<b>9</b>	<b>7</b>	<b>16</b>	<b>16</b>	<b>9</b>	<b>25</b>	<b>25</b>	<b>16</b>	<b>41</b>
<b>(C) Extension Personnel</b>										
Productivity enhancement in field crops										
Integrated Pest Management	2	10	2	12	30	5	35	40	7	47
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	1	9	0	9	15	1	16	24	1	25
Care and maintenance of farm machinery and implements										
WTO and IPR issues										
Management in farm animals										
Livestock feed and fodder production	1	9	0	9	15	1	16	24	1	25
Household food security										
Women and Child care										
Location specific drudgery reduction technologies	1	5	7	12	14	9	23	19	16	35
Low cost and nutrient efficient diet designing										
Production and use of organic inputs										
Gender mainstreaming through SHGs										
<b>TOTAL</b>	<b>5</b>	<b>33</b>	<b>9</b>	<b>42</b>	<b>74</b>	<b>16</b>	<b>90</b>	<b>107</b>	<b>25</b>	<b>132</b>

**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
<b>(A) Farmers &amp; Farm Women</b>										
<b>I Crop Production</b>										
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										
<b>II Horticulture</b>										
<b>a) Vegetable Crops</b>										
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>b) Fruits</b>										
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										
<b>c) Ornamental Plants</b>										
Nursery Management										
Management of potted										

plants										
Export potential of ornamental plants										
Propagation techniques of Ornamental Plants										
<b>d) Plantation crops</b>										
Production and Management technology										
Processing and value addition										
<b>e) Tuber crops</b>										
Production and Management technology										
Processing and value addition										
<b>f) Spices</b>										
Production and Management technology										
Processing and value addition										
<b>g) Medicinal and Aromatic Plants</b>										
Nursery management										
Production and management technology										
Post harvest technology and value addition										
<b>III Soil Health and Fertility Management</b>										
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										
<b>IV Livestock Production and Management</b>										
Dairy Management	3	25	1	26	78	4	82	103	5	108
Poultry Management	1	0	35	35	0	5	5	0	40	40
Piggery Management										
Goat Management	2	22	7	29	171	22	193	193	29	222
Disease Management	1	5	0	5	13	0	13	18	0	18
Feed management	1	5	1	6	11	2	13	16	3	19
Production of quality	2	11	3	14	16	3	19	27	6	33

animal products										
<b>V Home Science/Women empowerment</b>										
Household food security by kitchen gardening and nutrition gardening	1	0	23	23	0	27	27	0	50	50
Design and development of low/minimum cost diet	1	4	7	11	0	9	9	4	16	20
Designing and development for high nutrient efficiency diet										
Minimization of nutrient loss in processing										
Gender mainstreaming through SHGs										
Storage loss minimization techniques										
Value addition	1	3	8	11	3	5	8	6	13	19
Recycling of Agro waste	2	10	12	22	15	20	35	25	32	57
Location specific drudgery reduction technologies	12	55	71	126	28	48	76	83	119	202
Rural Crafts										
Women and child care										
<b>VI Agril. Engineering</b>										
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										
<b>VII Plant Protection</b>										
Integrated Pest Management	15	89	22	111	222	36	258	311	62	373
Integrated Disease Management										
Bio-control of pests and diseases										
Production of bio control agents and bio pesticides										

<b>VIII Fisheries</b>										
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										
<b>IX Production of Inputs at site</b>										
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										
<b>X Capacity Building and Group Dynamics</b>										
Leadership development	4	23	0	23	57	4	61	80	8	88
Group dynamics	1	10	0	10	15	5	20	25	5	30
Formation and Management of SHGs	2	9	4	13	29	8	38	38	12	50
Mobilization of social capital										
Entrepreneurial development of	2	12	6	18	33	6	39	45	12	57

farmers/youths										
WTO and IPR issues										
<b>XI Agro-forestry</b>										
Production technologies										
Nursery management										
Integrated Farming Systems										
<b>TOTAL</b>	<b>51</b>	<b>283</b>	<b>200</b>	<b>483</b>	<b>691</b>	<b>204</b>	<b>896</b>	<b>974</b>	<b>412</b>	<b>1386</b>
<b>(B) RURAL YOUTH</b>										
Mushroom Production										
Bee-keeping										
Integrated farming										
Seed production										
Production of organic inputs										
Integrated Farming	2	6	6	12	30	6	36	36	12	48
Planting material production										
Vermi-culture	1	5	0	5	16	0	16	21	0	21
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	1	3	9	12	10	14	24	13	23	36
Production of quality animal products										
Dairying										
Sheep and goat rearing	2	15	3	18	31	6	37	46	9	55
Quail farming										
Piggery										
Rabbit farming										
Poultry production										
Ornamental fisheries										
Para vets										
Para extension workers										
Composite fish culture										
Freshwater prawn culture										
Household food security by kitchen gardening and nutrition gardening	4	0	9	9	9	20	29	9	29	38
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										
Women Empowerment	3	2	38	40	8	76	84	10	114	124
Rural Crafts										
<b>TOTAL</b>	<b>13</b>	<b>31</b>	<b>65</b>	<b>96</b>	<b>104</b>	<b>122</b>	<b>226</b>	<b>135</b>	<b>187</b>	<b>322</b>
<b>(C) Extension Personnel</b>										
Productivity enhancement in field crops										
Integrated Pest Management	3	15	2	17	46	5	51	61	7	68
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	2	13	2	15	44	6	50	57	8	65
Care and maintenance of farm machinery and implements										
WTO and IPR issues										
Management in farm animals										
Livestock feed and fodder production	2	16	5	21	52	11	63	68	16	84
Household food security										
Women and Child care										
Low cost and nutrient efficient diet designing	1	0	12	12	9	0	9	9	12	21
Location Specific drudgery reduction technologies	1	5	7	12	14	9	23	19	16	35
Gender mainstreaming through SHGs										
<b>TOTAL</b>	<b>9</b>	<b>49</b>	<b>28</b>	<b>77</b>	<b>165</b>	<b>31</b>	<b>196</b>	<b>214</b>	<b>59</b>	<b>273</b>

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

Date	Clientele	Title of the training programme	Discipline	Thematic area	Duration in days	Venue (Off / On Campus)	Number of other participants			Number of SC/ST			Total number of participants		
							M	F	T	M	F	T	M	F	T
3/4/2015	PF	Management of insect pest in citrus	Plant Protection	Integrated Pest Management	1	OFF	7	0	7	14	2	16	21	2	23
09/04/2015	Rural Youth	Use of solar energy saving devices.	Home Science	Women empowerment	1	ON	2	4	6	5	17	22	7	21	28
10/04/2015	Rural Youth	Detection of Food Adulteration.	Home Science	Women empowerment	4	OFF	0	11	11	2	8	10	2	19	21
11/04/2015	Extension Functionaries	Techniques of soybean processing for making soy flour and soy -nut.	Home Science	Processing and value addition	1	ON	0	12	12	9	0	9	9	12	21
12/04/2015	Rural Youth	Awareness of hygiene and sanitation to adolescent girls.	Home Science	Women empowerment	1	OFF	0	23	23	1	51	52	1	74	75
13/04/2015	Extension Functionaries	Women friendly improved farm tools & equipment	Home Science	Location specific drudgery reduction technologies	1	OFF	5	7	12	14	9	23	19	16	35
14/04/2015	Rural Youth	Layout and management of Nutrition garden for improving nutritional status	Home Science	Nutrient Management	1	ON	0	9	9	9	20	29	9	29	38
15/04/2015	Farmers & Farm Women	Enrichment of NADEP compost with rock phosphate	Home Science	Nutrient Management	6	ON	6	5	11	8	12	20	14	17	31
16/04/2015	Farmers & Farm Women	Drudgery reduction of farm women through cotton picking bags	Home Science	Women empowerment	3	OFF	4	8	12	9	19	28	13	27	40
17/04/2015	Farmers & Farm Women	Manual Cotton harvesting aid for improving efficiency	Home Science	Women empowerment	1	OFF	5	7	12	8	9	17	13	16	29
18/04/2015	Rural Youth	Preparation technique of soy laddu for anaemic person.	Home Science	Designing and development for high nutrient efficiency diet	1	OFF	4	7	11	0	9	9	4	16	20
18-04-2015	RYM/RYP	Production of a Azolla as a cattle feed	Veterinary Science	Feed & fodder technology	1	OFF	17	2	19	7	0	7	24	2	26
19/04/2015	Farmers & Farm Women	Use of Improved Sickle for reducing drudgery.	Home Science	Location specific drudgery reduction technologies	1	OFF	5	19	24	2	2	4	7	21	28
20/04/2015	Farmers & Farm Women	Demonstration of clean cotton picking	Home Science	Location specific drudgery reduction technologies	1	ON	9	37	46	9	18	27	18	55	73

