

# KRISHI VIGYAN KENDRA

THREE DECADES IN SERVICE OF  
FARMERS OF RANGA REDDY DISTRICT



C.R. Thyagaraj, M.S. Prasad, B. Venkateswarlu,  
S.M. Vidya Sekhar, R. Joseph, R.D. Rami Reddy, P.R. Singh,  
P.K. Mathad, A. Vidyaadhari, D. Sudheer, G. Nirmala



**CENTRAL RESEARCH INSTITUTE FOR DRYLAND AGRICULTURE**

Hyderabad 500 059

**2009**

# Contents

Chapter / Section	Particulars	Page No.
1.1	Genesis Of KVK	1
1.2	Location Of The KVK	2
2.1	Profile Of Ranga Reddy District	2
2.2	Location	3
2.3	Boundaries	3
2.4	Administrative Setup	3
2.5	Demography	6
2.6	Farming Situation Wise Mandals Covered In Ranga Reddy Dist	7
2.7	Land Utilization Particulars	8
2.8	Operational Holdings	9
2.9	Climate	10
2.10	Agricultural Machinery And Implements (1993)	11
2.11	Irrigation Sources ( In Ha)	11
2.12	Soils	12
2.13	Cropping Pattern	14
2.14	Crops Grown In The District	14
	Major Crops Grown In Ranga Reddy District	15
	Production And Productivity Of Major Crops	16
2.15	Existing Cropping System	18
2.16	Comparatively Advantageous Crop Diversity	19
2.17	Animal Husbandry	19
2.18	Assessment Of Agricultural Situation And Problems	20
2.19	Potentials Of Ranga Reddy District	21
2.20	Major Pest And Disease Problems In Crops And Vegetables	22
3	Krishi Vigyan Kendra - Ranga Reddy	22
3.1	Infrastructure Development	22
3.2	Mandate Of The KVK	23
4.0	Planning Of Development Programmes	24
4.1	Need Analysis	24
4.2	Methodology And Operation	25
4.3	Approach To Problems / Needs Of Clientele	26
4.4	Thrust Areas Of The KVK	29
4.5	Villages Adopted For The Last 3 Decades	31
5.0	Training Programmes	32
6.0	Demonstration Of Production Potentiality	44
6.1	Frontline Demonstrations	44
6.2	Methodology	44
6.3	Frontline Demonstrations On Oilseeds	46
6.4	Results Of FLDs	49
6.5	Components Of Technology - Castor	55

6.6	Components Of Technology - Sunflower	56
6.7	Seed Production	57
6.8	Frontline Demonstrations On Pulses	57
6.9	Components Of Technology - Pigeon pea	62
6.10	Frontline Demonstrations On Other Than Oilseeds And Pulses	63
6.11	Components of Technology	71
6.12	Feedback	73
6.13	Impact	74
6.14	Integration of Training and Demonstration	75
6.15	Instructional Farm	76
6.16	Model watershed in KVK farm	77
7.0	Technology verification	78
8.0	Extension Activities	81
8.1	Farmers Days	82
8.2	Field Days	83
8.3	Study tour-cum-exposure visits	84
8.4	Open house discussions / Seminars	85
8.5	Exhibition	85
8.6	Vikas Voluntary Vahini (VVV) Clubs	86
8.7	Peripatetic Training	86
8.8	Extension Literature	86
8.9	Other Activities	89
8.10	Website	91
8.11	Seed Production at Village Level	92
8.12	Working through Rythu Samakhya - An Innovative methodology of Transfer of Technology	93
8.13	Soil Health	95
9.0	Women Empowerment	96
9.1	Activities on-farm	96
9.2	Activities Non-farm	96
9.3	Training and Demonstration	99
9.4	Removal of Drudgery	99
9.5	Dryland Horticulture	99
9.6	Integrated Pest Management	99
9.7	Post-harvest Technology	100
9.8	Nutrition Gardens	100
9.9	Use of Improved Chullha	100
9.10	Fruit and Vegetable Preservation	100
9.11	Training in Non-Farm Technology	101
10.0	Linkages	103
10.1	Research - Extension	103
10.2	Institutional	103
10.3	Local Line Departments	105
11.0	Impact of Activities	108
11.1	Case Studies of Adoption of Improved Crop Production	

	Technologies by Farmers	108
11.2	Improved Implements	112
11.3	Training in scientific storage of food grains - A success story in KVK Villages	113
11.4	Permanent storage structures of 1 M.T. capacity	113
11.5	Significant contributions made by the KVK towards the development of agriculture	114
11.6	Impact of training on Knowledge Level and Adoption of Technologies - Frontline demonstrations in Maize - A Study	115
11.7	SUCCESS STORIES	120
11.7.1	Success story of vermin-compost production by entrepreneur farmer trained by the KVK	120
11.7.2	Nursery Management - Success Story of Drumstick	121
11.7.3	Improvement of Dryland Horticulture	122
11.7.4	Backyard Poultry - An Income Generation Activity	122
11.7.5	Higher and Stable Income through Crop Diversification in Drumstick Plant	124
11.7.6	Success Story of Nutrition Gardening	125
11.7.7	Income Generating Activities - Success Stories from KVK Village	125
11.7.8	Success story - 2006	126
11.7.9	Success Story - 2005	127
11.7.10	Success Story - Enhancing Nutritional status of Farm women and Children with locally harvested Maize (Value added products of Maize)	127
11.7.11	Adoption of Cotton Production Technology	129
11.7.12	Adoption of Maize Production Technology	130
12	Future Vision and narrative summary	132



# CHAPTER - 1

## INTRODUCTION

### 1.1. GENESIS OF KVK

Although Indian Agriculture has come a long way, there are certain challenges that need to be addressed for national food and nutritional security. Our population is expected to be 1.4 billion by 2020. The increasing population, coupled with growing income will generate increased demand for food and non-food crops. Therefore, Indian agriculture has to achieve a higher growth rate of 4 per cent per annum on a sustainable basis. Indian agriculture also has to diversify into high-value crops, raise productivity, restore soil health and enhance the application of modern technologies including biotechnology. Agriculture, especially crop production is the mainstay of the Indian economy, which supports about 115.5 million farm families. A variety of crops are grown under diverse climatic situations in different cropping systems. The distribution of farm holdings is dominated by small and marginal farmers. Rain-fed agriculture constitutes about 60 per cent of the net sown area in India. These areas are the major domain of oilseeds, pulses and coarse cereals production. Different production technologies were developed under NARS system for the rainfed regions of the country.

In the words of Hon'ble Prime Minister of India, higher growth rate of economy can be achieved by giving highest importance to agriculture. Contribution of agriculture to GDP is now 20 percent coming from 65 percent of the population depending on agriculture for their livelihood. The quantum jump in agriculture production from 50 MT to more than 200 MT followed the green revolution. In order to achieve the targeted 8 percent of annual GDP growth rate and to double the food grain production as envisaged in the National Common Minimum Programme and also for poverty eradication, application of latest agricultural technology is essential. Market oriented production and skill intensive farming are the key strategies for achieving higher production. Knowledge or technical know-how for field application of innovations or technology is more important than capital, land etc., Need for training of farmers in latest technical know-how is of utmost important. The Krishi Vigyan Kendra (KVK) or Farm Science Centre is an innovative frontline extension programme established by the India Council of Agricultural Research (ICAR) for vocational training to farmers and field level extension functionaries.

The farmer has to understand, accept and adopt the new practices and technologies for favourable results. His knowledge should be widened, skill to be inculcated and attitude to be changed in favour of adoption of technical innovations. The Indian Council of Agricultural Research (ICAR) has started the Krishi Vigyan Kendras (KVK) or Farm Science Centres as innovative institutions for educating the farmers. The KVK is conceived as a Knowledge Centre for imparting need-based skill oriented training to farmers. It works on the principles of 'learning by doing' and 'teaching by doing' by arranging work experiences to farmers. Realizing the importance of the technology oriented skill training to farmers, the ICAR has started the first KVK on a pilot basis during 1974 at Pondicherry. Later during subsequent five year plans, the number of established of KVKs were increasing and the number reached to 261 by the end of eight plan (1992-97). The KVKs are attaining the focal point for frontline transfer of technologies for all developmental activities related to agriculture, community and industries in rural India. The KVK movement has further expanded and the total number of KVKs has reached by now about 557 in the country, with an allocation of 2100 crores in the XIth plan.

The ICAR has established the Ranga Reddy district KVK during 1976-77 under the administrative control of All India Co-ordinated Research Project on Dryland Agriculture (AICRPDA), Hyderabad that was subsequently referred as Central Research Institute for Dryland Agriculture (CRIDA) from 1985. The major objective of the KVK is to extend need-based and skill oriented training to practicing farmers, farmwomen, rural youth and extension functionaries in Ranga Reddy district of Andhra Pradesh.

### 1.2. LOCATION OF THE KVK

Krishi Vigyan Kendra (Ranga Reddy district) office is located in Hayathnagar Research Farm of CRIDA, which falls between Mahaveer Deer Park and Hayathnagar on the National Highway 7 and is about 11 km from Hyderabad city.

The KVK has a major role to play in this district where drylands are predominant with less than 26% under irrigation. However, it has been able to cover almost all mandals except Rajendranagar and Saroornagar mandals which are mainly urban despite several constraints.

## CHAPTER- 2 RANGA REDDY DISTRICT

### 2.1. PROFILE OF RANGA REDDY DISTRICT

Ranga Reddy District was formed on 15<sup>th</sup> August, 1978 by carving out some portion of Hyderabad Urban Taluk & the merger of the entire Rural and Urban Areas of the remaining Taluks of Erstwhile Hyderabad District. This District is primarily the Rural hinterland for Hyderabad City feeding the powerful commercial Centre with various raw Materials, agriculture produce and finished products.

Origin of the Name : The Name of the District was Hyderabad (Rural) to begin with. It was changed as K.V. Ranga Reddy District and later on Ranga Reddy District. It was named after former Deputy Chief Minister of Andhra Pradesh late Sri K.V. Ranga Reddy.

2.2. Location : The District is located in the Central Part of the Deccan Plateau and lies between 16' 30` and 18' 20` of North Latitude and 77' 30` and 79' 30` of East Longitudes.

2.3. Boundaries : The District is bounded on the North by Medak District, East by Nalgonda District, South by Mahaboobnagar District, West by Gulbarga District & North West of Bidar District of Karnataka State. It covers an area of 7564.88 Sq. Kms.

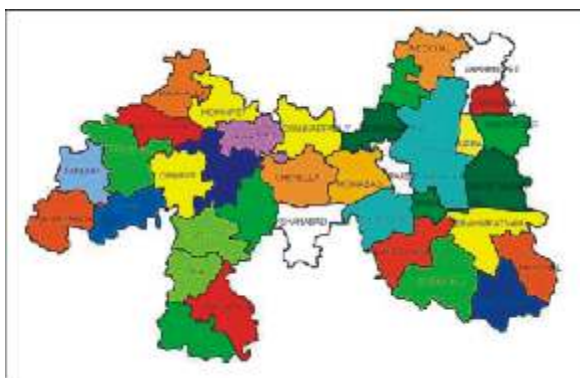
The district can be divided into three broad basins. A major part (65%) of the district is covered by Musi river basin (Osman sagar and Himayat sagar for drinking purpose). The next largest basin is the Kagna basin a tributary to Bhima River. There is a good potential in this basin, which can irrigate large areas. The third basin is the Manjeera, which is part of the Godavari basin where the area under irrigation is limited.

Ranga Reddy district comprises of plains, but is mostly criss - cross with rivers, seasonal rivulets and small streams. Ananthagiri hill range spreads across the district from Mahaboobnagar District in the South to Dharur mandal in Vikarabad revenue division in the North.

### 2.4. Administrative setup :

The district is having three Revenue divisions, 12 Agricultural Sub-divisions, with 37 Mandals, 1055 villages.

Revenue Divisions	Revenue Mandal	No. of Villages	No. of Gram Panchayats
Ranga Reddy East	1. Medchal	29	18
	2. Shamirpet	30	22
	3. Keesara	16	12
	4. Qutubullapur	18	11
	5. Hayathnagar	41	27
	6. Saroornagar	29	13
	7. Ghatkesar	27	21
	8. Uppal	14	-
	9. Ibrahimpatnam	28	22
	10. Yacharam	20	20
	11. Manchal	25	18
	12. Maheswaram	33	23
	13. Kandukur	30	23
	Division Total	340	230
Chevella	1. Rajendra Nagar	40	14
	2. Serilingampally	26	-
	3. Shamshabad	43	24
	4. Chevella	36	30
	5. Shahbad	25	29
	6. Shankarapally	26	25
	7. Moinabad	26	21
	8. Pargi	37	22
	9. Doma	28	21
	10. Kulkacherla	30	29
	11. Gandeed	29	24
	12. Malkajgiri	12	-
	13. Balanagar	14	-
	Division Total	372	239
Vikarabad	1. Vikarabad	35	21
	2. Nawabpet	22	22
	3. Pudur	34	25
	4. Dharur	38	21
	5. Marpally	28	19
	6. Bantaram	26	18
	7. Mominpet	23	20
	8. Tandur	38	25
	9. Peddemul	34	25
	10. Basheerabad	31	16
	11. Yalal	34	24
	Division Total	343	236
	District Total	1,055	705



Mandals of Ranga Reddy Dt.

## 2.5. Demography :

Ø According to 2001 Census, the total population of the District is 35,75,064 about 54.20% of which live in Urban Areas.

Ø The District ranks 20<sup>th</sup> in its area and takes (9)<sup>th</sup> place in size of Population among the 23 Districts of the State.

Ø Out of the total Population 5.20 Lakhs belongs to Scheduled Caste and 1.46 Lakhs belongs to Scheduled Tribes.

Ø The population figures of both the sexes from 1901 Census to 2001 Census in the District given below.

Year	2001 sensus (in Lakhs)
Male	18.39
Female	17.36
Total	35.75

Growth of Population :- The Population of the District has rises from 25,51,966 in 1991 to 35,75,064 by 2001 exhibiting an increase of 10,23,098 persons which works out to 40.10% growth.

Sex Ratio :- The Population of females to 1000 males in the District improved slightly from 941 in 1991 to 994 in 2001 Census.

Density of Population :- Due to increasing trend of urbanization in the District. The District has been continuously on the increase of Population since 1931.

The density of population has increased from 45 in 1991 Census to 473 in 2001 Census per Sq.Km.

