EXECUTIVE SUMMARY

Indian Council of Agricultural Research upgraded the Zonal Coordination Unit to the status of Project Directorate during 2009.The mandate of Zonal Project Directorate is to formulate, implement, monitor and evaluate various strategies on technology assessment, refinement and demonstration mainly through Krishi Vigyan Kendras in Zone-V that includes Andhra Pradesh and Maharashtra states.

There are 78 KVKs in Zone-V which include 21 in Andhra Pradesh 13 in Telangana and 44 in Maharashtra. Of the 21 KVKs in Andhra Pradesh, 15 are with SAU, 2 are with ICAR institutes and 4 are with Non-Governmental Organizations (NGO). In Telangana, 10 KVKs are with SAUs, one is with ICAR institute and 4 are with NGOs. In Maharashtra, 16 KVKs are with SAUs, one with ICAR institute, 26 with NGOs and one with Open University.

During the year, KVKs assessed and refined 785 technologies by laying out 7067 on-farm trials. Of these technologies tested, 593 technologies are related to crops, 104 are related to animals and 88 are related to women and children. The important thematic areas covered in case of crops include integrated nutrients management, integrated crop management, varietal evaluation, integrated pest management, integrated disease management, integrated weed management, farm machinery, tools and equipment, resource conservation technology and cropping systems. In case of animals, thematic areas such as feed and nutrition management, breed evaluation, disease management, fertility management, fodder and feed management, integrated farming systems, production and management and breed improvement are assessed and refined. Under the empowerment of rural women, on-farm trials were conducted in thematic areas viz., drudgery reduction, health and nutrition, value addition and entrepreneurship development

KVKs in Andhra Pradesh assessed the suitability of 220 technologies by conducting 1168 on-farm trials covering animals (134), crops including horticultural species (917) and empowerment of rural women (117). KVKs in Telangana assessed the suitability of 116 technologies by conducting 1234 on-farm trials covering animals (202), crops including horticultural species (953) and empowerment of rural women (79). KVKs in Maharashtra assessed 404 technologies by organizing 4339 trials that include animals (589), crops including horticultural species (2998) and women empowerment (752).

A total of 15 technologies were refined by KVKs in Andhra Pradesh by conducting 85 trials covering crops (75) and women empowerment (10). KVKs in Telangana refined 8 technologies related to crops by conducting 31 trials. Similarly, KVKs in Maharashtra organized 210 trials to refine 22 technologies covering animals (5), crops (196) and women empowerment (9).

A total of 1220 front line demonstrations covering 545.1 ha under oilseeds were organized by KVKs in Zone -V. The major oilseed crops that were covered under demonstrations include groundnut, soybean, castor, sunflower, niger and linseed. In case of pulses, KVKs organized 3136 demonstrations covering 1333.8 ha during kharif and rabi seasons. The major crops covered under demonstrations are redgram, bengalgram, reengram, blackgram etc. Similarly, KVKs in Zone -V organized 2790 demonstrations covering 1097.87ha on other crops i.e. cereals, commercial crops, fodder and horticultural crops. KVKs also organized 1075 demonstrations on improved tools and implements, 759 demonstrations on livestock species and 723 demonstrations on women empowerment.

Training is an important activity of KVK, which play a pivotal role in enhancing the knowledge and skill about various improved technologies. During the year, KVKs in Zone-V organized 5882 training programmes covering 179165 participants that include 143089 farmers, 22246 rural youth and 13830 extension functionaries.

KVKs in Andhra Pradesh organized 1186 training courses with a participation of 35604

farmers including farmwomen, rural youth and extension functionaries, while the KVKs in Telangana conducted 626 courses with a total of 17495 beneficiaries. KVKs in Maharashtra conducted 4070 courses with a total of 126066 beneficiaries. The main thematic areas covered under training include integrated crop management, improved tools and implements, capacity building and group dynamics, women empowerment, improved production practices for horticultural crops, productivity enhancement in livestock species, integrated pest management and soil health and fertility management.

KVKs in Zone-V also organized 1082 sponsored training programmes covering 33813 farmers and farmwomen and rural youth. In order to facilitate entrepreneurship development, income generation and self-employment especially among rural youth and school dropouts, KVK organized 400 vocational training programmes covering 10604 beneficiaries. The important thematic areas include value addition, integrated crop management, poultry farming, nursery and grafting, sheep and goat rearing etc

To create awareness on improved agricultural technologies the KVKs of Zone-V organized 29896 extension activities with a participation of 1039576 farmers, farmwomen and extension personnel. The extension activities included advisory services, exposure visits, animal health camps, technology week, group discussions, method demonstrations, soil health camps, kisan melas, kisan ghostis, etc. In order to accelerate rapid dissemination of information on improved farm technologies, KVKs in Zone-V brought out 1484 publications. KVKs also supplied 7183.27q of seed and 3675202 saplings of elite species of field and horticultural crops to farmers. KVKs also produced 246519.5 kg of bio-fertilizers and 44432.25 kg of bio-pesticides and supplied to farmers

KVKs also have undertaken soil and water testing to ascertain the soil nutrient status and also to make soil test based nutrient recommendations in the prevailing micro-farming situations in the district. A total of 124014 samples including soil (92600), water (30365), plant (900) and fertilizers/manures (44) were analyzed by the KVKs that benefited 111783 farmers belonging to 15378 villages in Andhra Pradesh, Telangana and Maharashtra.

Under the Technology Demonstration component of NICRA, to help farmers to cope with the climate variability 13 KVKs in vulnerable districts have also undertaken various interventions viz. demonstrations, training, etc. on natural resource management, crop production, livestock and fisheries.

The Directorates of Extension Education of State Agricultural Universities and Zonal Project Directorate facilitate technological backstopping and Human Resource Development to the KVKs through training, seminars, workshop etc. A total of 61 HRD activities benefitting 2351 KVK staff in the Zone were jointly organized by the five directorates of extension and the Zonal Project Directorate.

To facilitate direct access of farmers to institutional resources, ICAR established six Agricultural Technology Information Centres in Zone-V with the objective of single window delivery of various technology products. During the year a total of 121215

farmers visited the six ATICs to know the latest technology information and to obtain critical technology products viz. seed and planting material.

CONTENTS

1 INTRODUCTION

Zonal Project Directorate

The National Organizing Committee constituted to celebrate the Golden Jubilee of the Indian Council of Agricultural Research (ICAR) during 1979-80 envisaged a massive programme viz. Lab to Land Programme for continuous flow of economically viable technology from laboratories to the farmers' fields. In this regard, it was decided to adopt 50000 small and marginal farmers and landless labourers throughout the country to transfer available farm technologies comprising of crop production, livestock farming, farm tools and implements, pisciculture, sericulture, apiculture etc. including crop-livestock integration and the same was implemented from September, 1979. In order to achieve the same, the country was divided into eight zones and as a result of this, the Zonal Coordination Unit for Transfer of Technology, Zone-V was established in September, 1979 as Cess Fund Scheme at Andhra Pradesh Agricultural University, Hyderabad primarily to monitor the activities of the Lab to Land Programme in the states of Andhra Pradesh and Maharashtra. Subsequently in 1985, the unit was shifted to the campus of Central Research Institute for Dryland Agriculture, Hyderabad. The Unit was given the responsibility of monitoring of Lab to Land Programme until 1986. Later during the year the unit was brought under the plan scheme of ICAR.

In 1987, the Council gave the unit additional responsibility of monitoring other ICAR supported Transfer of Technology Projects viz. Krishi Vigyan Kendras (KVK), Trainers Training Centre (TTC), National Demonstration Scheme (NDS), Operational Research Projects (ORP), All India Coordinated Project on SC / ST (AICRP SC/ ST) and Special Projects on Oilseeds that were implemented in the zone. During 1990 and 1991, the Front Line Demonstrations (FLD) on oilseeds under Oilseeds Production Programme (OPP) and pulses under National Pulse Project (NPP), farm implements and cotton are also being monitored by Unit. In 1995, a pilot project on Institute Village Linkage Programme (IVLP) was undertaken and implemented in the zone. In 1998, Zonal Research Stations under the State Agricultural Universities (SAU) were strengthened to take up the additional functions of KVKs and these re-mandated KVKs are also monitored.

The X and XI Five Year Plan (FYP) period witnessed phenomenal growth of KVKs in the country including the establishment of new KVKs in Zone-V covering the states of Andhra Pradesh and Maharashtra. During XI FYP period, Council has approved establishment of 97 new KVKs which include establishment of 24 additional KVKs in geographically larger districts, 12 each in the states of Andhra Pradesh and Maharashtra. In view of this the Council has upgraded all the eight Zonal Coordination Units to the status of Directorates and thus Zonal Project Directorate (ZPD), Zone-V came into existence during the year 2009.

The Directorate has the following mandates

- To formulate, implement, monitor and evaluate strategies on technology assessment, refinement and demonstration programme of the Council in the zone
- To initiate, plan, coordinate and execute the extension research to support and improve technology dissemination system.
- To link KVK efforts to strengthen extension approaches viz. consortium, convergence, public-private partnership, farmer-led and market-lead extension in their respective regions.
- To coordinate the work relating to transfer of technology programme of various agencies such as agricultural universities, ICAR institutes, state and central govt. agencies, financial institutions, affiliated agriculture and home science colleges, voluntary agencies and the transfer of technology centers in their respective regions.
- To serve as feedback mechanism for technology generations system

The Directorate falls under the administrative control of Division of Agricultural Extension of ICAR headed by the Deputy Director General (Agricultural Extension). The Zonal Project Directorate is headed by Zonal Project Director who is assisted by the Principal Scientists, Senior Scientists and other technical and administrative staff. A modest infrastructure for smooth functioning of the Directorate was built in the campus of Central Research Institute for Dryland Agriculture, Santoshnagar, Hyderabad.

Krishi Vigyan Kendra

Krishi Vigyan Kendra (Farm Science Centers), an innovative science-based institution, was established to impart vocational skill training to the farmers and field-level extension workers. The need for vocational training in agriculture and allied fields through KVK grew substantially for catering to the increasing demand for improved/agricultural technology by farmers. The farmers not only require knowledge and understanding of intricacy of new technologies, but also more skills to adopt the same in varied and complex field situation on their farms. In view of this, the role of KVK was further enhanced by adding the responsibility of on-farm testing and front-line demonstrations of major agricultural technologies to dovetail the same in location specific environment. In order to equip the present day farmers to face the challenges of information explosion and to bridge the digital divide, KVKs were given the other responsibility of acting as knowledge and resource centre of agricultural and allied technologies. The mandate of KVKs is,

- On-farm testing to identify the location specificity of agricultural technologies under various farming systems.
- Organize frontline demonstrations to establish production potential of technologies on the farmer's fields.
- Training of farmers to update their knowledge and skills in modern agricultural technologies and extension personnel to orient them in the frontier areas of technology development.
- To work as knowledge and resource centre of agricultural technology for supporting initiatives of public, private and voluntary sector for improving the agricultural economy of the district.

2 KRISHI VIGYAN KENDRAS

2.1 Status

At present there are 78 KVKs in Zone-V which include 21 in Andhra Pradesh, 13 in Telangana and 44 in Maharashtra (Table 2.1). Of the 21 KVKs in Andhra Pradesh, 15 are with SAU, 2 with ICAR institutes and 4 are with Non-Governmental Organizations (NGO). In Telangana 8 KVKs are with SAUs 1 with ICAR and 4 with NGOs. Whereas in Maharashtra, 16 KVKs are with SAUs, one with ICAR institute, 26 with NGOs and one with Open University.

Table 2.1. Status of KVKs

State	No. of districts	No. of KVKs				Total
		SAU	ICAR	NGO	Others	
Andhra Pradesh	13	15	2	4	-	21
Telangana	10	8	1	4	-	13
Maharashtra	33	16	1	26	1	44
Total	**56**	**39**	**4**	**34**	**1**	**78**

2.2 Staff

The details of staff position of KVKs in different states are given in Table 2.2. Out of 1248 posts sanctioned in the Zone, 999 are filled (80%). The Programme Coordinators are in position at 58 KVKs in the Zone, while the number of Subject Matter Specialists in position is 378 (81%) and the number of Programme Assistants is 183 (78%).

Table 2.2. Consolidated staff position

Category	Andhra Pradesh			Telangana			Maharashtra			Total		
	S	F	V	S	F	V	S	F	V	S	F	V
Programme Coordinator	21	17	4	13	8	5	44	33	11	78	58	20
Subject Matter Specialist	126	93	33	78	61	17	264	224	40	468	378	90
Programme Assistant	63	51	12	39	31	8	132	101	31	234	183	51
Administrative Staff	42	32	10	26	19	7	88	70	18	156	121	35
Auxiliary Staff	42	35	7	26	20	6	88	70	18	156	125	31
Supporting Staff	42	36	6	26	24	2	88	74	14	156	134	22
Total	**336**	**264**	**72**	**208**	**163**	**45**	**704**	**572**	**132**	**1248**	**999**	**249**

S: Sanctioned F: Filled V: Vacant

2.3 Infrastructure

In order to facilitate proper functioning of KVKs, modest infrastructure is provided by ICAR. The details of land, buildings, vehicles and other facilities are presented in Table 2.3. The other infrastructure such as soil and water testing lab, rainwater harvesting structure and e-connectivity are provided to some selected KVKs, while the buildings and vehicles are provided to all the KVKs by ICAR.

Table 2.3. Details of infrastructure available with KVKs

Name	AP	TS	MS	Total
Land				
10-20 ha	12	8	15	36
> 20 ha	9	5	29	43
Admn. Building				
Available	8	12	32	52
Under Progress	8	0	10	18
Farmers Hostel				
Available	9	13	32	54
Under Progress	8	0	10	18
Staff Quarters				
Available	11	6	27	44
Under Progress	6	4	0	10
Demo Unit	11	7	28	46
Vehicles				
Jeep	19	13	44	76
Tractor	19	13	44	76
Soil & Water Testing Lab	11	7	30	48
Rain Water Harvesting Structure	0	1	11	12
e-linkage	9	3	17	29

2.4 Revolving Fund

The total revolving fund generated by KVKs in the Zone is `. 821.02 lakh of which `.225.29 lakh is generated by KVKs in Andhra Pradesh, `.74.31 lakh is generated by KVKs in Telanagana and `. 521.42 lakh by KVKs in Maharashtra (Table 2.4).

Table 2.4. Status of revolving fund (`. in lakh)

State	Balance on 31.3.2015
Andhra Pradesh	225.29
Telangana	74.31
Maharashtra	521.42
Total	**821.02**

In Andhra Pradesh, KVK Kurnool (Yagantipalli) has the highest balance of revolving fund (`. 69.00 lakh) followed by Krishna-G (`. 32.53 lakh) and Srikakulam (`. 23.08 lakh). In Telangna KVK Nalgonda has the highest balance of revolving fund (`.19.38 lakh) followed by KVK, Khammama (`.12.56 lakh) and Warangal (`.11.72 lakh). In Maharashtra, KVK Amravati-D has the highest balance of revolving fund (`. 111.96 lakh) followed by Beed (Rs. 35.24 lakh) and Jalgaon (`. 28.55 lakh). The KVK wise fund position is presented in Table 2.5, 2.6 & 2.7.

Table 2.5. Status of revolving fund in KVKs of Andhra Pradesh (Rs. In lakh)

KVK	Balance on 31.03.2015
Anantapur (Reddipalli)	10.73
Anantapur (Kalyandurg)	1.49
Chittoor(RASS)	1.65
Chittoor(Kalikiri)	2.99
East Godavari (Kalvacherla)	1.16
East Godavari (Pandirimamidi)	7.48
Guntur	1
Guntur(Lam)	1.31
Kadapa	10.10
Krishna (Garikapadu)	13.39
Krishna (Ghantasala)	32.53

KVK	Balance on 31.03.2015
Kurnool (Yagantipalli)	69.00
Kurnool (Banavasi)	1.74
Nellore	3.07
Prakasam (Darsi)	5.83
Prakasam (Kandukur)	0.00
Srikakulam	23.08
Vishakapatnam	20.32
Vizayanagaram	10.46
West Godavari (Undi)	1.09
West Godavari (VRGudem)	7.87
Total	**225.29**

Table 2.6. Status of revolving fund in KVKs of Telangana (Rs. In lakh)

KVK	Balance on 31.03.2015
Adilabad	2.95
Karimnagar (Jammikunta)	4.83
Karimnagar (Ramagirikhilla)	1.01
Khammam	12.56
Mahaboobnagar (Madanapuram)	0.57
Mahaboobnagar (Palem)	2.97
Medak	0.64

KVK	Balance on 31.03.2015
Nalgonda (Gaddipalli)	19.38
Nalgonda (Kampasagar)	8.92
Nizamabad	6.70
Ranga Reddy	0
Warangal (Malyal)	11.72
Warangal (Mamnoor)	2.06
Total	**74.31**

Table 2.7. Status of revolving fund in KVKs of Maharashtra (Rs. In lakh)

KVK	Balance on 31.03.2015
Ahmednagar (Babhaleshwar)	15.55
Ahmednagar (Dhahigaon)	0.43
Akola	0.92
Amaravati (Durgapur)	111.96
Amaravati (Ghatkhed)	7.25
Aurangabad (Aurangabad)	15.33
Aurangabad (MGM Gandheli)	1.25

Beed (Ambejogai)	35.24
Beed (Khamgaon)	0.56
KVK	**Balance on 31.03.2015**
Bhandara	29.5
Buldana (Jalgaon Jamod)	19.56
Buladana (PDKV)	0.98
Chandrapur	8.22
Dhule	4.24
Gadchiroli	16.74

Gondia	19.24
Hingoli	4.03
Jalgaon (Pal)	28.55
KVK	**Balance on 31.03.2015**
Jalgaon(Mamurabad)	3.09
Jalna	5.74
Kolhapur	4.02
Latur	23.05
Nagpur	4.56
Nanded (Pokharni)	1.31
Nanded(Sagroli)	1.17
Nandurbar	7.41
Nasik (YCMOU)	5.63
Nasik(Malegaon)	0.65
Osmanabad	9.75
Parbhani	2.14

Pune (Baramati)	8.53
Pune (Narayanagaon)	15.32
KVK	**Balance on 31.03.2015**
Raigarh	10.57
Ratnagiri	10.36
Sangli	2.45
Satara (Karad)	6.55
Satara(Borgaon)	1.32
Sindhudurg	10.36
Solapur (Khed)	9.38
Solapur(Mohol)	2.07
Thane	10.11
Wardha	13.44
Washim	4.48
Yavatmal	28.41
Total	**521.42**

2.5 Scientific Advisory Committee (SAC) SAC Meetings

The number of Scientific Advisory Committee (SAC) meetings conducted by KVKs is given in Table 2.8. Out of 78 KVKs, 52 KVKs conducted SAC meetings once, while 1 KVKs conducted the meeting twice.

Table 2.8. Details of SAC meeting conducted in Zone-V

State	Total No. of KVKs	No. of KVKs		
		Conducted Once	Conducted Twice	Total
Andhra Pradesh	21	18	0	18
Telangana	13	10	1	11
Maharashtra	44	24	0	24
Total	**78**	**52**	**1**	**53**

3. ACHIEVEMENTS

3.1 Technology Assessment and Refinement

During the year, KVKs have assessed and refined 785 technologies in different locations by laying out 7067 on-farm trials on the farmer's' fields (Table 3.1). Out of 785 technologies tested, 593 technologies were assessed and refined on crops followed by animals (104), women and children (88).

The details on thematic area wise on farm trials conducted by KVKs in Andhra Pradesh, Telangana and Maharashtra are furnished in Table 3.2. The main thematic areas covered in case of animals are Breed Evaluation, Breed Improvement, Disease Management, Feed and Nutrition Management, Integrated farming systems and Production & Management In case of crops, the thematic areas include Varietal Evaluation, Cropping Systems, Integrated disease management, Integrated pest management, Integrated nutrient management, Integrated weed management, Integrated crop management, Resource conservation technologies, Farm Machinery and Equipment. Under empowerment of rural women, on-farm trials were conducted in thematic areas viz., drudgery reduction, health and nutrition, value addition and entrepreneurship development.

KVKs in Andhra Pradesh assessed the suitability of 220 technologies by conducting 1168 on-farm trials covering animals (134), crops including horticultural species (917) and empowerment of rural women (117).

In Telangana KVKs assessed the suitability of 116 technologies by conducting 1234 on-farm trials covering animals (202), crops including horticultural species (953) and empowerment of rural women (79).

In case of Maharashtra KVKs assessed 404 technologies by organizing 4339 trials that include animals (589), crops including horticultural species (2998) and women empowerment (752).

A total of 15 technologies were refined by KVKs in Andhra Pradesh by conducting 85 trials covering crops (75) and women empowerment (10). KVKs in Telangana refined 8 technologies by conducting 31 trials related to crops. Similarly, KVKs in Maharashtra organized 210 trials to refine 22 technologies covering animals (5), crops (196) and women (9). The state wise details of technologies assessed and refined by KVKs are presented in Table 3.3, 3.4 and 3.5.

Table 3.1. Details of technologies assessed and refined by KVKs

Category	Technologies Assessed			Technologies Refined			Total		
	No.of technologies	No. of farmer's/ trials	No.of KVKs	No.of technologies	No. of farmer's/ trials	No.of KVKs	No.of technologies	No. of farmer's/ trials	No.of KVKs
Andhra Pradesh									
Animals	28	134	11	0	0	0	28	134	11
Crops	172	917	19	13	75	6	185	992	19
Women Empowerment	20	117	9	2	10	2	22	127	10
Total	**220**	**1168**		**15**	**85**		**235**	**1253**	
Telangana									
Animals	22	202	7	0	0	0	22	202	7
Crops	84	953	12	8	31	3	92	984	12
Women Empowerment	10	79	8	0	0	0	10	79	6
Total	**116**	**1234**		**8**	**31**		**124**	**1265**	
Maharashtra									
Animals	53	589	32	1	5	1	54	594	32
Crops	296	2998	44	20	196	12	316	3194	44
Women Empowerment	55	752	31	1	9	1	56	761	31
Total	**404**	**4339**		**22**	**210**		**426**	**4549**	
Zone V									
Animals	103	925	50	1	5	1	104	930	50
Crops	552	4868	75	41	302	21	593	5170	75
Women Empowerment	85	948	48	3	19	3	88	967	47
Total	**740**	**6741**		**45**	**326**		**785**	**7067**	

Table 3.2. Details of thematic area wise technologies assessed and refined of by KVKs

Thematic Area	Assessed			Refined			Total		
	No.of technologies	No. of farmer's/ trials	No.of KVKs	No.of technologies	No. of farmer's/ trials	No.of KVKs	No.of technologies	No. of farmer's/ trials	No.of KVKs
Animals									
Breed Evaluation	22	179	18	0	0	0	22	179	18
Breed Improvement	3	11	3	0	0	0	3	11	3
Disease Management	19	161	14	0	0	0	19	161	14
Feed and Nutrition Management	42	392	31	1	5	1	43	397	32
Integrated farming systems	3	10	2	0	0	0	3	10	2
Production & Management	14	172	12	0	0	0	14	172	12
Total	**103**	**925**		**1**	**5**		**104**	**930**	
Crops							0	0	0
Varietal Evaluation	133	1043	56	2	10	2	135	1053	58
Cropping Systems	24	184	18	0	0	0	24	184	18
Integrated disease management	36	308	26	4	19	3	40	327	29
Integrated pest management	119	942	49	8	55	7	127	997	56
Integrated nutrient management	99	870	49	13	94	7	112	964	56
Integrated weed management	27	201	22	6	44	5	33	245	27
Integrated crop management	59	921	39	5	56	5	64	977	44
Resource conservation technologies	23	132	19	0	0	0	23	132	19
Farm Machinery and Equipment	32	267	19	3	24	3	35	291	22
Total	**552**	**4868**		**41**	**302**		**593**	**5170**	
Women Empowerment									
Drudgery reduction	50	576	36	2	14	2	52	590	38
Entrepreneurship development	1	5	1	0	0	0	1	5	1
Health and Nutrition	24	292	21	1	5	1	25	297	22
Value addition	10	75	8	0	0	0	10	75	8
Total	**85**	**948**		**3**	**19**		**88**	**967**	
Total	**740**	**6741**		**45**	**326**		**785**	**7067**	

Table 3.3. Details of thematic area wise assessment and refinement of technologies in Andhra Pradesh

Thematic Areas	Technologies Assessed			Technologies Refined			Total		
	No.of technologies	No. of farmer's/ trials	No.of KVKs	No.of technologies	No. of farmer's/ trials	No.of KVKs	No.of technologies	No. of farmer's/ trials	No.of KVKs
Animals									
Breed Evaluation	6	28	4				6	28	4
Breed Improvement	0	0	0				0	0	0
Disease Management	5	21	4				5	21	4
Feed and Nutrition Management	7	30	4				7	30	4
Integrated farming systems	3	10	2				3	10	2
Production & Management	7	45	6				7	45	6
Total	28	134					28	134	
Crops									
Varietal Evaluation	57	337	18	2	10	2	59	347	20
Cropping Systems	10	67	6				10	67	6
Integrated disease managment	16	90	10	2	10	1	18	100	11
Integrated pest management	35	93	12	1	5	1	36	98	13
Integrated nutrient management	24	135	13	5	40	2	29	175	15
Integrated weed management	11	64	9	3	10	2	14	74	11
Integrated crop management	8	69	6				8	69	6
Resource conservation technology	10	50	8				10	50	8
Farm Machinery and Equipment	1	12	1				1	12	1
Total	172	917		13	75		185	992	
Women Empowerment							0	0	0
Drudgery reduction	11	66	6	1	5	1	12	71	7
Entrepreneurship development	0	0	0				0	0	0
Health and Nutrition	5	35	4	1	5	1	6	40	5
Value addition	4	16	3				4	16	3
Total	20	117		2	10		22	127	
Total	220	1168		15	85		235	1253	

Table 3.4. Details of thematic area wise assessment and refinement of technologies in Telangana

Thematic Areas	Technologies Assessed			Technologies Refined			Total		
	No.of technologies	No. of farmer's/ trials	No.of KVKs	No.of technologies	No. of farmer's/ trials	No.of KVKs	No.of technologies	No. of farmer's/ trials	No.of KVKs
Animals									
Breed Evaluation	6	37	6				6	37	6
Breed Improvement	1	5	1				1	5	1
Disease Management	5	40	4				5	40	4
Feed and Nutrition Management	7	53	4				7	53	4
Integrated farming systems							0	0	0
Production & Management	3	67	2				3	67	2
Total	22	202					22	202	
Crops							0	0	0
Varietal Evaluation	27	187	10				27	187	10
Cropping Systems	7	50	5				7	50	5
Integrated disease managment	6	29	5	1	3	1	7	32	6
Integrated pest management	16	115	7	3	7	2	19	122	9
Integrated nutrient management	4	20	4	3	13	2	7	33	6
Integrated weed management	8	53	5				8	53	5
Integrated crop management	6	454	4	1	8	1	7	462	5
Resource conservation technology	5	21	4				5	21	4
Farm Machinery and Equipment	5	24	2				5	24	2
Total	84	953		8	31		92	984	0
Women Empowement							0	0	0
Drudgery reduction	7	54	5				7	54	5
Enterpreneurship development							0	0	0
Health and Nutrition	3	25	3				3	25	3
Value addition							0	0	0
Total	10	79		0	0		10	79	
Total	116	1234		8	31		124	1265	