21/04/2015	Farmers & Farm Women	Drudgert reduction of farm women through women friendly tools	Home Science	Women empowerment	1	OFF	32	0	32	0	0	0	32	0	32
22/04/2015	Rural Youth	Techniques of Aonla candy and Murabba preparation for SHG's	Home Science	Processing and value addition	1	ON	3	9	12	10	14	24	13	23	36
23/04/2015	Farmers & Farm Women	Preparation of lemon squash and pickles.	Home Science	Processing and value addition	1	OFF	3	8	11	3	5	8	6	13	19
24/04/2015	Farmers & Farm Women	Techniques of cotton pallets making from cotton stalk	Home Science	Women empowerment	1	ON	4	7	11	7	8	15	11	15	26
24-04-2015 & 15-10-2015	PFM	Scientific dairy farming	Veterinary Science	Dairy management	1	ON	40	0	40	21	0	21	61	0	61
25/04/2015	Farmers & Farm Women	Layout and management of Nutrition garden for improving nutritional status	Home Science	Women empowerment	1	OFF	0	23	23	0	27	27	0	50	50
01-05-2015	PFM	Scientific dairy farming	Veterinary Science	Dairy management	1	OFF	14	0	14	3	0	3	17	0	17
7/5/201	PF	Pest management in brinjal	Plant Protection	Integrated Pest Management	1	OFF	8	6	14	16	5	21	24	11	35
11/5/2015	PF	Promotion of contrac farming in Cotton	Extension	Group dynamics	1	OFF	10	0	10	15	5	20	25	5	30
8/6/2015	PF	Enterpreneurship development	Extension	Entrepreneurial development of farmers/youths	1	OFF	6	6	12	18	6	24	24	12	36
15-06-2015 & 16-07-2015	PFM/PFF	Clean milk production	Veterinary Science	Production of quality animal products	2		16	3	19	11	3	14	27	6	33
29/6/2015	PF	Pest management in Soybean	Plant Protection	Integrated Pest Management	1	ON	4	0	4	11	4	15	15	8	23
8/7/2015	PF	Development of cummunication skills	Extension	Leadership development	1	OFF	4	0	4	11	4	15	15	8	23
15/7/2015	PF	Pest management in Chilli	Plant Protection	Integrated Pest Management	1	OFF	5	0	5	26	5	31	31	5	36
19/7/2015	PF	Recycling of farm waste	Extension	Organic manures production	1	OFF	5	0	5	26	5	31	31	5	36
28/7/2015	RY	Recycling of Agriculture waste	Extension	Organic manures production	1	OFF	2	6	8	20	6	26	22	12	34
29/7/2015	PF	Management of gummosis in citrus	Plant Protection	Integrated Pest Management	1	OFF	4	6	10	20	6	26	24	12	36
3/8/2015	RY	Formation of SHGs	Extension	Formation and Management of SHGs	1	OFF	5	3	8	15	6	21	20	9	29

7/8/2015	PF	Pest management in Soybean	Plant Protection	Integrated Pest Management	1	OFF	5	3	8	15	6	21	20	9	29
21/8/2015	PF	Sucking Pest management in Cotton	Plant Protection	Integrated Pest Management	1	OFF	4	0	4	10	0	10	14	0	14
23/8/2015	PF	Development of managerial skills	Extension	Leadership development	1	OFF	4	0	4	12	0	12	16	0	16
01-09-2015	RYM/RYP	Scientific goat farming for rural area	Veterinary Science	Sheep and goat rearing	1	ON	14	2	16	8	1	9	22	3	25
3/9/2015	PF	Management of gummosis in citrus	Plant Protection	Integrated Pest Management	1	OFF	7	0	7	13	0	13	20	0	20
5/9/2015	PF	Development of leadership skills	Extension	Leadership development	1	OFF	7	0	7	17	0	17	24	0	24
15-09-2015	PFM/PFF	Improved varieties and technology of hybrid napier fodder production	Veterinary Science	Feed & fodder technology	1	Off	11	2	13	5	1	6	16	3	19
15/9/2015	PF	Sucking Pest management in Cotton	Plant Protection	Integrated Pest Management	1	OFF	5	2	7	12	5	17	17	7	24
21/9/2015	EF	IPM in Cotton	Extension	Integrated Pest Management	1	ON	5	2	7	13	5	18	18	7	25
23/9/2015	PF	Pest management in Chilli	Plant Protection	Integrated Pest Management	1	OFF	6	0	6	16	0	16	22	0	22
29/9/2015	PF	Vermicompost production technique	Extension	Vermi-compost production	1	OFF	6	0	6	17	0	17	23	0	23
29/9/2015	RY	Identification of pest & natural enemies in cotton	Plant Protection	Integrated Pest Management	1	ON	2	5	7	17	4	21	19	9	28
8/10/2015	RY	Pesticide application technology in Cotton	Plant Protection	Integrated Pest Management	1	ON	4	1	5	13	2	15	17	3	20
11/10/2015	RY	Broad base agriculture	Extension	Integrated Farming Systems	1	OFF	2	5	7	18	4	22	20	9	29
16-10-2015	PFM	Prevention of ecto & endo parasites in cattle and goats	Veterinary Science	Disease Management	1	ON	13	0	13	5	0	5	18	0	18
18/10/2015	PF	Formation of SHGs	Extension	Formation and Management of SHGs	1	OFF	4	1	5	14	2	17	18	3	21
21/10/2015	PF	Pest management in Pigeonpea	Plant Protection	Integrated Pest Management	1	OFF	5	0	5	16	0	16	21	0	21
23-10-2015	EFM/EFF	Role of bypass fat and bypass protein in dairy production	Veterinary Science	Animal nutrition management	1	ON	18	11	29	6	5	11	24	16	40
27-10-2015	EFM/EFF	Scientific dairy farming	Veterinary Science	Dairy management	1	ON	34	0	34	10	0	10	44	0	44
28-10-2015	EFM/EFF	Role of KVK in livestock	Veterinary	Capacity building	1	OFF	15	1	16	9	0	9	24	1	25