## 2.6. Farming Situation Wise Mandals Covered In Ranga Reddy District :

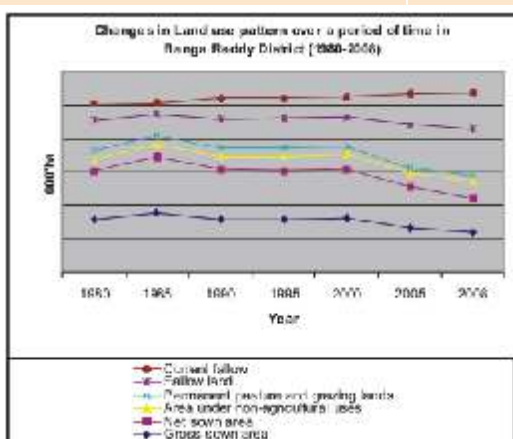
FARMING SITUATION	NO. OF MANDALS	MANDALS COVERED
Medium Irrigation Project Light Soils	3	Yalal, Peddemul, Pargi
Red Soils -under tube wells and Well Irrigation.	19	Doma, Quthbullapur, Saroornagar, Shamshabad, Ibrahimpatnam, Gandveed, Medchal, Keesara, Uppal, Serilingampally, Maheswaram, Kulkacherla, Shamirpet, Hayathnagar, Ghatkesar, Rajendranagar, Kandukur, Manchal, Yacharam.
Black Soils -under tube well and Well Irrigation.	16	Moinabad, Vikarabad, Pudur, Basheerabad, Shahbad, Marpally, Bantaram, Dharur, Navabpet, Mominpet, Peddemul, Tandur, Yalal, Chevella, Shankarpally, pargi.
Red Soils -Under Tank Irrigation	19	Doma, Medchal, Shamirpet, Outbullapur, Hayathnagar, Uppal, Ghatkesar, Gandveed, Kulkacherla, Ibrahimpatnam, Yacharam, Manchal, Keesara, Maheswaram, Kandukur, Saroornagar, Rajendranagar, Shamshabad, Serlingampally
Black Soils- Under Tank Irrigation	17	Moinabad, Shahbad, Dharur, Vikarabad, Marpally, Nawabpet, Pudur, Kulkacherla, Mominpet, Chevella, Shankerpally, Bantaram, Tandur, Basheerabad, Yalal, Peddemu, pargi

FARMING SITUATION	NO. OF MANDALS	MANDALS COVERED
Rainfed- Red soils	19	Doma, Medchal, Shamirpet, Outhbullapur, Keesara, Hayathnagar, Saroornagar, Uppal, Ghatkesar, Shamshabad, Serilingampally, Kulkacherla, Gandveed, Ibrahimpatnam, Yacharam, Maheshwaram, Kandukur, Manchal, Rajendranagar
Rainfed - Black soils	16	Chevella, Shahbad, Shankarpally, Moinabad, Vikarabad, Nawabpet, Dharur, Pudur, Tandur Peddemul, Yalal, Basheerabad, Marpally, Bantaram, Mominpet, pargi
Irrigation - Musi Sewage	3	Hayathnagar, Ghatkesar, Uppal.

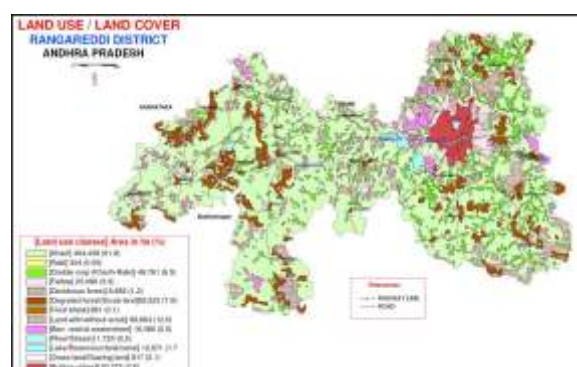
## 2.7. Land Utilization Particulars :

The total geographical area of the district is 7.49 Lakhs hectares. The total area sown is about 2.38 lakh ha, constituting 31.77 % of total area. Out of 2.38 lakh ha, 80% is rainfed and about 20% is under irrigated conditions. The District is predominately dependent on rainfall with limited irrigation potential.

Land Utilization particulars	1980	1985	1990	1995	2000	2005	2008
Forest	73080	73030	73030	73080	73080	73000	73000
Barren and Un-Cultivable land	46890	47140	44690	37510	37510	38000	28000
Land put to Non- Agricultural Uses	68480	74990	75420	86410	87620	88000	10200
Culturable Waste	31810	32100	27370	27590	26450	21000	20000
Permanent pastures and Other Grass land	58440	55000	53080	50880	46080	34000	33000
Land under Miscellaneous tree crops and groves not included in net area sown	10040	10040	7250	7870	7410	6000	6000
Current Fallows	101470	67080	12389	11965	11630	18800	21800
Other Fallow lands	74560	59850	52630	57970	63700	66000	63000
Net Area Sown	288490	334020	295870	292290	295120	239000	206000
Total Geographical area	749300	749300	749300	749300	749300	749300	749300
Total Cropped Area	318790	356100	318230	313580	320400	266000	238000
Area Sown More than Once	30310	22080	22360	21290	25290	27000	32000



(Source CMIE database 2008)



Land use and Land cover of Ranga Reddy Dt. (NBSSLUP-2006)



## 2.8. Operational Holdings :

The District has got 2.81 lakh farm holdings covering an area of 5.0 lakh hectares. The marginal holdings are 1.33 lakh in Nos. covering an area of only 0.67 lakh hectares. The large holdings are very few in number i.e. 0.04 Lakhs covering 0.74 lakh hectares.

Category	Size of Holding (in ha)	Total holdings	Area (in ha.)	% of the total No. holdings	% of the total area
Marginal	Up to 1	133056	67084	47	14
Small	1 to 2	74298	102420	26	20
Semi Medium	2 to 4	48802	128262	17	26
Medium	4 to 10	20861	120547	7.5	24
Large	10 and above	4040	73758	1.5	15

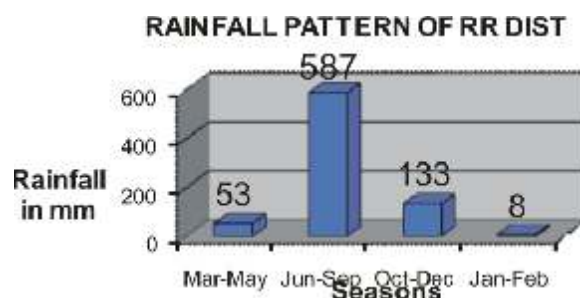
## 2.9. Climate :

The climate of the district is generally dry except during the southwest monsoon.

Month	Rainfall (mm) Normal	Temperature 0 C		Relative Humidity (%)	Mean wind speed (kmph) Normal
		Maximum	Minimum		
January	5.0	28.6	14.6	57	06
February	3.0	31.2	18.7	49	07
March	7.0	34.8	21.1	40	08
April	15.0	36.9	23.0	42	08
May	31.0	38.7	26.7	44	12
June	104.0	34.1	24.8	64	14
July	183.0	29.8	23.0	73	14
August	172.0	29.5	22.0	78	13
September	128.0	29.7	22.3	74	10
October	98.0	30.3	20.5	66	07
November	30.0	28.7	17.5	59	06
December	5.0	27.8	14.9	53	06

It receives rainfall through the following seasons.

Season	Months	Normal Rainfall (mm)
Hot weather	March - May	53.0
South west Monsoon	June - September	587.0(75.0%)
North east Monsoon	Oct - December	133.0(16.8%)
Winter	Jan - February	8.0



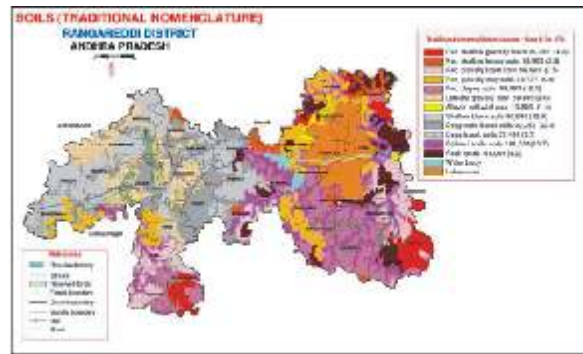
2.10. Agricultural Machinery And Implements : (CMIE, 2003)

Name of the Machines	Nos.
Diesel Engines	657
Electric Pumps	45606
Tractors	1916
Power Tillers	177

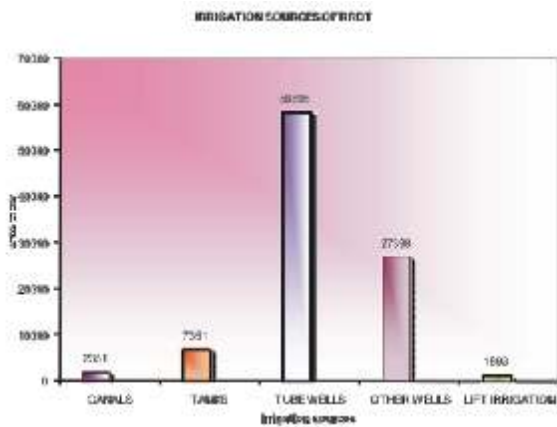
and Bantaram. Red soils are neutral whereas black soils are slightly alkaline, pH ranges from 6.5 to 8.5. The soils are highly deficient in nitrogen, low to medium in available P and high in available K. Zinc deficiency is common in all the mandals (deficiency ranges from 16 per cent to 90 per cent).

2.11. Irrigation Sources ( In Ha ) :

Name of the Source	Area in Ha
Canals	2351
Tanks	7351
Tube wells	58896
Filter points Other Wells	27398
Lift Irrigation	1893
Other Sources	1490
Gross Irrigated Area	98206
Area Irrigated more than once	17979
Net Area Irrigated	80227



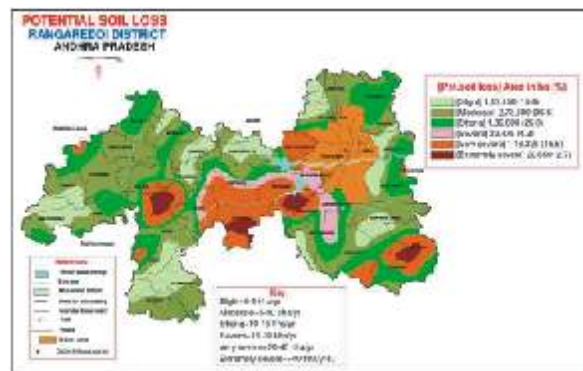
Soil Types of Ranga Reddy Dt. (NBSSLUP-2006)



Fertility Status of soils of Ranga Reddy Dt. (NBSSLUP-2006)

2.12. Soils :

Red soils predominate in the District followed by Black Cotton soils. The Mandals Where more than 50% of the villages have Red-Chelka soils are Medchal, Shamirpet, Qutubllapur, Keesara, Hayathnagar, Saroornagar, Uppal, Ghatkesar, Rajendranagar, Pargi, Doma, Shamshabad, Serilingampally, Malkajgiri, Balanagar, Kulkacherla and Gandeed. Dubba soils are largely found in ibrahimpatnam, Manchal, Yacharam, Maheshwaram and Kandukur mandals besides Red Chelka soils. The mandals with black soils are Chevella, Shahbad, Vikarabad, Newabpet, Dharur, Pudur, Tandur, Peddemul, Yalal, Basheerbad, Marpally, Mominpet



Potential Soil Loss in Ranga Reddy Dt. (NBSSLUP-2006)

### 2.13. Cropping Pattern :

The variation in the fertility of the soils is the main cause for the difference in cropping pattern of the eastern and western regions in the district. Black cotton soils predominate the western region (Chevella, Pargi, Vikarabad, Marpally and Tandur). The Principal crops of the district are Jowar, Rice, Ragi, Castor and Pulses. Food crops account for (85%) and the non-food crops (15%) to

the gross area sown in the district. Grape cultivation makes the district occupy the distinct place in the state.

The District has a total cropped area of 3.16 lakh hectares, out of which 2.15 lakh hectares is covered by; food crops, 0.30 lakh hectares by oil seeds and 0.47 lakh hectares by commercial crops. Similarly 0.24 lakh hectares is covered under Horticultural Crops.

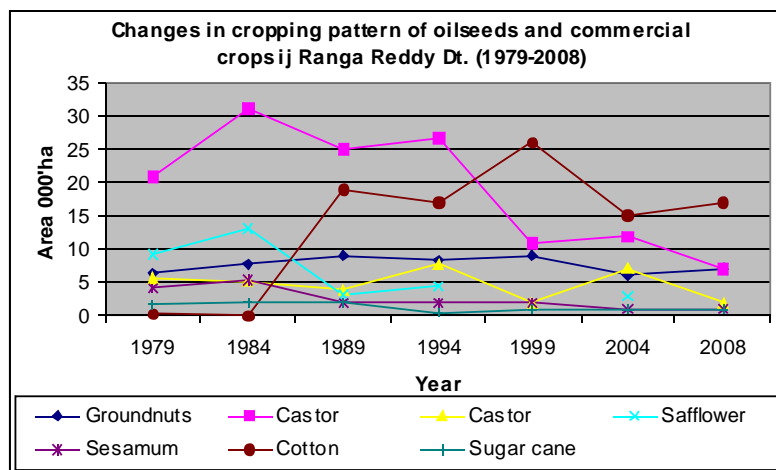
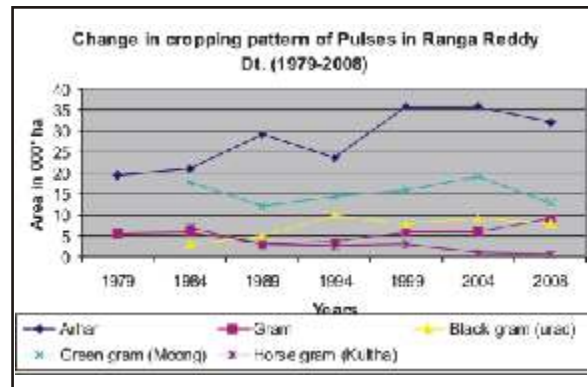
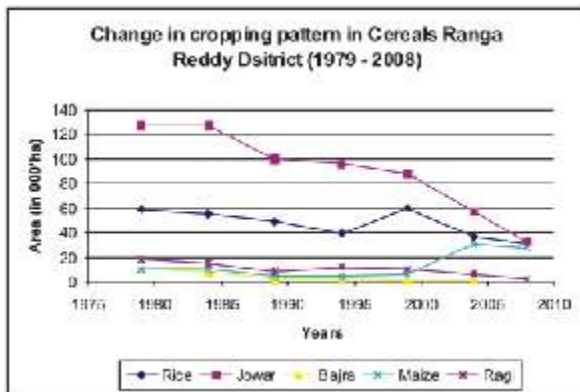
### 2.14. Crops Grown In The District

Cereals	: Rice, Jowar, Bajra, Maize, Ragi
Pulses	: Redgram, Bengalgram, Greengram, Blackgram, Horsegram, Cowpea.
Oil Seeds	: Groundnut, Safflower, Castor, Sunflower, Sesame,
Commercial Crops	: Cotton, Turmeric Chillies, Sugarcane
Vegetables	: Tomato, Brinjal, Bhendi, Bottlegourd, Cabbage, Cauli Flower, Carrot, Onion
Flowers	: Marigold, Chrysanthemum, Jasmine (Kagda Malle), Asters, Crossandra, Rose, Lily.
Fruit Crops	: Grapes, Guava, Mango, Sapota.
Minor Spices	: Ajwan, Fennel, Coriander, Niger.