Table 3.5. Details of thematic area wise assessment and refinement of technologies in Maharashtra

Thematic Areas	Technologies Assessed			Technologies Refined			Total		
	No.of technologies	No. of farmer's/ trials	No.of KVKs	No.of technologies	No. of farmer's/ trials	No.of KVKs	No.of technologies	No. of farmer's/ trials	No.of KVKs
Animals									
Breed Evaluation	10	114	8				10	114	8
Breed Improvement	2	6	2				2	6	2
Disease Management	9	100	6				9	100	6
Feed and Nutrition Management	28	309	23	1	5	1	29	314	24
Integrated farming systems							0	0	0
Production & Management	4	60	4				4	60	4
Total	53	589		1	5		54	594	
Crops							0	0	0
Varietal Evaluation	49	519	28				49	519	28
Cropping Systems	7	67	7				7	67	7
Integrated disease management	14	189	11	1	6	1	15	195	12
Integrated pest management	68	734	30	4	43	4	72	777	34
Integrated nutrient management	71	715	32	5	41	3	76	756	35
Integrated weed management	8	84	8	3	34	3	11	118	11
Integrated crop management	45	398	29	4	48	4	49	446	33
Resource conservation technology	8	61	7				8	61	7
Farm Machinery and Equipment	26	231	16	3	24	3	29	255	19
Total	296	2998		20	196		316	3194	0
Women Empowerment							0	0	0
Drudgery reduction	32	456	25	1	9	1	33	465	26
Entrepreneurship development	1	5	1				1	5	1
Health and Nutrition	16	232	14				16	232	14
Value addition	6	59	5				6	59	5
Total	55	752		1	9		56	761	
Total	**404**	**4339**		**22**	**210**		**426**	**4549**	

PERFORMANCE OF TECHNOLOGIES

3.1.1 FIELD CROPS

Varietal evaluation

Evaluation of Improved varieties of Groundnut

Improved of groundnut variety Dharani was proved its superiority at KVK Kurnool (Banavasi) by giving higher returns and B:C ratio. At KVK Satara (Karad) groundnut variety Phule Warana gave higher yield and net returns than the local check. evaluated by the KVKs of Visakhapatnam, kadapa, and Anantapur (Kalyandurg). Dharani gave significantly higher yields and income at all the three centers. Similarly variety K 9

KVK, Visakhapatnam

Technology Assessed	No. of trials	Yield kg/ha	Net return (Rs./ha)	B:C Ratio
Local variety- Farmer's practice	5	1190	10400	**1.28**
Dharani		**1620**	**23300**	**1.56**

KVK, Kadapa,

Technology Assessed	No. of trials	Yield (kg/ha)	Net return (Rs./ha)	B:C Ratio
K-6- Farmer's practice	5	1620	Rs. 41,412/ha	**1.97**
Dharani		**1705**	**Rs. 44,752/ha**	**2.05**

KVK Anantapur (Kalyandurg)

Technology Assessed	No. of trials	Yield (kg/ha)	Net return (Rs./ha)	B:C Ratio
K-6- Farmer's practice	5	569	1877	**1.08**
Dharani		**615**	**3811**	**1.17**

KVK Kurnool (Banavasi)

Technology Assessed	No. of trials	Yield kg/ha	Net return (Rs./ha)	B:C Ratio
Local variety- Farmer's practice	5	870	13760	**1.49**
K – 9		**920**	**47800**	**1.81**

KVK Satara (Karad)

Technology Assessed	No. of trials	Yield kg/ha	Net return (Rs./ha)	B:C Ratio
Local variety- Farmer's practice	17	1796	42562	**2.10**
Phule Warana		**2296**	**57941**	**2.25**

K-6 seeds **Dharani seeds**

Castor

Castor variety PCH-111 was assessed by KVK Kurnool (Banavasi). Variety PCH 111 yielded 1500 kg / ha while the yield of local variety was only 1250 kg/ha. Net returns and B:C ratio were also higher with this variety as compared to the farmer's practice.

Technology Assessed	No. of trials	Yield kg/ha	Net return (Rs./ha)	B:C Ratio
Local variety: Farmer's practice	10	1250	25875	**2.23**
PCH-111		**1500**	**36750**	**2.88**

Rice

Improved rice varieties were evaluated by KVK Anantapur (Kalyandurg), KVK Kurnool (Banavasi), KVK Nalgonda (Garedepally) and KVK Pune (Narayangaon). In Anantapur, NDLR-7 and NLR-34449 gave higher yield and net return than local check BPT-5204. In Kurnool JGL-11470 recorded higher yield and net return than the farmer's practice. In Nalgonda, blast resistant rice variety RNR-15048 performed better than the existing variety. Phule Samrudhi gave significantly higher yield and returns in Pune.

KVK Anantapur (Kalyandurg)

Technology Assessed	No. of trials	Yield (kg/ha)	Net return (Rs./ha)	B:C Ratio
BPT-5204: Farmer's practice	5	3940	-	**1.26**
NDLR-7		4200	4010	**1.34**
NLR-34449		**4160**	**3284**	**1.33**

KVK Kurnool (Banavasi)

Technology Assessed	No. of trials	Yield (kg/ha)	Net return (Rs./ha)	B:C Ratio
BPT-5204:Farmer's practice	10	6400	30800	**1.6**
JGL-11470		**6700**	**34550**	**1.7**

KVK Nalgonda (Garedepally)

Technology Assessed	No. of trials	Yield (kg/ha)	Net return (Rs./ha)	B:C Ratio

BPT-5204:Farmer's practice	5	5450	42700	**1.9**
RNR – 15048		**5750**	**54250**	**2.2**

KVK Pune (Narayangaon)

Technology Assessed	No. of trials	Yield kg/ha	Net return (Rs./ha)	B:C Ratio
Indrayani : Farmer's practice	5	3150	119700/-	**1.66**
Phule Samrudhi		**3500**	**140000/-**	**1.86**

NDLR-7 : **KVK Anantapur (Kalyandurg)**

Redgram

Improved redgram varieties were tested by KVK Aurangabad, KVK Nanded (Pokharni), KVK Hingoli, KVK Kurnool (Yagantipalli), KVK, Chittoor (RASS) and KVK, Mahaboobnagar (Madanapuram). In Aurangabad, Nanded and Hingoli, Var. BDN-711proved its superiority over the farmer's variety by giving higher yield and income as well as B:C ratio. In Kurnool Redgram Hybrid ICPH-2671 recorded a yield of 1383 kg/ha while the yield in farmer's practice was only 1056 kg/ha. In Chittoor TRG-38 and in Mahaboobnagar PRG-176 performed better than the respective farmer's varieties.

KVK Aurangabad

Technology Assessed	No. of trials	Yield (kg/ha)	Net return (Rs./ha)	B:C Ratio
Local variety: Farmer's practice	5	1010	26189	**1.76**
BDN-711		**1180**	**35585**	**2.01**

KVK Nanded (Pokharni)

Technology Assessed	No. of trials	Yield (kg/ha)	Net return (Rs./ha)	B:C Ratio
Local variety: Farmer's practice	10	450	9525/-	**1.58**

BDN-711		**625**	**18499/-**	**2.06**

KVK, Hingoli

Technology Assessed	No. of trials	Yield (kg/ha)	Net return (Rs./ha)	B:C Ratio
BDN 708: Farmer's practice	10	500	4347	**1.17**
BDN 711		**800**	**20967**	**1.85**

KVK, Kurnool (Yagantipalli)

Technology Assessed	No. of trials	Yield kg/ha	Net return (Rs./ha)	B:C Ratio
ICPL-85063: Farmer's practice	5	1056	30343-00	**2.18**
ICPH-2671		**1383**	**47674-00**	**2.86**

KVK, Chittoor (RASS)

Technology Assessed	No. of trials	Yield kg/ha	Net return (Rs./ha)	B:C Ratio
Local variety: Farmer's practice	10	583	3390.00	**1.21**
TRG -38		**863**	**10070.00**	**1.53**

KVK, Mahaboobnagar (Madanapuram)

Technology Assessed	No. of trials	Yield kg/ha	Net return (Rs./ha)	B:C Ratio
Pinky: Farmer's practice	8	782	11395	**1.51**
PRG-176		**1293**	**39670**	**2.78**

Bajra

Evaluation of Improved variety of bajra

KVK, Chittoor (RASS) and KVK, Rangareddy evaluated improved bajra hybrid PHB- 3.. This hybrid proved better than the localcheck at both the places by giving higher yield and net return.

KVK, Chittoor (RASS)

Technology Assessed	No. of trials	Yield (kg/ha)	Net return (Rs./ha)	B:C Ratio
Sri Chakra – 152: Farmer's Practice	8	3035	18825.00	**1.70**
PHB- 3		**3385**	**23950.00**	**1.89**

KVK, Rangareddy

Technology Assessed	No. of trials	Yield kg/ha	Net return (Rs./ha)	B:C Ratio

ICTP 8203: Farmer's Practice	5	700	-	-
PHB-3		**1055**	**2270**	**1.18**

Assessment of PHB-3: KVK, Rangareddy

Maize

Performance of wilt tolerant Maize variety KNMH-4010131 was assessed by KVK Karimnagar (Jammikunta). It gave higher yield and net return besides giving higher B: C ratio than the local check (Kaveri-50). Similarly in another trail in Chittoor Maize hybrid DHM-117 performed better than the local check (Kaveri-50).

KVK Karimnagar (Jammikunta)

Technology Assessed	No. of trials	Yield kg/ha	Net return (Rs./ha)	B:C Ratio
Kaveri-50: Farmer's Practice	6	7370	59510	**3.05**
KNMH-4010131		**8230**	**71110**	**3.57**

KVK, Chittoor (RASS)

Technology Assessed	No. of trials	Yield kg/ha	Net return (Rs./ha)	B:C Ratio
Kaveri-50: Farmer's Practice	15	5860	29667.00	**1.85**
DHM-117		**6750**	**40203.00**	**2.17**

Fodder

Performance of Hybrid Napier fodder variety Sampoorna (DHN6) was assessed by KVK, Beed (Ambajogai) and KVK Latur. In both districts Sampoorna (DHN6) performed better than the local check by giving better yield and income. In Ahmadnagar Phule Govardhan out performed local check, marvel grass.

KVK, Beed (Ambajogai)

Technology Assessed	No. of	Yield	Net return	B:C Ratio

	trials	Q/ha	(Rs./ha)	
Maize (African tall): Farmer's Practice	20	32	16000	**1.3**
DHN-6 (Sampurna)		**48**	**34000**	**1.5**

KVK Latur

Technology Assessed	No. of trials	Yield Q/ha	Net return (Rs./ha)	B:C Ratio
Phule Jaywant (RBN-13):Farmer's Practice		15.45	85000	**2.22**
DHN-6 (Sampoorna)		**21.00**	**140500**	**3.02**

KVK, Ahmednagar (Babhaleshwar)

Technology Assessed	No. of trials	Yield Q/ha	Net return (Rs./ha)	B:C Ratio
Marvel grass: Farmer's practice	5	54.93	54967	**2.80**
Phule Govardhan		**75.83**	**77204**	**3.16**

DHN-6 (Sampoorna): Hybrid Napier

Sugarcane

KVK, Chittoor (Kalikiri) and KVK, Chittoor (RASS) assessed the performance of sugarcane variety 2005 T 16. Both the KVKs found that 2005 T 16 is better than the respective local chek in terms of yield and income.

KVK, Chittoor (Kalikiri)

Technology Assessed	No. of trials	Yield t/ha	Net return (Rs./ha)	B:C Ratio
93 V 297 : Farmer's practice		81.25	80625	**1.6**

2005 T-16	**5**	**89.0**	**97875**	**1.78**

KVK, Chittoor (RASS)

Technology Assessed	No. of trials	Yield t/ha	Net return (Rs./ha)	B:C Ratio
86V96 : Farmer's practice	8	91.2	78015	**1.67**
2005 T 16		**101.2**	**94565**	**1.77**

Sorghum

KVK Solapur assessed the performance of sorghum variety Phule Rewati (RSV-1006). Phule Rewati gave higher yield and income when compared with the farmer's practice. In Ahmednagar, Phule Suchitra showed its superiority by giving higher yield and income. In Mahaboobnagar sorghum variety PSV-56(Srisaila) performed better than the existing variety.

KVK, Solapur

Technology Assessed	No. of trials	Yield kg/ha	Net return (Rs./ha)	B:C Ratio
Variety Jute : Farmer's Practice	10	1735	22678	**2.78**
Phule Rewati (RSV-1006)		**2218**	**29360**	**3.03**

KVK Ahmednagar (Dahigaon)

Technology Assessed	No. of trials	Yield kg/ha	Net return (Rs./ha)	B:C Ratio
Maldandi-35-1: Farmer's Practice	13	1456	4034	**1.20**
Phule Suchitra		**1816**	**10297**	**1.45**

KVK, Mahaboobnagar (Madanapuram)

Technology Assessed	No. of trials	Yield kg/ha	Net return (Rs./ha)	B:C Ratio
Local Variety : Farmer's Practice		1222	12720	**1.27**
PSV-56(Srisaila)	**8**	**1679**	**28750**	**1:8**

Sorghum var. Phule Revati under rabi condition

Wheat

KVK Nandurbar, KVK Aurangabad(VNMKV) and KVK Pune (Narayangaon) assessed the performance of wheat variety Netravati. At all the locations Netravati performed better than the farmer's variety by giving higher yield and income. Newly released wheat variety AKAW-4627 outperformed farmer's variety Lok 1 at Washim while the performance of AKAW-3722 was better than local check in Amaravati.

KVK Nandurbar

Technology Assessed	No. of trials	Yield kg/ha	Net return (Rs./ha)	B:C Ratio
LOK-1:Farmer's practice	10	974	10954	**2.15**
Netravati		**1082**	**12622**	**2.25**

KVK Aurangabad(VNMKV)

Technology Assessed	No. of trials	Yield kg/ha	Net return (Rs./ha)	B:C Ratio
LOK-1:Farmer's practice	5	1890 kg/ ha	9575	**1.31**
Netravati(NIAW-1415)		**2310 kg/ ha**	**16520**	**1.51**

KVK Pune (Narayangaon)

Technology Assessed	No. of trials	Yield kg/ha	Net return (Rs./ha)	B:C Ratio
GW-496: Farmer's practice	5	1650	39600	**1.76**
Netravati		**1800**	**43200**	**1.92**

KVK Washim

Technology Assessed	No. of trials	Yield kg/ha	Net return (Rs./ha)	B:C Ratio
LOK-1:Farmer's practice	14	2400	17361	**2.07**

AKAW-4627		**3400**	**35133**	**2.82**

KVK Amravati (Ghatkhed)

Technology Assessed	No. of trials	Yield kg/ha	Net return (Rs./ha)	B:C Ratio
LOK-1:Farmer's practice	8	1722	13300.00	**1.82**
AKAW-3722		**2120**	**22900.00**	**2.09**

Soybean

Soybean variety MAUS-158 gave higher yield and net returns than JS-335 in Beed and Hingoli districts while variety DS- 228 performed better than JS-335 in Bhandara district

KVK Beed (Ambajogai)

Technology Assessed	No. of trials	Yield kg/ha	Net return (Rs./ha)	B:C Ratio
JS-335: Farmer's practice	13	1555	15125	**1.64**
MAUS-158		**1917**	**24175**	**2.02**

KVK, Hingoli

Technology Assessed	No. of trials	Yield (kg/ha)	Net return (Rs./ha)	B:C Ratio
JS-335: Farmer's practice	10	1400	12770.00	**1.38**
MAUS-158		**1900**	**28470.00**	**1.83**

KVK. Bhandara

Technology Assessed	No. of trials	Yield (kg/ha)	Net return (Rs./ha)	B:C Ratio
JS-335: Farmer's practice	5	1394	11921	**1.36**
DS- 228		**1529**	**14915**	**1.43**

Finger millet

KVK Nashik (YCMOU) assessed the performance of Finger millet cultivar Phule Nachani against the farmer's variety Dhavali gari. Phule Nachani performed well by giving 42 percent additionl yield besides higher Net return and B:C ratio.

Technology Assessed	No. of trials	Yield kg/ha	Net return (Rs./ha)	B:C Ratio
Dhavali gari: Farmer's practice	5	450	3260	1.31
Phule Nachani		780	7950	1.51

Bengalgram

In varietal evaluation of Bengal gram by KVK Rangareddy, wilt tolerant and high yielding Var. Nandyala Senega-1 recorded higher yield than the farmer's variety, Annegiri.

Technology Assessed	No. of trials	Yield kg/ha
Annegiri : Farmer's Practice	8	**625**
Nandyala Senega-1		**987**

Nandyala Senega-1 : KVK Rangareddy

Blackgram

YMV resistant Blackgram variety LBG-752 was assessed for its yield and income in Srikakulam and Vizianagaram districts. In both the districts it gave higher yield and income than the local varieties grown by the farmer's

KVK, Srikakulam

Technology Assessed	No. of trials	Yield kg/ha	Net return (Rs./ha)	B:C Ratio
Teega minumu: Farmer's Practice	5	562	18600	**2.95**
LBG-752		**680**	**26900**	**3.56**

KVK, Vizianagaram (Rastakuntubai)

Technology Assessed	No. of trials	Yield kg/ha	Net return (Rs./ha)	B:C Ratio
Local variety: Farmer's Practice	5	950	30191	**1.7**
LBG-752		**1051**	**34429**	**1.9**

Dolichos bean

Varietal assessment of Dolichos bean was conducted by KVK Beed (Ambajogai). In this trail improved variety Kokan Bhushan performed better than the local variety by giving higher yield, income and B:C ratio than the local variety.

Technology Assessed	No. of trials	Yield kg/ha	Net return (Rs./ha)	B:C Ratio
Local variety: Farmer's Practice	8	40	15000	**1.60**
Kokan Bhushan		**75**	**35000**	**2.07**

Kokan Bhushan: Dolichos bean

Integrated Nutrient Management

STCR equation based Nutrient management in Sunflower

Nutrient management in Sunflower based on STCR equation was assessed by KVK, Kurnool (Yagantipalli). Results indicated that the yield was at par with the farmer's practice besides considerable reduction in the quantity of fertilizers used. As a result the technology assed gave higher net returns and B:C ratio by reducing the expenditure on fertilizers.

Technology Assessed	No. of trials	Yield kg/ha	Net return (Rs./ha)	B:C Ratio
Farmer's' practice: NPK 100-108-0 kg/ha	5	1934	43012	**3.07**
STCR for 20q/ha):NPK:71-27-30 kg/ha		**1924**	**46762**	**3.80**

STCR equation based Nutrient management in Groundnut

Nutrient management in groudnut based on STCR equation was assessed by KVK, Kurnool (Yagantipalli). This technology reduced the fertilizer consumption drastically without reducing the yield and thereby gave higher net returns and B:C ratio.

KVK, Kurnool (Yagantipalli)

Technology Assessed	No. of trials	Yield kg/ha	Net return (Rs./ha)	B:C Ratio
T_1Farmer's' Practice: NPK: 128-146-52 Kg/ ha	5	3303	31245	**1.37**
STCR : NPK:40-20-25 kg/ha		**3283**	**38650**	**1.50**

Soil test based nutrient management in Rice

KVK, Chittoor (RASS) assessed soil test based nutrient management in rice. Enhanced yield and net income were obtained with this technology besides reducing the fertilizer applied as compared to farmer's practice.

Technology Assessed	No. of trials	Yield kg/ha	Net return (Rs./ha)	B:C Ratio
Farmer's practice:163:100:50 NPK kg/ha	20	6290	36495	**1.84**
100:45:40 NPK kg/ha + 50 kg Zinc Sulphate per ha		**6560**	**43775**	**2.12**

Potash application Sorghum

At Ahmednagar application of 25 kg potash per ha alongwith recommended dose of fertilizers in sorghum gave higher yield and net income than Farmer's practice

KVK, Ahmednagar (Babhaleshwar)

Technology Assessed	No. of trials	Yield kg/ha	Net return (Rs./ha)	B:C Ratio
Farmer's practice : 45:35:6 Kg NPK/ha	10	13.75q/ha	23871.00	**2.18**

Technology assessed: 50:25:25 Kg NPK/ha		**15.41q/ha**	**26010.00**	**2.24**

Nutrient management in Bengal gram

KVK, Buldana (Jalgaon Jamod) and KVK, Ahmednagar (Babhaleshwar) assessed the application K_2O in Bengal gram. At Buldhana application of 30 kg K_2O/ ha along with N and P_2O5 (25:50 kg/ha) in irrigated medium Black cotton soils significantly increased the yield and income in Bengal gram. In Ahmednagar foliar application of 1% potassium nitrate (30days) and 2%DAP (45days) under rainfed conditions increased the Bengal gram yield from 1279 kg/ha to 1692 kg/ha. Similarly in Solapur application of foliar spray grades fertilizers along with RDF gave higher yield, net income and B:C ratio.

KVK, Buldana (Jalgaon Jamod)

Technology Assessed	No. of trials	Yield kg/ha	Net return (Rs./ha)	B:C Ratio
Farmer's ppractice : N.P.K. 25:50:0 kg/ ha)	13	1499	33244	**2.60**
N.P.K. 25:50:30 kg/ ha)		**1692**	**39412**	**2.84**

KVK, Ahmednagar (Babhaleshwar)

Technology Assessed	No. of trials	Yield kg/ha	Net return (Rs./ha)	B:C Ratio
Farmer's practice - 20:40:01 Kg NPK /ha	13	1279	19808	**1.82**
12.5:25:00 Kg NPK/ha+ Foliar application of 1% potassium nitrate (30days) + 2%DAP(45days)		**1467**	**25779**	**2.04**

KVK, Solapur (Kegaon)

Technology Assessed	No. of trials	Yield kg/ha	Net return (Rs./ha)	B:C Ratio
Farmer's Practice: 46:16:00 kg/ha. N.P.K.	13	1475	29350	**2.95**
Recommended Practice: 25:50:30 kg/ha. N.P.K.		1925	39650	**3.40**
Refined Practice: 25:50:30 kg/ha. N.P.K. +Foliar Fertilizers (13:00:45) @ 4gms/lit		**2185**	**43785**	**3.85**

Nutrient management in Soybean

Application of potash and application of sulphur in soybean was assessed by KVK Washim and KVK Latur respectively. In Washim application of 30kg/ha Potash as a basal dose to soybean crop resulted in higher yield and income. In Latur application of sulphur at 30 kg/ha increased the yield of soybean from 1400 kg/ha to 1550 kg/ha.

KVK Washim

Technology Assessed	No. of	Yield	Net return	B:C

	trials	kg/ha	(Rs./ha)	Ratio
Farmer's practice: Application of 30 Kg N+75 Kg P	14	1250	3472	**1.10**
Recommended practice: Application of 30 Kg N+75 Kg P +30Kg K		**1492**	**9887**	**1.28**

KVK Latur

Technology Assessed	No. of trials	Yield kg/ha	Net return (Rs./ha)	B:C Ratio
Farmer's practice: DAP at 125 kg/ha	13	1400	18200	1.65
Technology assessed: application of DAP at 125 kg/ha + Sulphur at 30 kg/ha		**1550**	**22150**	**1.76**

Assessment of Application of sulphur in soybean : KVK Latur

Soil test based nutrient management in Maize

Effect of soil test based nutrient management on yield of Maize was assessed by KVK, Dhule. Soil test based nutrient management increased maize yield by 17 percent when compared with farmer's practice. It also increased the net returns from Rs. 11071 per ha to Rs. 17990 per ha.

Technology Assessed	No. of trials	Yield kg/ha	Net return (Rs./ha)	B:C Ratio
Farmer's Practice: 115:48:30 N :P_2O_5 :K_2O Kg/ha	6	3832	11071	1.32
RDF as par STB (150:60:30.12 N P2O5 K2O kg/ha+ $FeSO_4$ and $ZnSO_4$ @ 5 kg each in Two Splits (at sowing and 30 DAS)		**4471**	**17990**	**1.49**

Integrated Pest and Disease Management

Rice

KVK, Mahaboobnagar (Madanapuram) and KVK Khammam conducted trials on the management of stem rot in paddy. In Mahaboobnagar Spraying validamycin@2ml/lit and Propiconozole @ 2ml/lit reduced the disease incidence to 7.4% from 19.75%. Yield and income was also higher with the technology assed when compared to Farmer's Practice. In Khammam, Spraying of Hexaconazole or Validamycin@2ml/lit of water (twice) after noticing the incidence of stem rot followed by 2nd spray after 15 days increased the yield from 6187 kg/ha to 6730 kg/ha. Net income and B:C ratio was also increased with the treatment.

In another trial KVK Khammam assessed the management of Panicle mite in rice. Spraying of Profenophos @2ml/lit + Propiconazole @1ml/lit at panicle initiation stage followed by 2nd spray with dicofol @ 5ml/lit of water + Propiconazole @1ml/lit,15days after 1st spraying increased the yield and net income as well as B:C ratio by controlling panicle mite.

KVK, Sindhudurg assessed the management of rice blast by using moderately resistant variety Karjat-8 and preventive spray of carbendezim 1.0 gm/lit of water at nursery stage. This treatment prevented the disease incidence and increased the yield by 22% when compared with the farmer's practice.

Effect of IPM module to manage Yellow Stem Borer was assessed at Khammam by conducting 5 trials. This module gave higher yield, income and B:C ratio when compared with the farmer's practice.