		development	Science													
29-10-2015	PFF	Management of Giriraja & Swarnadhara birds in rural BYP	Veterinary Science	Poultry management	1	OFF	0	5	5	0	35	35	0	40	40	
30/10/2015	PF	Pest management in Pigeonpea	Plant Protection	Integrated Pest Management	1	OFF	6	0	6	14	0	14	20	0	20	
04-11-2015	PFM	Prevention of infant mortality in goats	Veterinary Science	Sheep and goat rearing	1	Off	19	0	19	6	0	6	25	0	25	
5/11/2015	PF	Pest management in Citrus	Plant Protection	Integrated Pest Management	1	OFF	8	0	8	17	0	17	25	0	25	
10/11/2015	EF	IPM in Cotton	Extension	Integrated Pest Management	1	ON	5	0	5	17	0	17	22	0	22	
11/11/2015	EF	IPM in Cotton	Plant Protection	Integrated Pest Management	1	ON	5	0	5	16	0	16	21	0	21	
16/11/2015	PF	Entrepreneurship development	Extension	Entrepreneurial development of farmers/youths	1	OFF	6	0	6	15	0	15	21	0	21	
17-11-2015	PFM/PFF	Importance of area specific mineral mixture in the diet of cows & buffaloes	Veterinary Science	Animal nutrition management	1	OFF	24	4	28	1	1	2	25	5	30	
13/12/2015	PF	Development of leadership skills	Extension	Leadership development	1	OFF	8	0	8	17	0	17	25	0	25	
18/12/2015	PF	Pest management in Chickpea	Plant Protection	Integrated Pest Management	1	OFF	8	0	8	14	0	14	22	0	22	
08-01-2016	EFM/EFF	Application of ICT in Animal Husbandry	Veterinary Science	Capacity building for ICT application	1	ON	29	5	34	4	2	6	33	7	40	
12/1/2016	RY	Vermicompost production technique	Extension	Vermi-compost production	1	ON	5	0	5	16	0	16	21	0	21	
14/1/2016	PF	Pest management in Chickpea	Plant Protection	Integrated Pest Management	1	OFF	7	5	12	8	3	11	15	8	23	
15-01-2016 & 02-03-2016	RYM/RYP	Goat farming for self employment	Veterinary Science	Sheep & goat	1	ON	17	4	21	7	2	9	24	6	30	
20-01-2016	PFM/PFY	Goat farming for self employment	Veterinary Science	Sheep & goat	1	OFF	152	22	174	16	7	23	168	29	197	
13/2/2016	RY	Broad base agriculture	Extension	Integrated Farming Systems	1	OFF	8	0	8	14	0	14	22	0	22	

M=Male, F=Female, T=Total

## (D) Vocational training programmes for Rural Youth

Crop / Enterprise	Date	Training title*	Thematic Area	Duration (days)	No. of Participants			Self employed after training			Number of persons employed else where
					Male	Female	Total	Type of units	Number of units	Number of persons employed	
Goat	1 – 5 September 2015	Goat farming for self employment generation	Sheep & goat Rearing	5	22	3	25	Goat unit	12	12	1
Cotton Stalk	2.11.15	Cotton Stalk Pallet technology	Recycling of Agro waste	2	1	23	23	Pallet making unit	1	4	4
Soybean	16.12.15	Soybean Processing	Income Generation	3	-	25	25	Soybean Processing unit	-	-	2

\*training title should specify the major technology /skill transferred

## (E) Sponsored Training Programmes

Sl.No	Date	Title	Discipline	Thematic area	Duration (days)	Client (PF/R/EF)	No. of courses	No. of Participants									Sponsoring Agency	Amount of fund received (Rs.)
								Others			SC/ST			Total				
								M	F	T	M	F	T	M	F	T		
1	3 <sup>rd</sup> & 4 <sup>th</sup> March 2016	Protection of plant varieties and farmers' rights act-2001	-	WTO & IPR issues	2	PF & EF	1	65	2	67	30	3	33	95	5	100	PPV & FR Authority, GOI, New Delhi	80000
<b>Total</b>							1	65	2	67	30	3	33	95	5	100		

M=Male, F=Female, T=Total

## Trainings



S



## Protection of plant varieties and farmers' rights act-2001



### 3.4. Extension Activities (including activities of FLD programmes)

Nature of Extension Activity	Date	Title/topic	No. of activities	Participants											
				Farmers (Others)			SC/ST (Farmers)			Extension Officials			Grand Total		
				I			II			III			(I+II+III)		
				Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
Field Day	11/12/2015 & 17/1/16	Field day on Pigeonpea & chickpea	2	800	120	920	0	0	0	15	6	21	815	126	941
	5/12/2015	Soil Health Day	1	650	100	750	0	0	0	25	10	25	675	110	785
	16-22/03/16	Jal Jagruti Saptah	4	137	79	216	120	81	201	24	9	33	266	193	459
	29/12/2015	Jai Kisan Jai Vigyan Diwas	1	23	14	37	18	25	43	19	9	107	58	48	106
Kisan Mela	4/10/2015	Pre-Rabi Kisan Mela	1	3000	2000	5000	0	0	0	500	200	700	3500	2200	5700
	07/08/2015	Breast Feeding week	1	0	28	28	0	32	32	0	4	4	0	64	64
Kisan Ghosthi	17.04.15, 12.05.15, 08.06.15, 19.06.15, 24.07.15, 19.08.15, 30.08.15, 28.09.15, 19.10.15, 16.11.15, 14.12.15, 19.01.16	Goat production, redgram, Cotton, Chickpea, Management of improved breed of chicken, Feeding of Bypass fat to cattle, Veg. production, Azolla cultivation	12	1856	778	2634	0	0	0	15	7	22	1871	785	2656
Exhibition		Cotton	6	10000	6000	16000	0	0	0	400	135	535	10400	6135	16535
Film Show		Fodder production, Chelated minerals for livestock, PPV & FR Act-2001, Vermi.,	8	1060	250	1310	0	0	0	5	0	5	1065	250	1315

		IPM													
Method Demonstrations		Establishment of Azolla unit Seed treatment, Budding, Grafting, Collection of soil samples, Urea treatment, Fdder	8	462	122	584	0	0	0	0	0	0	462	122	584
Farmers Seminar	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Workshop	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Group meetings		On Pest, Disease, Fertilizer application, Irrigation, feed and health management in livestock	26	2653	1211	3864	0	0	0	0	0	0	2653	1211	3864
Lectures delivered as resource persons		Goat Production	5	1842	321	1963	0	0	0	60	28	88	1902	349	2251
Newspaper coverage			-	-	-	-	-	-	-	-	-	-	-	-	-
Radio talks	14.05.2014	Livestock production-live broadcast	3	0	0	0	0	0	0	0	0	0	0	0	0
TV talks	17.11.15, 20.12.15, 21.02.16	Drudgery reduction of farm women through cotton picking bag	3	0	0	0	0	0	0	0	0	0	0	0	0
Advisory Services		Native chicken, goat farming, perennial	18	2151	522	2673	0	0	0	0	0	0	2151	522	2673

		fodder, dairy, etc													
Scientific visit to farmers field			28	1422	242	1664	0	0	0	0	0	0	1422	242	1664
Farmers visit to KVK				1500	1000	2500	0	0	0	200	100	300	1700	1100	2800
Diagnostic visits		Diseases of livestock, feed & fodder availability,	19	1543	124	1667	0	0	0	45	14	59	1588	138	1726
Exposure visits	21-23/10/2015			5000	2000	7000	0	0	0	200	80	280	5200	2080	7280
Ex-trainees Sammelan	11-14/12/2015			30000	12000	42000	0	0	0	600	300	900	30600	12300	42900
Soil health Camp			3	641	213	854	0	0	0	0	0	0	641	213	854
Animal Health Camp		Vaccination camp	3	685	212	897	0	0	0	15	3	18	913	215	1128
Agri mobile clinic		-	-	-	-	-	-	-	-	-	-	-	-	-	-
Soil test campaigns		-	-	-	-	-	-	-	-	-	-	-	-	-	-
Farm Science Club Conveners meet	1-4/2/2016			6000	2500	8500	0	0	0	100	26	126	6100	2526	8326
Self Help Group Conveners meetings		-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mahila Mandals Conveners meetings		-	-	-	-	-	-	-	-	-	-	-	-	-	-
Celebration of important days (specify)	5/12/2015			650	100	750	0	0	0	25	10	25	675	110	785
		<b>Total</b>	<b>152</b>	<b>72075</b>	<b>29936</b>	<b>99138</b>	<b>138</b>	<b>138</b>	<b>276</b>	<b>2248</b>	<b>941</b>	<b>3248</b>	<b>74657</b>	<b>31039</b>	<b>102723</b>