#### Major crops grown in Ranga Reddy district during kharif and rabi season 2008-09

Crop	Kharif, 2008-09		Rabi, 2008-09	
	Normal area (ha)	Actual area sown (ha)	Normal area (ha)	Actual area sown (ha)
Rice	20777	18337	12823	12126
Bajra	638	232	1	0
Jowar	26711	15140	15173	6661
Maize	26284	20797	717	712
Ragi	2913	1475	76	49
Wheat	-	-	1390	987
Minor Millets	30	0	-	-
Redgram	34562	29743	-	-
Greengram	14916	10190	2	0
Blackgram	8221	4632	1	0
Horsegram	371	199	449	111
Cowpea	219	106	-	-
Bengalgram	-	-	6031	7445
Other Pulses	22	0	-	-
Groundnut	268	99	4831	6809
Sesamum	1165	467	-	-
Sunflower	304	197	415	212
Castor	10725	6755	-	-
Cotton	17679	16184	-	-
Safflower	-	-	3331	2538
Other Oilseeds	498	298	78	0774

Crop	Kharif, 2008-09		Rabi, 2008-09	
	Normal area (ha)	Actual area sown (ha)	Normal area (ha)	Actual area sown (ha)
Sugarcane	1200	1159	-	-
Chillies	1446	547	631	161
Turmeric	4720	3660	-	-
Potato	34	16	-	-
Soybean	40	24	-	-
Onion	387	130	2078	1436
Coriander	-	-	144	0
Other Non Food Crops	-	-	1373	1095
Other Food Crops	-	-	8399	6432
Gross Area	202354	152766	57943	46774





Production and productivity of major crops in Ranga Reddy district during kharif and rabi season 2008-09

Name of the Crop	Kharif, 2008-09		Rabi, 2008-09	
	Production (kgs/ha)	Productivity (in metric tones)	Production (kgs/ha)	Productivity (in metric tones)
Rice	2896	53103	2749	33334
Bajra	944	309	-	-
Jowar	1307	20378	1168	7780
Maize	3488	93298	5593	3982
Ragi	1118	1649	1874	92
Wheat	-	-	562	555
Redgram	561	18518	-	-
Greengram	453	4616	-	-
Blackgram	425	2176	-	-
Horsegram	481	95	350	39
Bengalgram	-	-	1248	9276
Groundnut	728	1215	2205	15014
Sesamum	232	108	-	-
Sunflower	479	94	1214	257
astor	498	4087	-	-
Cotton	391	6644	-	-
Sugarcane	83804	3100	-	-
Onion	16751	2194	20395	29287
Chillies	3698	2148	3771	607
Safflower			775	1967

Area under Horticultural crops in the district :

I. Fruit crops :

Crop	Exsting area (ha)		Fresh plantations (ha)	Total (ha)
Banana	185	100	50	335
Sweet Orange	1059	1501	504	5064
Acidlime	106	180	12	352
Mango	4120	1439	303	5862
Ber	3	1	0	4
Guava	1054	667	404	2125
Grapes	1925	60	50	2035
Papaya	30	5	25	60
Sapota	18	5	8	31
Pomegranate	28	0	10	38
Custard Apple	24	0	0	24
Other Fresh Fruits	94	0	0	94
Total Area				16024

## II. Vegetable crops :

Crop	Exsting area (ha)	Rabi (ha)	Summer (ha)	Total (ha)
Tomato	3915	2163	799	6877
Brinjal	617	510	186	1313
Bhendi	698	429	140	1267
Snake Gourds	66	38	15	119
Onion	501	207	51	759
Leafy Vegetables	624	293	104	1021
Beans	316	217	90	623
Carrot	1638	936	150	2724
Green Chillies	103	50	41	194
Other	1210	931	285	2426
Potato	-	164	-	164
Sweet Potato	-	12	3	15
Cucumber	68	18	10	96
Bitter Gourd	109	62	25	196
Cabbage	181	97	39	317
Cauliflower	105	85	12	202
Bottle Gourd	212	109	35	356
Drumstick	10	2	3	15
Peas	-	12	-	12
Cocinia	55	32	6	93
Ridge Gourd	312	124	86	522
Capsicum	121	69	14	204
Total				19515

## III. Floriculture :

Crop	Total (ha)
Jasmine	243
Rose	127
Crossandra	105
Marygold	544
Asters	99
Chrysanthemum	996
Others	288
Total	2402

## IV. Spices and Condiments :

Crop	Total (ha)
Chillies	1126
Coriander	191
Tamarind	25
Curry Leaf	25
Turmeric	4518
Ginger	85
Ajwan	2513
Others	219
Total	8702

## V. Medicinal and Aromatic plants :

Crop	Total (ha)
Amla	200
Total	200

### 2.15. Existing Cropping System :

Under Rainfed Situation: Jowar / Castor with Redgram as inter crop, Jowar / Bajra / Ragi, Maize + Redgram, Redgram as pure crop, Ground nut as pure crop / Mixed with Redgram, Cotton as pure crop, Jowar + Bengalgram / Safflower, Castor as pure crop.

Under Irrigated conditions: Rice Rice, Rice Ground nut, Rice Vegetables, Fallow Rice (under command area)

Vegetables- Vegetables.

## 2.16. Recommended Crop Diversity :

Under Rainfed Black Soils situation

In Kharif:- Greengram or Sunhemp or pillipesara or Redgram + Greengram / Sesame /Jowar / Maize.

In Rabi : Jowar or Bengalgram or Safflower and intercropping with Ajwan /Fennel /Marigold /Niger/ Coriander/Sunflower, Jowar +Safflower, Bengalgram + Safflower.

Under Rainfed - Light Soils Situation :

Greengram - Maize (green cobs), Castor, Vegetables, Horsegram Ragi, Ragi Horsegram, Foddercrops - Castor + Horsegram,

Under Assured Irrigation -Black Soils situation :

Chillies, Greengram Maize, Vegetables round the year according to market demand and weather suitability. Redgram+ Maize/Jowar/Soybean, followed by whiteseeded sesame in rabi summer. Turmeric + Maize - Sesame in rabi summer, colacasia, Flowers, Vegetables + Flowers, Chillies + Flowers, Maize - Rabi Redgram

Under Assured irrigation :

Light soils situation: Greengram - Onion /Maize/Ground nut /rabi castor /Vegetables

Chillies + Flower, Maize Groundnut, Rice - Ground nut, Vegetables round the year based on suitability and market, Maize - Rabi Redgram, Turmeric + Maize - Greengram / Sesame, Ginger + Castor / cowpea.

## 2.17. Animal Husbandry :

Apart from the production of Milk and Meat, the Cattle in the District are used as draught power in Agriculture. As per the Livestock Census (2003) the district has livestock population of 15.57 lakhs and poultry population of 118.76 Lakhs. The particulars of Livestock population in Ranga Reddy District :

Item	Population
Cattle	3,04,592
Buffaloes	2,72,342
Goats	3,18,646
Sheep	6,46,920
Pigs	14,386
Others	734
Total Livestock (all Categories)	15,57, 620
Poultry	1,18,76,380

(Source Dept. of Animal Husbandry and Dairying, Govt. of India)

The Poultry population is mostly concentrated in Hayathnagar, Outubullapur, Maheshwaram Mandals due to their proximity to the twin cities

## 2.18. Assessment of Agricultural Situation and Problems :

Semi-arid tract with limited irrigation sources, current fallows constitute 15-16% of geographical area consistently for last 7 years Forest cover in the dist is only 9% of total geographical area which is less than optimum Area under irrigation is only 18-20% and 80% is dependent on periodic and erratic rainfall (normal - 812 mm) Only 3 medium irrigation projects (Laknapur, Juntapally, Kotpally) available Commanding area of about 3000 ha which constitutes only 5% of total irrigated area encompassing 3 mandals only viz. Parigi, Yalal and Peddemul. Further, the potential of medium irrigation projects is not fully exploited. Major irrigation source is wells (65%) followed by tanks (17%), tubewells (10%) and others (8%).

Erratic rainfall, not well distributed with intermittent or prolonged dry spells influence the time of sowings, inter culture operations, crop stand and yields of rainfed crops as well as I.D crops due to poor recharge of ground water Ultimately, productivity in most of the crops is low over state average

Marginal and small farmers constitute 73% of the total land holdings possessing 35% of total area. While semi-medium to medium farmers constitute 25% of total holdings occupying 50% of the area. Large holdings constitute only 2% with only 15 percent area.

Of late urbanization, sprawling farmhouses and satellite towns in around the Hyderabad in Ranga Reddy dist (for which statistics is lacking) influencing farmers to switch over to alternate occupations other than agriculture.

Heavy metal pollution in soils crops and grasses grown with sewage and effluent water all along with MUSI river and has impact on milch animals.

Soil problems: Medium in nitrogen; Low in available phosphorous; Zinc deficiency predominant; Calcium induced micro nutrient deficiency in calcareous soils.

## 2.19. Potentials Of Ranga Reddy District :

Grape cultivation is very distinct to the district Olericulture and floriculture area is gaining priority as it is in the

precincts of twin cities. Recently, it has been identified as potential zone for export of vegetables, flowers, grapes and mango. Besides certain crops like Maghi Jowar, Oats, Ragi, Redgram, Safflower, Bengalgram, Ajwan, Fennel are traditionally grown in specific situations in the district. Area under Carrots, Onion, Gourds, Leafy vegetables, is considerably increasing in certain mandals of the district (Chevella, Vikarabad, Shahbad, Shankarpally). Area under Kagda Malle, (non-fragrant jasmine), Chrysanthemum, Marigold, Crossandra, Asters, Lilly is increasing in certain mandals (Shamshabad, Maheshwaram, Shankarpally, Moinabad, Vikarabad, Nawabpet). Ginger and Turmeric crops can be encouraged in specific farming situations (red loams under assured irrigation) over Pargi, Vikarabad, Nawabpet, Marpally and Mominpet Mandals.

In Grey and Shadow areas (poor ground water source, very low rainfall areas) and under light soils (chalka soils) like Ibrahimpatnam, Yacharam, Medchal, Shameerpet, Pargi, Gandeed, Moinabad, Shankarapalli, Shamshabad, Rajendranagar, Maheshwaram etc, drought tolerant crops like castor, Ragi Horsegram, cluster bean, ridgegourd etc., need to be encouraged.

Diversification of farming systems to overcome crop failures and for subsidiary income. e.g. Agriculture + Sheep farming, Agriculture + Poultry, Agriculture + Horticulture, Agriculture + Dairy, Silvi-pasture system, Agroforestry (in rainfed situation)- Neem, Aonla, tamarind planting in wastelands or permanent fallows. Medicinal and Aromatic plants in dry areas under limited water source, with assured market tie-up.

## 2.20. Major Pest And Disease Problems In Crops And Vegetables :

S.No.	Crop	Disease
1	Rice	Stemborer, BPH, Blast, Sheath rot / blight
2	Jowar	Shoot fly, Aphids, Grain mould
3	Redgram	Helicoverpa, Wilt
4	Castor	Semilooper, Botrytis, Capsuleborer.
5	Groundnut	Thrips, Sclerotium stem and pod rot, Tikka leafspots
6	Turmeric	Leafspots, rhizome rot, root grub
7	Cotton	Aphids, Jassids, Thrips, Whitefly, Bollworms

S.No.	Vegetable	Disease
1	Tomato	Blight, Virus, Helicoverpa
2	Brinjal	Shoot borer, Red spidermite, Whitefly
3	Gourds	Serpentine leaf miner, Thrips, Fruitfly, Fusarium wilt, Powdery mildew
4	Chilli	Thrips, Mites, Virus, Powdery mildew, Die back, Spodoptera
5	Cabbage and Cauliflower	DBM, Spodoptera, Bhendi Virus, Fruit borer, Thrips, Jassids, Red spidermite, Powdery mildew.
7	Onion	Thrips, Leafspots



## CHAPTER - 3

### KRISHI VIGYAN KENDRA RANGA REDDY DISTRICT

#### 3.1. Infrastructure development:

KVK Ranga Reddy Dt. started functioning from rented building in 1978-79 and new building was constructed in Hayathnagar Research Farm of CRIDA during 1980-82 with an allotment of farm area of 50 acres and the recruitment of all staff members was completed during the same period. Horticultural plantations (Ber, Guava, Pomegranate, Phalsa, Amla, Mango, Custard apple, Soapnut) were developed in the KVK instructional farm during 1983-85. On campus training programmes have been initiated to train farmers with the establishment of hostel facilities during 1985-86. Training to farm and rural women on tailoring was initiated with the procurement of sewing machines during 1987. Library was established during 1996 in KVK premises. Vermi compost unit was established at KVK during 1997. Infrastructure was further strengthened with the purchase of computers, Xerox machine, VCD, VCR, TV, Digital Camera, LCD projector, Slide Projector etc. during 2003-05. Soil testing laboratory was established during 2004-05. Some equipment viz., Adda Leaf Making machine, Bullock and Tractor drawn implements, garden implements, Exhibition boards, Motorcycle were also procured during the same period. Demonstration Units on Poultry, Quails, Rabbits, Emu birds, apiculture, Sheep were also established during 2003-2006. Under the ICAR E-connectivity programme, KVK- Ranga Reddy District is one among the 200 KVKs to receive one server, 5 desktop computers, one laser printer, one scanner, one air-conditioner along with net working facility and e-connectivity through V-SAT ERNET.