KVK, Mahaboobnagar (Madanapuram): Management of stem rot in rice

Technology Assessed	No. of trials	Yield kg/ha	Net return (Rs./ha)	B:C Ratio	Disease incidence (%)
Farmer's Practice: spraying Tricyclozole @ 2ml/ lt 3-4 sprays	10	4671	24790	1:1.49	19.75
Spraying validamycin@2ml/lit and Propiconozole @ 2ml/lit		**5241**	**40890**	**1:1.89**	**7.4**

KVK Khammam : Management of Stem rot in rice

Technology Assessed	No. of trials	Yield kg/ha	Net return (Rs./ha)	B:C Ratio
Farmer's Practice: Spraying of Carbendazim after the crop is affected with disease	3	6187	37507	1.77
Spraying of Hexaconazole or Validamycin@2ml/lit of water (twice) after noticing the Incidence followed by 2nd spray after 15 days		**6730**	**39737**	**1.84**

KVK Khammam : Management of Panicle mite in rice

Technology Assessed	No. of trials	Yield kg/ha	Net return (Rs./ha)	B:C Ratio
Farmer's Practice: Spraying of Profenophos after observing the discoloration on the grains	5	4630	19972	1.48
Spraying of Profenophos @2ml/lit + Propiconazole @1ml/lit at panicle initiation stage followed by 2nd spray with dicofol @ 5ml/lit of water + Propiconazole @1ml/lit, 15days after 1st spraying		**5021**	**25302**	**1.61**

KVK, Sindhudurg : Management of blast in rice

Technology Assessed	No. of trials	Yield kg/ha	Net return (Rs./ha)	B:C Ratio	Disease incidence (%)
Farmer's practice : Cultivation of variety Masoorie & spray with carbendezim 1 gm/lit or mancozeb 2.5gm/lit of water when incidence is noticed	10	3200	2300	1.10 :1	15
Cultivation of moderately resistant variety Karjat-8 & preventive spray of carbendezim/ tricyclozole 1.0 gm/lit of water at nursery stage		**3900**	**9500**	**1.30 :1**	**0**

KVK Khammam : Yellow Stem Borer management

Technology Assessed	No. of trials	Yield kg/ha	Net return (Rs./ha)	B:C Ratio
Farmer's Practice: Application of Carbofuran 3G granules @ 8 -10kg/acre at 15 DAT followed by spraying of Cartap hydrochloride	5	6187	33672	1.69:1
Application of Carbofuran 3G granules @160 gm/cent of nursery one week before pulling the seedlings, Clipping of leaf tips while transplanting , Mass trapping of male moths with pheromone traps @ 20 /ha, Use of Tricho cards (*Trichogramma japanicum*) @ 50 Tricho cards/ha (10 cards/release, 5 releases starting		**6562**	**41190**	**1.89:1**

from 30 DAT at 10 days interval), Need based application of pesticides (Cartap hydrochloride@2g/lt)				

Cotton

Technologies to manage sucking pests in cotton prodiction were assessed by KVK Beed (Ambajogai), KVK Amaravati (Durgapur), KVK, Ahmednagar (Babhaleshwar) and KVK Khammam. In Beed recommanded technology of sowing of trap crop of cow pea (10:1 row), installation of 23-25 yellow sticky traps/ha , Spraying of Fipronil 5sc (after 65 days) and Trizophos 40 sc (80 days) @ 20 ml+5% NSKE/10 lit water to manage sucking pest complex performed better by giving higher yield and income than the farmer's practice.

In Amaravati technology assessed to Control of white fly in Cotton gave increased yields and income by controlling the pest. Similarly stem application of Imidacloprid 17.8% in Bt cotton gave higher yields when compared with the farmer's practice by controlling Jassids

In khammam, the technology to manage Mealy bug resulted in higher yields and income besides improving the B:C ratio. In Hingoli refined practice to manage leaf reddening gave higher yield and income when compared with Recommended practice and Farmer's Practice.

KVK Beed (Ambajogai): Management of sucking pests in cotton

Technology Assessed	No. of trials	Yield kg/ha	Net return (Rs./ha)	B:C Ratio
Farmer's Practice: Spraying of Imidacloprid (2 to 3 sprayings)	5	1900	29400.00	**1.75**
Sowing of trap crop i.e. cow pea (10:1 row) Installation of 23-25 yellow sticky traps/ha Spraying of Fipronil 5sc (after 65 days) and Trizophos 40 sc (80 days) @ 20 ml+5% NSKE/10 lit water.		**2180**	**40980.00**	**2.09**

KVK Amaravati (Durgapur): Control of white fly in cotton

Technology Assessed	No. of trials	Yield kg/ha	Net return (Rs./ha)	B:C Ratio
Farmer's practice 1st Spray of Dimethoate 30 EC @ 2.5 ml/lit of water 2nd Spray Monocrotophos 36 WSC @ 3 ml/lit of water 3rd Spray Acetamidprid @ 0.3 gm/lit of water. 4th Spray Imidacloprid 200 SL @ 0.3 ml/lit 5th Spray Diafenthiuron (polo)50% WP@ 1gm/lit	12	18.5	46250	**2.5**
Technology Assessed 1st Spray of Methyldemeton 25 EC @ 4ml/lit 2nd Spray of Trizophos @ 1 ml / lit of water 3rd Spray of Fenpropethrin @ 1ml /lit of water 4th Spray Erection of Yellow sticky Trap@50/ha		**24.5**	**98000**	**3.5**

KVK, Ahmednagar (Babhaleshwar) : Management of Jassids in cotton

Technology Assessed	No. of trials	Yield kg/ha	Net return (Rs./ha)	B:C Ratio
Farmer's practice: Spraying of chemicals like thiamethoxam @ 0.3 gm/lit or imidachloprid @ 0.5 ml/lit	13	20.75 Q/ha	42100	**2.08**
Technology assessd: Stem application of Imidacloprid 17.8% in 1:20 dilution with water at 30, 45, 60 days after planting Need based sprays of thiamethoxam (0.3 gm/lit) or imidachloprid (0.5 ml/lit)		**22.5 Qt/ha**	**48325**	**2.22**

KVK Khammam : Management of Mealy bug

Technology Assessed	No. of trials	Yield kg/ha	Net return (Rs./ha)	B:C Ratio
Farmer's Practice: Spraying of Monocrotophos after noticing the incidence of mealy bug	3	2800	43461	**1.84**
Stem application with monocrotophos and water in 1:4 ratio at 20, 35, 50 and 65 DAS. Application of Verticillium leucanii @ 5g/lit of water Need based application of Profenophos @ 3ml/lit of water or Acephate @ 2.0 g/lit of water		**3202**	**56827**	**2.10**

KVK, Hingoli : Management of Leaf reddening

Technology Assessed	No. of trials	Yield kg/ha	Net return (Rs./ha)	B:C Ratio	No. of red leaves/plant %
Farmer's Practice: 12:32.5:32.5 N:P:K at sowing + 41:32.5:32.5 N:P:K 30 DAS	10	1700	39500	2.23	**80**
Recommended practice: 62.5:62.5:62.5 N:P:K kg/ha at sowing + 62.5:00:00 N :P:K kg/ha 30-35 DAS on soil test values + 2 sprays of 2%KNO3 + 2% DAP during flowering to boll development stage		2000	50300	2.49	**60**
Refined practice: T2 +Soil application MgSO4 20-25 kg/ha +1% MgSO4+ two foliar		**2500**	**66773**	**2.75**	**20**

spray of 2% Urea at peak flowering stage to boll development stage+15-20 ppm Chlormequat chloride+0.1%citric acid(2-3 times at 07 days interval)at flowering to boll formation					

Stem application of of Imidacloprid

Soybean

Trials were conducted by KVK Beed (Ambajogai) and KVK Washim to manage girdle beetle in soybean. In Beed Soil application of Phorate 10G @ 10 kg/ha and Spraying of Ethofenprox 10% and Trizophos 40 SC @ 20 ml/10 lit of water significantly improved the soybean yields and net returns. In Washim two sprays of Prophenophos 50% EC 20ml/10lit of water reduced the Girdle Beetle population considerably and increased the yields and net income.

KVK Beed (Ambajogai)

Technology Assessed	No. of trials	Yield kg/ha	Net return (Rs./ha)	B:C Ratio
Spraying of Chlorpyriphos + Cypermethrin 20 ml/10 lit of water	6	17	25695	**1.89**
Soil application of Phorate 10G @ 10 kg/ha Spraying of Ethofenprox 10% @ 20 ml/10		**20**	**36665**	**2.34**

lit of water Spraying of Trizophos 40 SC @ 20 ml/10 lit of water				

KVK Washim

Technology Assessed	No. of trials	Yield kg/ha	Net return (Rs./ha)	B:C Ratio	Girdle Beetle population /mt.row
Farmer's practice: Two spraying of Trizophos 40EC 25ml+10lit of water	14	1240	15880/-	1:1.66	**2.3**
Recommended practice: Two spraying of Prophenophos 50% EC 20ml+10lit of water		**1380**	**20360/-**	**1:1.85**	**1.2**

Redgram

At KVK, Buldana (Jalgaon Jamod) , trails conducted on management of *Helicoverpa* in redgram resulted in less pod damage (5.62%) when compared with farmer's practice. Technology assessed also gave higher yield and income than the farmer's practice.

Technology Assessed	No. of trials	Yield kg/ha	Net return (Rs./ha)	B:C Ratio	% pod damage
Farmer's Practice : 3-4 sprays of insecticides like Quinolphos 25EC @ 60ml,Profenophos @ 60ml, Indoxicarb @ 15ml, Flubendiamide 20WG @ 3gm, imactin benzoate 10 gm / 15 lit water	13	494	11664/-	1.68	**11.72**
Recommended Practice: 1st spray – Clorantripriliprole 18.5EC @ 3gm at initiation of flowering. 2nd spray – Emactin Benzoate 5SG @ 4gm need based spray at 50% flowering and pod filling stage.		**612**	**20372/-**	**2.34**	**5.62**

Wheat

KVK Pune (Narayangaon) assessed the effectiveness of *Metarhizium Anisoplae* against Wheat Aphid. Results indicated that Spraying of *Metarhizium Anisoplae* @5g/ltr significantly reduced the aphid population and increased the yield and income when compared with the Farmer's Practice. In another trial KVK, Hingoli asessed rust management practices in wheat. In this trial seed treatment with Thiram 4 gm/kg + 1.25 gm Carbendazim 75 wp followed by Azotobactor and PSB 25 gm/kg seed reduced the disease occurance from 10% to 3% and increased the yield and income when compared with the Farmer's Practice

KVK Pune (Narayangaon): Control of Wheat Aphid

Technology Assessed	No. of trials	Yield kg/ha	Net return (Rs./ha)	B:C Ratio	Aphids per plant
Farmer's Practice: Spraying of Dimethoate 2 ml/ltr.	10	3800	48500/-	1:1.10	**18**
Technology assessed: Spraying of Metarhizium Anisoplae 5gm/ltr. 2nd spray of Metarhizium Anisoplae 5 gm/ ltr.		**4300**	**57500/-**	**1:1.30**	**4**

KVK, Hingoli : Rust Management in wheat

Technology Assessed	No. of trials	Yield kg/ha	Net return (Rs./ha)	B:C Ratio	Diseases occurrence (%)
Farmer's practice: Seed treatment with thirum 3 gm/kg seed	10	2200	18000	2.5	**10**
Tech. assessed: Seed treatment with Thirum 4 gm/kg + 1.25 gm Carbendazim 75 wp followed by Azotobactor and PSB 25 gm/kg seed		**2500**	**25000**	**3.00**	**3**

Weed Management

Cotton

Weed management practice in cotton was assessed by KVK Kurnool (Banavasi). Recommended technology increased the cotton yield from 1800 kg/ha to 2000 kg/ha by effectively controlling the weeds. Net income and B:C ratio were also more with the technology assessed when compared with the farmer's practice.

Technology Assessed	No. of trials	Yield kg/ha	Net return (Rs./ha)	B:C Ratio
Farmer's Practice: Hand weeding.	5	1800	3500	**1.05**
Pre-emergence application of Pendimethalin 1 lit/acre + Post emergence application of pyrithiobac sodium @ 250m1/acre + Quizolofop-P-ethyl 5 EC @ 400 ml / acre at 20 DAS		**2000**	**19500**	**1.32**

Rice

KVK Khammam evaluated weed management technology in rice. Pre emergence application of Pyrazosulfuron ethyl @ 80g/ acre followed by Bispyribac sodium @100ml/acre at 20– 25 days after transplanting performed better than the farmer's practice of Pre emergence application of Oxadiargyl @ 35g followed by Bispyribac sodium @100ml/ acre at 20– 25 days after transplanting. Tested technology increased the rice yields to an extent of 480kg/ha. Net returns and B:C ratio also higher in the technology tested than the farmer's practice.

Technology Assessed	No. of trials	Yield kg/ha	Net return (Rs./ha)	B:C Ratio
Farmer's Practice: Pre emergence application of Oxadiargyl @ 35g followed by Bispyribac sodium @100ml/ acre at 20– 25 days after transplanting	5	4520 Kg/ha	14,240	**1.36**
Pre emergence application of Pyrazosulfuron ethyl @ 80g/ acre followed by Bispyribac sodium @100ml/acre at 20– 25 days after transplanting		**5000 Kg/ha**	**20,000**	**1.50**

Wheat

KVK Nashik (Malegaon) assessed the effectiveness of application of post emergence weedicide Metsulphuron Methyl 20% WG @ 20 gm/ha 30 DAS in wheat. Post emergence application of

Metsulphuron Methyl 20% WG was effective in controlling weeds and gave higher yield and net income when compared with the farers Farmer's

Technology Assessed	No. of trials	Yield kg/ha	Net return (Rs./ha)	B:C Ratio
Farmer's practice: two hand weedings	5	3260	28841.53	**1.92**
Application of post emergence weedicide Metsulphuron Methyl 20% WG @ 20 gm/ha 30 DAS		**3636**	**34834.54**	**2.29**

Ground nut

In a trail on weed control in Groundnut by KVK, Ratnagiri, pre-emergence application of Pendimethalin 30 Ec and application of Quizalofop ethyl 20DAS reduced the weed intensity to 30-50% when compared with the Farmer's practice. Due to this ground nut yield increased from 1720 kg/ha to 2368 kg/ha.

Technology Assessed	No. of trials	Yield kg/ha	Net return (Rs./ha)	B:C Ratio	Weed intensity /sq.m at 30 DAS	Weed intensity /sq.m at 90 DAS
Farmer practice:1 Hw + 1 intercultural	4	1720	10,191	1.21	83.70	145.1
Pre-Emergence application of pendimethalin 30 Ec and application of quizalofop ethyl 20DAS		2368	28,060/-	1.61	40.20	59.1

Cropping Systems

Castor as alternative crop to *kharif* groundnut

KVK, Chittoor (Kalikiri) assessed the performance of castor as an alternative crop to *kharif* groundnut. Castor performed better than the groundnut and increased the net returns from Rs. 10850 per ha (in groundnut) to Rs. 16600 per ha. B:C ratio also increased from 1.5 to 1.9. Similarly KVK, Kurnool (Yagantipalli) assessed the suitability of castor based intercropping systems in rainfed situation. Results showed that Castor + Clusterbean inter cropping system gave highest net returns and B:C ratio when compared with sole castor and Castor + Greengram inter cropping system.

KVK, Chittoor (Kalikiri): Castor as an alternative crop to *kharif* groundnut

Technology Assessed	No. of trials	Yield	Net return	B:C

		kg/ha	(Rs./ha)	Ratio
Farmer's practice: rainfed groundnut		865	10850	**1.5**
Castor (PCH-111)	**5**	**1050**	**16600**	**1.9**

KVK, Kurnool (Yagantipalli):Castor based intercropping Systems

Technology Assessed	No. of trials	Yield kg/ha	Net return (Rs./ha)	B:C Ratio
Farmer's practice: Castor sloe		867	6224-00	**1.2**
Castor + Greengram	5	641+217	9753-00	**1.4**
Castor + Clusterbean		**583+936**	**9532-00**	**3.8**

Soybean

KVK Khammam introduced Redgram + Soybean intercrop in place of cotton. This technology gave higher yield in terms of Cotton equivalent Yield when compared with the yield of cotton sole crop. Net returns and B:C ratio were also higher as compared to the Farmer's Practice.

Technology Assessed	No. of trials	Cotton equalent Yield kg/ha	Net return (Rs./ha)	B:C Ratio
Farmer's Practice : Cotton	5	1930	26,410-00	**1.58**
Redgram + Soybean		**2430**	**45,710-00**	**2.04**

Cotton

KVK, Jalna evaluated intercropping of soybean in cotton against the farmer's practice of sole cotton. Intercropping of soybean increased the net returns from Rs. 14360 to Rs. 20850 per ha.

Technology Assessed	No. of trials	Yield kg/ha	Net return (Rs./ha)	B:C Ratio
Farmer's Practice: Sole cotton	10	745	14360	**2.02**
Intercropping of soybean in cotton at 1:1		**725 (Cotton) +300 (Soybean)**	**20850**	**2.27**

Ragi (Finger millet)

KVK, Visakhapatnam assessed the performance of Ragi+Redgram (8:2) intercropping**.** This system gave higher yields and net returns when compared with the farmer's practice of ragi sole crop.

Technology Assessed	No. of trials	Yield kg/ha	Net return (Rs./ha)	B:C Ratio
Ragi Sole crop	7	13.51	15325	**1.8**
Ragi+Redgram (8:2)		**11.7+2.81**	**18360**	**2.02**

Integrated Crop Management

Rice

SRI (System of Rice Intensification) method of rice cultivation was evaluated by KVK, Bhandara and KVK, Pune (Baramati). SRI method gve 20% higher yield in Bhandara and 29% higher yield in Pune. This method gave higher net return and B:C ratio in both the districts. In another trial KVK, Mahaboobnagar (Madanapuram) assessed the performance of rice transplanter under irrigated conditions. Rice crop transplanted with transplanter gave higher yield and returns when compared with manual transplanting. Similarly KVK Nashik (Malegaon) assessed the performance of Drum Seeder for the rice sowing. Rice crop sown with the Drum Seeder gave in higher yield and returns than the manual transplanted rice cropo.

KVK, Bhandara : SRI method

Technology Assessed	No. of trials	Yield kg/ha	Net return (Rs./ha)	B:C Ratio
Farmer's Practice : 8-10 seedlings per hill + transplanting at 35 DAS	13	2707	26597	**1.96**
SRI method :1 seedling per hill + transplanting at 8 to 15 DAS		**3254**	**38320**	**2.43**

KVK, Pune (Baramati) : SRI Method

Technology Assessed	No. of trials	Yield kg/ha	Net return (Rs./ha)	B:C Ratio
Farmer's Practice : normal methof of transplanting	10	4412	28517	**1.61**
SRI Method of rice cultivation		**5691**	**54263**	**2.28**

KVK, Mahaboobnagar (Madanapuram) : Rice transplanter

Technology Assessed	No. of trials	Yield kg/ha	Net return (Rs./ha)	B:C Ratio
Farmer's Practice: manual transplanting	10	4958	29320	**1.46**
Paddy transplanter		**6002**	**48550**	**2.32**

KVK Nashik (Malegaon) ; Drum Seeder

Technology Assessed	No. of trials	Yield kg/ha	Net return (Rs./ha)	B:C Ratio
Farmer's Practice: manual Transplanting	10	4500	28652	**1:88**

Pre-germinated seed sowing by drum seeder		**5200**	**42503**	**1:3**

Drum Seeder for paddy Sowing : KVK Nashik (Malegaon)

Cotton: Evaluation of high density planting system

KVK, Nagpur and KVK Khammam assessed the suitability of high density planting system under rainfed conditions. Results revealed that Planting of cotton at 45cm X 10 cm gave higher yield and net returns when compared with the farmer's practice of planting at 90X90cm or 95 X 60cm.

KVK, Nagpur

Technology Assessed	No of trials	Production per unit (kg/ha)	Net Return (Rs/ha)	B:C Ratio
Farmer's Practice (90 cm x 90 cm)	30	1313	21207	**1.71**
High Density Planting System (HDPS) (45 cm x 10 cm)		**1475**	**36900**	**2.79**

KVK Khammam

Technology Assessed	No. of trials	Yield kg/ha	Net return (Rs./ha)	B:C Ratio
Farmer's Practice : planting at 95cm X 60cm	3	1700	2,900	**1.04**
HDPS: Planting at 45cm X 10 cm		**1900**	**10,300**	**1.17**

Soybean

KVK, Hingoli assessed skip row sowing and opening of furrows of 30 cm depth at every 3 rows in Soybean in separate trials. Both the technologies tested performed better than the farmer's practice by giving higher yield and net returns by conserving the moisture. In another trial KVK Nanded (Pokharni) asessed the BBF Planter for sowing soybean. Sowing with BBF Planter gave higher yiel and net returns when compared with the farmer's practice.

KVK, Hingoli : skip row sowing

Technology Assessed	No. of trials	Yield kg/ha	Net return (Rs./ha)	B:C Ratio
Farmer's practice: Sowing at 30x10 cm	10	14	11270	**1.32**
Skip row sowing-one row unsown after every 3 row of Soybean at 30 cm spacing		**16**	**18550**	**1.54**

KVK, Hingoli : opening of furrows

Technology Assessed	No. of trials	Yield kg/ha	Net return (Rs./ha)	B:C Ratio
Farmer's practice: Sowing at 30 cm with no opening of furrows	10	09	7550.00	**1.05**
Sowing at 45 cm with opening of furrows of 30 cm depth at every 3 rows		**15**	**10930.00**	**1.52**

KVK, Nanded (Pokharni) : BBF Planter

Technology Assessed	No. of trials	Yield kg/ha	Net return (Rs./ha)	B:C Ratio
Farmer's practice: Traditional methods of sowing without beds	10	11.37 q/ha	26846	**1.60**
Use of BBF Planter for sowing soybean		**12.90 q/ha**	**32660**	**2.00**

Bengal gram

KVK, Pune (Baramati) assessed the performance of ridge and furrow maker cum seed dibbler and multi crop ridger for sowing Bengal gram. Sowing by ridge and furrow maker cum seed dibbler at 30 X10 cm gave the highest yield (1506 kg/ha). It also gave highest net returns and B:C ratio.

Technology Assessed	No. of trials	Yield kg/ha	Net return (Rs./ha)	B:C Ratio
Farmer's practice : Seed sowing by seed drill 30 X10 cm	7	1038	11823	**1.48**

Seed sowing by multi crop ridger 30 X10 cm.		1220	18200	**1.74**
Seed sowing by ridge and furrow maker cum seed dibbler 30 X10 cm by modifying seed drill with iron shovel		**1506**	**28210**	**2.15**

Sugarcane

In a trial on planting of sugarcane KVK, East Godavari (Kalvacharla) assessed planting of single budded node seedlings. Planting of single budded node seedlings gave about 18 percent higher yield when compared with the Farmer's Practice of planting setts.

Technology Assessed	No. of trials	Yield t/ha	Net return (Rs./ha)	B:C Ratio
Farmer's Practice : sett planting	10	85	1,37,500/-	**2.83**
Single budded node seedlings planting		**100**	**1,75,000/-**	**3.33**

Groundnut

KVK, Mahaboobnagar (Madanapuram) assessed the performance of seed cum fertilizer drill in ground nut crop. Sowing with seed cum fertilizer drill enhanced the yild from kg/ha 1681 to 2023 kg/ha. It also increased the net return and B:C ratio.

Technology Assessed	No. of trials	Yield kg/ha	Net return (Rs./ha)	B:C Ratio
Farmer's Practice: Traditional sowing	10	1681	38790	**1.75**
seed cum fertilizer drill		**2023**	**56750**	**2.42**

3.1.2 Horticultural Crops

Chilli

Varietal evaluation

Performance of chilli varieties was evaluated by KVK, Visakhapatnam KVK, Guntur and KVK, Anantapur (Reddipalli). In Visakhapatnam, Var. LCA-353 performed better than the local variety Barampuram where as the performance of LCA-625 was better in Guntur. In Anantapur Arka suphal performed better than VNR-145 (Farmer's Practice).

KVK, Visakhapatnam

Technology Assessed	No. of trials	Yield q/ha	Net return (Rs./ha)	B:C Ratio
Farmer's Practice: Barampuram	8	37.5	27352	1.57

LCA-353		55.0	43760	1.66

KVK, Guntur

Technology Assessed	No. of trials	Yield q/ha	Net return (Rs./ha)	B:C Ratio
Farmer's Practice: Rabby	5	68.6	2,26,400	2.22
LCA-625		77.6	4,05,935	3.20
LCA-334		72.6	2,88,075	2.56

KVK, Anantapur (Reddipalli)

Technology Assessed	No. of trials	Yield q/ha	Net return (Rs./ha)	B:C Ratio
Farmer's Practise-VNR-145	10	73	287500	1:2
Demo: Arka suphal		95	309900	1:3

Integrated Disesase Management in Chilli

KVK, Kurnool (Yagantipalli) evaluated the performance of IDM module for management of Fruit rot and Powdery mildew in Chillis. IDM module gave higher yield and returns by reducing the diseases.

KVK Kurnool (Y): Management of Fruit rot and Powdery mildew in Chilli

Technology Assessed	No. of trials	Yield q/ha	Net return (Rs./ha)	B:C Ratio
Farmer practice: Spraying M-45 @ 2g/lt/Capton @ 2g/lt/Triademifon @ 1.25g/lt/ Karathane @ 1 ml/lt/ Azoxystrobin @ 1 ml/lt	5	48.58	1,72,050	1.97
Seedling dip treatment with *Pseudomonas fluorescens* @ 10 g/lt. water. Prophylactic spray of *Pf* @ 5 g/lt at flowering. Spray of P.f.@ 5g/lt + Azoxystrobin @ 0.5 ml/lt on observing initials of fruit rot/powdery mildew. Repeat the spray if necessary		51.17	1,96,775	2.15

Nutrient management in chill

In a trial on nutrient management in irrigated chilli by KVK Kurnool (Yagantipalli) fertilizer application based on STCR equation under irrigated situation increased the net returns by reducing the cost of fertilizers and giving comparable yield.

KVK, Kurnool (Yagantipalli) : Nutrient management in chilli based on STCR equation

Technology Assessed	No. of	Yield	Net return	B:C Ratio

	trials	q/ha	(Rs./ha)	
T_1Farmer's' practice NPK: 500-450-75 Kg/ ha	5	51.44	263185	2.77
T_2 -STCR T_{2-} NPK:400-40-88 kg/ha		50.83	279432	3.20

Onion

Varietal evaluation in Onion

Performance of improved onion varieties was evaluated by KVK, Nandurbar, KVK Amaravati (Durgapur) and KVK, Hingoli. In Nandurbar Var. Bhima Super gave higher yield and returns when compared with Phule Samarth. In Amaravati Bhima Shubhra performed better than the local white onion by giving 74 percent higher yield. In Hingoli, variety Arka Kalyan proved superior to local check by giving higher yield, and net returns.

KVK, Nandurbar

Technology Assessed	No. of trials	Yield q/ha	Net return (Rs./ha)	B:C Ratio
Farmer's Practice: Phule Samarth	10	142	121038	2.92
Bhima Super		176	168488	3.76

KVK Amaravati (Durgapur)

Technology Assessed	No. of trials	Yield q/ha	Net return (Rs./ha)	B:C Ratio
Farmer's Practice: white onion	4	151	42000/-	1.6
Bhima Shubhra		264	83400/-	2.6

KVK, Hingoli

Technology Assessed	No. of trials	Yield q/ha	Net return (Rs./ha)	B:C Ratio
Farmer's Practice: variety AFLR	10	274	168100	3.14
Arka Kalyan		322	273200	4.37

Bhima Super: KVK, Nandurbar

Control of blight, thrips and blotch in Onion

KVK Ahmednagar (Dahigaon) tested the technology to control blight on Onion, which resulted in higher yield and income. Similarly in Kurnool the technology assessed to control Thrips and Blotch in Onion could effectively reduce the incidence of thrips and blotch which resulted in higher yield and income as compared to the farmer's practice.