## Extension Activities

### World Soil Day



### Jai Kisan – Jai Vigyan



### Pradhan Mantri Fasal Bima yojna



### Jal Jagruti Saptah



**Jal Jagruti Saptah**



**Exposure Visit**



**Participation in Exhibition**



**Rural Youth visit to KVK farm**



**Visit of DDG Extension to KVK farm**



### 3.5 (A). Kisan Mobile Advisory Services

No. of registered farmers of KVK : 3528 no. of farmers registered

Major Group	Category	Crop/enterprise	Thematic Area	Date	Name of the message	No. of Messages	No. of Farmers								
							Other s			SC/ST			Total		
							Male	Female	Total	Male	Female	Total	Male	Female	Total
Horticulture	Commercial Crop	Orange, chilli, garlic	Integrated management of crops	01.4.15 to 31.3.16	Drainage channel in orange gardens, deepening of vegetable seedlings in 1% bavistin solution	11	376	28	404	263	16	279	639	44	683
Livestock	Goats Cows Buffaloes	Dairy Goat	Livestock production & protection	01.4.15 to 31.3.16	Vaccination, feed management, disease management, A.I. etc	22	648	92	740	212	47	259	860	139	999
Plant Protection	Crop Protection	Cotton wheat, chickpea, redgram	IPM	01.4.15 to 31.3.16	IPM, IDM, PAT, sucking pests management in Bt-cotton, vegetables, citrus, etc, gummosis management, seed treatment, biocontrol of semiloopers in soybean	41	1317	94	1411	256	25	281	1573	119	1692
Agronomy	Soil testing/Crop production	Cotton/Soybean/Gram	Integrated management of crops	01.4.15 to 31.3.16	Different crops and about Integrated Nutrient Management	22	926	-	926	322	-	322	1248	-	1248
Home Science	Hygiene	Rural women	Women & child care	01.4.15 to 31.3.16	Remedies for housefly nuisance	7	11	484	495	13	144	157	24	628	652
Weather Advisory	Weather	Cotton wheat, chickpea, redgram	-	01.4.15 to 31.3.16	Weather forecast	17	851	64	915	196	15	211	1047	79	1216

**(B). Details of SMSs**

Content category	No.of Messages	No.of Farmers	Feedback from farmers
Crop Production	17	1126	Satisfactory
Crop Protection	41	1692	Satisfactory
Livestock & Fisheries Advisory	22	999	Satisfactory
Weather Advisory	15	1248	Satisfactory
Market information	-	-	
Events information	-	-	
Inputs availability	-	-	
Others (specify) Horticulture	11	683	Satisfactory
Others (specify) Home sci.	7	652	Satisfactory
<b>Total</b>	<b>113</b>	<b>6400</b>	

**Details on Technology Week Celebrations**

Period of Technology Week observed	Types of Activities	No.of Activities (No./Qty)	No. of beneficiaries			Related crop/livestock technology
			Male	Female	Total	
	Group Discussion	Nil				
	Lectures organized					
	Exhibition/Fair					
	Film show					
	Farm Visit					
	Diagnostic activities					
	Extension Literature provided (No.)					
	Supply of Seeds (q)					
	Supply of Planting materials (No.)					
	Supply of Bio agents (Kg)					
	Supply of fingerlings					
	Supply of Livestock material (No.)					
	Total number of farmers visited the technology week					
	No.of other agencies involved					

**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	-	-	-	-	-
OILSEEDS	-	-	-	-	-
PULSES	-	-	-	-	-
VEGETABLES	-	-	-	-	-
OTHERS (Specify)	-	-	-	-	-

## SUMMARY

Sl. No.	Major group/class	Quantity (qtl.)	Value (Rs.)	Provided to No. of Farmers
1	CEREALS	-	-	-
2	OILSEEDS	-	-	-
3	PULSES	-	-	-
4	VEGETABLES (Onion bulbs)	-	-	-
5	FLOWER CROPS	-	-	-
6	OTHERS	-	-	-
<b>TOTAL</b>			<b>39800</b>	<b>66</b>

## PLANTING MATERIALS

Major group/class	Crop	Variety	Quantity (Nos.)	Value (Rs.)	Provided to No. of Farmers
SPICES	-	-	-	-	-
VEGETABLES (Seedlings)	-	-	-	-	-
FOREST SPECIES	-	-	-	-	-
ORNAMENTAL CROPS	-	-	-	-	-
PLANTATION CROPS	-	-	-	-	-
OTHERS- FODDER STEM CUTTINGS	Hybrid Napier	CO4	3500	3500	4
	Hybrid Napier	Sampurna (DHN-10)	3500	3500	4
		BHN-6	1000	1000	1

\*An example for guidance only

## SUMMARY

Sl. No.	Major group/class	Quantity (Nos.)	Value (Rs.)	Provided to No. of Farmers
1	FRUITS	-	-	-
2	VEGETABLES	-	-	-
3	SPICES	-	-	-
4	FOREST SPECIES	-	-	-
5	ORNAMENTAL CROPS	-	-	-
6	PLANTATION CROPS	-	-	-
7	OTHERS FODDER STEM CUTTINGS	8000	8000-	9
	<b>TOTAL</b>	-	-	-

## BIO PRODUCTS

Major group/class	Product Name	Species	Quantity		Value (Rs.)	Provided to No. of Farmers
			No	(kg)		
BIOAGENTS	-	-	-	-	-	-
	-	-	-	-	-	-
BIOFERTILIZERS	-	-	-	-	-	-
1	-	-	-	-	-	-
4	-	-	-	-	-	-
BIO PESTICIDES	-	-	-	-	-	-
1	-	-	-	-	-	-

### SUMMARY

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

### LIVESTOCK

Sl. No.	Type	Breed	Quantity		Value (Rs.)	Provided to No. of Farmers	
			(Nos)	Kgs			
	<b>Cattle</b>						
	<b>SHEEP AND GOAT</b>	<b>Goat</b>	<b>Osmanabadi</b>	<b>9 Males</b>	<b>339</b>	<b>61020</b>	<b>5</b>
	<b>FISHERIES</b>						
	<b>Others (Specify)</b>						

### SUMMARY

Sl. No.	Type	Breed	Quantity		Value (Rs.)	Provided to No. of Farmers
			Nos	Kgs		
1	CATTLE					
2	SHEEP & GOAT	<b>Osmanabadi</b>	<b>09</b>	<b>339</b>	<b>61020.00</b>	<b>5</b>
3	POULTRY					
4	FISHERIES					
5	OTHERS					
	<b>TOTAL</b>					

### 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	Ergonomics of Bt-cotton picking bags	Chauhan S. N., Raju A.R., Majumdar. G. and Meshram M..K. (Published in AMA)	Not applicable
Technical reports			
Popular articles	Dudharu pashuon ko khilaye azolla' (Azolla as a cattle feed	Galkate U. V. and Rokde, S. N.	Not applicable
	Poshak pasu Khadya: Azolla	Galkate, U. V.	
	Krutrim oxytocincha vapar tala (Avoid use of oxytocin	Rokde, S. N. and Galkate U. V.	Not applicable
<b>Total</b>			
<b>Grand TOTAL</b>			