#### 3.2. Mandate of the KVK :

Presently, the KVK is functioning with the following objectives, viz.,

- ? To test and verify the technologies in the socio-economic conditions of the farmers through on-farm trials with a view to find out whether technologies are suited to the micro-farming situation
- ? To demonstrate the worth of improved farm technologies on farmers' fields through conducting frontline demonstrations (FLDs) on various mandatory crops of the district
- ? To transfer latest agricultural technology to the practicing farmers, farmwomen, rural youth and field level extension functionaries through need-based, skill-oriented training on the basis of work experience, following the principles of 'learning by doing' and 'teaching by doing'
- ? To create wide awareness and popularizing improved farm technologies through organizing various extension educational activities like conducting Field Days, Film Shows, Exhibitions, Farmers' Days, study tours and field visits etc.
- ? To develop close functional linkages between various district / state level development departments and institutions, NGOs, credit organizations and rural people for quick transfer of technology through operating collaborative programmes

#### STAFF OF KVK, CRIDA as on 2009

S.No.	Name of the Officer	Designation
1)	Dr. C.R.Thyagaraj :	Officer-in-Charge
2)	Dr. M.S. Prasad :	Programme Co-ordinator
3)	Shri Pukhraj Singh :	Subject Matter Specialist (Horticulture)
4)	Shri P.K. Mathad :	Subject Matter Specialist, (Agrl. Engg.)
5)	Shri R. Joseph :	Subject Matter Specialist (Agrl. Extn.)
6)	Shri R.Dasaratharami Reddy :	Subject Matter Specialist (Plant Protection)
7)	Dr S.M. Vidya Sekhar :	Subject Matter Specialist (Agronomy)
8)	Smt.A. Vidyadhari :	Subject Matter Specialist (Home Science)
9)	Dr. D. Sudheer :	Subject Matter Specialist (Veterinary Science)

## CHAPTER - 4

### PLANNING OF DEVELOPMENT PROGRAMMES

#### 4.1. Need Analysis :

The problems faced by the farming community were identified and analyzed by understanding the existing farming systems through Participatory Rural Appraisal (PRA). Information generated through farmers participatory surveys are used to identify the technological gaps and related training needs. The problems identified through PRA are mentioned below :

- ? The district receives below normal rainfall most often and its distribution is erratic. Late onset, intermittent long dry spells and early withdrawal of monsoon are quite common constraints resulting in low and unstable crop yields and income
- ? Soils are degraded with poor retention capacity due to severe erosion
- ? Limited draught power results in delay in sowing and poor plant stands
- ? Imbalanced plant nutrition and heavy incidence of pests and diseases results in low and unstable crop yields
- ? Shortage of human labour for different farm operations
- ? Women folk who are involved in most of the farm operations face the problem of drudgery
- ? Limited irrigation (bore well, tank) available with farmers (growing rice and vegetables) often suffers with shortage of water for irrigation due to depletion of groundwater because of poor rainfall
- ? Acute shortage of fodder particularly in drought years results in selling of livestock during summer season due to fodder scarcity and low productivity. The milk yields are low due to poor maintenance of milch cattle
- ? The farm implements have limited capacity for

area coverage. Because of this, timely seeding and cultural operations become difficult

- ? Women folk faces the problem of unemployment during off-seasons especially during winter and summer in majority of areas results in low family income

#### 4.2. Methodology and Operation :

The problems faced by the farmers are alike in almost in all areas of the district. However, the intensity varied from area to area depending upon the availability of resources and crops / enterprises pursued by the farmers. The KVK has identified suitable technologies and necessary skills needed by the farmers. Depending on the information gathered through PRA surveys and consultations with the subject matter experts and extension specialists, various thrust areas for the district were identified (given below). These were divided into several sub-areas for programme planning of the KVK. Trainings, demonstrations (both result and method), group meetings, field visits, etc. were used for educating the farmers. The KVK is expected to cover the entire district over a period of time. It chooses a cluster of 10-15 villages with 3 to 5 focal villages while remaining were taken as satellite villages located in a contiguous area. By following this, a significant number of mandals and villages were covered by the KVK during the last thirty years. After acquainted well with the needs of its clientele, the process of technology application and transfer was initiated through several activities, viz.,

- ? Training programmes
- ? Frontline demonstrations
- ? On-farm trials
- ? Extension education

### 4.3. Clientele Needs & KVK Approach :

Based on the local situation specific needs, KVK formulates the technology chart:

Crop/Animal/Enterprise	Problem	Cause	Solution	Activity	Reference of Technology
AGRONOMY Paddy/Maize	Imbalanced use of nutrients	Lack of knowledge on fertility status of soils	Soil test based fertilizer application	OFT on Soil test based fertilizer application	CRIDA, Hyderabad and ANGRAU
Castor	Low productivity of existing types used by farmers	Lack of knowledge about the new varieties and Hybrids developed for high yields and profitability	To demonstrate high yielding hybrids and varieties	OFT – Assessment on improved varieties and hybrids developed for the rainfed region - PCH 111,222	DOR, Hyderabad/ ANGRAU, Hyderabad
Pigeonpea or Redgram	Low yields of existing types used by the farmers	Low yields experience by farmers due to cultivation of local varieties and less profits	Introduction of new pigeonpea varieties and intercropping for better profits	Assessment of new varieties – PRG 158 FLD on intercropping in pigeonpea with maize for enhancing profits FLD on Sunflower fertilizer management through STBF.,	GRAU, Hyderabad CRIDA, Hyderabad
Sunflower	Low yields	Imbalanced fertilizer application, Low yielding Varieties	Application of soil test based fertilizers, introduction of high yielding hybrids/Varieties	Assessment of High yielding hybrids /varieties – DRSH-1, DRSF-108	CRIDA, Hyderabad /ANGRAU , Hyderabad
Maize/Redgram /Castor	Water stress during the crop season causing low yields	Water stress due to erratic rainfall during the South west monsoon	Application of green leaf manure as mulching material for moisture conservation	FLD on mulching with green leaf manures for moisture conservation during the crop season	CRIDA, Hyderabad
Dryland crops (Castor, maize, jowar, cotton, sunflower, pigeonpea)	Low yields and improper availability of soil nutrients	Non availability of nutrients to crop due to soil factors	Application of bio fertilizers for enhancing the availability of nutrients to crops	FLD on Biofertilizers to dryland crops– viz. PSB, Azatobacter, Azospirillum, Rhizobium	CRIDA, Hyderabad
Maize	Low yields	Yield performance of hybrids varying under rainfed conditions	Introduction newly released hybrids with better yield performance	OFT- Assessment of Maize hybrids – DHM 113,117( BH 40625) released by ANGRAU	ANGRAU, Hyderabad
Rice	Low yields	Use of traditional varieties	Introduction of newly released varieties	OFT-Assessment of Rice Varieties : RNR 2465, RNR C-28	Rice Research Station, ANGRAU
Carrot/ Tomato	Weed problem in vegetables	Scarcity of Labour	Introduction of post emergence herbicides in Carrot/Tomato	OFT- Assessment Of metribuzin as post emergence herbicide in carrot and tomato	ANGRAU

Crop/Animal/ Enterprise	Problem	Cause	Solution	Activity	Reference of Technology
Sunflower/ Maize	Lack of awareness for in-situ moisture conservation techniques for dryland crops	Low yields during moisture stress conditions during the crop season	Introduction of conservation furrows (dead furrows) in Sunflower and maize under rainfed conditions	FLD – Demonstration of Dead furrows in Sunflower and Maize	CRIDA, Hyderabad
Chickpea	Pest and disease problems and low yields	Low yield due to local varieties and pest/disease problems	Introduction of new varieties with high yields	FLD on high yielding varieties - JG – 11 & IPM	ICRISAT/JNKVV, ANGRAU, Hyderabad
Plant Protection Paddy	High incidence of Yellow Stem borer in rice	Pest incidence due to high dose of N fertilizers and favourable crop condition	Integrated pest management	FLD on BIPM for yellow stem borer	ANGRAU, Hyderabad
Castor	Botrytis disease problem in Castor	Occurrence of diseases in castor during heavy rains/cyclones	To manage the Botrytis disease in castor with integrated approach	FLD on Botrytis management	DOR/ANGRAU, Hyderabad
Chillies	Sucking pests in chillies	High incidence of Sucking pests in chillies	Management / control of Sucking pests in chillies	FLD on management of sucking pests in chillies	ANGRAU, Hyderabad
Pigeonpea or Redgram	High Pest and disease incidence	Low yields experience by farmers due to high incidence of Pests and Diseases	Management of pests and disease problem in Redgram	FLD on IPM in Pigionpea	ANGRAU, Hyderabad
Vegetables	Insect pests damage in vegetables	Severe damage to vegetables by the insect pests and diseases	IPM in vegetables	FLD on IPM Vegetable crops	ANGRAU, Hyderabad
Cotton	Damage of crop by Sucking pests	High incidence of sucking pests causing yield losses	Management of sucking pests of cotton – with reference to Mealybugs	FLD on stem application of insecticides and spraying for management of	ANGRAU, Hyderabad
Agricultural Engineering Paddy	High cost of transplanting and labour scarcity	Transplanting consumes more no. of labour and labour cost has increased	Introduction of 4 row modified seed drum with furrow openers and depth control	OFT on evaluation of 4 row modified seed drum	CIAE, Bhopal/ANGRAU Hyderabad
Maize/Cotton	High cost of weeding , less area of coverage manually, Scarcity of labour	Manual weeding costs are more due increased labour cost, coverage of area is less.	Introduction of mechanical weeders /power weeder	OFT on evaluation of power weeders/ manual weeder and manual weeding	CRIDA, Hyderabad/ CIAE, Bhopal/ Private Industries



Crop/Animal/Enterprise	Problem	Cause	Solution	Activity	Reference of Technology
Maize/Chickpea	Less plant stand, time and labor consumption for planting and fertilizer application	Farmers practice of planting consumes more labour and cost	Introduction of seed and fertilizer planter	FLD on Tractor drawn seed and fertilizer planters	CRIDA , Hyderabad /CIAE, Bhopal
Horticulture Vegetables	Low yields	Local varieties used by farmers with low productivity	Introduction of high yielding varieties /hybrids in vegetable crops	OFT- Assessment of high yielding hybrids in vegetable crops – Tomato, Cabbage	IIHR, Bangalore/ANGRAU , Hyderabad
Vegetables	Soil degradation and environmental pollution with pesticides	With the usage of high doses of fertilizers and chemical pesticides causing residues and soil degradation	Organic farming way of cultivation of crops by reducing pesticide residues and improving soil health	FLD on Organic production of Vegetables by using bio pesticides and organic fertilizers	
Home Science Eradication of Anemia	Anemia in adolescent girls	1)Social status of girl / child 2)Lack of nutrient knowledge 3) Less nutrient intake	1) Giving them Nutrition knowledge 2) Nutrient supplements	OFT 1)Iron folic acid tablets from Anganwadi Teacher 2) Dietary iron concentrate	ANGRAU
Practice of proper weaning in rural areas	Protein energy Malnutrition in children	1)No proper Nutrition education 2) Less nutrient intake	1) Nutrition education 2) Nutrient supplements	OFT Among rich foods 20g ./ day for 3-6 months	ANGRAU
Marketing for value added products	Lack of marketing facilities	1) No proper marketing linkages	1) Creation of marketing linkages for sale of value added products	Study : Study on creating marketing linkages for value added products (Maize, Groundnut)	
Manual weeder	Drudgery of weeding	1) lack of awareness of the availability of improved weeder 2) Resistance in using them	1) Exposure to the technology 2) Supply of Improved weeders	FLD Demonstration of dryland weeder	CRIDA
Agricultural Extension	Sick RMGs	Some of the RMGs working in villages are sick due to financial and administrative problems	Strengthening of sick RMGs in villages through State Govt. operated schemes	Study on strengthening of sick RMGs	

Crop/Animal/Enterprise	Problem	Cause	Solution	Activity	Reference of Technology
Extension	Poor ICT utilization by the farmers	Lack of awareness	Use of mobile technologies	Assessment: Promotion of Mobile SMS for agricultural advisory services	
Extension			Impact Studies	Impact Assessment studies of Trainings and FLDs for the past six years in KVK adopted villages	

#### 4.4. Thrust Areas Of The KVK :

Major area	Sub_areas
Crop production	<ul style="list-style-type: none"> <li>• Soil and water conservation</li> <li>• Soil testing and Integrated Nutrient Management</li> <li>• Use of Bio-fertilizers</li> <li>• Improved crop production techniques of cereals, pulses and oilseeds</li> <li>• Improved crops and cropping systems</li> <li>• Integrated Pest Management</li> </ul>
Farm implements and machinery	<ul style="list-style-type: none"> <li>? Improved implements for tillage, seeding, interculture and top dressing</li> <li>? Improved post harvest equipment</li> <li>? Implements for plant protection</li> <li>? Farm mechanization and Custom Hire Services</li> </ul>
Horticulture production	<ul style="list-style-type: none"> <li>? Establishment techniques of horticulture plants</li> <li>? Improved vegetable production techniques</li> <li>? Improved floriculture</li> <li>? Improved cultivation methods of fruit crops</li> </ul>
Livestock production and management	<ul style="list-style-type: none"> <li>? Improved management of dairy cattle</li> <li>? Improved forage production techniques</li> <li>? Preparation of good quality feeds</li> <li>? Improved management of small ruminants (sheep and goat)</li> <li>? Animal disease management with prevention and control</li> </ul>
Women empowerment through livelihood programmes for income and employment generation	<p>On -farm</p> <ul style="list-style-type: none"> <li>? Plant propagation techniques</li> <li>? Preparation and use of bio -pesticides like NSKE</li> <li>? Preparation and use of vermi -compost</li> <li>? Raising of vegetable nurseries</li> <li>? Use of improved implements for seeding, weeding and interculture</li> </ul>

Major area	Sub_areas
	? Backyard poultry
	Non -farm
	? Preparation of detergents and phenyl
	? Preparation of Vaseline and pain balm
	? Preparation of fruit and vegetable preserves
	? Candle making
	? Preparation of bakery products
	? Preparation of handicrafts
	? Tailoring and embroidery
	? Adda leaf making
	? Nutrition education
	? Family health care
	? Mini Dal mill