KVK Ahmednagar (Dahigaon) : Control of blight in Onion

Technology Assessed	No. of trials	Yield q/ha	Net return (Rs./ha)	B:C Ratio
Farmer's Practice: Use of DM45,Basvistin, Copper oxychloride at 25 gm/ 10 lit of water	10	188	69035	1.84
Use of Azokzistrobin 0.1 % + Sticker 0.1 % four spray at 10 days interval		230	100635	2.20

KVK, Kurnool (Yagantipalli) : Management of Thrips and Blotch in Onion

Technology Assessed	No. of trials	Yield q/ha	Net return (Rs./ha)	B:C Ratio	Thrips (No./plant)	Blotch (%)
Farmer's practice – Spraying Carbosulfon @ 2 ml/lt and COC @ 3 g/lt	5	229	99,920	1:1.73	17.25	22.41 %
Use of Sticky traps, Spraying of Chlorofenapyr 20% EC @ 2 ml/l + Chlorothalonil @ 2 g/l at 30, 45		244	1,17,884	1:1.88	9.82	13.62 %

DAS and 60 DAS (3 sprays).						

Weed control in Onion

KVK, Solapur (Kegaon) conducted a trail at 14 locations to manage the weeds in late Kharif season onion. Refined Practice of spraying Oxiflurofen 23.5EC @ 1.25ml/lit: + Phenoxa-prop-p-ethyl 9.3 EC @ 2ml/lit resulted in 35% Increase in yield over the Farmer's Practice of Hand weeding at 30-35 DAT.

KVK, Solapur (Kegaon)

Technology Assessed	No. of trials	Yield q/ha	Net return (Rs./ha)	B:C Ratio
Farmer's Practice : Hand weeding at 30-35 DAT:	14	182	125522	2.25
Recommended Practice : Oxiflurofen 23.5EC @ 1.25ml/lit:		212	232412	3.35
Refined Practice; Oxiflurofen 23.5EC @ 1.25ml/lit: + Phenoxa-prop-p-ethyl 9.3 EC @ 2ml/lit		246	287455	3.80

Evaluation of BBF planting of Onion

In Osmanabad Planting of onion under BBF system increased the onion yield from 210 to 237 q/ha with higher net return and B:C ratio.

Technology Assessed	No. of trials	Yield q/ha	Net return (Rs./ha)	B:C Ratio
Farmer's practice: Ridges & furrow	10	210	105500	9.1
Farmer's practice: Planting of onion on BBF		237	171900	7.1

Integrated nutrient management in Onion

In a trial on INM in Onion at Aurangabad higher yield and net return were recorde as compared the farmer's practice.

Technology Assessed	No. of trials	Yield q/ha	Net return (Rs./ha)	B:C Ratio
Farmer's practice: 150:50:80:50 NPKS (kg/ha) + 20 t FYM /ha	10	310	190000	1.58
110:40:60:40 NPKS (kg/ha) + 15 t FYM + Azospirillum and phosphate solubilising bacteria @ 5 kg each/ha		370	250000	2.08

Tomato

Varietal evaluation in Tomato

KVK, Nagpur assessed the performance of Improved tomato variety Kashi Veshesh at 10 locations. This variety performed better than the farmer's variety PKM 1 by giving higher yield, returns and B:C ratio.

KVK, Nagpur

Technology Assessed	No. of trials	Yield q/ha	Net return (Rs./ha)	B:C Ratio
Local variety PKM 1	10	70.00	8430	2.62
Improved variety: Kashi Veshesh		83.20	75840	3.12

Nutrient management in Tomato

KVK Rangareddy, KVK Visakhapatnam and KVK, Chittoor (RASS) conducted trails on fertilizer management in tomato. At Rangareddy Application of Arka Vegetable special increased the yield an income when compared with the farmer's practice. In Visakhapatnam Soil test based nutrient management gave better yield and income than the Farmer's Practice and Recommended practice. At Chittoor application of RDF (150-60-60 Kg NPK/ha) along with 25tFYM/ha + Soil application of Azotobacter @5kg/ha and Phosphobacteria @5kg/ha increased the tomato yield from 50.5 t/ha to 55.8 t/ha. Besides that this practice inproved the shelf life of tomato from 12 days to 17 days.

KVK, Rangareddy: Evaluationof Arka vegetable special nutrient mix in Tomato

Technology Assessed	No. of trials	Yield q/ha	Net return (Rs./ha)	B:C Ratio
Farmer practice: no micronutrients application	10	255	93300	2.01
Application of Arka Vegetable special		283	112000	2.30

KVK, Visakhapatnam : Evaluation of Soil test based nutrient management in Tomato

Technology Assessed	No. of trials	Yield q/ha	Net return (Rs./ha)	B:C Ratio
Farmer's Practice 172.5+57.5+0NPK kg/ha	3	380	152500	5.06
Recommended practice T2-120+60+60 NPK(kg/ha)		450	182500	5.29
Refined Practice T3-156+60+78 NPK-kg/ha		525	219000	6.03

KVK, Chittoor (RASS): Performance of of INM in Tomato

Technology Assessed	No. of trials	Yield q/ha	Net return (Rs./ha)	B:C Ratio	Shelf life (days)
Farmer's Practice: FYM10t /ha, 105-115-90 kg NPK/ ha	5	505	432800	4.43	12

150-60-60 Kg NPK/ha+ 25tFYM/ha + Soil application of Azotobacter @5kg/ha and Phosphobacteria @ 5kg/ha		558	487080	4.84	17

Control of fruit borer and early and late blight in Tomato

KVK Ahmednagar (Babhaleshwar) evaluated the effectiveness of Emamectin benzoate 5 SG against fruit borer and KVK Warangal (Malyal) conducted a trial to Manage early and late blight in Tomato. At both the districts the assessed technologies performed better than the farmer's practice and gave higher yield and returns.

KVK, Ahmednagar (Babhaleshwar) : Control of fruit borer in Tomato

Technology Assessed	No. of trials	Yield q/ha	Net return (Rs./ha)	B:C Ratio	Fruit borer intensity
Farmer's practice: Installation of pheromone traps @ 25/ha - Spraying of neem oil @ 3 ml/lit - Use of chemicals like cypermethrin (1ml/lit) or profenophos(2ml/l)	13	407	328030	2.80	12.11
Technology assessd – Installation of pheromone traps @ 25/ha - Spraying of neem oil @3 ml/lit Use of Emamectin benzoate 5 SG @ 250 gm/ha (2 sprays at 10 days interval in July-Aug)		455	386917	3.12	3.74

KVK, Warangal (Malyal): Management of early and late blight in Tomato

Technology Assessed	No. of trials	Yield q/ha	Net return (Rs./ha)	B:C Ratio
Farmer's Practice: Application of COC @ 3 g/l	5	176.5	1,20,700	1.52
Technology Assessed: Application of COC @ 3 g/l at Vegetative stage + Capriotop (metiram + pyrochlostrobin) 3 g/l at flowering stage.		186.0	1,32,400	1.66

Brinjal

KVK, West Godavari (Undi) tested the effectiveness of Application of *Trichoderma viride* to control *Fusarium* wilt in Brinjal. Application of *Trichoderma viride* @ 5 Kg /ha resulted in higher yield and income when compared with the farmer's practice.

Technology Assessed	No. of trials	Yield kg/ha	Net return (Rs./ha)	B:C Ratio
Farmer's practice : No control measures	6	5700	62000	2.19
Application of Trichoderma viride @ 5 Kg /ha		6200	71,680	2.37

Bhendi

Varietal evaluation in Bhendi

KVK, Nanded (Pokharni) and KVK, Guntur assessed the performance of improved varieties of bhendi. In Nanded bhindi variety PBN OK-1gave a yield of 99.13 q/ha whie the yield of existing variety was only 82.15 q/ha. In Guntur the variety Mahi 28 gave 68 percent higher yield than the existing variety.

KVK, Nanded (Pokharni)

Technology Assessed	No. of trials	Yield q/ha	Net return (Rs./ha)	B:C Ratio
Farmer's practice: Parbhani Kranti	5	82.15	217697	4.62
Technology assessed PBN OK-1		99.13	262694	6.52

KVK, Guntur

Technology Assessed	No. of trials	Yield q/ha	Net return (Rs./ha)	B:C Ratio
Farmer's Practice Aarya	5	90	48,750	1.56
Mahi 28		151	99,250	1.77

IPM for control of sucking pests in Bhendi

In Khammam IPM technology for the control of sucking pesst gave 10 q higher yield/ha than the farmer's practice and increased the net income.

KVK Khammam : IPM for the control of sucking pests

Technology Assessed	No. of trials	Yield q/ha	Net return (Rs./ha)	B:C Ratio
Farmer's practice Acephate 1.5g/lit or Dimethoate 2g/lit	5	75	25,000	1.50
Seed treatment with Gaucho @ 5g/Kg seed Erection of yellow sticky traps 10		85	39,780	1.88

No/acre Neem oil spray @ 5ml/lit Need based chemical spray like Imidacloprid @ 0.4 ml/lit or Thiomethoxom @ 0.3 g/lit				

Management of fruit borer in Brinjal

At Gadchirolii spraying of Spinosad 0.005% at the initiation of pest infestation followed by second and third spray at 15 days interval gave higher yield and net income by controlling fruit borer in Brinjal.

KVK, Gadchiroli

Technology Assessed	No. of trials	Yield q/ha	Net return (Rs./ha)	B:C Ratio
Farmer's practice: 2-3 sprays of cypermethrin 25 EC (4 ml.) in 10 liters of water.	13	119	24710	3.20
Spraying of Spinosad 0.005% at the initiation of infestation of pest second and third spray at 15 days interval		199	36000	3.44

Potato

KVK, Kurnool (Yagantipalli) introduced Potato as alternate to traditional vegetable Tomato. Cultivation of potato gave more than doubled the net return to farmer when compared with the income btained with tomato crop.

Technology Assessed	No. of trials	Yield t/ha	Net return (Rs./ha)	B:C Ratio
Farmer's Practice: Tomato	5	46.3	78,557	1.89
New crop: Potato		19.65	1,62,635	2.44

Turmeric

Varietal evaluation in Turmeric

KVK, Vizianagaram (Rastakuntubai) and KVK, East Godavari (Pandirimamidi) assessed the performance of improved turmeric varieties viz. Roma in Vizianagaram and Selam in East Godavari. These varieties performed better than the respective local checks in terms of higher yield and net returns.

KVK, Vizianagaram (Rastakuntubai)

Technology Assessed	No. of trials	Yield t/ha	Net return (Rs./ha)	B:C Ratio
Local		12.55	81,800	2.87
Salem	5	16.42	1,13,650	3.25
Roma		20.05	1,49,950	3.96

KVK, East Godavari (Pandirimamidi)

Technology Assessed	No. of trials	Yield t/ha	Net return (Rs./ha)	B:C Ratio
T2:Local variety		5t/hac	8750/-	1.63
T1:Turmeric cv.Selam	5	10t/hac	31250/-	3.27

KVK, East Godavari (Pandirimamidi): Salem variety of turmeric

Integrated Nutrient management in turmeric

In Amravati, the integrated nutrient management resulted in 37 percent higher yield as compared to farmer's practice besides giving higher net return and B:C ratio.

KVK Amravati (Ghatkhed) : Integrated Nutrient management

Technology Assessed	No. of trials	Yield t/ha	Net return (Rs./ha)	B:C Ratio
Farmer's practice: Application of F.Y.M.8-10 cart loads and 100kg N + 50kg P2O5 /ha	5	12.22	71100	1.42
Seed treatment with Quinolphos 20ml+ carbendizum 10 gm in 10lit of water and dipping rhizomes 10-20minites before planting FYM 50-80 cart loads/ha & Soil test based nutrient application 200 kg N: 100 Kg P2O5:100 kg K2O N supplied in two splits at 6 weeks and at 10-12 week from planting		16.76	134560	1.81

Garlic : Varietal evaluation

KVK, Nandurbar asessed the performance of improved garlic cultivar Phule Baswant. Phule Baswant gave 60.7 q/ha garlic yield while farmer's variety Local purple yielded only 47.8 q/ha. Net return and B:C ratio were also higher with Phule Baswant.

Technology Assessed	No. of trials	Yield q/ha	Net return (Rs./ha)	B:C Ratio
Local purple	5	47.8	181400	2.68
Phule Basawant		60.7	244160	3.02

Banana

Nutrient management in Banana

Foliar sprays of Potassium di-hydrogen phosphate and urea on Banana Bunches to enhance yield and quality was assessed by KVK Pune (Narayangaon) and KVK Jalgaon (Pal). This technology enhanced the banana yield by 24 pecent in Pune and 20 per cent in Jalgaon. This technology gave higher net returns and B:C ratio than the farmer's practice.

KVK Pune (Narayangaon)

Technology Assessed	No. of trials	Yield q/ha	Net return (Rs./ha)	B:C Ratio
Farmer's Practice: No spray of nutrients on bunches	15	453	340000/-	3.00
Spray of Pottasium Dihydrogen Phosphate 40gm and Urea 50gm + Sticker 10ml in 10 ltr. of water		563 q/ha.	419000/-	3.39

KVK, Jalgaon (Pal)

Technology Assessed	No. of trials	Yield q/ha	Net return (Rs./ha)	B:C Ratio
Farmer's Practice: No spraying	6	528	2,46,400	2.4
Foliar application of Urea 1% and potassium dihydrogen phosphate 2% on bunch of banana		633	3,71,700	2.87

Management of Sigatoka disease and rust trhrips in Banana

In Jalgaon application of Propiconozol 5ml + Mineral oil 100 ml + Sticker 10ml in 10 lit water at 30,50,70 days interval reduced the incidence of sigatoka disease from 23 percent to 19 percent.

In another trial KVK Pune (Narayangaon) Assessed the use of polythene sleeve against Rust thrips. Use of polythene sleeve reduced the incidence of Rust thrips from 17 percent to 1 percent and increased the net return and B:C ratio.

KVK, Jalgaon (Pal): Management of sigatoka disease in Banana

Technology Assessed	No. of trials	Yield q/ha	Net return (Rs./ha)	B:C Ratio	% Disease incidence
Farmer's practice: Removal of leaves	10	570	2,84,520	1:2.42	23
Use of Propiconozol 5 ml + Mineral oil 100 ml + Sticker 10 ml in 10 lit water		630	3,26,632	1:2.56	19

KVK Pune (Narayangaon) : Management of Rust thrips in Banana

Technology Assessed	No. of trials	Yield q/ha	Net return (Rs./ha)	B:C Ratio	Incidence of Thrips %
Farmer's Practice: Spraying of Systemic insecticides on bloom	10	510	2,29,500/-	1:1.05	17
Technology assessed: Bunch sleeves tied on the peduncle gently without leaving any space for insect entry		625	344000/-	1:1.75	1

Mango : Nutrient management

KVK, Raigad and KVK, Chittoor (RASS) conducted trials on nutrient management in mango. In Raigad application of KNO_3 1% spray after fruit set increased the yield by 26 percent. Net return and B:C ratio also increased due to the application of KNO_3.

KVK, RAIGAD.

Technology Assessed	No. of trials	Yield t/ha	Net return (Rs./ha)	B:C Ratio
Farmer's practice : No foliar application of KNO_3	5	2.86	91,000	1.48
Application of KNO_3 1% spray after fruit set		3.62	Rs. 1,21,000 /-	1.76

Kagzi lime : regulation of hasta bahar

KVK Amaravati (Durgapur) and KVK Jalgaon (Pal) tested the technology to regulate of hasta bahar flowering in kagzi lime to improve yield. In both the three districts the technology gave promising results by giving higher yield and net return than the farmer's practice.

KVK Amaravati (Durgapur)

Technology Assessed	No. of trials	Yield t/ha	Net return (Rs./ha)	B:C Ratio
Farmer's Practices: 30 days soil moistures stress, spray of lihocin @ 1 ml to 1 ltr. of water.	4	7.4.	36457	1.31
30 days soil moisture stress, spraying of GA_3 @ 50 ppm in the month of June. Cycocil @ 1000 ppm in the month of sept. , Potassium nitrate @ 1 % in the month Oct. Application of 300:300 gm NPK/ plant in the fortnight of Oct.& remaining 300 gm N after one month.		14.6	68221	2.44

KVK, Jalgaon (Pal)

Technology Assessed	No. of trials	Yield t/ha	Net return (Rs./ha)	B:C Ratio
Farmer's Practice- No spraying	6	15.95 T/ha.	3,68,510	2.94
Spraying of GA_3 @ 50 ppm in June, Spraying of Cycoseal @ 1000 ppm in September, Spraying of KNO_3 @ 1% in October		25.43 T/ha.	6,54,650	3.78

Papaya

Effect of polythene mulching on yield of Papaya

KVK, Nandurbar tested the organic mulch and polymulch technology in the cultivation of papaya. Cultivation of papaya crop at 8x6 ft spacing with polymulch technology gave higher yield (911 q/ha) than organic mulch and without mulch. Net returns and B:C ratio were also higher by adopting this technology.

Technology Assessed	No. of trials	Yield q/ha	Net return (Rs./ha)	B:C Ratio
Cultivation of papaya crop at 8x6 ft distance without adoptin g mulch technology: Farmer's practice	6	624	98937	1:1:83
Cultivation of papaya crop at 8x6 ft distance by adopting organic mulch: recommendation		882	216977	1:2.90
Cultivation of papaya crop at 8x6 ft distance by adopting polymulch technology: refined		911	240190	1:2.93

Control of Mealybug in Papaya

In a trial by KVK Nandurbar spraying of *Verticillium lecani* and spot application of buprofezin 25% 2 ml per lit reduced the incidence of Mealybugs from 16.8 percent to 3.2 percent and gave higher yield and income.

Control of mealy bugs in Papaya

Technology Assessed	No. of trials	Yield q/ha	Net return (Rs./ha)	B:C Ratio	Mealy bug Affected plants (%)
Farmer's practice: Spraying of insecticides like Acetamiprid, Profenophos, Acephate etc	10	535	133700	3.48	16.80

Technology assessed: Field release of *Acerophagus papaya* and Spraying of buprofezin 25 % 2 ml per lit.		558	142600	3.71	9.60
Technology Refined: Spraying of *Verticillium lecani* and Spot application of buprofezin 25% 2 ml per lit.		595	156300	4.00	3.20

Pomegranate :Chemical defoliation

KVK, Buldana (Jalgaon Jamod) assessed the effect of chemical defoliator in Pomegranate crop in hasta bahar . Spraying of 0.5%Dormex + 0.2% curocron + 1% urea for defoliation performed better than the farmer's practice by giving 10 per cent higher yield, higher return and B:C ratio.

Technology Assessed	No. of trials	Yield t/ha	Net return (Rs./ha)	B:C Ratio
Farmer's Practice : application of ethrel for bahar treatment & withholding of water for 30 days	13	100.0	362500	1.82
Spraying of 0.5%Dormex + 0.2 curocron + 1% urea for defoliation		110.5	478600	2.08

Watermelon : Effect of polymulch

KVK, Pune (Baramati) and KVK Kadapa evaluated the effect of polythene mulching for improving quality and yield of Watermelon. Polythene mulching increased the yield of watermelon about 50 per cent in Pune and 6 per cent in Kadapa. In both the districts net returns and B:C ratio weres more with the polythene mulch when compared to no mulching.

KVK, Pune (Baramati)

Technology Assessed	No. of trials	Yield t/ha	Net return (Rs./ha)	B:C Ratio
Farmer's practice: Planting with no mulch	10	48.4	169900	1: 2.40
Planting with poly-mulch		72.5	369900	1: 3.66

KVK Kadapa

Technology Assessed	No. of trials	Yield t/ha	Net return (Rs./ha)	B:C Ratio
Farmer's practice: Planting with no mulch	3	18.9	54760	1:1.52
Planting with poly-mulch		20.0	82000	1:1.87

Drumstick : Varietal evaluation

Improved Drum stick variety KDM-1 (Bhaggya) was evaluated by KVK Osmanabad and KVK, Solapur (Kegaon). In both the districts KDM-1 performed better than the farmer's variety and gave higher net return and B:C ratio.

KVK Osmanabad

Technology Assessed	No. of trials	Yield q/ha	Net return (Rs./ha)	B:C Ratio
Farmer's practice: Local variety	10	204	1,81,000	1: 2.44
KDM-01(Bhagya)		241	2,36,500	1: 2.89

KVK, Solapur (Kegaon)

Technology Assessed	No. of trials	Yield q/ha	Net return (Rs./ha)	B:C Ratio
Farmer's practice: Local variety	6	199	2,20,150	2.57
KDM-01(Bhagya)		219	2,95,690	3.06

Chrysanthemum: Varietal evaluation

Improved chrysanthemum variety PAU-B-107 was evaluated by KVK, Chittoor (Kalikiri) and KVK Anantapur (Kalyandurg). In both the districts PAU-B-107 gave higher yield and income when compared with the existing varieties. Similarly in Kurnool variety Chandra kiran gave highest yield and returns when compared other varieties tested.

KVK, Chittoor (Kalikiri)

Technology Assessed	No. of trials	Yield t/ha	Net return (Rs./ha)	B:C Ratio
Farmer's practice: Paper white	5	8.5	2,77,500	1.92
PAU-B-107		10.0	4,8,7500	2.30

KVK Anantapur (Kalyandurg)

Technology Assessed	No. of trials	Yield t/ha	Net return (Rs./ha)	B:C Ratio
Farmer's practice: Boddu Chamanti	5	1.15	30,150	2.4:1
PAU-B 107		1.80	86,400	5:1

KVK, Kurnool (Yagantipalli)

Technology Assessed	No. of trials	Yield t/ha	Net return (Rs./ha)	B:C Ratio
Farmer's practice: Local variety	5	13.87	4,36,566	2.73
Kundan		24.32	9,53,600	4.47
Chandra kiran		26.63	10,95,336	4.67

Chrysanthemum variety PAU-B-107

Tuberose: Varietal evaluation

The performance of Tuberose varieties Prajwal, Arka Nirantara and Hyderabad Single was evaluated by KVK Chittoor (RASS). Variety Prajwal gave highest flower yield and net returns than the other varieties.

Technology Assessed	No. of trials	Yield t/ha	Net return (Rs./ha)	B:C Ratio
Farmer's Practice: Local variety	10	5.30	230786	2.19
Prajwal		10.20	594214	3.08
Arka Nirantara		7.82	403814	2.36
Hyderabad Single		6.24	277414	2.25

3.1.3 Improved Tools and Implements

Chisel plough

Performance of chisel plough for subsoiling in redgram and groundnut was tested by KVK, Anantapur (Reddipalli) and in groundnut by KVK, Chittoor (Kalikiri). In both the districts chisel plough proved to be beneficial. In both the crops sub-soiling with chisel plough gave higher yield and net returns when compared with the farmer's practice.

KVK, Anantapur (Reddipalli)

Technology Assessed	No. of trials	Yield kg/ha		Net return (Rs./ha)		B:C Ratio	
		Ground nut	Red gram	Ground nut	Red gram	Ground nut	Red gram

Farmer's practice : Without sub soiling	3	222	265	894	2750	1.04	1.26
Sub soiling with chisel plough		250	350	1350	6000	1.06	1.52

KVK, Chittoor (Kalikiri)

Technology Assessed	No. of trials	Yield kg/ha	Net return (Rs./ha)	B:C Ratio
Farmer's practice : Ploughing twice with tractor drawn cultivator	**5**	550	5250	1.3
Ploughing with subsoiler followed by Ploughing twice with tractor drawn cultivator		700	10000	1.68

Broad bed and furrow (BBF) planter

Testing of tractor drawn four row BBF planter for in-situ moisture conservation was conducted by KVK Latur in Soybean and Bengal gram. In both the crops broad bed and furrow (BBF) planter proved to be beneficial by giving higher yield and returns when compared with the farmer's practice.

Technology Assessed	No. of trials	Yield kg/ha		Net return (Rs./ha)		B:C Ratio	
		Soybean	Bengal gram	Soybean	Bengal gram	Soybean	Bengal gram
Bullock drawn *tifan*	15	13.8	11.3	12263	9137	1.37	1.37
Tractor drawn BBF planter		16.6	13.5	22295	15812	1.68	1.64

Multi seed ridger planter

KVK Ahmednagar (Dahigaon) assessed tractor mounted multi seed ridger planter for sowing soybean. Though the seed rate was higher in multi seed ridger planter it reduced the sowing time drastically. The cost of sowing per ha also reduced from Rs. 3000 / ha to Rs. 1340 / ha.

Technology Assessed	**No. of trials**	Seed rate (kg/ha)	Field Capacity (ha/hr)	Cost of operation **(Rs./ha)**
Farmer's Practice – Bullock drawn seed drill	10	56	0.08	3000
Improved practice – Phule tractor mounted Phule multi seed ridger planter in dry land for soyabean/ chick pea		95	0.36	1340

Potato peeler and slicer

Assessment of pedal operated potato peeler and slicer was done by KVK Latur. Peeling and Slicing capacity of the pedal operated potato peeler and slicer was about 8 – 10 times more than the Hand operated potato peeler & slicer. The labour requirement was also very less in pedal operated potato peeler and slicer. Peeling losses were only 4 % in pedal operated machine whereas it was 21% in hand operated machine.

Technology Assessed	**No. of trials**	**Peeling capacity Kg /hr**	**Slicing capacity Kg/hr**	**Labour requirement for slicing (man-h/q)**	**Labour requirement for peeling (man-h/q)**	**Peeling losses (%)**
Farmer's Practice : Hand operated potato peeler & slicer	10	8.5	12	8.68	11.51	21
Pedal operated Potato Peeler and slicer		62	120	0.9	1	4

Manual double screen grain cleaner

KVK, Solapur (Kegaon) and KVK Nashik (YCMOU) studied the efficiency of improved manual double screen cleaner for cleaning the grains. In both the districts Double screen grain cleaner performed efficiently in terms of cleaning capacity (kg /Hr.), Labour Requirement, (Man Hr/Quintal.) and Operating Cost.

Technology Assessed	**No. of trials**	**Quantity of seed fed per batch(Kg)**	**Time required for cleaning /batch (min)**	**Output (Kg/hour)**
Traditional Practice: Cleaning with Supa	10	1.5	3.5	30
Manual double screen cleaner		7	2.3	210

KVK Nashik (YCMOU)

Technology Assessed	No. of trials	Grain cleaning capacity-kg /hr	Labour cost Rs/q	Heart rate beats/min
Traditional Practice : Cleaning with Supa or with wind	10	20	200	10.22
Manual double screen cleaner		100	10	8.02

3.1.4 Livestock Species

Breed evaluation in Goat

KVK, Krishna (Garikapadu) assessed the Black Bengal Goat Breed. Though its Kids Weight at 120 days is less than that of Non-descript local Goat, its age at Conception and age at first kidding is less. The population may doubled due to twinning ability twice in a year. They are found to be resistant to diseases and the rearing is less expensive.