(C) Details of Electronic Media Produced

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

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

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

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

S. No.	Crop / Enterprise	ITK Practiced	Purpose of ITK

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

- Identification of courses for farmers/farm women
- Rural Youth
- Inservice personnel

3.11 Field activities

- i. Number of villages adopted
- ii. No. of farm families selected
- iii. No. of survey/PRA conducted

3.12. Activities of Soil and Water Testing Laboratory

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

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

Sl. No	Name of the Equipment	Qty.	Cost (Rs.)
Nil	Nil	Nil	Nil
<b>Nil</b>	<b>Nil</b>	<b>Nil</b>	<b>Nil</b>
<b>Nil</b>	<b>Nil</b>	<b>Nil</b>	<b>Nil</b>
<b>Nil</b>	<b>Nil</b>	<b>Nil</b>	<b>Nil</b>
<b>Total</b>			

3. Details of samples analyzed so far :

Details	No. of Samples	No. of Farmers	No. of Villages	Amount realized
Soil Samples	1930	1930	47	Soil samples were collected from fields of of adapted farmers from different talukas of Nagpur district viz, Kampthee, Katol, Umred, Ramtek, Bhivapur etc. and from fields of FLD/OFT beneficiaries.
Water Samples	--	--	--	
Plant Samples	-	-	-	
Petiole Samples	--	--	-	
<b>Total</b>	<b>1930</b>	<b>1930</b>	<b>47</b>	

Five hundred and forty three soil samples were collected from adopted villages of Nagpur district and analyzed for different soil testing parameters and 540 soil health cards were distributed among the beneficiaries suggesting soil test based fertilizer recommendation for their kharif and rabi crops. Eleven off-campus and Seven on-campus training programmes were conducted for 672 farmers/rural youths of the district, depicting importance of soil testing.

### Functioning of Mobile Soil Testing Van in Nagpur District :

A well equipped mobile soil testing van delivered to KVK, CICR, Nagpur under “Human Development Programme” has start functioning, specially in Ramtek and Katol blocks of the Nagpur district for soil sampling, soil testing and analysis. Subsequently, the other blocks of the Nagpur district will also be cover under this programme for soil testing and analytical work and will provide the soil test based fertilizer recommendation to the farmers in the form of soil health cards. The mobile soil testing van was moved in different talukas of Nagpur district and collected 543 soil samples, analyzed the same and distributed 540 soil health cards depicting soil test based fertilizer recommendation to the beneficiaries

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

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

### 3.13. Activities under rainwater harvesting (for those KVKs)

Date	Nature of Activity	Title	Client (PF/R Y/EF)	No. of Courses	No. of Participants including SC/ST			No. of SC/ST Participants			Total Participants		
					Male	Female	Total	Male	Female	Total	Male	Female	Total

## 4.0 IMPACT

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

Name of specific technology/skill transferred	No. of participants	% of adoption	Change in income (Rs.)	
			Before (Rs./Unit)	After (Rs./Unit)
IPM in Cotton	50	70	19000	22000
HDPS in Cotton	340	40	18000	23000
IPM in Chickpea	30	75	22000	28000
Control of ectendoparasite with anthelmintics & medicated body sprays	154	61.67	675	995
Control of ectendoparasite with Closantel	94	56.38	628	1000
Use of bypass fat in the diet of crossbred cows	100	75	63400	75800
Supplementary Concentrate feeding to lactating does	85	75.29	2480	2820
Rearing Swarnadhara and Giriraj chicken under back yard farming	120	64.17	350	475
Use of chelated mineral in the diet of cattle	95	75.79	44800	52200
Supplementation of vitamin mineral and deworming	78	60.26	38000	45750

### 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

## 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 Sietific 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.

### 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.)
Attracting Rural Youth in Agriculture (ARYA)	Dec, 2015	ICAR (ATARI Zone-V)	9.00 lakhs

### 5.3 Details of linkage with ATMA

a) Is ATMA implemented in your district Yes/No

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

### 5.4 Give details of programmes implemented under National Horticultural Mission

S. No.	Programme	Nature of linkage	Constraints if any

### 5.5 Nature of linkage with National Fisheries Development Board

S. No.	Programme	Nature of linkage	Remarks

## 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	1000 sq. ft.	Osmanabadi	9 males	339 kg	7000	61020	Sold to 5 farmers of Nagpur District

### 6.2 Performance of instructional farm (Crops) including seed production

Name Of the crop	Date of sowing	Date of harvest	Area (ha)	Details of production			Amount (Rs.)		Remarks
				Variety	Type of Produce	Qty.	Cost of inputs	Gross income	
<b>Cereals</b>									
Wheat	Nov.15	Feb. 16	0.1	HI-1415	Cereal	88 kg	500	1760	
Wheat	Nov.15	Feb. 16	0.1	PKV-11	Cereal	52 kg	500	1040	
Wheat	Nov.15	Feb. 16	0.1	AKAW-4627	Cereal	79 kg	500	1580	
Wheat	Nov.15	Feb. 16	0.1	WR-544	Cereal	60 kg	500	1200	
Wheat	Nov.15	Feb. 16	0.1	NIAW-917	Cereal	62 kg	500	1240	
Wheat	Nov.15	Feb. 16	0.1	HD-2932	Cereal	35 kg	500	700	
Wheat	Nov.15	Feb. 16	0.1	NIAW-295	Cereal	59 kg	500	1180	
<b>Pulses</b>									
Pigeonpea	June. 15	Jan. 16	0.1	PKV-TARA, Vipula, BSMR-736, ICPL-187, ICPL-85063	Seed	40 kg	600	2400	
Gram	Oct. 15	Feb. 16	0.3	Vijay	Seed	106 kg	600	6360	
Gram	Oct. 15	Feb. 16	0.1	Digvijay	Seed	66 kg	500	3960	
Gram	Oct. 15	Feb. 16	0.1	Jaki	Seed	27 kg	500	1620	
Gram	Oct. 15	Feb. 16	0.1	Annagiri	Seed	37 kg	500	2220	

Oilseeds									
Linseed	Oct. 15	Jan. 16	0.1	PKV-NL-260	Seed	30 kg	600	600	
Fibers									
Spices & Plantation crops									
Floriculture	July 15	Oct-Nov., 15	0.1 ha	Dark Orange	Marigold	36.25 kg	350	1450	
Fruits	-	-	8plants	L-49	Guava	215 kg	400	4310	
	-	-	6 plants	Keshar/ Deshuri	Mango	132 kg	400	1320	
	-	-	5 plants	Bala nagar	Custard apple	10kg.	-	225	
	-	-	3 plants	Local	Lemon	-	-	540	
	-	-	8 plants	Newseller	Sweet orange	133 kg.	-	5310	
Vegetables Cafeteria	July. 15	Mar. 16	0.2 ha	-	Vegetable	-	2000	9885	
Others (specify)									
Fodder Jowar	July15	Oct. 15	0.2	SSG	Fodder	09 ton	1000/-	10000/-	
Fodder maize	July15	Oct.15	0.2	A. tall	Fodder	8 ton	1000/-	8000/-	
Berseem	Nov.15	Jan.16 to April16	0.2	Mescavi	Greens	9 ton	2500/-	14000/-	

### 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	Goat	Osmanabadi	Male & Female kids	50	12000	61020	Sold bucks for breeding purpose to 5farmers of district.