#### 4.5. Villages adopted for the last 3 decades :

S. No.	Mandal	Villages covered	Year
1	Kandukur	Bachupalli, Dabbedaguda, Dasaralapally, Gudur, Jaithwaram, Saraswathiguda, Sarlaraopally, Nedunur, Pulimamidi, Tukkguda, Thimmapur, Mearkhanpet, Begarkancha, Harsiduda, Srinagar, Saireddyguda, Mucherla, Ootliapalli, G.G.Thanda, Pothuthanda.	
2	Hayathnagar	Raviryal, Pigilipur, Kavadiipally, Balgiguda, Koheda, Ragannaguda, M.M.Kunta, Manneguda, Peerlaguda.	
3	Medchal	Rajbolaram, Rajoblaram Thanda.	
4	Moinabad	Nakkalapally, Ethbarapally, Tolakatta.	
5	Ibrahimpattanam	Bongloor, Cherlapatiguda, Naganapally, Polkampally, Ramdasapally, Adibatla, Seetharampet.	
6	Yacharam	Chintapatla, Chowderapally, Suthanpur, Mogulavampu, Yacharam, Nandivarnaparthi, Nasdeeksingaram, Iyyavariguda, Kapparigudam, Nallavelli.	
7	Manchal	Bodakonda, Korramthanda, Yellamathanda, Cheeded, Dodpally, Lingampally, Sabethnagar, Monorabad, Sathithanda, Nomula, Rangapur, Jalamiyapally.	
8	Mahewswaram	Mankhal, Harshiguda, Jandamari, Makthakancha, Pendyal, Imamguda, Kodlapadaka, Kodlapadaka Thanda, Subhanpur, Gudur, Dubbacherla, Lillijpur, Thummalur, Mahebatnagar.	
9	Shabad	Muddemguda, Tallapally, Bobbiligam, Machanapally, Mariapuram, Thimmareddyguda, Venkammaguda	2005-06 2008-09
10	Parigi	Sulthanpur, Rangampally	
11	Chevella	Jalaguda, Pamina, Chevella	2008-09
12	Vikarabad	Kothagadi, Athwelly, Narayanapur, Alampally	

## CHAPTER 5 TRAININGS

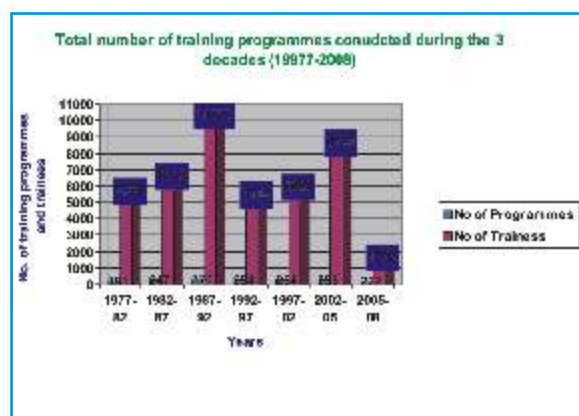
### 5.0. Training Programmes

Training is regarded as one of the integral components of development programmes. Conducting need-based and skill oriented training to its clientele is one major activity of the KVK. Since its inception, the KVK has conducted several training programmes on various aspects of improved technologies related to agriculture and allied activities (Table-1&2) and extended training to different clientele including practicing farmers, farmwomen, rural youth and extension functionaries. Training programmes

for the farmers are used to be organized as on-campus as well as off-campus. Some training programmes conducted by the KVK as medium / long duration are as vocational programmes where the residential stay of trainee is required at KVK for learning of things. The duration is used to be 10 days to 90 days maximum. Electric motor repairing, tractor driving, operation of power tillers, tailoring, fabrication of implements are some of the areas where KVK is imparting the vocational training.

Table 1: Details of the training programmes conducted by the KVK (1977-2008)

Year	No. of programmes	No. of trainees
1977-82	191	5780
1982-87	247	6729
1987-92	370	10378
1992-97	254	5543
1997-02	254	6029
2002-05	258	8729
2005-08	222	1796
Total	1796	50940



Discipline	1977-82	1982-87	1987-92	1992-97	1997-02	2002-05	2005-08	Total
Agronomy	143 (4509)	103 (2422)	178 (4364)	90 (1922)	48 (1262)	37 (1346)	40 (1546)	639 (17371)
Horticulture	8 (304)	15 (315)	34 (537)	31 (563)	24 (545)	21 (351)	20 (881)	153 (3496)
Soil & Water Conservation & others	16 (316)	18 (413)	10 (185)	15 (372)	28 (699)	7 (1170)	24 (780)	118 (3935)
Home Science	23 (640)	69 (1511)	45 (1009)	81 (1913)	75 (1883)	67 (1557)	65 (1524)	925 (10037)
Agricultural Engineering	1 (11)	23 (573)	27 (394)	23 (471)	19 (366)	32 (784)	18 (372)	143 (2971)
Agricultural Extension	-	13 (1196)	57 (3444)	2 (64)	11 (239)	27 (1652)	16 (286)	143 (6881)
Animal Sciences	-	6 (299)	19 (445)	7 (124)	15 (322)	25 (1000)	2 (40)	74 (2264)
Plant protection	-	-	-	5 (114)	34 (713)	42 (869)	40 (1671)	121 (3367)
Total	191 (5780)	247 (6729)	370 (10378)	254 (5543)	254 (6029)	258 (8729)	222 (7749)	1796 (50940)

During the training programmes, the emphasis is on learning of skills. However, required information is passed on to the trainees through interactive lectures where lots of opportunities are given to learners to interact with trainers. The trainees are exposed to skills through method demonstrations of techniques by the trainer followed by practicing by the trainees. The methods like using audio visual aids, handouts; field visits are usually

employed to increase the effectiveness of training. Emphasis was on improving the decision-making abilities of trainees by exposing them to various field situations and given technical options to choose a best one to solve the problem. Evaluation is an integral part of KVK training programme. The knowledge gain of trainees as a result of training is usually assessed through pre and post evaluation.

Table 3 : Knowledge Level of package of practices for dryland crops by as perceived by different categories of KVK Trainee Vs. Non-Trainee farmers

Category of farmers	Knowledge level (per cent)							
	Trainee farmers				Non -trainee farmers			
	Sorghum	Castor	Sunflower	Groundnut	Sorghum	Castor	Sunflower	Groundnut
Marginal	62	57	40	29	19	20	1	1
Small	65	58	36	31	28	33	7	3
Medium	58	58	38	52	27	35	3	3
Large	37	36	43	40	27	35	14	13
Overall	62	58	38	39	25	32	5	3

Table 4: Adoption Level of package of practices for dryland crops as perceived by different categories of KVK Trainee Vs. Non-Trainee farmers

Category of farmers	Adoption level (per cent)							
	Trainee farmer				Non -trainee farmers			
	Sorghum	Castor	Sunflower	Groundnut	Sorghum	Castor	Sunflower	Groundnut
Marginal	42	40	24	-	5	17	16	29
Small	59	49	31	16	12	24	26	28
Medium	56	52	29	25	14	28	21	29
Large	61	54	29	34	11	25	27	29
Overall	59	49	28	25	10	23	22	29



Table 5 : Impact of training programmes

Name of specific technology / skill transferred	No.of trainees	Adoption (%)	Change of income (Rs)	
			Before training (Rs.unit)	After training (Rs. Unit)
Adoption of keyline cultivation	43(60)**	71	2400	3000
Different steps involved in making vermicompost	6(53)**	11		1000
Seed and fertilizer placement with drill plough at proper moist zone	30(77)**	39		
Identification of beneficial insects, use of bio-pesticides	20(58)**	35	Castor 2400 Pigeonpea 3000	Yet to be harvested
Rearing and maintenance of improved Giriraj birds	65(71)	90	750	1250
Transplantation and management techniques of vegetable under rainfed conditions	65(85)	80	2000	2700
Scientific storage of food grains	45(50)	90		800

\*\* The figures indicate in brackets are total farmers trained.

Some of the skills that forms the part of training curriculum are depicted here :

### 5.1 Crop Production :

? Production technologies viz., seed treatment, seed rate, plant population, spacing, nutrient management, composts, micronutrient deficiencies, Weed control:



Training on use of Seed treatment drum for paddy

### ? Composts - Vermi-composting



Vermi compost

? Collection of soil samples and Soil testing



? Tractor Drawn planter (Seed cum fertilizer drill)



5.2 Soil and Water Conservation :

? Making and use of 'A' frame (contour cultivation)



5.4 Plant Protection :

? Preparation of NSKE



? Soil and water conservation techniques  
Gabion structures

5.3 Farm Implements and machinery :

? Calibration and operation of CRIDA drill plough



? Training on Orchard sprayers



## 5.5 Horticulture :

? Plant propagation techniques:



## 5.6 Livestock Production and Nutrition

? Animal Nutrition (preparation animal feed mixtures)



Drip Irrigation

The learning opportunities are provided to the clientele based on their needs through training and with an expectation for adoption of technologies in their back home situations. However, it may not happen all the time due to innumerable constraints. Hence, the KVK regularly takes up the follow-up evaluation of training for identifying the gaps in adoption and tries to improve the performance of trainees in terms of achieving their set objectives.

## 5.8 Water Management

? Water management and watershed approach





## CHAPTER : 6

### DEMONSTRATION OF PRODUCTION POTENTIALITY

#### 6.1. Frontline Demonstrations :

Conducting field demonstrations on farmers' fields is an important activity to show the value of a new practice / technology/ 'Seeing is believing' is the basic philosophy of field demonstrations. These will educate farmers about varieties resistance to pests and diseases, their response to fertilizer use, factors contributing to higher yields and economic gains. Frontline demonstration (FLD) is the new concept of field demonstration evolved by the ICAR during mid-eighties. The field demonstrations conducted under the close supervision of the scientists of the NARS are called FLDs because the technologies are demonstrated for the first time by the scientists themselves before being fed into the main extension system of the State Department of Agriculture. The main objective of FLD is to demonstrate newly released crop production technologies and management practices in the farmers' fields under different agro-climatic regions and farming situations. The FLDs are different than the normal demonstrations conducted by the extension functionaries. The field demonstrations conducted under the close supervision of Scientists / Technical Officers / Agricultural Officers are called frontline demonstrations. The KVK since its inception (1977-2008) conducted 6157 Front Line Demonstrations (FLDs) on all-important crops in Rangareddy district. The methodology and brief results

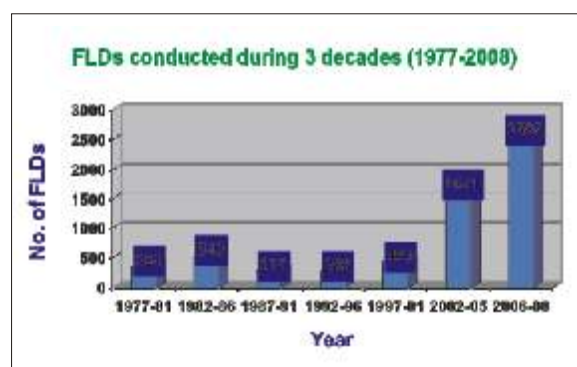
are presented below for Oilseeds, Pulses and Other than oilseeds & pulses separately.

#### 6.2. Methodology :

The frontline demonstrations were conducted on various mandatory crops of the district, viz., sorghum, maize, pigeonpea, castor, sunflower, etc. The main objective was to demonstrate the production potentiality of improved package of various crops under the farmers' conditions and resources. The main emphasis was to introduce new crop genotypes along with improved practices for higher yields. These practices like seed, fertilizer, weedicide, implement, pest / disease control etc. were introduced with critical inputs which were new and hitherto not adopted by the farmers. The participating farmers were suggested to follow their own method or practice in the next plot for comparison of the results. All the steps involved in conducting a result demonstration were followed for the FLD which includes selection of demonstrator farmer, selection of field plot, training of farmer in input use and implementation. The progress of the FLDs was closely monitored and farmers were extended field guidance. Extension activities like Field Days, Farmers' Days, Group Visits, etc. were organized to publicize the results of the demonstrations. Of late more emphasis was given to increase production and productivity of major oilseeds and pulse crops.

Table 6: Details of FLDs conducted by the KVK (1977-2005)

Year	No. of FLDs
1977-81	358
1982-86	540
1987-91	277
1992-96	286
1997-01	440
2002-05	1671
2006-08	2585
Total	6157



### 6.3. Frontline Demonstrations on Oilseeds :

Considering the mounting imports of vegetable oils which represented a drain on the foreign exchange reserves, the Government of India has set up a Technology Mission on Oilseeds in 1986 with a view to integrating all the facets and sectors of oilseeds under a common programme for breaking the stagnation in the oilseeds front. Keeping in view the national goal of increasing oilseed production in the country, the KVK has implemented the FLD programme on oilseeds in the district. Under the FLD strategy, adequate attention was given towards the following for educating the farmers.

- ? Timely supply of quality seed to increase seed replacement ratio
- ? Specific management practices with special emphasis on low cost technologies
- ? INM with greater emphasis on bio-fertilizers, Sulphur, etc.
- ? IPM with botanicals and bio-pesticides
- ? Selected mechanism to improve efficiency and overcome drudging in oilseeds production to make best use of limited opportunity time under rainfed conditions.