KVK, Krishna (Garikapadu) Black Bengal Goat

Technology Assessed	No. of trials	Kids Birth Weight (kg's)	Kids Weight at 120 days (kg)	Age at Puberty (days)	Age at Con ception (indays)	Age at first kidding (days)	Ges tation Period (days)
Non-descript Goat		2.25	8	317	344	496	156
Black Bengal Goat Breed	5	1.75	6.3	192	223	367	145

Feeed Management in Goat

KVK Osmanabad , KVK, Jalgaon (Pal) and KVK, Kurnool (Yagantipalli) conducted trials on feed and nutritional suppliments. in Osmanabad goat. Feeding of 0.5 to 2 kg fodder /day/kid grown by Hydroponics technique resulted in higher body weight of the goat and net returns.

In Jalgaon feeding of Azolla to goats as a nutritional supplement gave higher body weight of the goat, net returns and B:C ratio when compared with the farmer's practice.

In Kurnool feeding of groundnut based feed concentrate resulted in higher body weight gain in goats when compared with the farmer's practice

KVK Osmanabad

Technology Assessed	No. of trials	Body weight kg	Net Return (Profit) in Rs. / unit	B:C Ratio

Farmer's practice (Only grazing)	10	13	800	1 : 1.44
grazing + 0.5 to 2 kg hydroponic fodder /day/kid		16.5	1320	1 : 1.66

KVK, Jalgaon (Pal)

Technology Assessed	No. of trials	Body weight (kg)	Net Return (Profit) in Rs. / unit	B:C Ratio
Farmer's practice: Only grazing	6	21.43	1573	1:2.90
Grazing + Use of concentrate + Azolla		25.54	1810	1:3.03

KVK, Kurnool (Yagantipalli) Feeding of groundnut based feed concentrate

Technology Assessed	No of trials	Initial body weight (Kg)	Final body weight (Kg)	Body weight gain (90 days) (Kg)
Farmer's practice: Grain feeding	25	14.62	20.38	5.76
Feeding of groundnut based concentrate feed.		14.04	22.42	8.38

Disease management in Fish

KVK, Srikakulam conducted trials on management of Mixobulus and other parasitic diseases in carp culture. Recommended practice of application of salt @50 kg /acre + Formalin @ 1lit /acre every month during culture period increased the fish yield when compared with the farmer's practice. It also increased the net income and B:C ratio.

Evaluation of control practices for eradication of Epizootic Ulcerative Syndrome (Ulcerative disease) of fresh water fish was conducted by KVK, Karimnagar (Jammikunta). Application of N-Sodium-N- Chloro-para toluene sulphonamide 99.5% active fine powder (PALMID) @ 200 gm/acre/5 ft depth and Oxytetracycline (through feed) @70-80 mg/ kg fish/day/ 10 days gave higher returns and income.

In Khammam Application of Deltamethrin (1.75%) @ 100ml/acre in feed to control *Argulosis* (Ectoparasite) in Fish ponds increase the yield from 1.5 t/ha to 2.0 t/ha. It also increased the net returns and B:C ratio.

KVK, Srikakulam: Management of Mixobulus in Fish

Technology Assessed	No. of trials	Yield kg/ha	Net return (Rs./ha)	B:C Ratio
Farmer's practice; Using chemicals after noticing incidence of disease	4	2212	22720	1.20
Recommended practice; Application of salt @50 kg /acre + Formalin @ 1lit /acre for every month during culture period.		2557	38355	1.33

KVK, Karimnagar (Jammikunta): Management of Epizootic Ulcerative Syndrome in Fish

Technology Assessed	No. of trials	Yield kg/ha	Net return (Rs./ha)	B:C Ratio
Farmer's practice – Application of Agriculture lime and Turmeric powder	3	4241	54396	1:1.24
Application of N-Sodium-N- Chloro-para toluene sulphonamide 99.5% active fine powder (PALMID) @ 200 gm/acre/5 ft depth and Oxytetracycline (through feed) @70-80 mg/ kg fish/day/ 10 days		7028	244620	1:1.86

KVK Khammam: Management of *Argulosis* in Fish

Technology Assessed	No. of trials	Yield t/ha	Net return (Rs./ha)	B:C Ratio
Farmer's practice: Dichlorvas 200ml/ acre Salt 25 Kg/ acre, Lime 50Kg/ acre	3	1.5	27500	1.27
Application of Deltamethrin (1.75%) @ 100ml/acre in feed.		2 .0	70000	1.70

Cattle/Buffelo

Feed Management and Disesase control

Effect of Azolla as feed supplement on milk production in dairy animals was assessed by KVK, Hingoli and KVK Beed (Ambajogai). In both the districts feeding of Azolla as feed supplement increased the milk production in dairy animals when compared with the farmer's practice.

In Nagpur Feeding of area specific mineral mixture @ 50 g/cow/day for 100 days increased the milk production from 10.15 lit/cow/day to 11.76 lit/cow/day. Similarly feeding silage to milking cow along with dry fodder gave higher milk yield and returns in Satara.

KVK, Solapur (Kegaon) assessed the efficacy of Pro-biotic (EM Solution) for improvement of milk yield in Cross bred Cows. Use of pro-biotic (EM solution) 50ml/animal/day improved the milk yield and gave higher net retrns and B:C ratio.

In Latur application of Ovsynch protocol for fertility improvement in buffaloes resulted in higher per cent of success and more number of pregnancies detected when compared with the farmer's practice.

In Ahmednagar use of 1 % injection of Ivermectin 1 ml per 50 kg body weight reduced the ticks per cent from 34 to 17 and increased the milk production.

KVK, Hingoli

Technology Assessed	No. of trials	Yield lit/day / cow	Net return (Rs./animal)	B:C Ratio
Farmer's Practice: Roughages + concentrates	10	8.5	12960	1.61

2kg Azolla feeding + Roughages+conentrates		10	13680	1.73

KVK Beed (Ambajogai)

Technology Assessed	No. of trials	Production (lit/day/cow)	Net Return (Rs./day)	B:C Ratio
Farmer's Practice: Dry fodder + Green fodder + 2 kg CSC for 5 lits of milk production	20	2.5	6.50	1:1.13
Dry fodder + Green fodder + 1.5 kg CSC + Azolla (1.5 kg/day/animal)		3.5	17.50	1:1.25

KVK, Nagpur: Use of area specific mineral mixture

Technology Assessed	No. of trials	Production per unit (lit/cow/day)	Net Return (Rs/cow/lactation)	B:C Ratio
Farmer's practice: Feeding of mineral mixture available in local market @ 50 g/cow/day	30	10.15	28215	1.52
Feeding of area specific mineral mixture @ 50 g/cow/day X 100 days		11.76	38556	1.68

KVK, Satara (Borgaon) : Effect of feeding Silage

Technology Assessed	No. of trials	*Production per lit/ animal / day	Net Return (Profit) in Rs. / unit	B:C Ratio
Farmer's Practice. feeding dry fodder	10	10	80	1.66
feeding silage + dry fodder		12	105	1.77

KVK, Solapur (Kegaon): Use of Pro-biotics (EM Solution)

Technology Assessed	No. of trials	Milk yield kg/ day/cow	Net Return (profit) in Rs./ha	B:C Ratio
Farmer's Practice: No use of pro-biotic in animal feed.	13	9.8	177.38	
Use of pro-biotic (EM solution) 50ml/Animal/Day		10.6	198.22	20.84

KVK Latur : Evaluation of Ovsynch protocol

Technology assessed	No. of trials	No. of pregnancies detected	No. of cyclic animals	Cost of treatment	success %
Farmer's Practice: Tab fertivet, herbal drugs etc	10	1	1	350 Rs.	20%
Ovsynch protocol		4	3	695 Rs.	70%

KVK Ahmednagar (Dahigaon): Control of ticks in cattle

Technology Assessed	Milk yield kg/ 3 months /cow	Net Return (Rs. / cow)	Ticks %	B:C Ratio
Farmer's practice: Use of Tactic 2 ml per litre of water	3400	7100	34	1:2.09
Use of 1 % Inj. Ivermectin 1 ml per 50 kg body weight	3700	8700	**17**	1:2.35

Azolla: Feed supplement **KVK Beed (Ambajogai)**

Poultry

Performance of improved poultry breeds was evaluated by KVK, Latur, KVK Kolhapur, KVK, Aurangabad and KVK Washim. In Kolhapur and Latur poultry breed Grampriya performed better than the local breed in terms of egg production, body weight and age of maturity. Giriraja breed gave higher egg production and body weight in Aurangabad where as Swarnadhara poultry breed showed better performance in Washim

KVK Latur

Technology Assessed	Egg production no./year/bird	Body weight Male(Kg)	Body weight Female(Kg)	Age of maturity	Egg weight grams

Farmer's practice: Non-descript (Deshi) poultry breed	35	1.5	1.2	220	30-40
Vanaraja	110	3	2.2	160	50-58
Grampriya	140	3.2	2.4	170	52-58

KVK, Kolhapur

Technology Assessed	**No. of trials**	**Egg production no./year/bird**	**Net Return (Profit) in `Rs / unit**	**B:C Ratio**
Farmer's practice: Local birds	12	49	1726	1:3.55
Grampriya		128	4339	1:6.13

KVK, Aurangabad

Technology Assessed	**Egg Production per bird per year**	**Weight gain per bird (Kg in 10 weeks)**	**Mortality %**	**Age at first egg (in days)**	**B:C ratio**
Local check	100	1	5	225	01:06.0
Giriraja	135	1.5	3	170	01:07.5

KVK Washim

Technology Assessment	**No. of trials**	Egg production no./year/bird	Net Return (Rs. / unit)	B:C Ratio
Farmer practice: Local poultry bird	7	70	153	1;1:27
Swarndhra		160	505	1:1:60

KVK, Kolhapur

Grampriya: KVK Latur

3.1.5 Gender Specific Technologies

Drudgery Reduction

KVK Anantapur (Kalyandurg) evaluated the efficiency of Castor Harvesting bags in reducing drudgery. Use of Castor Harvesting bags reduced the Level of drudgery and increased the quantity of castor harvested per hour.

Performance of different types of wheel hoe for weeding and intercultural operation was tested by KVK Anantapur (Kalyandurg) and KVK, Aurangabad. In Anantapur Weeding with wheel hoe decreased the Labor Required/ha/day.
In Aurangabad Cycle hoe performed better than the different hoes tested. It covered highest area per day with minimum energy requirement and lower heart rate.

KVK Anantapur (Kalyandurg) : Use of Castor Harvesting bags

Technology Assessed	**No. of trials**	**Picking capacity** kg/hr	Level of drudgery
Harvesting of castor by using basket.	10	66	High
Harvesting of castor by using harvesting bag		100	Medium

KVK Anantapur (Kalyandurg) : Use of Wheel Hoe for weeding

Technology Assessed	**No. of trials**	Labor Required/ha/day	Level of drudgery
Manual weeding	5	8	High
Weeding with wheel hoe		5	Medium

KVK, Aurangabad wheel hoe

Technology Assessed	**No. of trials**	**Average HR (beats/min.)**	**Average Energy Expenditure (Kj/minute)**	**Area coverage (ha/day)**
Use of local Khurpi for weeding & intercultural operation	10	98	6.8	0.05
MAU wheel hoe		86	5.0	0.2
Twin wheel hoe weeder		90	**5.6**	**0.11**
Cycle hoe		**82**	**4.3**	**0.24**

Drudgery reduction technology (castor Harvesting bag)

Drudgery reduction implement (Wheel Hoe)

Nutrition

KVK Amaravati (Durgapur) assessed the performance of soya milk in the growth of 3-6 year old children. Feeding with 100 ml Soy milk daily resulted in higher body weight and height when compared with other treatments.

Effect of iron rich toffee for health improvemen intanemic adolescent girls was tested by KVK, Buldana (Jalgaon Jamod). Results revealed that feeding of Iron rich toffee increased the hemoglobin levels and improved the body weight of adolescent girls.

KVK, Aurangabad evaluated the effect of Bio fortified pearl millet on anemic vulnerable group. Percentage increase in the Average Hemoglobin level was more in the girls who consumed biofortified pearl millet ICTP-8203.

In Satara consumption of Soybean in rice flakes ladoo by the undernourished pre-school children of age group 3-6 years increased the weight when compared with the children who consumed regular diet

KVK Amaravati (Durgapur): Performence of soya milk in children

Technology Assessed	**No. of trials**	Weight	Height
Farmer's practice : Tea	09	11.100 kg	92.00 cm
Milk 250 ml daily		11.300 kg	92.40 cm
Soy milk 100 ml daily		11.900 kg	93.30 cm

KVK, Buldana (Jalgaon Jamod): Effect of iron rich toffee on anemic girls

Technology assessed	**No. of trials**	HB level	Weight kg
Farmer's practice : Without Iron rich toffee	11	8.6	36
Iron rich toffee		9.7	37.5

KVK, Aurangabad Bio fortified pearl millet for anemic girls

Technology Assessed	**No. of trials**	**Average Hemoglobin level (HB) (100mg /100ml blood)**		**% increase**
		Before	After	
Farmer's practice :Consumption of pearl millet roti of hybrid variety	30	8.6	8.9	3.4
Consumption of biofortified pearl millet ICTP-8203		8.5	9.4	12.9

KVK Satara(Karad): Soya poha ladoo for improving the health of children

Technology Assessed	Average Weight (kg)		% increase in weight
	Before Trial	After trial	
Regular diet	11.460	12.090	5.58
Soya poha ladoo	10.940	12.510	15.00

3.2 Frontline Demonstrations

KVKs organize frontline demonstrations (FLDs) to demonstrate the production potential of the important varieties and various production technologies in a given farming situation. Training programmes and field days are organized for extension workers and farmers for rapid dissemination of improved technologies.

3.2.1. Field crops

A total of 7326 demonstrations covering 2976.77ha under pulses, cereals, oilseeds and commercial crops (cotton & sugar cane) were organized by KVKs in Zone-V (Table 3.6). The major categories covered under FLDs in Andhra Pradesh include pulses (582), cereals (345) and oilseeds (318). In Telangana pulses (545), cereals (193) and oilseeds (30). In Maharashtra the major categories of the demonstrations were pulses (2189), millets (695), oilseeds (872) and cereals (767). In pulses, 3316 demonstrations covering 602ha were organized on chickpea followed by pigeonpea (414), green gram (159) and black gram (138). Among oilseed crops, 1220 demonstrations covering 211ha were organized on groundnut followed by soybean (196), sunflower (93), mustard (4.8), castor (8), sesamum (10), and linseed (4.8). In cotton 506 demonstrations covering 211 ha were organized, while in sugarcane 170 demonstrations were organized in 67.2 ha. In Sorghum 650 demonstrations were conducted in 256 ha.

Table:3.6 . Details of category wise area under FLD on field crops

Crop / Category	Andhra Pradesh		Telangana		Maharashtra		Total	
	No. of Demos	Area (ha)	No. of Demos	Area (ha)	No. of Demos	Area (ha)	No. of Demos	Area (ha)
Cereals								
Maize	69	43.60	5	2.00	71	17.40	145	63.00
Rice	276	133.20	188	74.70	542	170.20	1006	378.10
Wheat					154	50.82	154	50.82
Total	**345**	**176.8**	**193**	**76.7**	**767**	**238.42**	**1305**	**491.92**
Millets								
Finger millet	15	9.00	6	2.40	22	6.60	43	18.00
Pearl millet	10	2.00	10	10.00	46	15.60	66	27.60
Foxtail millet	50	26.00					50	26.00
Sorghum	8	2.00	15	7.00	627	247.20	650	256.20
Total	**83**	**39**	**31**	**19.4**	**695**	**269.4**	**809**	**327.8**
Oilseeds								
Groundnut	183	126.70	20	7,80	285	76.60	488	211.10
Linseed					24	4.80	24	4.80
Mustard					23	3.80	23	3.80
Niger					12	5.00	12	5.00
Sesamum	15	10.20			25	10.00	40	20.20

Soybean					477	196.60	477	196.60
Sunflower	110	93.00					110	93.00
Sunflower					26	2.60	26	2.60
Castor	10	4.00	10	4.00			20	8.00
Total	**318**	**233.9**	**30**	**11.8**	**872**	**299.4**	**1220**	**545.1**
Pulses								
Black gram	174	70.80			170	68.00	344	138.80
Chick pea	276	176.00	125	52.00	942	374.40	1343	602.40
Cowpea					16	2.50	16	2.50
Field bean	10	4.00					10	4.00
Green gram	46	21.40	165	66.00	181	72.40	392	159.80
Horsegram			25	10.00			25	10.00
Pigeaon pea	70	28.00	230	86.90	880	299.40	1180	414.30
Rajmah	6	2.00					6	2.00
Total	**582**	**302.2**	**545**	**214.9**	**2189**	**816.7**	**3316**	**1333.8**
Commercial crops								
Cotton	86	35.40	104	45.85	316	129.70	506	210.95
Sugarcane	10	4.00	5	2.00	155	61.20	170	67.20
Total	**96**	**39.4**	**109**	**47.85**	**471**	**190.9**	**676**	**278.15**
Grand Total	**1424**	**791.3**	**908**	**370.65**	**4994**	**1814.82**	**7326**	**2976.77**

3.2.2. Pulses

In Andhra Pradesh, frontline demonstrations on chickpea were organized at Anatapur, Adilabad, Kadapa, Kurnool, Prakasam and Nellore with improved management gave higher yield (19.38 q/ha) compared to local check. In Telangana Nizamabad, Karimnagar,Mahaboobnagar and Improved variety JAKI-9218 , JG-11 and Digvijay along with improved management gave higher yield (17.2 q/ha) compared to local check. In Maharashtra, higher yield response (24.387%) was noted with cv. JAKI-9218, Vijay and Digvijay along with integrated nutrient and pest management practices compared to farmers practice at Ahmednagar, Akola, Beed, Dhule, Gondia, Hingoli, Kolhapur, Latur, Nagpur, Nanded, Nadurbar, Osmanabad, Parbhani, Raigadh, Satara, Sangli, Washim, Amaravati, Aurangabad, Buldana, Pune, Nasik, Solapur, Jalna (Table 3.7).

Demonstrations on pigeon pea were organized by KVKs in Andhra Pradesh (Srikakulam, , Vizianagaram, Visakhapatnam, Anantapur, Kurnool, Chittor, Prakasam, Kadapa) with improved varieties (cv. PRG-158, and LRG-41) gave higher yield (9.34 q/ha) compared to local check. Adilabad, Khammam, Nalgonda, Nizamabad, Mahabubnagar, Ranga Reddy and Warangal of Telangana and improved varieties (cv. LRG-41) gave higher yield (14.78 q/ha) compared to local check. In Maharashtra, improved varieties viz. BSMR-736, Vipula, PKV-TARA and BDN-708 along with improved management practices gave average yield increase of 18.65 percent in demonstrations at Ahmednagar, Aurangabad, Chandrapur, Parbhani, Osmanabad, Pune, Solapur, andWashim, Amaravati, Akola, Beed, Bhandara, , Buladana, Jalna, Hingoli, Nanded, Nandurbar andNagpur.

Table:3.7 . Performance of Front Line Demonstrations on pulses

State	Crop	No. of Demos	Area(ha)	Yield (q/ha)		Increase (%)
				Demo	Check	
Andhra Pradesh	Black gram	174	70.80	14.23	11.47	24.06
	Chick pea	276	176.00	19.38	16.75	15.70
	Field bean	10	4.00	80.00	57.50	39.13
	Green gram	46	21.40	10.78	10.18	5.89
	Pigeaon pea	70	28.00	9.34	8.36	11.72
	Rajmah	6	2.00	7.20	5.43	32.60
Telangana	Chick pea	125	52.00	17.20	14.17	21.38
	Green gram	165	66.00	8.68	7.63	13.76
	Horsegram	25	10.00	5.00	3.50	42.86
	Pigeaon pea	230	86.90	14.78	14.51	1.86
Maharashtra	Black gram	170	68.00	7.19	5.86	22.70
	Chick pea	942	374.40	15.46	12.43	24.38
	Cowpea	16	2.50	11.53	7.78	48.20
	Green gram	181	72.40	7.26	5.93	22.43
	Pigeaon pea	880	299.40	9.99	8.42	18.65

In blackgram, demonstrations were conducted at West Godavari and Srikakulam, Vishakapatnam, East Godavari, Krishna, Nellore, Prakasam, Kadapa in Andhra Pradesh with improved variety (LBG-752 and LGG-460) and nutrient management, which resulted in higher yield response (24.06%) compared to local cheek. In Maharashtra, improved varieties viz. BDU-1 and AKU-15 and improved management gave higher average yield (7.19q/ha) compared to local check at Washim , Buldana, Osmanabad and Nandurbar.

Frontline demonstrations on greengram were organized at Srikakulam, Visakhapatnam and Prakasam, with improved management and high yielding varieties viz. WGG-37, MGG-47 and LGG-460, which resulted in higher yield response (10.78q/ha) compared to local cheek in Andhra Pradesh. Karimnagar, Khammam, Mahaboobnagar, Nalgonda, , Nizamabad, and Warangal in Telangana with with nutrient management. There was 13.76 per cent increase in yield of greengram in Telangana and Amaravati, Beed, Buldana, Washim, Jalna, Nanded, Nandurbar and Parbhani in Maharashtra and Unnati, Kopergaon and AKM-8802 (Maharashtra) 22.43 per cent increase in yield of greengram in Maharashtra as compared to local check.

3.2.3. Oilseeds

KVKs organized frontline demonstrations on soybean in nineteen districts of Maharashtra (Ahemednagar, Kolhapur, Pune, Sholapur, Jalgaon, Satara, Aurangabad, Beed, Buldhana, Hingoli, Jalna, Latur, Nanded, Osmanabad, Parbhani, Washim, Amravati, Wardha, Gadchiroli and). Improved varieties JS-335, MAUS-71, JS-9305 and DS-228 were demonstrated along with nutrient management and plant protection measures. Results showed that improved varieties and management practices gave higher yield in Maharashtra (15.63 q/ha) compared to local check (Table 3.8).

Frontline demonstrations on groundnut were conducted in seven districts of Andhra Pradesh, covering Srikakulam, Kurnool, Visakhapatnam, Nellore Anantapur, Chittoor, Kadapa and two districts in Telangana of Khammam and Mahaboobnagar,. Improved

varieties Dharani, K-6 and TAG-24 along with balanced fertilization and pest management gave higher average yield (17.99q/ha) in Andhra Pradesh and Telangana (27.83q/ha) compared to local check. Similarly in Maharashtra, demonstrations were organized in nine KVKs (Sangli, Satara, Pune, Jalgaon, Nasik, Sindhudurg, Thane, Solapur and Nanded). Improved varieties viz. cv. TG-37A, TG-24, and JL-286 with nutrient management resulted in higher yield (19.66 q/ha) than local check (15.77 q/ha).

In case of sunflower improved management practices resulted in higher yield 19.86 q/ha in Andhra Pradesh and 15.46 q/ha in Maharashtra) compared to local check. Frontline demonstrations on sesamum organized in East Godavari and West Godavari with improved varieties of YLM-66 yield increase to the tune of 66.67 percent as compared to local check in Andhra Pradesh and Bhandara, Yavatmahal in Maharashtra with improved varieties (NT-11) showed yield increase to the tune of 25.18 percent as compared to local check. Frontline demonstrations on castor in Andhra Pradesh, Telangana and linseed in Maharashtra gave higher yield (27.54, 36.98 and 30.81 per cent in castor and linseed respectively) compared to local check.

Table:3.8 . Performance of Front Line Demonstrations on oilseeds

State/ Crop	No. of Demos	Area(ha)	Yield (q/ha)		Increase (%)
			Demo	Check	
Andhra Pradesh					
Castor	10	4.00	22.00	17.25	27.54
Groundnut	183	126.70	17.99	16.76	7.34
Sesamum	15	10.20	6.00	3.60	66.67
Sunflower	110	93.00	19.86	17.39	14.20
Telangana					
Castor	10	4.00	25.00	18.25	36.98
Groundnut	20	7.80	27.83	27.64	0.69
Maharashtra					
Groundnut	285	76.60	19.66	15.77	24.67
Linseed	24	4.80	9.00	6.88	30.81
Mustard	23	3.80	4.75	3.50	35.71
Niger	12	5.00	3.00	2.28	31.58
Sesamum	25	10.00	5.25	3.50	50.00
Soyabean	477	196.60	15.63	12.82	21.92
Sunflower	26	2.60	15.46	12.35	25.18

3.2.4. Cereals

Frontline demonstrations on rice were organized in Andhra Pradesh (Krishna, Srikakulam,Nellore, Vishakhapatnam, Vizianagaram, Prakasam, Kadapa, Kurnool,, Anantapur, West Godavari , Chittoor, East Godavari. In Telangana Karimnagar, Mahaboobnagar, Nalgonda, Nizamabad, Rangareddy and Warangal and in Maharashtra (Gondia, Gadchiroli, Bhandara, Satara, Nasik Pune and Raigadh). Improved varieties viz. cv. RGL-2332, MTU-1075, NLR-3041 JGL-11470 (Andhra Pradesh and Telangana) and cv. PKV-HMT, Karjat-3, Karjat-6 and Karjat-7 (Maharashtra) along with improved management resulted in higher yield as compared to local check (Table 3.9).

Maize demonstrations were organized in nine districts of Andhra Pradesh (Krishna, Prakaam, Viziyanagaram, Vishakhapatnam, Srikakulam, West Godavari, East Godavari,

Kurnool and Anantapur and five districts in Telangana (Karimnagar, Mahaboobnagar, Rangareddy, Warangal, Khammam) and Ahemednagar in Maharashtra with improved varieties viz. DHM-117, Kaveri and Sugar-75 and improved management such as zero tillage, soil test based nutrient management etc. Results indicated that improved varieties along with improved crop management technologies recorded higher yields (12.33, 9.52 and 18.05 percent in Andhra Pradesh, Telangana and Maharashtra respectively) compared to local check.

seventeen KVKs in Maharashtra (Amravati, Akola, Chandrapur, Bhandara and Wardha, Dhule, Ahemednagar, Nandurbar, Kolhapur, Pune, Satara, Nasik, Solapur, Beed, Jalna and Nanded) organized demonstrations on wheat with high yielding varieties viz. Netravati, AKAW-4727, GW-496, MACS-6222, and Triambak along with management practices such as nutrient and weed management. There was increase in yield due (20.77 %) to improved varieties and management compared to local check.