### 6.5 Rainwater Harvesting

#### Training programmes conducted by using Rainwater Harvesting Demonstration Unit

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

## 6.5 Utilization of hostel facilities

Accommodation available (No. of beds):

Months	Title of the training course/Purpose of stay	No. of trainees stayed	Trainee days (days stayed)	Reason for short fall (if any)
April 2013				Farmers hostel has been constructed but it is not under utilization as the funds for the procurement of furniture and other items not received to KVK

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

## 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	Ramdaspath, 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 1 <sup>st</sup> April 2016
	Kharif 2015-16	Rabi 2015-16	Kharif 2015-16	Rabi 2015-16	
Inputs	-	-	-	-	-
Extension activities					
TA/DA/POL etc.					
TOTAL					

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

Item	Released by ICAR		Expenditure		Unspent balance as on 1 <sup>st</sup> April 2016
	Kharif 2015-16	Rabi 2015-16	Kharif 2015-16	Kharif 2015-16	
Inputs	-	-	-	-	-
Extension activities					
TA/DA/POL etc.					
TOTAL					

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

Item	Released by ICAR		Expenditure		Unspent balance as on 1 <sup>st</sup> April 2016
	Kharif 2015-16	Kharif 2015-16	Kharif 2015-16	Kharif 2015-16	
Inputs	-	-	-	-	-
Extension activities					
TA/DA/POL etc.					
TOTAL					

**7.5 Utilization of KVK funds during the year 2014-15 and 2015-16 (upto March, 2016) (year-wise separately) (current year and previous year)**

S. No.	Particulars	Sanctioned	Released	Expenditure
<b>A. Recurring Contingencies</b>				
1	<b>Pay &amp; Allowances</b>	11800000	8979912	12640311
2	<b>Traveling allowances</b>	200000	200000	133046
3	<b>Contingencies</b>	270000		
A	Stationery, telephone, postage and other expenditure on office running, publication of Newsletter and library maintenance (Purchase of News Paper & Magazines)			
B	POL, repair of vehicles, tractor and equipments			
C	Meals/refreshment for trainees (ceiling upto Rs.40/day/trainee be maintained)			
D	Training material (posters, charts, demonstration material including chemicals etc. required for conducting the training)	330000	600000	1096775
E	Frontline demonstration except oilseeds and pulses (minimum of 30 demonstration in a year)			
F	On farm testing (on need based, location specific and newly generated information in the major production systems of the area)			
G	Training of extension functionaries			
H	Maintenance of buildings			
I	Establishment of Soil, Plant & Water Testing Laboratory			
J	Library			
<b>TOTAL (A)</b>		<b>12600000</b>	<b>9779912</b>	<b>13870132</b>
<b>B. Non-Recurring Contingencies</b>				
1	<b>Works</b>			
2	<b>Equipments including SWTL &amp; Furniture</b>			
3	<b>Vehicle</b> (Four wheeler/Two wheeler, please specify)			
4	<b>Library</b> (Purchase of assets like books & journals)			
<b>TOTAL (B)</b>				
<b>C. REVOLVING FUND</b>				
<b>GRAND TOTAL (A+B+C)</b>				

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

Year	Opening balance as on 1 <sup>st</sup> April	Income during the year	Expenditure during the year	Net balance in hand as on 1 <sup>st</sup> April of each year
April 2012 to March 2013	137788	40369	-	178157
April 2013 to March 2014	178157	65939	10355	233741
April 2014 to March 2015	233741	223181	-	456922
April 2015 to March 2016	456922	43429	-	500342

**1.0. Traning/Capacity building programme attended by the KVK staff during the year under report (01.04.2015 to 31.03.2016)**

S.No.	Name of the training programme	Name of the Institute	Duration		Name of the staff along with designation
			From	To	

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

**9.1 Constraints**

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

Annexure

**District Profile - I**

**1. District Profile**

**1. General census**

Population (000's) (2001 Census)

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

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

**Agricultural and allied census**

**I. Area and Land Statistic**

- 1 Total Geographical Area : 9892 Sq. Km
- 2 Forest : 2947 Sq. Km
- 3 Cultivable Land : 680400 ha
- 4 Kharif Cropping Area : 548200 ha
- 5 Rabi and Summer Cropping Area : 148645 ha

**II. Human Population**

- 1 Total Population : 4051444
- 2 Male : 2095489
- 3 Female : 1955955
- 4 Rural Population : 1044082
- 5 Urban Population : 3007362
- 6 Population density/Sq. Km : 331
- 7 SC Population : 619000
- 8 ST Population : 458000
- 9 Total Taluka : 14
- 10 Total villages : 1892

**III. Livestock Population**

- 1 Cows and Bullocks : 638650
- 2 He and She Buffaloes : 94334
- 3 Sheep and Goats : 345688
- 4 Poultry : 676080

**Source:** Directorate of Economics & Statistics.

## 2. Agro-climatic zones

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

### 1. Central Vidarbha region :-

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

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

### 2. Eastern Vidarbha region :-

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

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

## 3. Agro-ecosystems

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

## 4. Major and micro-farming systems

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

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

## 5. Major production systems

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

## 6. Major agriculture and allied enterprises

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

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

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

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

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

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

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

### **1. Names of adopted villages : Ranmangali, Pipra, Manori and Saisar**

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 more 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 Bhivapur 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 whether 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 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			
		Pipra	Ranmangli	Manori	Saisar
<b>I</b>	<b>POPULATION CHARACTERISTICS</b>				
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
<b>II</b>	<b>LIVESTOCK POPULATION:</b>				
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
<b>III</b>	<b>LAND USE PATTERN</b>				
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	--	--
<b>IV</b>	<b>LAND HOLDING</b>				
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 Omosque 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 1/3<sup>rd</sup> 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
<b>Discipline: Crop Production</b>					
1	Application of half RDF+5t FYM+ 20 kg S+2.5 Kg Zn Rhizobium and PSB inoculation	Soybean	2003-04	Dr.PDKV Akola	Krishisavandini 2005 (Dr.PDKV Krishi Margadarshika va daindari 2005 pp342)
2	20:60-80 :20:20 kg NPKS/ha	Soybean	2003	NRCS Indore	Prasar bulletin-7 2003
3	Seed treatment with Bradyrhizobium + Soybean +PSB (5 gm each)	Soybean	2003	NRCS Indore	Prasar bulletin-7 2003
4	Recomeneded dose of fertilizer for soybean 30:75:0	Soybean	2001-2002	Dr.PDKV Akola	Krishisavandini 2002 (Dr.PDKV Krishi Margadarshika va daindari 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	Soybean	-	Dr.PDKV Akola	Major research achievements of DR.PDKV,Akola.