Table 7 : The details of FLDs conducted on various oilseed crops :

Year	Crop	Variety	No. of farmers	Area (ha)
1980	Castor	Aruna	89	35.6
1986	Castor	Aruna	58	23.2
1987	Castor	Aruna	51	20.4
		SHB -18	15	6.0
		GAUCH -1	9	3.6
1988	Castor	GAUCH -1	44	17.6
		Aruna	5	2.0
1990	Castor	GCH -4	10	4.0
		Aruna	24	9.60
		GAUCH -1	13	5.20
1991	Castor	GAUCH -1	32	10.8
	Sunflower	APSH -11	10	4.0
1992	Castor	GCH -4	60	25
1992	Groundnut	ICGS – 44 ( R )	22	10
	Sunflower	APSH-11	5	3
		PAC -36	12	17
1993	Castor	GCH -4	70	15
1993	Groundnut	ICGS-44 (K)	9	2



Year	Crop	Variety	No. of farmers	Area (ha)
1994	Sunflower	ICGS -44 (R )	15	10
		MSFH -8 (K )	30	10
		MSFH -8 (R )	10	13
	Castor	GCH -4	18	10
	Sunflower	MSFH -17 (K)	7	8
1995	Castor	MSFH -8 (R )	16	8
		GCH -4	18	10
	Sunflower	MSFH -8 (K)	10	8
	MSFH -8 (R )	8	10	
1996	Castor	GCH -4	10	4.0
		DCS -9	25	15.0
1997	Castor	DCH -30	15	6.0
		DCS -9	50	13.2
1998	Sunflower	MSFH -8	26	12.0
	Castor	DCS -9	25	10.0
	Sunflower	Morden	09	5.0
1999	Castor	MSFH -8	15	10.0
		PCS -4	10	5.0
	Sunflower	MSFH -8	06	5.0
		MSFH -17	04	1.6
2000	Castor	KBSH -1	04	1.6
		PCS -4	27	12.0
2001	Sunflower	MSFH -8	18	7.2
		Castor	PCS -4	40

Year	Crop	Variety	No. of farmers	Area (ha)	
2002	Castor	PCS-4	27	10.8	
2003	Castor	PCS-124	18	7.2	
		PCS-136	07	2.8	
2004	Castor	PCS-124	25	10.0	
2005	Castor	DCS-9	60	24.0	
		PCS-124	25	10.0	
	Sunflower	KBSH -1	40	16.0	
2006	Castor	Sesamum	YLM -17	25	10.0
		DCS-9	8	3.2	
		PCS-4	8	3.2	
		PCS-136	8	3.2	
	PCS-124	8	3.2		
	Soybean	JS-335	15	6.0	
	Niger	JNC-8	25	10.0	
2007	Soybean	JS-335	50	40.0	
	Sunflower	VSFH -1008	10	4.0	

During the demonstrations, apart from introduction of improved genotypes of crops, farmers were educated about improved practices viz., recommended seed rate, seed treatment, spacing, fertilizer dosage and use and plant protection measures. Since, the farmers were switching over to other crops due to severe infestation of Botrytis disease, special emphasis was given on disease

management practices for effective control of the disease and continuation of cultivation of castor crop as usual. New hybrid of KBSH-1 (Sunflower) was introduced. Practices like bird control methods and application of Sulphur through gypsum, were also introduced to the farmers through FLD programme along with other improved practices. Farmers were also motivated to go

6.4. Results of FLDs :

The results achieved through FLD oilseeds programme were furnished in Table .

\Table 8: Effect of training, input supply and spot guidance on oilseeds - castor yield during 1980-85

Year	Crop	Variety	Treatment	Crop yield Kg/ha		
				Demo (Before training)	Local Check	
1980 -81	Castor	Aruna	Training+Inputs+ Spot guidance	460	210	
		GAUCH -1	Training+Inputs+ Spot guidance	630	210	
1981 -82	Castor	GAUCH -1	Training+Inputs+ Spot guidance	410	150	
1982 -83						
1983 -84	Castor	Aruna	Genotypes	495	220	
		GAUCH -1		663	210	
		Aruna	Soil types			
		GAUCH -1	Black soils	294	156	
		Aruna	Dubba soils	471	230	
		GAUCH -1		463	245	
		Aruna	Red soils	655	246	
		GAUCH -1		564	228	
				Time of sowing		
		Aruna	Early	514	215	
		GAUCH -1		660	238	
		Aruna	Medium	464	195	
		GAUCH -1		511	206	
		Aruna	Late	391	184	
		GAUCH -1		353	198	
		Aruna	Weed control	697	255	
GAUCH -1		650	268			
Aruna	No control	446	198			
GAUCH -1		407	200			
		Top dressing				
Aruna	Basal + TD	532	200			
GAUCH -1		1078	358			
Aruna	Basal only	352	165			
GAUCH -1		295	185			
1984 -85	Castor	Aruna	Varietal	729	450	

Table 9 : Results of demonstrations on castor yield during 1986-89

Year	Crop	Variety	Mean yield (kg/ha)		% increase over LC
			Demo	LC	
1986	Castor	Aruna	452	220	105
1987	Castor	Aruna	743	345	115
		SHB -18	1067	448	138
		GAUCH -1	787	366	115
1988	Castor	GAUCH -1	603	337	79
		Aruna	376	175	118
1989	-	-	-	-	-

Table 10: Results of demonstrations on oilseeds castor and Sunflower yield during 1990-95

Year	Crop	Variety	Mean yield (kg/ha)		Increase in yield (%)	Cost of cash inputs (Rs/ha)	
			Demo	Local check		Demo	Local check
1990	Castor	GCH -4	700	265	164	1000	400
		Aruna	360	165	118	865	400
		GAUCH -1	330	165	100	690	200
1991	Castor	GAUCH -1	560	400	40.0	1400	700
	Sunflower	APSH -11	750	380	97.0	1400	650
1992	Castor	GCH -4	567	350	62.0	1400	700
	Groundnut	ICGS -44 (R)	1600	750	113.3	4500	2000
	Sunflower	APSH -11	750	460	52.17	1400	650
1993	Castor	PAC -36	960	400	108.6	1400	650
		GCH -4	682	400	70.5	1400	650
	Groundnut	ICGS -44 (K)	1460	870	67.8	4500	2000
		ICGS -44 (R)	1637	1050	55.9	4500	200
	Sunflower	MSFH -8 (K)	900	500	80	1400	650
1994	Castor	MSFH -8 (R)	1531	800	91.3	1400	650
		GCH -4	541	260	108	1400	700
	Sunflower	MSFH -17 (K)	920	440	131	1400	650
1994		MSFH -8 (R)	1200	560	114	1400	650
1995	Castor	GCH -4	640	270	137	1400	700
	Sunflower	MSFH -8 (K)	1010	540	150	1400	650
		MSFH -8 (R)	1510	850	77	1450	650

Table 11: Results of demonstrations on oilseeds Castor, Sunflower, Sesamum and Soybean yield during 1996-2006

Year	Crop	Variety	Mean yield (kg/ha)		Increase in yield (%)	Cost of cash inputs (Rs/ha)		Gross returns (Rs/ha)		Addl. Net returns (Rs/ha)	B:C ratio
			Demo	LC		Demo	LC	Demo	LC		
1996	Castor	DCS-9	300	50	500	1620	350	2700	450	980	1:1.67
	Sunflower	MSFH-8	650	250	160	1550	700	6500	2500	5200	1:4.20
1997	Castor	DCH-30	296	50	492	1660	570	2664	450	1124	1:1.6
	Sunflower	DCS-9	368	50	436	1560	570	2412	450	972	1:1.55
1998	Sunflower	MSFH-8	950	700	64.28	700	400	11400	6000	5100	1:16.28
	Castor	DCS-9	130	24	442	757	550	910	168	537	1:1.20
	Sunflower	Morden	812	180	62.4	1710	400	9744	2160	6274	1:5.70
1999	Sunflower	Morden	600	200	200	735	455	7200	2400	4520	1:9.79
	Castor	DCS-9	126	40	215	1168	600	1890	600	722	1:1.62
	Sunflower	MSFH-8	500	200	66.67	1700	700	7500	3000	3500	1:4.41
	Sunflower	MSFH-8	900	600	38.46	1735	1170	10800	7200	3035	1:6.2
2000	Sunflower	KBSH-1	725	450	61.11	1700	1080	8700	5400	2680	1:5.12
	Castor	PCS-4	700	400	75	650	425	7810	4400	3185	1:1.12
2001	Sunflower	MSFH-8	1040	700	48.57	2345	1650	13520	9100	3725	1:5.76
	Castor	PCS-4	740	305	132	2400	1000	7400	3050	2950	1:3.08
2002	Castor	PCS-4	670	300	123	2225	975	8495	3825	3420	1:3.8
	Castor	DCS-9	700	330	112	2300	975	9100	4290	3485	1:3.95
2003	Castor	PCS-124	630	280	82	2180	975	8190	3360	3625	1:3.75
	Castor	PCS-136	680	300	126	2180	975	8840	3600	4035	1:4.05
2004	Castor	PCS-124	800	250	220	2186	875	10400	3250	5839	1:4.75
2005	Castor	DCS-9	900	500	80	1750	1000	9900	5500	3650	1:5.67
	Castor	PCS-124	850	500	70	1750	1035	9350	5500	3135	1:5.39
	Sunflower	KBSH-1	743	400	85.75	2150	1325	10774	5800	4149	1:5.01
	Sesamum	YLM-17	416	250	43.50	2175	1320	9568	5570	3143	1:4.40
	Soybean	JS-335	1325	-	-	8384	-	17225	-	8841	1:2.05
2006	Castor	DCS-9	658	340	93.53	2235	1875	7590	3921	3309	1: 3.40
	Castor	PCS-4	666	333							
	Castor	PCS-136	656	320							
	Castor	Haritha	661	371							
Soybean	JS-335	1400	1100	27.27	3678	1140	18200	14300	1362	1: 4.95	



Table 12: Results of demonstrations on oilseeds Niger, Sunflower and Soybean yield during 2006-07

Year	Crop	Variety	Mean yield (kg/ha)		Increase in yield (%)	Average cost of Cultivation		Average Gross returns (Rs/ha)		Average Net returns (Rs/ha)	B:C ratio
			Demo	LC		Demo	LC	Demo	LC		
2006	Niger	JNC -6	84	424	115.0	8342	4251	13992	5512	5650	1.67
2007	Soybean	JS -335	2018	1628	25.96	9742	9226	30286	24420	20740	3.11
	Sunflower	VSFH - 1008	1145	848	35.02	10572	8880	24904	18656	14332	2.36



Castor FLD



Soybean FLD



Sunflower FLD

In order to highlight the productivity potentials and profitability of improved technology, whole package or critical components of technologies were demonstrated to farmers depending upon the field situation and needs of the farming community.

## 6.5. Components of Technology Castor :

### 6.5.1 Varietal and component-wise

Improved castor varieties, viz., PCS-4, DCS-9, PCS-124, PCS-136 were introduced to the farmers. These improved genotypes are moderately resistant to pest and disease and tolerant to drought (PCS-4 and DCS-9). Variety PCS-124 tolerant to moisture stress and resistant to wilt. Similarly PCS-136 also moderately resistant to moisture stress and tolerant to pest having spineless spike and more female flowers over local check. The use of improved varieties also resulted in significant yield increase over local check to the tune of 217 per cent under rainfed conditions. The integrated nutrient management resulted in increase in productivity of 220 per cent over farmers' practices. Similarly adoption of IPM techniques over farmers' management of pests and diseases gave 220 per cent increase in yield. The demonstration of combination of critical components like variety, INM, IPM, weed management, etc. has resulted an yield increase ranging from upto 132 per cent over the local cultivation practices adopted by the farmer. Farmers were educated about the balanced application of recommended doses of fertilizers in combination with organics and in organics. The use of varieties resistant to diseases like wilt and pests like capsule borer and semilooper were demonstrated that were distinctly different from local ones. The botrytis management practices like spraying carbendazem, destroying effected parts of plants, application of additional doses of Nitrogen and Potash and adoption of wider plant spacing, etc. were followed by the farmers. Similarly controlling measures like release of Trichogama, collection of larvae, bird perches in the field and spraying of neem oil or BT on plant leaves were followed by the farmers. The wilt resistant varieties like DCS-9 and PCS-124 were introduced.

### 6.5.2 Diffusion

The FLD demonstration resulted in diffusion of technologies in KVK adopted and non-adopted villages. For example, the improved technology of castor during 1999 with 5 ha has attracted the attention of farming community and spread to more than 200 ha. in adopted

and non-adopted villages. In the KVK cluster of villages during 2000-02 in Kandukur mandal, farmers discontinued the cultivation of castor due to severity of fungal disease. Introduction of new varieties like PCS-124, PCS-136 along with management practices of Botrytis control has convinced the farmers to return back to castor. During the years of KVK operation, the acreage under castor has not only increased manifold, but there was good demand for quality seed.

## 6.6. Components of Technology Sunflower :

### 6.6.1 Varietal and component-wise

Improved varieties, viz., MSFH-8, Morden, KBSH-1 were introduced to the farmers. The FLDs were conducted both in kharif and rabi seasons. However, the rabi demonstrations attracted the attention of farmers fetching more cost benefit ratio compared to kharif crop. Here the farmers were educated about cultivating sunflower in more area with limited irrigation water compared to rabi paddy which require more water. The other components of technology, viz., controlling bird damage, plant protection through IPM, application of Sulphur through Gypsum were highlighted in the FLDs. The yield, increase of FLDs over the local method of farmers was in the range of 38 to 165 per cent. The diffusion of technology especially the variety, fertilizer management, etc. has resulted in adoption of improved crop cultivation in more than 70-80 ha. in different villages of Yacharam mandal of Rangareddy district.

## 6.7. Seed Production :

In order to encourage farmers to achieve self-sufficiency in seed production, 'seed village' concept was promoted in the KVK villages. As a result, seed production of castor (DCS-9) was taken up by a group of 26 farmers in 35 acres in Saireddiguda village. The technical backstop was provided by Directorate of Oilseeds Research, Hyderabad and the programme was linked up with the National Seeds Corporation, Hyderabad under their buy-back policy. The programme was successful and good amount of seed i.e. 130 quintal was produced for meeting the local seed requirements.

## 6.8. Frontline Demonstrations On Pulses :

Pulse crops occupy premier place for meeting dietary needs of people. They plays important role in farming systems of rainfed areas and for restoring soil fertility. During last two decades area under pulse crops

fluctuated in between 22 to 24 Mha and production and productivity between 10 to 13 M tones and 440-625 kg per ha respectively. Per capita availability of pulses has declined 69 gm in 1961 to 37 gm in 2004 which has been a serious concern. The Government of India's development strategy is to increase the productivity to 1200 kg per ha by 2020. The KVK is giving more emphasis in popularizing the technologies through conducting frontline demonstrations

on different pulse crops. During FLD programme, the demonstration of various technologies highlighted were using the high yielding genotypes, integrated pest and disease management, improved cropping systems, achieving self sufficiency in seed production, drought management etc.

The details of FLDs conducted on various pulse crops are given hereunder.