Table:3.9 . Performance of Front Line Demonstrations on cereals

State / Crop	No. of Demos	Area (ha)	Yield (q/ha)		Increase (%)
			Demo	Check	
Andhra Pradesh					
Maize	69	43.60	65.95	58.71	12.33
Rice	276	133.20	58.23	51.15	13.84
Telangana					
Maize	5	2.00	57.50	52.50	9.52
Rice	188	74.70	54.40	49.48	9.94
Maharashtra					
Maize	71	17.40	53.90	45.66	18.05
Rice	542	170.20	41.99	32.72	28.33
Wheat	154	50.82	34.01	28.16	20.77

3.2.5. Commercial crops

Frontline demonstrations on cotton were organized by 7 districts in Andhra Pradesh (Adilabad, Anantapur, Guntur, Prakasam, Srikakulam, Viziyanagaram and Kadapa). 6 districts in Telangana (Mahaboobnagar, Rangareddy, Karimnagar, Khammam, Nalgonda and Warangal) and 13 districts in Maharashtra (Ahemednagar, Akola, Aurangabad, Amaravati, Beed, Buldhana, Dhule, Hingoli, Jalna, Nanded, Nandurbar, Parbhani and Yavatmal) with improved varieties and management practices (pest and nutrient management and row spacing). Results indicated that improved varieties and management technologies resulted in higher yield in Andhra Pradesh (24.46 q/ha) in Telangana (16.7 q/ha) and Maharashtra (18.47 q/ha) compared to local varieties and management (Table 3.10).

Sugarcane demonstrations were organized in Andhra Pradesh only at Chittoor and In Telangana two districts (Khammam, and Mahaboobnagar) and four districts of Maharashtra (Ahmednagar, Pune, Satara and Kolhapur) focusing mainly on biological control of early shoot borer and scales, management of white grub and integrated nutrient management. There was higher yield response in Andhra Pradesh and Telangana (18.76 and 13.07 %) improved management practices for ratoon crop (23.74%) in Maharashtra.

Table:3.10 . Performance of Front Line Demonstrations on commercial crops

State / Crop	No. of Demos	Area (ha)	Yield (q/ha)		Increase (%)
			Demo	Check	
Andhra Pradesh					
Cotton	86	35.40	24.46	20.90	17.03
Sugarcane	10	4.00	831.30	700.00	18.76
Telangana					
Cotton	104	45.85	16.70	14.88	12.23
Sugarcane	5	2.00	865.00	765.00	13.07
Maharashtra					
Cotton	316	129.70	18.47	14.81	24.71
Sugarcane	155	61.20	668.77	540.48	23.74

3.2.6. Millets

Frontline demonstrations on finger millet were organized in Andhra Pradesh(East Godavari and Vizianagaram), Telangana (Ranga Reddy) with improved management resulted in higher yield in Andhra Pradesh (19.5 q/ha) and Telangana (28 %). In Maharashtra with improved variety Dapoli-1, which increased yield by 27.61% (Table 3.11). In sorghum, in Andhra Pradesh(East Godavari) and Telangana (Mahabubnagar) and thirteen districts of Maharashtra (Buldana, Beed, Chandrapur, Jalna, Nandurbar, Nasik, Nanded, Parbhani, Pune, Satara, Sangli, Yavatmal and Solapur) conducted frontline demonstrations. Improved varieties Phule Revati, Phule vasudha, Bagyalaxmmi-296, Parbhani Moti and PKV Kranti and integrated nutrient management resulted in higher yield in Andhra Pradesh (15 q/ha), in Telangana (17.64 q/ha) and Maharashtra (15.64 q/ha). KVK, Kurnool (Andhra Pradesh) conducted frontline demonstrations on foxtail millet with improved variety (Suryanadi). There was higher yield response with improved variety (14.58%).

Table:3.11 . Performance of Front Line Demonstrations on millets

State Crop	No. of Demos	Area(ha)	Yield (q/ha)		Increase (%)
			Demo	Check	
Andhra Pradesh					
Finger millet	15	9.00	19.50	15.09	29.22
Pearl millet	10	2.00	25.00	21.50	16.28
Foxtail millet	50	26.00	10.61	9.26	14.58
Sorghum	8	2.00	15.00	8.00	87.50
Telangana					
Finger millet	6	2.40	8.00	6.25	28.00
Pearl millet	10	10.00	27.17	23.17	17.26
Sorghum	15	7.00	17.64	15.16	16.36
Maharashtra					
Finger millet	22	6.60	8.92	6.99	27.61
Pearl millet	46	15.60	23.48	18.68	25.70
Sorghum	627	247.20	15.64	11.40	37.19

3.2.7. Horticultural crops

A total of 2235 demonstrations covering 697.82 ha under fruits, vegetables, plantation crops, spices and condiments, were organized by KVKs in Zone-V (Table 3.12). The major categories covered in Andhra Pradesh include vegetables (270), fruits (245), spices and condiments (34) and Flowers (24). in Telangana include vegetables (146), fruits (55), spices and condiments (40) and Flowers (12). In Maharashtra also the demonstrations were conducted on vegetables (825), fruits (373), spices and condiments (95) and Flowers (50). In vegetables, 390 demonstrations were organized on Onion in 106.56ha followed by Tomato (227), Okra (141), Chilli(130) and Brinjal (118). Among 673 demonstrations on fruits, 219 demonstrations covering 73.9 ha were organized on Mango followed by Banana (72), Pomegranate (72), Orange (68), watermelon (42) and Chiku (40).

Table:3.12 . Details of category wise area under FLD on Horticultural crops

Category / Crop	AP		TS		MS		Total	
	No. of Farmers	Area (ha)	No. of Farmers	Area (ha)	No. of Farmers	Area (ha)	No. of Farmers	Area (ha)
Vegetables								
Brinjal	34	11.00	13	4.00	71	17.30	118	32.30
Cabbage	15	6.00					15	6.00
Chilli	57	24.20	48	18.40	25	8.00	130	50.60
Dolichus bean					85	9.00	85	9.00
Green Pea					25	7.60	25	7.60
Okra	15	6.00			126	28.60	141	34.60
Onion	20	8.00	10	4.00	360	94.56	390	106.56
Ridge gourd	15	6.00	10	4.00	10	1.00	35	11.00
Sweet Potato					25	5.00	25	5.00
Teasle gourd	3	1.00					3	1.00
Tomato	111	47.40	65	19.00	51	15.80	227	82.20
Wal					47	10.00	47	10.00
Total	**270**	**109.6**	**146**	**49.4**	**825**	**196.86**	**1241**	**355.86**
Spices and condiments								
Ajwain					15	3.00	15	3.00
Cumin					10	2.00	10	2.00
Garlic					26	1.55	26	1.55
Ginger					13	2.60	13	2.60
Turmeric	34	12.40	40	14.00	31	7.40	105	33.80
Total	**34**	**12.4**	**40**	**14**	**95**	**16.55**	**169**	**42.95**
Flowers								
Aster					13	1.06	13	1.06
Chrysanthemum	1	0.40					1	0.40
Gerbera					13	0.65	13	0.65
Jasmine	10	5.00					10	5.00
Marigold	13	2.40	12	3.40	24	2.60	49	8.40
Total	**24**	**7.8**	**12**	**3.4**	**50**	**4.31**	**86**	**15.51**
Fruits								

Acid Lime	22	5.40					22	5.40
Banana	25	11.40			47	15.20	72	26.60
Cashew	2	0.80					2	0.80
Chiku					40	28.00	40	28.00
Custard Apple					10	2.00	10	2.00
Fig					10	4.00	10	4.00
Guava					12	3.00	12	3.00
Kagzi lime					24	7.40	24	7.40
Mandarin					18	6.20	18	6.20
Mango	125	47.20	25	8.40	69	18.30	219	73.90
Muskmelon	34	13.00			8	3.20	42	16.20
Nagpur mandarin					10	4.00	10	4.00
Papaya					10	4.00	10	4.00
Pomegranate					72	25.40	72	25.40
Sweet orange	29	14.60	26	8.00	13	5.60	68	28.20
Water melon	8	6.20	4	1.60	30	9.00	42	16.80
Total	**245**	**98.6**	**55**	**18**	**373**	**135.3**	**673**	**251.9**
Plantation crops								
Cashew	7	7.00			6	0.60	13	7.60
Cashew							0	0.00
Coconut	16	7.00			20	8.00	36	15.00
Drumstick					15	4.00	15	4.00
Oil palm	2	5.00					2	5.00
Total	**25**	**19**	**0**	**0**	**41**	**12.6**	**66**	**31.6**
Grand Total	**598**	**247.40**	**253**	**84.80**	**1384**	**365.62**	**2235**	**697.82**

3.2.8. Vegetables

Nine districts in Andhra Pradesh(East Godavari, Vishakapatanam, Srikakulam,Krishna, Kurnool, Anatapur, Chittoor, Vizianagaram and Prakasham). Four districts in Telangana (Ranga Reddy, Adilabad,Nalgonda and Mahaboobnagar) and 13 districts in Maharashtra (Amravati , Ahemednagar , Akola, Beed, Buldana, Dhule, Hingoli, Nanded, Aurangabad, Nasik, Pune, Solapur, and Nasik organized frontline demonstrations on onion with improved varieties (cv. Phule Baswant, AFLR, Akola Safed and Phule Safed) and management practices. There was higher yield response to varieties and management practices in Andhra Pradesh (153.6q/ha), Telangana (242 q/ha) and Maharashtra (245.21 q/ha) compared to local check (Table 3.13). Frontline demonstrations on tomato were organized with improved varieties and management practices. Results showed that improved varieties and management practices recorded higher yield both in Andhra Pradesh (19.68%), Telangana (48.05%) and Maharashtra (24.19%) compared to local check (Table).

Table:3.13 . Performance of Front Line Demonstrations on vegetables

State / Crop	No of Demos	Area (ha)	Yield (q/ha)		Increase (%)
			Demo	Local	
Andhra Pradesh					

Brinjal	34	11.00	164.80	139.13	18.45
Cabbage	15	6.00	201.03	187.90	6.99
Chilli	57	24.20	134.88	126.19	6.89
Okra	15	6.00	93.93	75.25	24.82
Onion	20	8.00	153.60	146.85	4.60
Ridge gourd	15	6.00	176.95	169.39	4.46
Teasle gourd	3	1.00	12.00	10.00	20.00
Tomato	111	47.40	354.41	296.14	19.68
Telangana					
Brinjal	13	4.00	311.50	297.50	4.71
Chilli	48	18.40	77.98	66.11	17.95
Onion	10	4.00	242.00	202.00	19.80
Ridge gourd	10	4.00	136.00	132.00	3.03
Tomato	65	19.00	457.68	309.14	48.05
Maharashtra					
Brinjal	71	17.30	268.60	218.48	22.94
Chilli	25	8.00	80.95	58.55	38.26
Dolichus bean	85	9.00	65.00	44.30	46.73
Green Pea	25	7.60	24.50	22.45	9.13
Okra	126	28.60	114.37	88.74	28.88
Onion	360	94.56	245.21	203.62	20.43
Ridge gourd	10	1.00	134.00	93.10	43.93
Sweet Potato	25	5.00	127.00	96.50	31.61
Tomato	51	15.80	871.88	702.06	24.19
Wal	47	10.00	7.71	6.24	23.56

3.2.9. Fruits

Frontline demonstrations on banana were conducted in five districts of Andhra Pradesh (East Godavari, Anantapur, Kadapa, Kurnool, and Guntur) and Three district of Maharashtra (Akola, Nanded and Hingol)i with improved management practices. There was higher yield with improved technology both in Andhra Pradesh (551.55q/ha) and Maharashtra (560.25q/ha) compared to local practice (Table). Similar response was also noted in pomegranate (19.66 % in Maharashtra) and mango (27.8% in Andhra Pradesh, Telangana (23.36%) and 27.8% in Maharashtra) and Sweet Orange (Andhra Pradesh 17.49%, Telangana (21.84%) & Maharashtra 21.85) (Table 3.14).

Table:3.14. Performance of Front Line Demonstrations on fruits

State / Crop	No of Demos	Area (ha)	Yield (q/ha)		Increase (%)
			Demo	Local	
Andhra Pradesh					
Acid Lime	22	5.40	15.29	12.71	20.30
Banana	25	11.40	551.55	521.14	5.84
Mango	125	47.20	82.75	64.75	27.80
Muskmelon	34	13.00	344.93	289.13	19.30
Sweet orange	29	14.60	154.06	131.13	17.49
Water melon	8	6.20	48.55	39.55	22.76

Telangana					
Mango	25	8.40	54.61	44.27	23.36
Sweet orange	26	8.00	197.79	162.33	21.84
Water melon	4	1.60	287.50	256.20	12.22
Maharashtra					
Banana	47	15.20	560.25	466.46	20.11
Chiku	40	28.00	178.00	147.00	21.09
Custard Apple	10	2.00	105.00	95.00	10.53
Fig	10	4.00	432.00	308.70	39.94
Guava	12	3.00	134.00	96.50	38.86
Kagzi lime	24	7.40	200.70	120.40	66.69
Mandarin	18	6.20	132.19	89.85	47.12
Mango	69	18.30	67.63	52.92	27.80
Muskmelon	8	3.20	280.00	225.00	24.44
Nagpur mandarin	10	4.00	70.00	60.00	16.67
Papaya	10	4.00	864.50	771.20	12.10
Pomegranate	72	25.40	131.61	109.99	19.66
Sweet orange	13	5.60	135.50	111.20	21.85
Water melon	30	9.00	268.23	247.10	8.55

3.2.10. Plantation crops

Frontline demonstrations on cashew nut were organized in Vizayanagaram district of Andhra Pradesh and Sindhudurg of Maharashtra with improved management practices including pest and disease control and nutrient management (Table 3.16). Results indicated that improved management practices gave higher average yield of 10.7 q/ha in Vizayanagaram and 14.6 q/ha in Sindhudurg over local check.

Table: 3.16. Performance of Front Line Demonstrations on plantation crops

State / Crop	No of Demos	Area (ha)	Yield (q/ha)		Increase (%)
			Demo	Local	
Andhra Pradesh					
Cashew	9	7.80	10.70	7.20	48.61
Coconut	16	7.00	78.60	62.60	25.56
Oil palm	2	5.00	18.70	12.00	55.83
Maharashtra					
Cashew	6	0.60	14.60	9.20	58.70
Coconut	20	8.00	78.60	62.60	25.56
Drumstick	15	4.00	265.62	155.00	71.37

3.2.11. Spices & condiments

Frontline demonstrations on turmeric were organized with improved varieties and management practices. Results showed that improved varieties and management practices recorded higher yield both in Andhra Pradesh (314.69q/ha), Telangana (236.88q/ha) and Maharashtra (181.69q/ha) compared to local check (Table 3.17). Similarly, the yield response to improved management practices including varieties was higher in garlic (19.35% in Maharashtra) as compared to local check similar results were found in ginger, cumin and ajwain in Maharashtra.

Table: 3.17. Performances of Frontline Demonstrations on Spices

State / Crop	No of Demos	Area (ha)	Yield (q/ha)		Increase (%)
			Demo	Local	
Andhra Pradesh					
Turmeric	34	12.40	314.69	304.28	3.42
Telangana					
Turmeric	40	14.00	236.88	193.80	22.23
Maharashtra					
Ajwain	15	3.00	1.94	1.18	64.41
Cumin	10	2.00	1.69	0.93	81.72
Garlic	26	1.55	67.23	56.33	19.35
Ginger	13	2.60	355.70	315.00	12.92
Turmeric	31	7.40	181.69	155.97	16.49

3.2.12. Flowers

In Andhra Pradesh frontline demonstrations were organized on Marigold, Jasmine and Chrysanthemum. Improved varieties and management practices resulted in 46.3% yield increase in Marigold, Chrysanthemum increase of 72% and 12.5% yield increase in Jasmine in Andhra Pradesh (table 3.18). In Maharashtra frontline demonstrations were organized in Marigold, Gerbera and Aster. Demonstration of Marigold showed an increase of 26.06% yield followed by Aster (27.56%) and Gerbera (11.36%).

Table:3.18. Performances of Frontline Demonstrations on Flowers

State / Crop	No of Demos	Area (ha)	Yield (q/ha)		Increase (%)
			Demo	Local	
Andhra Pradesh					
Chrysanthemum	1	0.40	104.08	60.50	72.03
Jasmine	10	5.00	11.25	10.00	12.50
Marigold	13	2.40	66.23	45.27	46.30
Telangana					
Marigold	12	3.40	80.25	51.40	56.13
Maharashtra					
Aster	13	1.06	99.50	78.00	27.56
Gerbera	13	0.65	441.00	396.00	11.36
Marigold	24	2.60	60.80	48.23	26.06

3.2.13. Tools and Implements

KVKs organized 1075 demonstrations on 64 improved tools and implements to reduce the drudgery of farm women and facilitate timely field operations viz. land and seed bed preparation, planting/sowing, weeding and intercultural operations and harvesting and threshing (Table:3.19). Out of 1075 demonstrations, 211 demonstrations were organized to improve the farm operations in case of rice followed by Soybean (156), Groundnut (138), Pigeonpea(109), Cotton(91), Bhendi (6), Sorghum (43), Chilli(42), Chickpea(32), Maize(30), Wheat (30) and Brinjal (25). Among various field operations, demonstrations were conducted on Harvesting and Threshing (284) followed by Land and seed bed preparation (198), Post Harvest Technology (173), Weeding and Inter-culture

operations(163), Planting and Seeding (147), Other equipment etc. (79) and Plant Protection equipments(31) (table 3.20).

Table:3.19 . Details of FLDs on improved tools and implements

Crop	AP		TS		MS		Total	
	NI	ND	NI	ND	NI	ND	NI	ND
Groundnut					6	138	6	138
Chickpea					5	32	5	32
Pigeonpea					3	109	3	109
Cotton	2	27	1	5	4	59	7	91
Wheat					2	30	2	30
Jowar	1	5			1	20	2	25
Maize					2	30	2	30
Rice	1	8	2	30	9	173	12	211
Sorghum					3	43	3	43
Soybean					8	156	8	156
Sugarcane					1	10	1	10
Chilli	1	10	1	17	1	15	3	42
Bhendi	1	25			1	40	2	65
Brinjal					2	25	2	25
Tomato	1	6					1	6
Tolambi					1	13	1	13
Water melon					1	15	1	15
Mango					1	13	1	13
Orange					1	11	1	11
Chiku					1	10	1	10
Total	**7**	**81**	**4**	**52**	**53**	**942**	**64**	**1075**

NI: Number of implements ND: Number of demonstrations

Table: 3.20. Details of operation wise FLDs on improved tools and implements

Name of operation	AP	TS	MS	Total
Land and seed bed preparation		17	181	198
Planting and seeding	25	25	97	147
Weeding and intercultural operations	11	10	142	163
Plant protection equipments			31	31
Harvesting and Threshing	35		249	284
Post harvest technology			173	173
Other field operation	10		69	79
Total	**81**	**52**	**942**	**1075**

The performance of improved tools and implements under FLDs vis-à-vis the relevant indicators of performance viz. saving of labor, time required for completing the field operation, energy expenditure, field performance, output, cost of field operations etc. are presented in table 3.21.

Table:3.21 . Performance of FLD on Improved Tools, Implements and Farm Equipment

Implement Type	No. of Farmer	Area (ha)	Parameters	Demo	Check
Harvesting					
Bhindi plucker	65	17	kg/hr	21.42	12.33
Brinjal mitten	10	4	kg/hr	15.85	11.21
Finger guards	10	2.5	kg/hr	12.55	7.52
Fruit Plucker	10	4.6	kg/hr	65.1	19.5
Groundnut Digger	2	0.8	ha/day	1.4	0.6
Paddy Reaper Binder	30	12	ha/day	2.25	0.2
Vaibhav sickle	11	5	ha/day	0.15	0.08
Vertical conveyor reaper	5	2	ha/day	1.45	0.51
Land and seed bed preparation					
BBF Planter	113	51.8	Field efficiency(%)	50	77.5
M B plough	10	4	ha/day	1.1	0.32
Ridger	15	6	ha/hr	0.18	0.11
Rotavator	30	21	ha/hr	2.4	5.26
Surry Ridger	30	21	ha/hr	0.15	0.09
Others					
Brush cutter	11	11.6	ha/hr	0.21	0.11
Cotton Slasher	25	10	ha/hr	0.2	0.07
Hand gloves	10	2	kg/hr	2.5	1.2
Hand operated oil expeller	13	2	kg/hr	5	3
Roto slasher	20	10	Field efficiency(%)	90	60
Plant protection equipments					
HTP sprayer	14	5.6	ha/hr	1	0.08
Seed treatment drum	17	5	kg/hr	180	83
Planting and seeding					
CRIDA bullock drawn planter	18	14	ha/hr	0.33	0.1
MAU Seed cum fertidrill	5	2	ha/hr	0.25	0.09
Paddy Drum Seeder	63	21.1	ha/hr	0.4	0.033
Seed cum fertilizer drill	51	29.1	ha/day	1.9	0.55
Tractor Drawn Zero Till Seed cum Ferti Drill	10	5	ha/hr	0.6	0.4
Post harvest technology					
Grain Cleaner cum Grader	63	0	hr/quntal	0.8	5.5
PKV Mini Dal Mill	84	0	Broken %	24	68
Portable Rice mill	13	0	Broken %	8	20
Solar cabinet dryer	13	3	kg/day	18	4
Threshing					
Groundnut decorticator	89	40	ha/day	0.8	0.3
Groundnut Stripper	22	10.8	kg/day	281.2	215
Maize sheller	30	10	kg/hr	16.5	5.7

Weeding and interculture					
Cono weeder	29	7.9	ha/hr	0.029	0.01
Cycle hoe	23	5.4	ha/day	0.25	0.02
Fertilizer crow Bar	10	4	ha/hr	0.15	0.11
Manually operated weeder	20	4	ha/day	0.12	0.05
Moghi Improved Weel Hoe	15	3.5	ha/day/Men	0.16	0.05
Power Weeder	36	12.2	ha/day	1.15	0.45
Swastik hoe	10	1.4	ha/day/Men	0.15	0.08
VNMKV wheel hand hoe	10	16	ha/day/Men	0.12	0.05
Wheel hoe	10	5	ha/day/Men	0.17	0.07
Grand Total	**1075**	**392.3**			

3.2.14. Livestock and other enterprises

In order to demonstrate the efficacy of improved technologies, KVKs organized 759 demonstrations on various livestock species. The state and enterprise wise details of demonstrations are furnished in Table 3.22.

Table:3.22 . Details of FLD on livestock and other enterprises

Category	Andhra Pradesh		Telangana		Maharashtra		Total	
	NT	ND	NT	ND	NT	ND	NT	ND
Cattle	3	35			11	285	14	320
Sheep & Goat	5	25	2	9	5	87	12	121
Poultry	4	40	2	20	6	175	12	235
Fisheries	1	45	1	38			2	83
Total	**13**	**145**	**5**	**67**	**22**	**547**	**40**	**759**

NT: No. of technologies ND: No. of demonstrations

The performance of various improved technologies vis-à-vis the indicators with regard to livestock species are presented in Table 3.23 . The improved technologies significantly increased the milk yield and reduced the incidence of mastitis and other diseases in dairy animals. In case of poultry, improved breeds like Rajasree, Suwarandhara, Giriraja, Vanaraja and Gramapriya were demonstrated for meat and egg yield, while de-worming and mineral mixtures were tested for weight gain in sheep and goat.

Table:3.23 . Performance of FLD on Livestock Enterprises

Enterprise / Thematic area	Technology	No. of Farmer	Major parameters	Demo	Check
Buffalo					
Feed and Nutrition management	25 % substitution of concentrate with Azolla	27	Milk yield (l/day/Animal)	8.47	7.14
	Mineral mixture	25	Milk yield (l/day/Animal)	9.28	8.10
	Sugarcane tops	30	Milk yield (l/day/Animal)	7.80	7.30
	Urea treatment on low grade roughages	10	Milk yield (l/day/Animal)	6.50	4.50
Cow					
Disease	Anti parasitic drug	10	Parasite control	5.00	37.50

management			(%)		
	Saaf Kit	30	CMT (%)	2.28	34.63
	Teat disinfection	10	Incidence of clinical mastitis (%)	10.00	40.00
	25 % substitution of concentrate with Azolla	15	Milk yield (l/day/Animal)	6.93	5.28
Feed and Nutrition management	Mineral mixture	128		10.02	8.52
	Sunflower heads supplementation	10	Milk yield (l/day/Animal)	7.43	6.70
	TMR	10	Milk yield (l/day/Animal)	7.78	6.18
	Urea molasses treatment for dry fodder	15	Milk yield (l/day/Animal)	4.33	3.17
Goatary					
Breed upgradation	Upgradation of local goat with Sangamneri buck	7	Body weight at 12 month (kg/goat)	26.32	17.81
Disease Management	Control on ecto/endo paracites infestation	40	Parasite occurance (%)	0.00	17.00
	Internal & external parasite control	10	Parasite occurance (%)	0.00	20.00
Nutrition management	Mortality control of kids	6	Death rate (%)	0.00	7.00
	Prevention of goat pox	6	Pox control (%)	0.00	22.00
	Mineral mixture	20	Body weight at 12 month (kg/goat)	39.45	16.20
Sheep					
Breed evaluation	Jodipi Rams	3	Body weight at 12 month (kg/goat)	38.00	30.00
	Nellore Brown	4	Body weight at 12 month (kg/goat)	45.50	21.30
Breed upgradation	Sangamneri	10	Body weight at 12 month (kg/goat)	22.20	19.00
Nutrition management	Azolla feeding	5	Body weight at 12 month (kg/goat)	24.70	22.40
	Mineral mixture	10	Body weight at 12 month (kg/goat)	30.05	22.10
Poultry					
Breed evaluation	Giriraja	75	Live weight (kg/bird) at 12^{th} month	2.56	1.29
	Gram Priya	5	Live weight (kg/bird) at 12^{th} month	1.40	0.90
	Kadaknath	10	Live weight (kg/bird) at 12^{th} month	1.50	1.10
	Rajashri	5	Live weight (kg/bird) at 12^{th} month	2.75	1.50
	Swarnadhara	5	Live weight (kg/bird) at 12^{th} month	2.95	2.15

	Vanraja	75	Live weight (kg/bird) at 12th month	2.16	1.26
	Swarnadhara	15	Live weight (kg/bird) at 12th month	1.57	1.46
Disease Management	Vaccination against fatal disease	25	Mortality percentage	16.73	85.49
Feed and Nutrition management	Azolla	20	Differential weight (kg/bird)	1.53	1.29
Fisheries					
Production and Management	Composite fish culture	83	Yield (q/ha)	29.98	16.58

3.2.15. Gender specific technologies

To relieve farmwomen of household drudgery and improve their health, nutritional status and income, KVKs organized 723 demonstrations (Table 3.24). Among technologies demonstrated on health and nutrition of women and children iron and protein fortified diet resulted in increased hemoglobin in pregnant women(Table 3.25). Technologies for economic empowerment of rural women viz. papad making processing and production of Oyster mushrooms, sericulture, vermicompost, mini dal mill were also demonstrated by KVKs

Table:3.24 . Details of FLDs on Gender Specific Technologies

Thematic area	Andhra Pradesh		Telangana		Maharashtra		Total	
	NT	ND			NT	ND	NT	ND
Entrepreneurship Development	3	53			3	30	6	83
Health and Nutrition	3	25	2	40	4	104	9	169
House hold drudgery reduction					2	35	2	35
Drudgery Reduction	4	40	1	10	11	246	16	296
Value addition					3	60	3	60
Total	**10**	**118**	**3**	**50**	**25**	**555**	**38**	**723**

Table:3.25 . Performance of FLDs on Gender Specific Technologies

Thematic Area / Technology	No. of demons	Parameter	Demo	Check
Drudgery reduction				
Cotton Picking bag	80	Work output (Kg/day)	53.6	39.3
Cycle hoe	10	Cost of operation (Rs/ha)	750.0	3750.0
Use of aprons, gloves and caps	10	Time (hrs/0.025 acres)	6.0	9.0
Use of Dung collectors	10	Time (min)	20.0	60.0
Use of seed cum fertilizer bags	15	Time (hrs /acre)	1.5	4.0
Gravity separator	20	Work out put (kg/hrs)	100.0	30.0
Hand operated Double screen grain cleaner	15	Capacity (kg/Hr.)	138.8	27.4
Rring cutter harvesting for women	10	Quantity (kg/30 minutes)	6.7	4.2

Maize sheller	8	Delta beats / min,	21.0	17.0
MKV sickle com	10	Heart rate bits/min	106.0	107.0
Okra Plucker	50	Plucking kg/hr	15.8	14.2
Papad making	30	Time required(5kg /hr)	40.0	5.0
Revolving milking stand & stool	18	Milk l/hr	6.0	5.0
Sugarcane Detrasher	10	Work output/No. of detrashed in 1hr	106.0	62.0
Entrepreneurship Development				
Back yard poultry	20	Income (Rs./3 months)	1220.0	430.0
Mushroom production	10	Yield gm/bag	1095.0	915.0
Sericulture	40	Cocoon yield(kg/100dfls	69.0	65.0
Vermi compost production	13	Yeild t/bed/annum	2.4	2.0
Health and Nutrition				
Amylase Rich food for preschool Children	20	Average weight gain at 3 months interval (kg)	9.5	8.3
Azolla feeding for Dairy	5	Fat (%)	5.3	4.5
Fortification of Iron in the diet of rural pregnant ladies with ragi laddu	30	Hb content (mg/dL)	11.0	8.2
Low cost nutritious rich food	43	Hb content (mg/dL)	0.6	0.1
Nutrition Garden	51	Expenditure on vegetable Rs./5 months	900.0	2400.0
Nutritional supplement for children	10	Average increase in weight	11.8	10.7
Rajkeera weening mix for combating mal-nutrition	10	Weight, kg	1.2	0.7
Household food security				
Insect Probe Trap	10	Percent affected grains	28.0	56.0
Grain storage bag (PCI)	70	Damage(%)	6.8	15.8
Household Drudgery reduction				
Kissan cooker	20	Fuel (gm)	701.0	1093.0
Sarai Cooker	15	Cooking time Min.	55.0	85.0
Value addition				
Dal Processing	30	Recovery of Dal (%)	78.0	66.0
Production sorghum semolina	10	kg	58.0	45.0
Soya paneer	20	kg	100.0	25.0

3.3 Training

Training is an important activity of KVK which play a pivotal role in enhancing the knowledge and skill about various improved technologies. KVKs assess the training needs and prioritize them and based on the need skill oriented training programs for various clientele groups were organized. The training for farmers and farmwomen is primarily focused on knowledge and skills, while it is entrepreneurship development and knowledge on frontier areas of science and technology for rural youth and extension personnel

respectively.