	recommended for soybean				
6	For yield maximization of soybean foliar sprays of 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 3 <sup>rd</sup> row in soybean	Soybean	2001-2002	Dr.PDKV Akola	Krishisavandini 2005 (Dr.PDKV Krishi Margadarshika va daindini 2008 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 vadinandini 2003(pp295)
11	Application of 80 kg N and 40 kg P <sub>2</sub> O <sub>5</sub> kg/ha supplemented with seed treatment of azospirillum and p.solubiliser @ 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, Vijay	Chickpea	2005	Dr.PDKV	Krishisavandini 2008 Dr.PDKV Krishi Margadarshika va daindini 2008 (pp153)
15	Two irrigations, first at flowering and another at early pod initiation are recommended	Chickpea	-	Dr.PDKV Akola	Major research achievements of DR.PDKV, Akola.
16	For tur pod borer management IPM approach with a)NSKE 5% at ETL b) After 15 days of NSKE application c) HaNPV 250 LE/ha after 15 days of second spray.	Pigeonpea	-	Dr.PDKV Akola	Major research achievements of DR.PDKV, Akola.
17	Three sprays of HaNPV250 LE alternated with one spray NSKE 5% at an interval of 15 days starting from 50%flower is recommended for effective management of of tur pod borer.	Pigeonpea	-	Dr.PDKV Akola	Major research achievements of DR.PDKV, Akola.
18	The spraying of Metarhizium anisopliae(10 <sup>10</sup> or 10 <sup>9</sup> ) conidia/ml fungal suspension) 2to 3 ml+Ranipal (0.01%) ml in one litre of water at 50 % flowering is recommended for the management of tur pod borer.	Pigeonpea	-	Dr.PDKV Akola	Major research achievements of DR.PDKV, Akola.
19	High yielding mid late, sterility mosaic and wilt resistance pigeon-pea Cv. BSMR-736/PKV Tara	Pigeonpea	2007-08	Dr.PDKV Akola	Major research achievements of DR.PDKV, Akola.
20	Short duration, high yielding, medium size grain, tolerant to rust and recommended for late sowing – Cv. AKAW-4627	Wheat	2010	Dr. PDKV, Akola	Major research achievements of DR.PDKV, Akola.(Krishisanwadini-2012) (pp 37)
21	For effective control of wilt /rot of mung,tur and gram ,seed treatment with bioagent viz. <i>T.harzanium</i> or <i>T. viridae</i> @ 4g/kg seed before sowing is recommended	Pigeonpea	-	Dr.PDKV Akola	Major research achievements of DR.PDKV, Akola.
22	Seed inoculation with PSB and supply	Pigeonpea	2006	Dr.PDKV	Krishisavandini 2007

	Phosphorous through DAP rather than Rock Phosphate			Akola	(Dr.PDKV Krishi Margadarshika va daindari 2007 pp 363)
23	Application of FYM@5t/ha+100%RDF(90:45:45 NPK/ha) kg	Cotton	2005-06	AICCIP (Dr.PDKV, Akola)	Recommendation of AICCIP
24	Application of RDF (90:45:45 kg NPK/ha) +2-3 foliar sprays of 2 % urea +1% MgSO <sub>4</sub>	Cotton	2007	AICCIP (CICR,Nagpur)	Zonal Recommendation of All India Coordinated cotton improvement Project
25	Foliar spray of 2 % Urea(at flowering) +2% DAP(Boll development stage) in cotton	Cotton	2001-2002	Dr.PDKV Akola	Krishiavandini 2002 (Dr.PDKV Krishi Margadarshika va daindari 2002 pp)
26	planting of cotton 45 x 10 cm or 60 x 10 cm	Cotton	2011	CICR, Nagpur	CICR, Annual Report
27	Use of cono weeder in SRI method of paddy cultivation	Paddy	-	ANGRU	
<b>Discipline: Plant protection</b>					
1	<b>IPM in cotton</b> 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 conventional insecticides,	Cotton	-	CICR, Nagpur	-
9	<b>Management of <i>Phytophthora</i></b> <b>Cultural practices:</b> 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) Pruning of dry and infected twigs/branches. <b>Chemical control measures:</b> 1)Application of Bordeaux paste(1:1:10 )on tree trunk twice before (May-June) and after monsoon (Oct.) after scrapping out of foot rot or gummosis affected portions by sharp knife and on cut portions of pruned twigs/ branches. 2) Two sprays( wetting) of Metalaxyl MZ-72 @ 2.7g and Fosetyl-al @ 2.5g/lit alternatively before monsoons on tree trunk and drenching of tree basin soil at 40 days interval 3) Foliar application of the above fungicides at same dose twice at 40 days interval alternatively	Nagpur Mandarin	-	NRCC Nagpur	-
	<b>a.)Gummosis :</b> Sterilize the affected portion by 1 %KMnO <sub>4</sub> @ 100 g per 10 liters of water after removing the bark and gum of affected portion and then apply bordeaux-paste.. Spray on the effected portion and foilar spray by ridomil M-Z-72 or eliat @ 0.2% ( 20 g either of each+ 10 liters of water ) <b>b.) Foot-rot and Root-rot :</b> Apply ridomil M-Z-72 @ 0.2 % Or Captain @ 0.4 % after removing rotted roots by removing the plant	Nagpur Mandarin	-	Dr PDKV	Krishi Samvadani 2009, p 238,239

	basin soil and then drench the above fungicide in the soil after covering the roots. <b>c.)Die-back:</b> Cut and burn the dry and affected twigs/branches before monsoon. Foliar spray of Carbendazim 0.1 % or copper oxychloride @ 0.3 % or bordo mixture @ 0.6 %. Follow 2 foliar sprays after 15 to 20 days interval				
11	a) Apply Bordeaux paste on affected gummosis portion. b) Foilar spray of copper oxychloride 50 WP @ 1250 g + 500 l water/ ha	Nagpur Mandarin	-	MAU	Krishi Dainandani
12	<b>Thrips and Mites Management</b> :Application of two foliar sprays of monocrotophos @ 10 ml/10 lit.for thrips at fruit setting stage and dicofol @ 15 ml/10 lit.	Nagpur Mandarin	2011	NRCC	Booklet on pest management in Nagpur mandarin
13	<b>Biocontrol of semiloopers :</b> First foliar spray of Beauveria bassiana @ 1.0 kg/ha followed by 2 <sup>nd</sup> spray of Azadiractin 1500 ppm @ 25 ml/10 litres of water after 15 days interval	Soybean	2012	PDKV Akola	-
14	<b>For Fusarium wilt.</b> a) Cultivation of fusariun wilt resistant varieties, like ICCV-2, ICCV-10, <b>Vijay</b> , Vishal, Jaki-9218, Saki-9516.S  <b>For Root rot. and wilt control</b> a) Seed treatment with <i>T. viridae</i> or <i>T. harzinum</i> @ 4g/ Kg seed before sowing  <b>Root rot -</b> 1) Treat the seed with Captain @ 3 g / kg seed and <i>Trichoderma</i> @ 4g /kg seed 2) Destroy affected plant residues by burning	Chickpea	-	MPKVDr PDKV  Dr PDKV	Krishi Darshini  Inventory, No 4(11)  Krishi Samvadani 2009, p 164
15	<b>Podborer Management</b> 1)Two applications of Bt(k)8L @ 750 ml/ha or HaNPV 250 LE/ha at an interval of 15 days starting from flower initiation 2) Two foliar sprays alternatively either of ( 1st spray at 40-50% flowering& 2nd spray after 15 days) 5 % Neem seed extract or or formothion 25 EC 20 ml or Quinalphos 25 EC 20 ml or Phosalone 35 EC 14 ml or Triazophos 35 EC + Deltamethrin 1 EC (mixture )25 ml in 10 lit. of water or 1st spray of HaNPV @ 250 LE + 50 g ranipal/ha and 2nd spray of Quinalphos @ 20 ml in 10 lit. of water after 15 days interval	Chickpea	-	Dr PDKV Akola  Dr PDKV Akola	Inventory, 2008 No 4(14)  (Krishi Samvadani 2009 p-161
16	Spray of Bt @ 750 ml/ ha at ETL.	Chickpea	-	Dr PDKV	Inventory No 4(16)
17	Spray Ha NPV @ 250 LE/ha + Teepol 0.1 % + Jaggery 0.5% 1 Kg/ha thrice at 10-15 days interval on egg-laying or 1 <sup>st</sup> instar stages <b>OR</b> Release <i>Trichogramma chilonis</i> 2 1.5 lac/ha 4 times. Apply chemical when population cross ETL i.e deltamethrin 2.8 EC @ 750 ml/ha or quinalphos 25 EC @ 1000 ml/ha of chlorpyriphos 20 EC @ 200 ml + acephate 100 ml / ha or polytrin C 44 EC @ 1000 ml/ha or profenophos 50 EC @ 1500 ml/ha	Chickpea	-	JNKVV Jabalpur	WWW
<b>Discipline: Horticulture</b>					