Table 13 : Number of FLDs on Pulses conducted during 1993-2007

Year	Crop	Variety	No. of farmers	Area (ha)
1993	Pigeonpea	ICPL -57	2	2
1994	Pigeonpea	ICPL -87089	4	2
	Chickpea	ICCV -10	2	2
1995	Pigeonpea	LRG -30	5	2
	Chickpea	ICCV -10	2	2
1996	Pigeonpea	LRG -30	15	05
	Greengram	ML -267	10	05
1997	Greengram	ML -267	10	05
	Pigeonpea	LRG -30	14	05
1998	Greengram	ML -267	13	05
	Pigeonpea	LRG -30	13	05
1999	Greengram	WGG -2	04	02
	Pigeonpea	ICPL -84031	02	04
2000	Pigeonpea	ICPL -84031	07	2.8
		ICPL -332	02	2.4
		PRG -30	02	0.8
2001	Pigeonpea	ICPL -332	05	2.0
		ICPL -87119	05	2.0
		ICPL -85062	05	2.0
2003	Pigeonpea	PRG -158	25	10.0
2004	Pigeonpea	PRG -100	13	5.0
2005	Pigeonpea	ICPL -87119	13	5.2
		ICPL -7035	08	3.2
		ICPL -96058	05	2.0

Year	Crop	Variety	No. of farmers	Area (ha)
2006	Greengram	K -851	27	10.8
	Blackgram	TU94 -2	25	10.0
	Soybean	JS -335	71	28.40
	Chickpea (R)	ICCV -2	09	3.60
	Pigeon pea	Annegiri	41	16.40
		LRG -30	8	3.2
		ICPL -85063	8	3.2
		PRG -100	8	3.2
2007	Chickpea	Annegiri	50	20.0
	Pigeonpea	LRG -30	42	16.8
		PRG -100	63	25.2
	Chickpea	JG -11	25	10.0

Under the FLD programme, apart from introduction of high yielding varieties, farmers were educated about the IPM in case of pigeonpea. Farmers were given training in use of bio-pesticides, viz., Neem Seed Kernel Extract (NSKE) preparation and use. The farmers were motivated to prepare and use NSKE (using local resources) and thus to reduce the chemical sprays for pest control.

Table 14: Results of FLDs on Pulses during 1993-95

Year	Crop	Variety	Mean yield (kg/ha)		Increase in yield (%)	Cost of cash inputs (Rs/ha)	
			Demo	LC		Demo	LC
1993	Pigeonpea	ICP L -57	500	200	150	1090	680
1994	Pigeonpea	ICPL -87089	1022	350	191	1090	680
1995	Chickpea	ICCV -10	1000	400	150	2200	1200
	Pigeonpea	LRG -30	1080	800	35	1100	680
	Chickpea	ICCV -10	770	500	54	2200	1200

Table 15: Results of FLDs on Pulses during 1996-2006

Year	Crop	Variety	Mean yield (kg/ha)		Increase in yield (%)	Cost of cash inputs (Rs/ha)		Gross returns (Rs/ha)		Addl. Net returns (Rs/ha)	B:C Ratio
			Demo	LC		Demo	LC	Demo	LC		
1996	Pigeonpea	LRG -30	684	333	105	1500	750	10260	5000	4510	1:6.84
	Greengram	ML -267	255	200	27.5	975	400	2550	2000	-25	1:2.61
1997	Greengram	ML -267	170	60	185	950	450	2550	900	1150	1:2.68
	Pigeonpea	LRG -30	300	120	150	1295	560	6000	2400	2865	1:4.63
1998	Greengram	ML -267	320	146	219	804	420	4480	2044	2052	1:5.57
	Pigeonpea	LR G -30	270	180	150	880	600	3780	2520	980	1:4.30
1999	Greengram	WGG -2	175	40	331	901	325	3500	800	2124	1:3.88
	Pigeonpea	ICPL - 84031	270	100	170	944	385	6750	2500	3691	1:7.15
2000	Pigeonpea	ICPL - 84031	310	200	55.5	680	355	3720	1920	1475	1:5.47
		ICPL - 332	370	200	85	680	300	4440	1920	2140	1:6.53
		PRG - 100	460	200	130	680	300	5520	1920	3220	1:8.12
2001	Pigeonpea	ICPL - 332	600	200	165	1400	410	8160	2400	4770	1:5.83
2002	Pigeonpea	ICPL - 87119	540	220	145	2000	850	5400	2200	2050	1:2.70
		ICPL - 85062	495	225	120	1600	800	4950	2250	1900	1:3.09
2003	Pigeonpea	PRG - 158	650	200	135	2440	760	9100	2800	4620	1:3.73
2004		PRG - 100	730	215	240	2465	740	10220	3010	5485	1:4.15
2005	Pigeonpea	ICPL - 87119	1836	114	60.2	15452	128	30296	19000	8671	1:1.96
		ICPL - 7035	1667	119	40.1	15243	150	27514	19635	7641	1:1.80
		ICPL - 96058	1579	116	35.3	14768	121	25905	18950	4337	1:1.75
	Greengram	K -851	780	551	41.6	4910	573	14827	10469	5184	1:3.02
	Blackgram	TU94 -2	832	525	58.5	5719	641	16624	13124	4200	1:2.90
	Soybean*	JS -335	1325	-	-	8384	-	17225	-	8841	1:2.05
Chickpea	ICCV -2	2567	170	50.6	9603	890	42398	28162	1353	1:4.41	
	Annegiri	2454	180	36.1	3871	352	16196	11900	3952	1:4.18	



Year	Crop	Variety	Mean yield (kg/ha)		Increase in yield (%)	Cost of cash inputs (Rs/ha)		Gross returns (Rs/ha)		Addl. Net returns (Rs/ha)	B:C Ratio
			Demo	LC		Demo	LC	Demo	LC		
2006	Pigeonpea	LRG -30	2065	1665	31.9						1:17.68
		ICPL - 85063	1848	1473	25.5	2325	1950	41118	32913	7830	
		PRG - 100	1915	1518	26.2						
		LRG -41	2005	1477	35.8						

Table 16: Results of FLDs on Pulses during 2006-07

Year	Crop	Variety	Mean yield (kg/ha)		Increase in yield (%)	Average cost of Cultivation		Average Gross returns (Rs/ha)		Average Net returns (Rs/ha)	B:C ratio
			Demo	LC		Demo	LC	Demo	LC		
2006	Chickpea	Annegiri	2475	1771	42.80	12120	10068	46994	33649	34874	3.88
2007	Pigeonpea	LRG -30	1818	1280	42.03	12150	9800	36947	25334	24797	3.04
		PRG - 100	1925	1280	50.39	12100	9800	36014	25334	23914	2.98
	Chickpea	JG -11	2400	1430	67.83	10724	8735	46800	27885	36076	4.36



### 6.9. Components of Technology Pigeonpea :

Pigeonpea is a major pulse crop of the district and extensively grown under rainfed conditions. Using high yielding, pest and disease resistant varieties were given emphasis during the FLD programme.

#### 6.9.1 Varietal and component-wise

Improved varieties, viz., ICPL-84031, ICPL-332, PRG-100, ICPL-87119, ICPL-85063 and PRG-158 were introduced. Pigeonpea is usually grown as intercrop with

#### Chickpea FLD

cereals like sorghum, bajra and maize. However, farmers were shown interest in cultivation of pigeonpea as pure crop and followed the improved practices suggested by the KVK for getting higher yields. The use of improved seed alone resulted in an yield increase to the tune of 237 per cent compared to local varieties.

#### 6.9.2 Integrated Pest Management

Controlling Helicoverpa is a major hurdle for the farmers to get sustainable yields from Pigeonpea. The pest

causing heavy damage resulting in falling of yield levels to very low. The KVK has educated the farmers and demonstrated the IPM practices to reduce the pest infestation and taking timely control measures. Introduction of IPM practices, viz., summer ploughings, fixing Pheromone traps @ 4 nos. per acre, arranging bird perches @20 nos. per acre, spraying of NSKE (5%), spraying of NPV solution, discouraging spraying of chemicals, etc. has created large scale awareness among farmers.

The highlight of the programme was formation of 'IPM groups' and exchange of timely information and action to be taken among the demonstration farmers. The KVK has monitored the overall programme till the harvest of the crop. The timely action of pest control alone has resulted in an increase on 119 per cent in production over local practice followed by farmers. A combination of variety and IPM components has resulted an increase in yield to the tune of 240 per cent over traditional / local practices.

The improved technology in pulse cultivation has attracted the attention of farmers and resulted increase in the area of pigeonpea to the tune of 100 ha in different KVK adopted and non-adopted villages.

#### 6.10. Frontline Demonstrations On Other Than Oilseeds And Pulses :

Farmers of Rangareddy district are cultivating sorghum, pearl millet, maize, etc. under total rainfed conditions. However, paddy and vegetables are important crops being cultivated under limited irrigation conditions. The important vegetable crops are tomato, brinjal, chilli, leafy vegetables etc. Improved crop management practices like new high yielding varieties, use of nutrients, efficient water use, plant protection, etc. were demonstrated to farmers under the FLD programme. Raising improved vegetable nurseries and other management practices also forms the part of the technology demonstrations.

The details of FLDs conducted under this category are given hereunder.

Table 17: Number of FLDs on Sorghum, Maize, Bajra, Cotton, Vegetables conducted during 1980 - 2007

Year	Crop	Variety	No. of farmers	Area (ha)	Year	Crop	Variety	No. of farmers	Area (ha)	
1980	Sorghum	-	139	55.6	2005	Sorghum	EPH-3	10	4.0	
1986	Sorghum	CSH-5	23	9.2			Harsha	08	3.2	
1988	Sorghum	CSH-6	29	11.6			Tomato	Arka vikas	17	3.4
1989	Sorghum	CSH-5	32	12.8			Pearl millet	ICPP-8203	48	19.2
		CSH-6	10	4.0			Sorghum	CSV-15	21	8.4
1990	Sorghum	SPV-462	20	8.0			Sorghum	CSV-15	49	19.6
1996	Sorghum	CSH-5	15	6.0			CSV-16	11	4.4	
		CSH-6	08	3.2			Cotton	Brahma	21	8.4
	Bajra	BJ-104	17	6.8			Bt.	02	0.8	
1997	Sorghum	SPV-462	32	13.0			Dassera	09	3.6	
2000	Sorghum	SPV-462	02	5.0		Cotton	Bunny	20	8.0	
		CSH-16	06	2.4		Paddy	MTU-1010	25	10.0	
2001	Sorghum	CSV-13	08	3.2		Tella Hamsa	49	19.6		
		Tomato	Arkavikas	20		4.0	Krishna			
	Sorghum	CSV-15	14	5.6		Hamsa	05	2.0		
		CSV-16	16	6.4		Triguna	04	1.6		
		SPV-462	10	4.0		Shanti	12	4.8		
	Pearl millet	ICMV-22	04	1.6		BPT-5204	15	6.0		
	Tomato	Arkavikas	10	2.0		Maize	Navjot	102	40.80	
2002	Sorghum	CSV-15	11	4.4		KH-517	160	64.00		
		Tomato	Arkavikas	14	2.8	Kargil-900 M	43	17.20		
2003	Tomato	Arkameghali	24	4.8	Bio-9681	120	48.00			
2004	Maize	DHM-105	197	78.8	Ganga-5	40	16.00			

Year	Crop	Variety	No. of farmers	Area (ha)	Year	Crop	Variety	No. of farmers	Area (ha)	
2006	Sorghum	SPV-1616	45	18.0	2007	Maize	RCH-2 Bt	4	1.6	
		Tella Hamsa	69	27.6			JK Durga Bt	3	1.2	
		BPT-5204	26	10.4			Bunny Bt	44	17.6	
	Maize	CP-818	286	114.4			Bunny Non-Bt	9	3.6	
		Bioseed	241	96.4			CP-818	142	56.8	
		KH-517	44	17.6			Super 900 M	275	110.0	
		Navjot	76	30.4			Kaveri	61	24.4	
		Kanchan	13	5.2			Pioneer	1	0.4	
		Laxmi	40	16.0			Navjot	21	8.4	
		Polo	48	19.2			Super 900 M	55	22	
		Kaveri	102	40.8			Kaveri	145	58	
		CP-818	289	115.6			Cotton	Bunny Bt	62	24.8
		KH-2001	11	4.4				Mallika Bt	22	8.8
		Cotton	Bunny Hybrid	19				7.6	PCH-2171	16
Dassera	17		6.8	Bunny Bt	6	5.0				
PCH-20 Bt	4		1.6							

Table 18: Results of FLDs on Sorghum during 1980-83

Year	Crop	Treatment	Variety	Crop yield Kg/ha	
				Demo	Local Check (Before training)
1980-81	Sorghum	Training+Inputs+ Spot guidance	Hybrid	3140	690
1981-82	Sorghum	Training+Inputs+ Spot guidance	Hybrid	1820	630
1982-83	Sorghum	Training+Inputs+ Spot guidance	Hybrid	1540	330

Table 19: Results of FLDs on Sorghum intercropping during 1983- 85

Year	Crop	Treatment	Variety	Crop Yield (Kg/ha)	
				Sorghum	Redgram
1983 -84	Sorghum	Cropping Systems	CSH -5	780	
		Pure Crop		1096	
	Redgram	Intercrop	HY -2	294	
1983 -84	Sorghum	Soil type-pure crop	CSH -5	806	
		Black soils Dubba		719	
	Redgram	Intercrop	HY -2	375	
		Black soils Dubba		1128	
	Sorghum	Intercrop Black soils Dubba	CSH -5	565	
		Time of seeding		294	
	Early – pure crop		926		
	Late		634		

Year	Crop	Treatment	Variety	Crop Yield (Kg/ha)				
				Sorghum	Redgram			
1984 -85	Redgram	Intercrop – Early	HY -2	634	210			
		Late		1224				
				785				
	Sorghum	Intercrop – Early	CSH -5			228		
		Late					1266	326
		Row Ratios						
	3:1	245	201					
	4:1							
	5:1							
	Sorghum	Weed control	CSH -5		1.0			
		Pure crop					1196	298
		Inter Crop						
	Without control	355						
	pure Intercrop			375	245			
	Seeding methods							
	Sorghum	Local -pure	CSH -5				594	
		Intercrop		907	252			
		FESPO -pure						
	Intercrop	2283	358					
	Sorghum			Top Dressing	CSH -5		1193	310
				pure Intercrop				
		Control – pure	411					
	Sorghum	Intercrop		CSH -5		245	248	
Control of earhead		1313						
bug Pure			1438					353
Sorghum	Control				485	350		
	Pure	350					183	
	Hybrids							
				CSH -5	1780			
		CSH -6		1780				
		Local		700				