In all, 5882 training programs were conducted with 179165 participants including 143089 farmers, 22246 rural youth and 13830 extension functionaries (Table3.26). KVKs in Andhra Pradesh organized 1186 training courses with a participation of 35604 farmers, rural youth and extension functionaries, in Telangana organized 626 training courses with a participation of 17495 farmers, rural youth and extension functionaries while the KVKs in Maharashtra conducted 4070 courses with a total participation of 126066 beneficiaries.

The main thematic areas covered under training include integrated crop management, improved tools and implements, capacity building and group dynamics, women empowerment, improved production practices for horticultural crops, productivity enhancement in livestock species, integrated pest management and soil health and fertility management.

The details of training courses vis-à-vis coverage of disciplines for farmers are given in Table 3.27. A total of 4588 training courses were conducted for 143089 farmers on various subjects, 894 (29987) on crop production followed by 743 (25391) on Horticulture, 735 courses were conducted with 23211 participants for Plant Protection, 716 (18686) on Women Empowerment, 487 (14902) on Soil Health and Fertility Management, 481 (14170) on livestock production and management, etc.

Table: 3.26. Details of client wise training programs organized by KVKs in Zone V

Clientele	No.of. Courses	Other Benefitiaries			SC/ST Benefitiaries			Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Andhra Pradesh										
EF	59	800	257	1057	279	105	384	1079	362	1441
FFW	972	11225	6915	18140	7350	5355	12705	18575	12270	30845
RY	155	1015	1046	2061	689	588	1277	1695	1633	3318
Total	**1186**	**13040**	**8218**	**21258**	**8318**	**6048**	**14366**	**21349**	**14265**	**35604**
Telangana										
EF	32	409	183	592	103	44	147	512	227	739
FFW	519	8988	2303	11291	2705	1109	3814	11693	3412	15105
RY	75	917	355	1272	195	184	379	1112	539	1651
Total	**626**	**10314**	**2841**	**13155**	**3003**	**1337**	**4340**	**13317**	**4178**	**17495**
Maharashtra										
EF	370	7010	2023	9033	1711	906	2617	8721	2929	11650
FFW	3097	53796	14865	68661	20571	7854	28425	74382	22757	97139
RY	603	9171	3278	12449	2931	1633	4564	12285	4992	17277
Total	**4070**	**69977**	**20166**	**90143**	**25213**	**10393**	**35606**	**95388**	**30678**	**126066**
Zone										
EF	461	8219	2463	10682	2093	1055	3148	10312	3518	13830
FFW	4588	74009	24083	98092	30626	14318	44944	104650	38439	143089
RY	833	11103	4679	15782	3815	2405	6220	15092	7164	22246
Total	**5882**	**93331**	**31225**	**124556**	**36534**	**17778**	**54312**	**130054**	**49121**	**179165**

EF: Extension Functionaries FFW: Farmers and Farm Women RY: Rural Youth

Table: 3.27.State wise and discipline wise training programs conducted for farmers

Discipline	Andhra Pradesh		Telangana		Maharashtra		Total	
	NC	NB	NC	NB	NC	NB	NC	NB
Agril. Engineering	12	263	8	278	169	5002	189	5543
Agro-forestry	7	50	13	404	2	200	22	654
Capacity Building & Group Dynamics	21	508	13	419	169	6096	203	7023
Crop Production	163	5428	118	3565	613	20994	894	29987
Fisheries	39	1276	29	1148	13	334	81	2758
Home Science/Women empowerment	219	4992	85	2015	412	11679	716	18686
Horticulture								
a) Vegetable Crops	74	2352	46	1398	196	5535	316	9285
b) Fruits	70	2890	33	1066	159	4832	262	8788
c) Ornamental Plants	24	683	1	25	9	191	34	899
d) Plantation crops	18	529			14	473	32	1002
e) Tuber crops	8	292	2	61	9	269	19	622
f) Spices	11	440	4	123	32	821	47	1384
g) Medicinal & Aromatic Plants	24	2993			9	418	33	3411
Total	**229**	**10179**	**86**	**2673**	**428**	**12539**	**743**	**25391**
Livestock Production & Management	65	1967	67	1952	349	10251	481	14170
Plant Protection	137	4285	71	1880	527	17046	735	23211
Production of Inputs at site	18	297	6	113	13	354	37	764
Soil Health & Fertility Management	62	1600	23	658	402	12644	487	14902
Grand Total	**972**	**30845**	**519**	**15105**	**3097**	**97139**	**4588**	**143089**

NC : Number of courses NB : No. of beneficiaries

A total of 833 training programs covering 22246 rural youth were conducted by KVKs in Zone-V (Table 3.28). The main thematic areas of training include value addition (100), integrated farming (57), Protected Cultivation (44), Post Harvest Technology (32), dairying (43), Organic Inputs (31) poultry (62) etc.

Table: 3.28.Details of training programs for rural youth

Thematic area	AP		TS		MS		Total	
	NC	NB	NC	NB	NC	NB	NC	NB
Bee-keeping	3	112			4	107	7	219
Cold water fisheries					1	16	1	16
Commercial fruit production			2	40	9	275	11	315
Composite fish culture	3	14	1	10	1	20	5	44
Cultivation of vegetables					1	50	1	50
Dairying	1	30	2	76	40	1005	43	1111
Floriculture			2	32			2	32
Fry and fingerling rearing			1	15	3	60	4	75
Integrated farming	7	202	7	120	43	1417	57	1739
Integrated Fish Farming			1	20			1	20
Integrated pest Management			1	16	12	305	13	321
Mushroom Production	13	250			13	392	26	642
Nursery Management of Horticulture crops	7	106	3	60			10	166
Ornamental fisheries					1	20	1	20
Para extension workers	1	6			24	611	25	617
Para vets					2	50	2	50

Pearl culture					2	48	2	48
Piggery					1	30	1	30
Planting Material Production	3	78	4	35	36	948	43	1061
Post Harvest Technology	1	6	2	63	29	767	32	836
Poultry production	10	228	2	48	50	1541	62	1817
Production of organic inputs	6	163	3	75	22	672	31	910
Production of quality animal products			1	16	4	107	5	123
Production technology			3	48			3	48
Protected cultivation of vegetable crops	4	71	5	95	35	1005	44	1171
Quail farming					2	40	2	40
Rabbit farming					1	25	1	25
Repair & maintenance of farm machinery & implements	5	91	4	140	24	649	33	880
Rural Crafts	10	157	4	84	6	150	20	391
Seed production	5	147	2	55	15	392	22	594
Sericulture			3	70	12	490	15	560
Sheep and goat rearing	3	40			41	1700	44	1740
Shrimp farming					1	20	1	20
Small scale processing	6	107			31	760	37	867
Tailoring and Stitching	10	193	2	59	2	29	14	281
Training and pruning of orchards	4	79	1	32	6	156	11	267
Value addition	16	375	3	94	81	2085	100	2554
Vermi-culture	2	54	4	112	14	331	20	497
Others								
Agro Service Centre					1	22	1	22
Agro tourism					2	48	2	48
Awareness Creation					2	52	2	52
Bio-agents production					1	30	1	30
Bio-fertilizer production					1	29	1	29
Bio-pesticides production					2	46	2	46
Capacity building for ICT application	3	114	1	30	1	17	5	161
Coconut tree climbing & garden management	3	60					3	60
Design & development of low cost diet					2	38	2	38
Disease Management in cows					2	68	2	68
Drudgery reduction			1	25			1	25
Entrepreneurial development			8	133	4	131	12	264
Extension skills					1	16	1	16
Fabric Painting	2	50					2	50
Feed & Fodder Management					1	21	1	21
Group Dynamics					2	48	2	48
Handmade Paper bag Making	1	28					1	28

Installation & maintenance of micro irrigation system					1	22	1	22
Integrated Disease Management					1	45	1	45
Leadership development	1	30					1	30
Maggam Embroidery Works	1	28					1	28
Organic Farming	1	60					1	60
Production of off season vegetables					1	27	1	27
Rolling and polishing	1	25					1	25
Screen printing	7	36					7	36
Soil testing	1	25			5	244	6	269
Spirulina production					2	60	2	60
Tribal youth network programme	13	323					13	323
Women and child care	1	30	2	48	2	40	5	118
Total	**155**	**3318**	**75**	**1651**	**603**	**17277**	**833**	**22246**

NC: Number of courses NB: No. of beneficiaries

In Zone-V, 461 training courses with a participation of 13830 Extension Personnel covering various thematic areas viz. Productivity Enhancement in Field Crops (81), Integrated Pest Management (65), Integrated Nutrient Management (53), Group Dynamics and Farmers Organizations (34), Women and Child Care (30), Livestock feed and fodder production (25) etc., were organized by KVKs (Table 3.29).

Table: 3.29. Details of training for extension functionaries

Thematic area	**AP**		**TS**		**MS**		**Total**	
	NC	**NB**	**NC**	**NB**	**NC**	**NB**	**NC**	**NB**
Capacity building for ICT application	4	105	2	38	10	349	16	492
Care & maintenance of farm machinery & implements	1	20			17	1139	18	1159
Formation and Management of SHGs					13	286	13	286
Goat Management					1	44	1	44
Group Dynamics and farmers organization	3	87	2	60	29	895	34	1042
Household food security for health & nutrition	4	99	2	43	35	1097	40	1163
Integrated Nutrient management	5	114	5	81	43	1079	53	1305
Integrated Pest Management	7	198	7	141	51	1906	65	2245
Livestock feed and fodder production	5	68	3	76	17	387	25	531
Productivity enhancement in field crops	20	479	1	33	60	1966	81	2478
Protected cultivation technology	2	106			23	668	25	774
Quail management					1	15	1	15
Rejuvenation of old orchards					1	14	1	14
Women and child care	5	99	2	59	23	582	30	740
Market Led Extension					3	59	3	59

Small scale processing (PHT) in Fruits & Vegetables					3	49	3	49
PRA & SREP					2	66	2	66
Drudgery reduction of women			1	35			1	35
Composite fish culture			2	61			2	61
Fish processing and Value addition			1	35			1	35
Micro irrigation system for orchards			1	8			1	8
Off-season vegetables cultivation			1	6			1	6
Resource conservation technology			2	63			2	63
Dairy Management	1	25			17	556	18	581
Rejuvenation of old orchards	1	16					1	16
Soil & Water Testing	1	25			1	32	2	57
Soil Moisture conservation					1	19	1	19
Horticulture nursery management					6	150	6	150
Agril. mechanization					3	74	3	74
Climate change and agriculture					1	30	1	30
Commercial production of fruits					3	57	3	57
Contract farming					1	22	1	22
Integrated Crop Management					3	51	3	51
Leadership development					1	27	1	27
Livelihood Development of farmer					1	31	1	31
Total	**59**	**1441**	**32**	**739**	**370**	**11650**	**461**	**13830**

NC: Number of courses NB: No. of beneficiaries

3.3.1. Sponsored Training

With the available infrastructure and technical manpower, KVKs facilitate various research institutes, line departments of state and central government, financial institutions etc. in organizing sponsored training in rural areas. KVKs organized 1082 sponsored training programmes covering 33813 farmers and rural youth (Table 3.30). The important organizations that contributed to sponsored training include Agricultural Technology Management Agency (ATMA), National Horticultural Mission (NHM), National Bank for Agriculture and Rural Development (NABARD), etc. The important thematic areas include Crop Production (3402), integrated farming (967), commercial horticulture (922), value addition (2213), dairying (794) etc.

3.3.2. Vocational Training

In order to facilitate entrepreneurship development, income generation and self-employment especially among rural youth and school dropouts, KVKs organized vocational training programs. In all, 400 vocational training programs covering 10604 rural youth were organized by KVKs during 2013-14 (Table 3.31). The important thematic areas include Value Addition (76), Income Generation for Women (88), Poultry (22), Nursery Management (30), Dairy (23), Commercial Horticulture (8), Sheep & Goat rearing (31) etc.

Table: 3.30.Details of sponsored training programs

Thematic area	AP		Telangana		Maharashtra		Total	
	NC	NP	NC	NP	NC	NP	NC	NP
Capacity building	1	22	1	30	7	224	9	276
Commercial Horticulture	1	25	3	106	22	791	26	922
Vegetable production					11	286	11	286
Vegetable seed production					2	104	2	104
Crop management			2	89	14	304	16	393
Crop Production	54	1907	1	28	35	1467	90	3402
Dairy Management	1	23	1	29	17	742	19	794
Drudgery reduction	1	27					1	27
Dryland Agriculture	2	37			108	1346	110	1383
Entrepreneureship Development					15	472	15	472
Farm Mechanisation	28	130	4	132	7	199	39	461
Farm Implements					5	206	5	206
Feed & Fodder Management			5	152	11	276	16	428
Fisheries			6	215	2	50	8	265
Group Dynamics			1	30	11	277	12	307
Income generation Activity	41	254	34	220	20	482	95	956
Intigrated Nutrient Management	10	430	3	74	8	605	21	1109
Integrated Crop Management	1	200	19	570	85	2098	105	2868
Integrated Disease Management	9	2852	1	24	2	44	12	2920
Integrated farming	6	205	3	99	17	663	26	967
Integrated Pest Management	14	502	4	115	17	828	35	1445
Leadership Development	1	45	1	30	3	231	5	306
Nursery management	2	55	1	60	15	406	18	521
Off-season vegetables			2	50			2	50
Orchard Management			1	43	2	203	3	246
Organic Farming			3	85	1	57	4	142
Paraex tension workers					3	96	3	96
Plant protection	3	87	5	44			8	131
Planting material production					1	35	1	35
Post Harvest Technology	2	225	1	23	40	712	43	960
Poultry Management	1	26	2	58	21	573	24	657
PPV & FR	1	150	1	52	4	542	6	744
PRA & SREP					3	126	3	126
Production & Use of organic inputs					9	244	9	244
Production of Bio products	1	34	1	25	1	27	3	86
Productivity Enhancement in Field Crops					12	549	12	549
Promotion of Kitchen garden	1	44			1	20	2	64
Protected cultivation					15	634	15	634

Resource Conservation Technology	1	23	4	219	16	539	21	781
Seed Production			2	55	5	184	7	239
Sericulture			5	150	3	149	8	299
Sheep & Goat rearing					15	614	15	614
Soil & water conservation					11	454	11	454
Value addition	16	349	4	110	121	1754	141	2213
Vermiculture	1	26			1	28	2	54
Water management			1	30			1	30
Watershed mgt.					3	110	3	110
Weed management	2	352					2	352
Women empowerment	15	384			2	196	17	580
WTO & IPR issues	2	177			2	269	4	446
Medicinal Plants	14	1955					14	1955
Bee Keeping					1	54	1	54
Women and Child Care					1	50	1	50
Total	**232**	**10546**	**122**	**2947**	**728**	**20320**	**1082**	**33813**

NC : Number of courses NP : No. of participants

Table: 3.31. Details of vocational training programs organized by KVKs

Thematic area	**AP**		**TS**		**MS**		**Total**	
	NC	**NP**	**NC**	**NP**	**NC**	**NP**	**NC**	**NP**
Azolla production					1	29	1	29
Biomass charcoal Briquetting					1	47	1	47
Capacity bulding for ICT applications			1	30			1	30
Commercial Horticulture	1	33	5	75	2	61	8	169
Dairy Management			1	15	22	541	23	556
Entrepreneurship Development	1	22	1	16	21	748	23	786
Fisheries			6	125	1	20	7	145
Income Generation for Women	72	1763	8	207	8	154	88	2124
Integrated Crop Management	3	66	5	75	1	30	9	171
Integrated Nutrient Management			2	10			2	10
Integrated Pest & Desease Management	7	193	7	60	2	34	16	287
Integrated Farming					3	110	3	110
Mushroom Production	1	25			2	43	3	68
Nursury Management	3	83	4	45	23	563	30	691
Para Extension worker training program					2	156	2	156
Poultry Management					22	627	22	627
Production of organic inputs			1	27	3	79	4	106
Protective Cultivation of vegitables & fruits					11	470	11	470
Seed production					1	16	1	16

Sericulture					3	68	3	68
Sheap & Goat rearing					31	1075	31	1075
Soil &Water testing			2	37	4	92	6	129
Tailoring and Stitching	1	21					1	21
Value addition in crops	9	254	1	35	66	1639	76	1928
Vermi Culture	1	26			3	115	4	141
Off season vegetable cultivation			1	6			1	6
Micro Irrigation for orchards			1	8			1	8
Lay out and Management of orchards			1	5	1	33	2	38
Management of problematic soils			1	7			1	7
Designing low cost nutritive foods			1	15			1	15
Apiculture					1	21	1	21
Production of Bio pesticides & fertilizers					7	181	7	181
Farm Mechnization					2	26	2	26
Feed & fodder management					3	112	3	112
Organic farming					2	83	2	83
Repair & maintenance of farm machinery and implements					2	123	2	123
Resource Conservation Technologies					1	24	1	24
Total	**99**	**2486**	**49**	**798**	**252**	**7320**	**400**	**10604**

NC: Number of courses NP: No. Of Participants

3.4 Extension Activities

In order to create awareness among farmers about improved agricultural technologies, KVKs in Zone-V organized 29896 extension activities covering 1039576 participants (Table 3.32). The extension activities included advisory services, exposure visits, animal health camps, technology week, group discussions, method demonstrations, soil health camps, kisan melas, kisan ghosti, etc. KVKs in Andhra Pradesh organized 10021 extension activities covering 92079 participants, in Telangana organized 4842 extension activities covering 67874 participants and the corresponding figures for Maharashtra are 15033 and 882074 (Table 3.32, 3.33 and 3.34, 3.35).

KVK, Kadapa stall during Agri Mission, Anantapur

Table: 3.32. Details of Extension Activities organized by KVKs in Zone V

Activity	No. of activities	*Farmers (Others + SC/ST)*			*Extension Officials*			*Grand Total*		
		Male	**Female**	**Total**	**Male**	**Female**	**Total**	**Male**	**Female**	**Total**
Advisory Services	4379	284839	2001	286840	336	181	517	285175	2182	287357
Agri mobile clinic	68	2552	50	2602	2	0	2	2554	50	2604
Animal Health Camp	118	1565	0	1565			0	1565	0	1565
Breast feeding week	4	101	0	101	7	0	7	108	0	108
Campaign on effect of unseasonal rainfall and dew on crop	150	3117	503	3620	118	9	127	3235	512	3747
campaign on Oily Spot disease management in Pomegranate	212	9387	8668	18055	565	278	843	9952	8946	18898
Celebration of important days	3665	11798	1594	13392	764	189	953	12562	1783	14345
Diagnostic Visit	161	160395	62973	223368	4109	1343	5452	164504	64316	228820
Exhibition	355	7185	3405	10590	310	38	348	7495	3443	10938
Exposer Visit	5182	168840	41457	210297	1574	871	2445	170414	42328	212742
Ex-trainee Sammelan	495	11743	2087	13830	741	103	844	12484	2190	14674
Farm Science Club Conveners meet	351	5491	1376	6867	304	81	385	5795	1457	7252
Farmers Field School	6			0			0	0	0	0
Farmers visit to KVK	982	10643	3015	13658	652	183	835	11295	3198	14493
Farmer-scientist interaction meet	314	8496	2447	10943	339	97	436	8835	2544	11379
Field Day	231	58267	13609	71876	1003	461	1464	59270	14070	73340
Film Show	1515	45620	8005	53625	2898	713	3611	48518	8718	57236
Group meetings	51	173	2311	2484	59	103	162	232	2414	2646
Grow safe food campaign	1155	13597	5783	19380	632	184	816	14229	5967	20196
Health Camp	3409			0			0	0	0	0
Innovative Couple farmer forum meeting	822			0			0	0	0	0
Innovative Farmers Meet	5020	17946	3973	21919	1691	66	1757	19637	4039	23676
Kisan Ghosthi	113	68	1423	1491	16	43	59	84	1466	1550
Kisan Mela	312	18940	336	19276	454	31	485	19394	367	19761
KVK at Village	399			0			0	0	0	0
Lectures delivered as resource persons	169	3556	905	4461	1504	229	1733	5060	1134	6194
Mahila Mandals Conveners meetings	104	1816	269	2085	177	5	182	1993	274	2267
Method Demonstrations	98	1225	176	1401	106	35	141	1331	211	1542
News paper coverage	3	76	0	76	5	0	5	81	0	81

Nutrition week	17	656	39	695	23	3	26	679	42	721
Phone In Programme	1	11	0	11	1	0	1	12	0	12
Plant Clinic	3	23	0	23	13	0	13	36	0	36
PRA Survey/Village Survey	1	23	76	99		4	4	23	80	103
Radio Talk	7	0	150	150			0	0	150	150
Scientists visit to farmers field	4	25	104	129	0	5	5	25	109	134
Self Help Group Conveners meetings	9	342	89	431	39	23	62	381	112	493
Soil health Camp	7	119	61	180	6		6	125	61	186
TV talks	1	150	0	150	0	0	0	150	0	150
Video conference	1	30	0	30			0	30	0	30
Workshops & Meeting	2	150	0	150			0	150	0	150
Total	**29896**	**848965**	**166885**	**1015850**	**18448**	**5278**	**23726**	**867413**	**172163**	**1039576**

Table: 3.33. Details of Extension Activities organized by KVKs in Andhra Pradesh

Activity	**No. of activities**	***Participants***								
		Farmers			***Extension Officials***			***Grand Total***		
		M	**F**	**T**	**M**	**F**	**T**	**M**	**F**	**T**
Advisory Services	1518	5385	591	5976	79	45	124	5464	636	6100
Agri. mobile SMS	104			0	1545	906	2451	1545	906	2451
Animal Health Camp	19	240	59	299	7	2	9	247	61	308
Celebration of important days	41	1623	1844	3467	37	97	134	1660	1941	3601
Diagnostic visits	1112	2554	686	3240	83	49	132	2637	735	3372
Exhibition	35	14412	7144	21556	132	79	211	14544	7223	21767
Exposure visits	57	241	288	529	7	6	13	248	294	542
Farmers visit to KVK	1920	10419	3334	13753	247	59	306	10666	3393	14059
Field days	143	2389	654	3043	146	32	178	2535	686	3221
Film Show	120	632	194	826	38	13	51	670	207	877
Group Discussions	332	2884	1118	4002	92	33	125	2976	1151	4127
Kisan Ghosthi	14	689	261	950	30	22	52	719	283	1002
Kisan Mela	19	9319	3323	12642	316	138	454	9635	3461	13096
Lectures delivered as resource persons	440	2602	1284	3886	89	43	132	2691	1327	4018
Method Demonstrations	410	4540	1516	6056	131	60	191	4671	1576	6247
Newspaper coverage	1406							0	0	0
Radio talks	222							0	0	0
Scientists visit to farmers field	1783	4608	1110	5718	32	5	37	4640	1115	5755
Self Help Group Conveners meetings	7	0	98	98				0	98	98
Soil health Camp	65	105	15	120	3		3	108	15	123
TV talks	222							0	0	0

Workshops & Meeting	15	647	65	712	67	59	126	714	124	838
Farmer-scientist interaction meet	2							0	0	0
Farm Science Club Conveners meet	13	292	76	368	30	15	45	322	91	413
Mahila Mandals Conveners meetings	2		54	54	4	6	10	4	60	64
Total	**10021**	**63581**	**23714**	87295	**3115**	**1669**	4784	66696	25383	92079