1	<b>Akola safed</b> 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.	<b>Akola bahar</b> Early maturity, having slender fruits and high yielding	Okra	2004	Dr. PDKV, Akola	Major Research achievement, Director of Research, Dr. PDKV, Akola
3	<b>Jayanti</b> Suitable in irrigated condition for green and red chilli, tolerant to major diseases	Chilli	1994	Dr. PDKV, Akola	Major Research achievement, Director of Research, Dr. PDKV, Akola
4	<p><b>Recommended dose of fertilizer</b></p> <p>i.)800 g N+300 g P+300 g K+ 50 kg FYM+7.5 kg neem cake + 200 g PSB per tree</p> <p>ii.)600 g N + 200 g P + 400 K + 50 kg FYM per tree</p> <p>iii} soil application of 200 g ZnSo4 per tree &amp; foliar spray of 0.25% ZnSO4 +0.2% boron &amp; 0.5% FeSO4</p> <p><b>Nursery management</b> Treated seed shown on raised beds in line , apply 200 g N+ 10 g P2O5+ 10g K2O, half dose of fertilizer at the time seed sowing and half after 20-25 days after sowing, 2 kg FYM /m<sup>2</sup>.</p> <p>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.</p> <p><b>Rejuvenation of old santra trees</b></p> <p>i.)Improved cultivation practices + rejuvenation + bordeaux paste on operated part.</p> <p>ii.) application of 50 kg FYM+ 7.5 g. Neem cake+ 500 g N + 500 g. P + 500g K per plant.</p> <p><b>Steps:</b> Removal of dry/diseased woods before onset of monsoon in June Apply Bordeaux paste on operated parts (1:1:10)+ FYM+Neemcake Apply RDF in October Pruning after one year</p> <p>Improve cultivation practices+ removal of dry woods+ foliar spray of fungicide+ 2 bordeaux paste application.</p> <p><b>Management of pre-harvest fruit drop in ambia bahar</b> I)Spray of 2-4D,15ppm + Bemonyl 1000 ppm + Urea 1 % or GA3 15 ppm + Bemonyl 1000</p>	<p>Nagpur Mandarin</p> <p>Brinjal/ Tomato</p> <p>Brinjal/ Tomato</p> <p>Nagpur mandarin</p> <p>Nagpur mandarin</p> <p>Onion</p>		<p>Dr. PDKV, Akola</p> <p>NRCC, Nagpur</p> <p>CVRI, Banaras</p> <p>CVRI, Banaras</p> <p>Dr. PDKV, Akola</p> <p>NRCC, Nagpur</p> <p>NRCC, Nagpur</p> <p>Dr.PDKV Akola</p>	<p>Major Research achievement, Director of Research, Dr. PDKV, Akola Krishi Savadini, 2008</p> <p>Citriculture</p> <p>Technical bulletin no. 5.</p> <p>Technical bulletin no. 5.</p> <p>Research achievement Dr. PDKV, Akola.</p> <p>Citriculture</p> <p>Citriculture</p> <p>Krishi savadini-2009</p> <p>Annual report(2006-07)</p>

	ppm + 1% Urea/lit.of water in the month of Aug, Sept and Oct. II)3 spray of bavistin @1 gm /lit at 15 day interval before harvesting  Application of NAA 10 ppm (10mg/lit of water )from August to October + 1 % Urea  <b>Improvement in bulb size</b> Spraying of lihocin (6ml/lit) after 60 and 75 days after planting alongwith RDF			NRCOG, Rajguru nagar	of NRCOG, Rajgurunagar
<b>Discipline: Veterinary Science</b>					
1	Feeding of bypass fats to milch cows	Dairy farming	2005	NDRI, Karnal	NDRI Publication No. 22/2005
2	Rearing of New Swaranadhara Chicken breed	Backyard poultry	2005	Dept. of Avian Production & Management, KVAFSU, Hebbal, Bangalore	KVAFSU Publication
3	Supplementation of concentrate feed to lactating does	Goat rearing	2008	CIRG, Makhdoom	Goat & Sheep Production Recommendation of CIRG
4	Supplementation of Vitamin - mineral and deworming	Dairy farming	2003	MAFSU, Nagpur	Recommendations of Second joint Animal Science Research Council, 2003
5	California mastitis Test (CMT)	Dairy farming	1996	Division of Microbiology, NVC, Nagpur	Recommendation of MAFSU
6	Use of chelated minerals	Cattle rearing	2006	NDRI, Karnal	Recommendations of NDRI
<b>Discipline Home science</b>					
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

## 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 protection

Sr. No.	Type of activity	Name of Variety/technology	Prominent Features	Recommendation
<b>Discipline: Crop production</b>				
1	OFT	Management of sucking pests in Bt-cotton	For management of sucking pests in Bt-cotton IPM approach a) sowing of trap crop like maize, cowpea around the crop b) installation of yellow sticky trap 10-12/ha when pest observed c) 5% NSKE application or neem oil 50ml in 10 lit. of water or Verticillium lecani 4 ml/lit of water d) Spraying of Acetamiprid 25 SP 4gm in 10 lit of water at an ETL of average of 10 pests/leaf.	Recommended for Vidarbha region
2	OFT	Management of girdle beetle in soybean	Two sprays of Prophenophos 50 EC 2 ml/lit. of water at initiation of the infestation and 2 <sup>nd</sup> spray after 15 days of 1 <sup>st</sup> spray	Recommended for Vidarbha region
3	FLD	IPM in HDPS cotton	For management of pests in HDPS cotton IPM approach a) sowing of trap crop like maize, cowpea around the crop b) installation of yellow sticky trap 10-12/ha when pest observed c) 5% NSKE application or neem oil 50ml in 10 lit. of water or Verticillium lecani 4 ml/lit of water d) Spraying of Acetamiprid 25 SP 4gm in 10 lit of water at an ETL of average of 10 pests/leaf.	Recommended in Vidarbha region for late sowing
4	FLD	BSMR-736	High yielding (19-20 q/ha), mid-late, wilt and moderately tolerant to Sterility Mosaic pigeon pea cultivar, matured in 176 days.	Recommended for Vidarbha region
5	FLD	Jaki -9218	Suitable under minimum tillage / no tillage	Recommended for Vidarbha region
<b>Discipline: Veterinary Science</b>				
1	OFT	Feeding of By-pass fat to just calved high yielding cows	The fatty acids of fat source are converted to calcium salts of fatty acid, in which form these fatty acids remain inert in the rumen, but as these fatty acids reach the intestine, these are digested and absorbed and thus, provide extra energy for milk production.	Recommended by NDRI, Karnal for cows and buffaloes
2	OFT	Swarnadhara-Deshi breed of layer chicken	Swarnadhara breed has a high egg production potential along with better growth compared to other native chicken	KVAFSU, Hebbal, Bangalore
3	FLD	Mineral feed supplementation and Deworming for avoiding anoestrus in cows	Dietary supplementation of VIT-Min compensates vitamin & minerals deficiency and deworming improves health and immunity, which ultimately leads to onset of oestrus by stimulating endocrine glands.	Recommended by Maharashtra Animal & Fisheries Sciences University, Nagpur
4	FLD	Chelated mineral feeding	Bonding between a metal ion (mineral) and a legand (protein or amino acid) chelating agent forms a complex which protects minerals from chemical reactions during digestion that would render the mineral unavailable to the animal. Thus, this complex or chelated mineral reaches the plasma intact and separates at the site of action.	National Dairy Research Institute (NDRI), Karnal