Table: 3.34. Details of Extension Activities organized by KVKs in Telangana

Activity	**No. of activities**	***Participants***								
		Farmers			***Extension Officials***			***Grand Total***		
		M	**F**	**T**	**M**	**F**	**T**	**M**	**F**	**T**
Advisory Services	790	9942	887	10829	198	136	334	10140	1023	11163
Agri. mobile SMS	10	725		725			0	725	0	725
Animal Health Camp	21	1281	131	1412	42	7	49	1323	138	1461
Celebration of important days	52	1315	1652	2967	31	34	65	1346	1686	3032
Diagnostic visits	595	2028	340	2368	112	26	138	2140	366	2506
Exhibition	16	3054	286	3340	49	25	74	3103	311	3414
Exposure visits	37	1263	83	1346	36	4	40	1299	87	1386
Ex-trainees Sammelan	3	64	3	67	6	2	8	70	5	75
Farmers visit to KVK	1046	15619	3644	19263	56	68	124	15675	3712	19387
Field days	54	1649	417	2066	105	36	141	1754	453	2207
Film Show	57	1698	334	2032	34	10	44	1732	344	2076
Video conference	6			0			0	0	0	0
Group Discussions	162	1914	540	2454	17	18	35	1931	558	2489
Kisan Ghosthi	9	323	55	378	21	10	31	344	65	409
Kisan Mela	32	2772	643	3415	70	42	112	2842	685	3527
Lectures delivered as resource persons	156	3995	1046	5041	80	55	135	4075	1101	5176
Method Demonstrations	154	2341	892	3233	34	19	53	2375	911	3286
Newspaper coverage	506			0			0	0	0	0
Radio talks	173			0			0	0	0	0
Scientists visit to farmers field	828	3008	552	3560	1453	16	1469	4461	568	5029
Self Help Group Conveners meetings	13	8	265	273	0	13	13	8	278	286
Soil health Camp	1	16	4	20	2	0	2	18	4	22
TV talks	81			0			0	0	0	0
Farm Science Club Conveners meet	4	120		120			0	120	0	120
Mahila Mandals Conveners meetings	6		96	96		2	2	0	98	98
Phone in programme	30			0			0	0	0	0
Total	**4842**	**53135**	**11870**	65005	**2346**	**523**	2869	55481	12393	67874

Table: 3.35. Details of Extension Activities organized by KVKs in Maharashtra

Activity	No. of activities	*Farmers*			*Extension Officials*			*Grand Total*		
		M	**T**	**Total**	**M**	**F**	**T**	**M**	**F**	**T**
Advisory Services	2071	269512	523	270035	59	0	59	269571	523	270094
Phone In Programme	38	2552	50	2602	2	0	2	2554	50	2604
Agri mobile clinic	4	840	0	840			0	840	0	840
Plant Clinic	4	101	0	101	7	0	7	108	0	108
Animal Health Camp	110	1596	313	1909	69	0	69	1665	313	1978
Celebration of important days	119	6449	5172	11621	497	147	644	6946	5319	12265
Diagnostic Visit	1958	7216	568	7784	569	114	683	7785	682	8467
Exhibition	110	142929	55543	198472	3928	1239	5167	146857	56782	203639
Exposer Visit	261	5681	3034	8715	267	28	295	5948	3062	9010
Farmers visit to KVK	2216	142802	34479	177281	1271	744	2015	144073	35223	179296
Field Day	298	7705	1016	8721	490	35	525	8195	1051	9246
Film Show	174	3161	848	4009	232	58	290	3393	906	4299
Group Discussions	488	5845	1357	7202	543	132	675	6388	1489	7877
Kisan Ghosthi	291	7484	2131	9615	288	65	353	7772	2196	9968
Kisan Mela	180	46176	9643	55819	617	281	898	46793	9924	56717
Lecture Delivered as a Resource Person	919	39023	5675	44698	2729	615	3344	41752	6290	48042
Method Demonstrations	591	6716	3375	10091	467	105	572	7183	3480	10663
News paper Coverage	1497			0			0	0	0	0
Radio Talk	427			0			0	0	0	0
Scientist Visit to farmers field	2409	10330	2311	12641	206	45	251	10536	2356	12892
Self Help Group Conveners meetings	93	60	1060	1120	16	30	46	76	1090	1166
Soil health Camp	246	18819	317	19136	449	31	480	19268	348	19616
TV Talks	96			0			0	0	0	0
Workshops & Meeting	154	2909	840	3749	1437	170	1607	4346	1010	5356
Farmer Scientist interaction	102	1816	269	2085	177	5	182	1993	274	2267
Ex-trainee Sammelan	14	592	36	628	17	1	18	609	37	646
Farm Science Club Conveners meet	81	813	100	913	76	20	96	889	120	1009
Farmers Field School	3	76	0	76	5	0	5	81	0	81
Innovative Farmers Meet	1	11	0	11	1	0	1	12	0	12
Mahila Mandals Conveners meetings	43	173	2161	2334	55	95	150	228	2256	2484
Health Camp	4	25	104	129	0	5	5	25	109	134
KVK at Village	3	23	0	23	13	0	13	36	0	36
Brest feeding Week	7	0	150	150			0	0	150	150
Nutrition week	1	23	76	99		4	4	23	80	103

PRA Survey/Village Survey	9	342	89	431	39	23	62	381	112	493
Innovative Couple farmer forum meeting	7	119	61	180	6		6	125	61	186
Grow safe food campaign	1	150	0	150			0	150	0	150
Campaign on effect of unseasonal rainfall and dew on crop	1	30	0	30			0	30	0	30
campaign on Oily Spot disease management in Pomegranate	2	150	0	150			0	150	0	150
Total	**15033**	**732249**	**131301**	863550	**14532**	**3992**	18524	746781	135293	882074

Diagnostic visit by the KVK, Anantapur (Reddipalli)

Giving vaccination to the calf by the SMS (Veterinary) KVK Guntur (Lam)

Technology Week and Kisan Mobile Advisories

Seven KVKs in Andhra Pradesh, 4 KVK in Telangana and 24 KVKs in Maharashtra organized Technology Week to show case and popularize the latest technologies for the benefit of farmers. The details of various activities organized during technology week are presented in Table 3.36. Similarly, KVKs also provided Kisan Mobile Advisory on weather information, market prices of various commodities, weather and crop based technology advisory etc. (Table 3.37)

Table 3.36. Details of technology week celebration in KVKs of Zone V

Activity	Andhra Pradesh		Telangana		Maharashtra		Zone (Total)	
	Q/No.	NF	Q/No.	NF	Q/No.	NF	Q/No.	NF
1. Diagnostic Practical	12	40			54	3460	66	3500
2. Exhibition	21	782	6	611	31	30191	58	31584
3. Farm Visit	30	732	9	785	134	23643	173	25160
4. Film show	11	769	3	451	64	9074	78	10294
5. Gosthies	30	232	11	235	65	5320	106	5787
6. Lectures organized	85	1480	7	865	170	18135	262	20480
8. Distribution of material								
a) Bio Fertilizers (q)					17.11	98	17.11	98
b) Planting materials (No.)					3576	93	3576	93
c) Seed (q)			10	23	14.8	180	24.8	203
d) Literature (No.)	66	3960	6	1236	50	23614	122	28810
e) Seminar (No.)					5	940	5	940
Total number of farmers visited the technology week		4195		1396		30487	0	36078
No.of other agencies involved	56		9		99		164	0

Q: Quantity; NF: No. of farmers

Farmers scientists meet Vijayanagaram

Technology week KVK Vijayanagaram

Table 3.37. Details of Kisan Mobile Advisory by KVKs in Zone V

Category /Group	Andhra Pradesh		Telangana		Maharashtra		Zone V	
	NM	NP	NM	NP	NM	NP	NM	NP
Animals								
Diary	1	54	40	3901	123	49438	164	53393
Fisheries	13	6263	1	1267	26	3334	40	10864
Poultry	9	1048	3	3033	28	68160	40	72241
Sheep &Goat	1	54	1	2470	25	26529	27	29053
TOTAL	**24**	**7419**	**45**	**10671**	**202**	**147461**	**271**	**165551**
Crops								
Cereals	19	20909	134	27976	167	62080	320	110965
Commercial Crops	51	13296	44	17553	321	120080	416	150929
Fruits	22	15745	9	4312	361	119641	392	139698
Fodder					18	22027	18	22027
Oilseed	44	28831	9	324	163	101456	216	130611
Ornamental Crops	1	20			5	7228	6	7248
Pulses	32	8281	5	3512	181	123800	218	135593
Spices			1	110	26	28671	27	28781
Vegetables	65	16010	83	9269	262	14694	410	39973
TOTAL	**234**	**103092**	**285**	**63056**	**1504**	**599677**	**2023**	**765825**
Others								
Agro Advisories	11	14726			82	30984	93	45710
Critical Technology Products	7	2867	5	3539	58	94290	70	100696
KVK Programmes	50	6017			308	116778	358	122795
Market Information	7	10667	5	3805	131	92079	143	106551
Weather Information	43	24354	11	8371	98	27830	152	60555
Farm Implements	8	196			23	68155	31	68351
Women & Children	2	85	6	2853	26	11107	34	14045
TOTAL	**128**	**58912**	**27**	**18568**	**726**	**441223**	**881**	**518703**

NM: No. of messages NF: No. of farmers

3.5 Publications

To disseminate the information on improved agricultural technologies, KVKs of Zone-V brought out 1484 publications which include 781 popular articles, 350 Leaflets/folders/Phamplents, 124 technical reports, 69 Research Papers , 61 Extension literature , 31Books /Booklets / Brochures , 16 News Letter and 33 electronic publications viz. CD/VCD/DVDs etc. The details of publications brought out by the KVKs are given in Table 3.38.

Table: 3.38. Details of Publications by KVKs

Type of Publication	Andhra Pradesh		Telangana		Maharashtra		Total	
	No	No.Of.Copies	No	No.Of.Copies	No	No.Of.Copies	No	No.Of.Copies
Books /Booklets / Brochures	12	7480	1	3000	18	10500	31	20980
Extension literature	1	1	19	4700	41	21595	61	26296
Electronic Publications	3	160	1	1	29	858	33	1019
Posters			4	5003	3	3	7	5006
Leaflets/folders/ Phamplents	84	53050	34	67450	232	206037	350	326537
Popular articles	221	221	63	563	497	775473	781	776257
Research Papers/Articles	28		6		35		69	0
Technical reports	48	1545	11	11	65	2926	124	4482
News Letter					16		16	
Success Stories					12	1000	12	1000
Total	**397**	**62457**	**139**	**80728**	**948**	**1018392**	**1484**	**1161577**

3.6. Critical Technology Products

In order to facilitate rapid transfer of improved technologies, KVKs produce improved seed and planting material of elite species, various bio-products, improved livestock breeds and species and supplied them to farmers and farmwomen.

3.6.1. Seed and Planting Material

KVKs produced 7183.27q of seed material (cereals – 5288.95q, oilseeds –1287.15q, pulses – 462.43q, Vegetables – 47.943q etc.) and supplied to 13060 farmers (Table 3.39). KVKs also produced 3675202 saplings (1432903 - vegetables, flower crops – 72920, fruits - 382053, 1018825 fodders, 202165 – forest spp., etc.) supplied to 24752 farmers (Table 3.40).

Table 3.39. Details of production and supply of seed

Category	Andhra Pradesh			Telangana			Maharashtra			Total		
	Q	Value (`.)	NF	Q	Value (`.)	NF	Q	Value (`.)	NF	Q	Value (`.)	NF
Cereals and Millets	2244.66	5748806	2710	1690.30	4471630	1588	1353.99	2734738	2629	5288.95	12955174	6927
Commercial Crops							22.17	145205	95	22.17	145205	95
Flower Crops				3.05	17000	21	15.50	65000	3	18.55	82000	24
Fodder crop							18.70	55820	76	18.70	55820	76
Fruits							37.38	131690	420	37.38	131690	420
Oilseeds	41.84	262800	470	14.50	46000	25	1230.81	3209108	1550	1287.15	3517908	2045
Pulses	161.70	1073760	1840	3.15	21860	34	297.58	1258448	1359	462.43	2354068	3233
Vegetables	8.28	33037	0	0.10	700	4	39.56	471045	236	47.94	504782	240
Total	**2456.48**	**7118403**	**5020**	**1711.10**	**4557190**	**1672**	**3015.69**	**8071054**	**6368**	**7183.27**	**19746647**	**13060**

NF:

Table 3.40. Details of production and supply of planting material

Enterprise	Andhra Pradesh			Telangana			Maharashtra			Zone		
	No.	Values (Rs.)	NB	No.	Values (Rs.)	NB	No.	Values (Rs.)	NB	No.	Values (Rs.)	NB
Flower Crops	14330	18440	97	46560	90300	112	12030	20235	57	72920	128975	266
Fodder	25200	42150	184	230000	68400	74	763625	781689	1532	1018825	892239	1790
Forest Species	35730	116560	473	1385	2118	28	165050	617050	1417	202165	735728	1918
Fruits	11035	296410	511	14824	361505	487	356194	8875296	6831	382053	9533211	7829
Medicinal & Aromatic crops	100100	11500	10020	2000	0	0	25	250	25	102125	11750	10045
Ornamental Species	718	8616	72	46	2300	31	2963	16055	194	3727	26971	297
Plantation Crops	43113	50623	84				14598	599960	460	57711	650583	544
Spices	70000	94515	32				6000	6600	101	76000	101115	133
Tuber crops							700	275	30	700	275	30
Vegetables	911692	275525	284	72975	44475	62	448236	721545	1526	1432903	1041545	1872
Mulberry seedlings							100000	100000		100000	100000	0
Commercial crops							226073	486474	28	226073	486474	28
TOTAL	**1211918**	**914339**	**11757**	**367790**	**569098**	**794**	**2095494**	**12225429**	**12201**	**3675202**	**13708866**	**24752**

NB:

3.6.2. Bio-products and bio-agents

KVKs produced 246519.5 kg of bio-fertilizers and 44432.25 kg of bio-pesticides and supplied to farmers. The details of production of bio-products are given in Table 3.41.

Table 3.41. Details of production and supply of bio-products and bio-agents by KVKs

Product	Andhra Pradesh			Telangana			Maharashtra			Total (Zone)		
	Quantity		Value (Rs.)	Quantity		Value (Rs.)	Quantity		Value (Rs.)	Quantity		Value (Rs.)
	No	Kg		No	Kg		No	Kg		No	Kg	
Bio-agents		3030	16500		3000	12000	1498	426.5	113319	1498	6456.5	141819
Bio-fertilizers	110	150917	984400		6929	152535	10047	88673.45	4993983	10157	246519.45	6130918
Bio-pesticides	10	5093	201700		1595	97200	2576	37744.25	5890565	2586	44432.25	6189465
Biofungicide					1030	82400		149.25	15365	0	1179.25	97765
Bio-foods & herbal medicines	1500		14000				195	77.78	109975	1695	77.78	123975
Mineral mixture								2344	143340	0	2344	143340
Silage Culture								289	92480	0	289	92480
Total	**1620**	**159040**	**1216600**	**0**	**12554**	**344135**	**14316**	**129704.2**	**11359027**	**15936**	**301298.2**	**12919762**

3.6.3. Livestock Species

KVKs produced 218865 fish fingerlings, 97950 poultry birds, 405 sheep and goat etc. of elite species and supplied to 8745 farmers (Table 3.42).

Table 3.42. Details of production and supply of livestock, sheep and goat and poultry breeds and fish fingerlings

Category	Andhra Pradesh			Telangana			Maharashtra			Total		
	No.	Value (Rs.)	NF	No.	Value (Rs.)	NF	No.	Value (Rs.)	NF	No.	Value (Rs.)	NF
Dairy	5	98400	0				48	1045128	11	53	1143528	11
Fisheries	4065	12225	47	192500	184000	212	22300	21150	224	218865	217375	483
Poultry	9066	790771	489	680	25342	232	88204	2262457	7217	97950	3078570	7938
Sheep & Goat	160	529830	35	9	41496	9	236	1127024	83	405	1698350	127
OTHERS Sericulture (Mulberry)				40350	403500	186				40350	403500	186
TOTAL	**13296**	**1431226**	**571**	**233539**	**654338**	**639**	**110788**	**4455759**	**7535**	**357623**	**6541323**	**8745**

No: Number, NF: Number of Farmers

3.6.4. Soil and water testing

KVKs undertake soil and water testing primarily to ascertain the nutrient status of fields earmarked for technology assessment and refinement so as to make soil test based nutrient recommendations in various micro-farming situations in the district. A total number of 124014 samples including soil (92600), water (30365), plant (900), compost (44) and petiole (105). were analyzed by the KVKs benefitting 111783 farmers of 15378 villages (Table3.43 and 3.44).

Table:3.43 . Total soil and water testing by KVKs of Zone-V

Sample	Zone Total			
	NS	**NB**	**NV**	**Amount (Rs.)**
Soil Samples	92600	83536	11433	10802603
Water Samples	30365	27606	3807	2764307
Compost Samples	44	30	8	12400
Plant Samples	900	515	62	180050
Petiole Samples	105	96	68	38300
Total	**124014**	**111783**	**15378**	**13797660**

NS : No. of samples NB: No. of beneficiaries NV: No. of villages

Table:3.44. Details of soil and water testing by KVKs of Zone-V

Sample	Andhra Pradesh				Telangana				Maharashtra			
	NS	**NB**	**NV**	**Amount (Rs.)**	**NS**	**NB**	**NV**	**Amount (Rs.)**	**NS**	**NB**	**NV**	**Amount (Rs.)**
Soil Samples	8167	6838	1916	344568	2089	1718	240	89570	82344	74980	9277	10368465
Water Samples	3539	3213	1372	168927	49	42	20	0	26777	24351	2415	2595380
Compost sample	0	0	0	0	0	0	0	0	44	30	8	12400
Plant Samples	101	95	10	50000	0	0	0	0	799	420	52	130050
Petiole	0	0	0	0	0	0	0	0	105	96	68	38300
Total	**11807**	**10146**	**3298**	**563495**	**2138**	**1760**	**260**	**89570**	**110069**	**99877**	**11820**	**13144595**

3.7. Rainwater Harvesting

The details of training programmes on rainwater harvesting conducted by KVKs are given in Table 3.45 . A total of 68 courses were conducted for 2673 farmers and farmwomen and extension personnel.

Table: 3.45. Details of training programmes conducted by KVK on rainwater harvesting

State / KVK	No. of courses	Beneficiaries		
		Male	Female	Total
Andhra Pradesh				
Anantapur	1	45	0	45
Kurnool (B)	24	710	90	800
Total	**25**	**755**	**90**	**845**
Telangana				
Nalgonda (K)	2	35	0	35
Maharashtra				
Ahmednagar (D)	1	26	0	26
Amravati(D)	9	521	126	647
Beed	2	30	0	30
Beed (K)	1	44	17	61
Buldhana	8	347	112	459
Pune (B)	2	35	0	35
Jalna	6	207	7	214
Thane	8	144	34	178
Nandurbar	2	80	5	85
Jalgoan (MF)	2	58	0	58
Total	**41**	**1492**	**301**	**1793**
Grand Total	**68**	**2282**	**391**	**2673**

3.8 National Initiative on Climate Resilient Agriculture (NICRA)

Under the Technology Demonstration component of NICRA, the available options fromthe National Agricultural Research System that help farmers to cope with the climate variability are being tested in 100 village panchayats in the vulnerable districts. In Zone V, 13 districts (6 in Andhra Pradesh and 7 in Maharashtra) are selected for conducting such technology demonstrations. During the year KVKs conducted 2505 demonstrations under NRM interventions viz. in-situ moisture conservation practices,
water harvesting and recycling, ground water recharge, improved drainage in flood prone area, micro irrigation systems and various resource conservation technologies. A total of 1380 crop production demonstrations were conducted in 551.3 ha on drought tolerant and short duration varieties, location specific inter cropping systems, crop diversification, disease and pest management, nutrient management etc. Under livestock and fisheries interventions, KVKs covered 887 farmers on breed up gradation,
deworming of animals, mitigation of mineral deficiency, improved birds for backyard poultry, preventive vaccination, livestock insurance, fodder production, management of fishponds, etc.

Similarly, KVKs also covered 891 farmers under institutional interventions viz. use of community lands for seed production, fodder bank, custom hiring of farm implements, formation of commodity groups etc. KVKs also organized 226 training programmes for 5604 participants (4614 farmers and 990 farmwomen) on soil
health management, contingency cropping, vegetable production, farm mechanization, pest and disease management, live stock management, etc. Conducted 456 extension activities with active participation of 25995 particpants (22832 men and 3163 women particpants) on method demonstrations, agro advisory services, awareness, exposure visits, field days, group discussions, diagnostic visits etc.

3.9 Technological backstopping

The Directorates of Extension of State Agricultural Universities (SAU) and Zonal Project Directorates facilitate technological backstopping and Human Resource Development (HRD) to the KVKs through extension training and capacity building, seminars, workshop etc. There are seven Directorates of SAUs in Zone-V under Acharya N. G. Ranga Agricultural University, Hyderabad, Sri Venkateswara Veterinary University, Tirupati, Dr. Y.S.Rajasekhara Reddy Horticulture University, Venkataramannagudem in Andhra Pradesh and Vidyapeeth, Dapoli, Vasantrao Naik Marathwada Krishi Vidyapeeth, Parbhani, Mahatma Phule Krishi Vidyapeeth, Rahuri and Dr. Punjabrao Deshmukh Krishi Vidyapeeth, Akola in Maharashtra. A total of 61 programmes benefitting 2351 KVK staff in Zone-V were jointly organized by the directorates of extension and the Zonal Project Directorate (Table 3.46). To review the progress of KVKs, various officials of Directorate of Extension of SAU made 147 visits under their operational jurisdiction (Table 3.47).

Table 3.46 : Details of training programs and meetings conducted by ZPD and SAUs of AP , TS and MS

SAU/ZPD	No. of meetings	No. of participants
ANGRAU, Hyderabad	23	1062
Dr.YSRHU, Venkataramannagudem	1	20
BSKVV, Dapoli	6	113
VNMKV, Parbhani	2	122
MPKV, Rahuri	4	342
PDKV, Akola	20	437
ZPD, Hyderabad	5	255
Total	61	2351

Table 3.47 : Details of visits by the officials of Directorate of Extension of SAU to KVKs

SAU	No. of visits	No. of KVKs
ANGRAU, Hyderabad	72	15
Dr.YSRHU, Venkataramannagudem	12	3
BSKVV, Dapoli	27	4
VNMKV, Parbhani	16	10
MPKV, Rahuri	5	6
PDKV, Akola	15	7
Total	147	45

3.10 Agricultural Technology Information Centre

In view of greater need for direct access of farmers to institutional resources, ICAR established 44 Agricultural Technology Information Centres (ATIC) at some of the renowned institutions of National Agricultural Research System during 1997-98. In Zone-V, six ATIC were established, one each at five State Agricultural Universities viz. Acharya N. G. Ranga Agricultural University (Andhra Pradesh), Dr. Balasaheb Sawant Konkan Krishi Vidyapeeth, Vasantrao Naik Marathwada Krishi Vidyapeeth, Mahatma Phule Krishi Vidyapeeth and Dr. Punjabrao Deshmukh Krishi Vidyapeeth in Maharashtra and one at Central Institute for Cotton Research, Nagpur, Maharashtra. During the year, a total of 121215 farmers visited the ATICs to access the latest technological information and critical technology products viz. Seed and planting material (Table 3.48). ATICs published latest technical information in the form of books, bulletins and electronic print format viz. compact discs and digital virtual discs for the benefit of farmers. The details on number of publications by ATICs are furnished in Table 3.49. A total of 139962 copies of 185 various publications were sold by ATICs with revenue of Rs. 52.06 lakh benefitting 45429 farmers.

Table 3.48: Details of visits of farmers to ATICs

Nature of visit	Number of farmers
Technology Information	84275
Technology Products	27363
Agro-advisory	4651
Diagnostic services	184
Exposure visits	3192
Farmer-Scientists forum	1550
Total	**121215**

Table 3.49: Details of publication by ATICs

Publication	Number	No. of copies	Revenue (Rs.lakh)	No.of farmers
Books	78	39550	42.13	9016
Technical bulletins	26	39815	4.76	17815
Technology Inventory	3	7041	4.42	3689
CD, DVD & Video film	22	1009	0.75	859
Leaflet	29	28190	0	12400
Booklet & Pamphlet	27	24357	0	1650
Total	**185**	**139962**	**52.06**	**45429**

Similarly, various critical technology products such as seed and planting material of improved varieties of crops, elite breeds of livestock, improved farm implements etc. were sold by ATICs which generated revenue of Rs. 192.60 lakh and benefitted 21124 farmers and farmwomen (Table 3.50). ATICs in Zone-V also facilitated other technology advisory and services viz. soil and water testing, plant diagnostics, special extension education programmes and service to line departments which benefitted 440946 farmers (Table 3.51).

Table 3.50: Details of technology products produced and supplied by ATICs

Product	Quantity	Revenue (Rs. in Lakh)	No. of farmers
Seed(q)	3616.21	105.93	7038
Planting Material(No.)	187625	34.91	3511
Livestock species(No.)	116	6.26	68
Poultry Birds(No.)	600	0	60
Bio-Products(q)	11.98	24.9	1164
Farm implements (No.)	6305	11.52	4161
Processed products (No. of packets)	10292	8.57	5088
Vermi compost (q)	0.85	0.04	7
Zygogramma Beetles (No.)	15850	0.158	25
Turmeric Rhizomes (q)	20	0.32	2
Total		**192.60**	**21124**

Table 3.51: Details of technology services provided by ATICs

Technology service	Number	No. of farmers
Soil and water testing	5254	3626
Plant diagnostics visits	309	782
Animal diagnostic visits/treatment	45	118
Services rendered to line Departments	468	3072
Agro/Veterinary Advisory Services	1811672	431437
Special Extension programme	38	1911
Total	**1817786**	**440946**

4 STAFF POSITION IN ZONAL PROJECT DIRECTORATE

S.No	Name	Designation
1	Dr.N.Sudhakar	Zonal Project Director
2	Dr.K.Dattatri	Principal Scientist (Agril.Extn)
3	Dr.Chari Appaji	Principal Scientist (Agril.Extn)
4	Dr.J.V.Prasad	Principal Scientist (Agril.Entomology)
5	Dr.G.Rajender Reddy	Senior Scientist (Soil Science)
6	Dr.A.R.Reddy	Principal Scientist (Agril.Economics)
7	Smt.B.Malathi	Scientist (Agril.Economics)
8	Shri.B.Amarnath	Asst.Admin.Officer
9	Shri.S.Bala Kamesh	Asst.Finance & Accounts Officer
10	Vacant (Since 25.10.2010)	Jr.Accounts Officer
11	Vacant (Since 13.07.2013)	Private Secretary
12	Shri.V.V.Ramana	Assistant
13	Smt.N.Archana	Lower Division Clerk
14	Smt.G.Navneetha	Lower Division Clerk
15	Shri.N.Vijay Kumar	Lower Division Clerk
16	Shri.M.Sadanand	Driver
17	Smt.Subbalakshmi	Skilled Supporting Staff

5 LIST OF KVKS IN ZONE V

SAC Meeting KVK Nandurbar