Table 20: Results of FLDs on Sorghum during 1986-90

Year	Crop	Variety	Mean yield (kg/ha)		% increase over LC
			Demo	LC	
1986	Sorghum	CSH-5	1981	7.30	171
1987	-	-	-	-	-
1988	Sorghum	CSH-6	1149	4.95	137
1989	Sorghum	CSH-5	1826	610	199
		CSH-6	1466	610	140
1990	Sorghum	SPV-462	800	300	166



Sorghum FLD

Table 21: Results of FLDs on Sorghum, Bajra, Tomato, Maize, Cotton and Paddy during 1996-2005

Year	Crop	Variety	Yield (kg/ha)		Increase in yield (%)	Cost of cash inputs (Rs/ha)		Gross returns (Rs/ha)		Addl. Net returns (Rs/ha)	B:C Ratio
			Demo	LC		Demo	LC	Demo	LC		
1996	Sorghum	CSH-5	2200	600	266	1200	500	17600	4800	12100	1:14.60
		CSH-6	2050	550	272	1150	500	16400	4400	11350	1:14.26
	Bajra	BJ-104	2000	600	233	1100	450	12000	3600	7750	1:9.80
1997	Sorghum	SPV-462	1500	500	200	1225	500	12096	400	7371	1:9.87
2000	Sorghum	SPV-462	20250	10600	91	2350	1200	10500	5250	4100	1:4.46
		CSH-16	900	350	157	1950	600	9000	2450	5200	1:4.62
		CSV-13	800	450	78	2050	850	8000	3150	3650	1:3.90
2001	Tomato	Arkavikas	750	420	79	1950	1150	7500	4200	2500	1:3.85
	Sorghum	CSV-15	1700	680	150	1850	765	10200	4080	5035	1:5.51
		CSV-16	1500	700	114	1760	875	9000	4200	3915	1:5.11
		SPV-462	1500	650	131	1760	770	9000	3900	4110	1:5.11
	Bajra	ICMV-22	1100	800	37.5	1400	1050	8800	6400	2050	1:6.28
Tomato	Arkavikas	19400	10100	92	2050	1100	19400	10100	8350	1:9.46	
2002	Sorghum	CSV-15	288	80	160	1325	500	2880	800	1255	1:2.17
	Tomato	Arkavikas	20600	10500	96	2250	1175	20600	10500	9025	1:9.15
2003	Tomato	Arkameghali	19850	10300	93	570	350	19850	10500	9130	1:34.8
2004	Maize	DHM-105	2592	1263	167.85	5738	4545	15220	6568	7459	1:7.24
		EPH-3	1990	1263	57.56	5731	4545	13050	6568	5296	1:5.43
		Harsha	1945	1263	53.99	5738	4545	12888	6568	5127	1:5.29
2005	Tomato	Arkavikas	23100	18000	22	870	700	46200	36000	10030	1:53
	Maize	Navjot	3690	2650	39.25	9289	8950	22307	16020	5948	1:2.40
		KH-517	4408	2880	53.05	9456	9100	26304	17410	8538	1:2.78
		Kargil-900 M	5137	3050	68.43	10415	10200	30239	18437	11587	1:2.90
		Bio-9681	4512	3000	50.40	9850	9450	26872	18135	8337	1:2.73
		Ganga-5	3840	2800	37.14	9255	8925	23237	16944	5963	1:2.51
	Sorghum	CSV-15	1012	693	46.03	5130	3734	5566	4125	45	1:1.08
		CSV-16	1334	1025	30.14	5300	4525	5670	4290	605	1:1.07
	Cotton	Brahma	2564	2165	18.43	22915	23397	51281	43209	8554	1:2.24
		Bt.	4100	3787	8.26	27850	28725	73800	68175	6500	1:2.65
Dassera		2641	2331	13.30	23602	24195	52822	46622	6793	1:2.24	
Paddy	Bunny	2808	2486	12.95	24240	24588	56155	49720	6783	1:2.32	
	MTU-1010	5459	3808	43.35	15628	13186	29019	19931	6646	1:1.85	
	Tella Hamsa	5942	4549	30.62	13894	12265	34297	30823	1845	1:2.46	
	KrishnaHamsa	5960	4432	34.47	13409	12344	35436	26234	8132	1:2.64	
	Triguna	6250	4595	36.01	14208	12515	37500	27570	8237	1:2.64	
	Shanti		6140	5060	21.34	14627	13005	36850	30360	4868	1:2.52
		BPT-5204	4668	4277	9.14	14787	14171	27865	25461	1788	1:1.88



Cotton FLD



Cotton IPM Block

Table 22: Results of FLDs on Sorghum, Maize, Cotton, Paddy during 2006-2007



Year	Crop	Variety	Mean yield (kg/ha)		Increase in yield (%)	Average cost of Cultivation		Average Gross returns (Rs/ha)		Average Net returns (Rs/ha)	B:C ratio
			Demo	LC		Demo	LC	Demo	LC		
2006	Maize (K)	CP-818	6461	4368	47.90	11459	11052	45114	30576	33655	3.94
		Bioseed	6369	4368	45.81	11414	10996	44581	30576	33167	3.91
		KH-517	6450	4368	47.66	11738	11305	45187	30576	33449	3.84
		Kanchan	7785	4368	78.22	12392	11987	54492	30576	42100	4.40
		Laxmi	6036	4368	36.18	11250	10862	42252	30576	31002	3.76
		Polo	6391	4368	46.31	11358	11022	44734	30576	30376	3.93
		Kaveri	6441	4368	47.45	11437	11000	45098	30576	33661	3.94
	Maize (R)	CP-818	7370	4740	55.49	15832	15356	58317	37446	42485	3.68
		KH-2001	7435	4740	56.86	16226	15832	58225	37446	41999	3.59
	Sorghum	SPV-1616	2023	1010	100.29	8463	5377	15257	7629	6794	1.80
	Paddy	Tellahamsa	6165	4542	35.73	15800	13700	34524	25435	25710	2.19
		BPT-5204	6935	6169	12.25	15900	14650	41610	25435	25710	2.61
	Cotton	Bunny Hy	2310	1735	33.14	20257	19665	46184	28500	25927	2.28
		Dassera	2135	1560	36.86	20121	19963	41118	28500	20997	2.04
		RCH-20 Bt	3220	2550	22.35	19586	19123	62750	28500	43164	3.20
		RCH-2 Bt	3105	2455	26.48	19575	19110	62950	28500	43075	3.22
		JK-Durga Bt	2005	1580	26.89	20433	19940	38862	28500	18429	1.90
		Bunny Bt	3300	2700	22.20	19500	18950	64000	28500	44500	3.28
2007	Maize (K)	Bunny Non-Bt	2350	1715	36.03	21028	20566	46467	28500	25439	2.21
		CP-818	6322	4710	34.22	11707	11057	44987	33704	33280	3.84
		Super 900M	6230	4710	32.77	11669	11057	44363	33704	32694	3.80
		Kaveri	6332	4710	34.2	12090	11057	45055	33704	32965	3.73
		Pioneer	5670	4710	20.38	11700	11057	40556	33704	28856	3.47
	Maize (R)	Navj(Check)	4710	-	-	11057	11057	33704	33704	22751	3.04
		Super 900M	7435	5320	40.51	13921	12200	50587	36580	33665	3.63
	Cotton	Kaveri	7760	5320	45.86	14388	12200	52380	36580	37992	3.64
		Bunny Bt	2964	2409	23.04	19963	19306	62248	50599	42285	3.12
	Cotton (IPM)	Mallika Bt	2739	2206	24.16	19254	18672	57511	46324	38257	2.99
		PCH-2171 Bt	2771	2226	24.48	19125	18525	58183	48738	39058	3.04
		Bunny Bt	2725	2315	30.72	19950	18400	57225	37191	37275	2.87



Maize FLD



DMR Team Visit

## 6.11. Components of Technology :

### *Maize*

Maize is an important cereal crop now replacing sorghum in Rangareddy district. Almost all the farmers are cultivating hybrids produced by private seed companies. During 2004, the KVK has persuaded the farmers to go for national hybrid like DHM-105 by conducting 197 FLDs covering an area of 80 ha. However, the farmers were more interested in private hybrids like Kargil, KH-517, etc. But, there was gap in adoption of practices like proper spacing, dosage and application of fertilizers, etc. The KVK has concentrated on these components and educated the farmers. These efforts resulted in 35 to 70 per cent increase in yield over local practices followed by farmers. The farmers were now aware of importance of soil test based fertilizer recommendations for the crop.

### *Cotton*

Farmers of Rangareddy are growing cotton larger areas and becoming highly receptive to improved technologies. Protection of the crop against pests and diseases is the foremost necessity of farmers. Improved practices especially IPM for cotton bollworm including balanced use of organic and inorganic fertilizers, use of pheromone traps, growing trap crops like Marigold, clipping of plant heads at 90-100 days, bird perches, etc. were introduced through block demonstrations. There was increase of 8 to 18 per cent in yield compared to farmers' method of cultivation. The area under cotton is also increasing on par with maize both in Alfisols and Vertisols under rainfed and irrigated conditions.

### *Paddy*

It is a major food crop cultivated under irrigated conditions both during kharif and rabi. Farmers are growing varieties like 'Tella Hamsa', BPT-5204, etc. KVK has introduced the improved cultivation practices like balanced use of fertilizers, varieties, suitable for saline soils and IPM package. In order to educate them about water use, efficient methods like SRI cultivation of paddy was introduced. Adoption of all components of technology has resulted in increase of yield raising from 9 to 43 per cent. The SRI (System of Rice Intensification) has resulted in an increase of 25 per cent more yield than traditional method. Farmers' interest in the new method was visible in case of deficit rainfall periods only. Non-availability of labour, management and timely transplanting of tender seedlings

are some of the constraints faced by the farmers in expanding the area under SRI method.



SRI Demonstration



Cotton Stem Application Demonstration

## 6.12. Feedback :

The issues emerged out of the implementation of technologies during FLD programmes are conveyed to researchers and policy makers for modification and refinement of technologies. The following are some of the feedback.

- ? Botrytis in castor, grain moulds in sorghum and pod borer in pigeonpea
- ? Growing of alternative crops like 'Sunflower' as irrigated-dry crops in place of paddy during rabi
- ? Collection of pods from primaries of castor by farmers for seed purpose
- ? Wider spacing in castor for adoption by farmers to prevent fungal diseases like Botrytis
- ? Appearance of more male flowers in castor during drought period

- ? Application of additional dose of urea @ 25 kg per ha after a prolonged drought of one month helps in reduction of 'male flowers' in castor and increase yields
- ? Farmers preference more for maize due to good market remuneration compared to sorghum and other crops
- ? Non Preference to grow soybean as a profitable crop as there is no assured remunerative market price and low yields
- ? Preference for Bt cotton over traditional cotton varieties due to less pest problems (Boll worms)

#### 6.13. Impact :

- ? On an average, there was more than 200 per cent increase in yields of various high yielding crops of oilseeds, pulses and others compared to local varieties / practices as a result of FLD demonstrations and exposure to improved crop production technologies
- ? High demand for provision of quality seed, fertilizers, pesticides, etc. along with field advisory service from KVK scientists
- ? Realization on the part of farmers the bad effects of 'non-judicious use of chemical fertilizers' and 'indiscriminate use of chemical pesticides' due to continuous education and demonstration by the KVK
- ? Increased net returns of crops made the farmers to rely on KVK for farm advice. There was increase in net returns to the tune of 150 per cent in case of pulses, 88 per cent in case of oilseeds and 50 to more than 100 per cent increase of cereals and other crops like vegetables
- ? Introduction of crops like soybean has increased the confidence of farmers for suitable alternate crop to fit into their cropping system
- ? Demonstration of implements like 'Manual Weeder' attracted the attention of farmers and they were acquiring the same from KVK with full cost
- ? Successful introduction of new crop hybrids / varieties like CSH-5, CSH-6, SPV-462, CSV-15 (sorghum); DCS-9, PCS-4 (castor); Morden, KBSH-1, MSFH-8 (sunflower); ICPL-332, ICPL-84031 (pigeonpea); ICCV-10, ICCV-2 (chickpea); ML-267, WGG-2

(greengram) has attracted the attention of farmers

- ? New linkages with research organizations, viz., NRCS, DOR, DRR, DMR, IIPR, AICRP on PP, CICR were established and hastened the process of transfer of their technologies to farmers through KVK FLD programme
- ? Technology transfer was proved to be faster as some of the varieties like PCS-4 (castor) were first introduced by KVK and later became more popular with the support of State Extension system
- ? KVK / CRIDA Research Farm has become regular source of getting improved seed (castor, etc.) for the farming community to rely on for continuation adoption of technologies
- ? Participation of farmers in Field Days in large numbers, their feedback about technology and demand for further continuation of programme in the area indicates the fast spread of technological information

#### 6.14 Lessons learnt from FLDs :

The KVK has introduced new crops, varieties, cropping systems along with package of practices, which include fertilizer application, and plant protection measures, which were considered as critical inputs, hitherto not adopted by the farmers. Improved varieties / hybrids, viz., CSH-5, CSH-6, SPV-462, CSV-15, CSH-16 (sorghum), DCS-9, GCH-4, PCS-4, PCS-124 (castor), LRG-30, ICPL-332, ICPL-84031, PRG-100 (pigeonpea), MSFH-8, Morden, KBSH-1 (sunflower), ML-267, WGG-2, K-851 (greengram), TU94-2, T-9 (blackgram), ICCV-10, ICCV-2, Annegiri (chickpea), YLM-17 (sesamum), JS-335 (soybean), maize hybrids, Bt cotton were introduced by the KVK in different villages of Rangareddy district. Sincere efforts were made by the KVK to train the farmers in production of their own seed in order to contain the production of availability of good quality seed in the village. Saturation of village with improved crop varieties was encouraged by the KVK by supplying required quantities of seed to farmers either from its own research farm or by procuring from different government seed agencies on cost basis. The horizontal spread of technology through the Front Line demonstrations and extension activities (field days, trainings, extension literature, film shows and method demonstrations) was rapid among the farmers with in the village and surrounding villages. Active

participation of extension functionaries is a lacuna which will be strengthened through better linkages with the state department officials, field staff and NGOs. Working through Rythu samakhya by organizing trainings and rythu sadassulu ( Kisan Ghosthi) at village level by the active participation of farmers and members of samakhya has given the KVK an opportunity for innovative method for transfer of technology for the last 3 years since 2005.

#### 6.15. Integration of Training and Demonstration :

Training of the farmers who are participating in frontline demonstration programme is a pre-requisite for conducting such demonstrations. The KVK usually conducts training of farmers in phases, viz., before start of season (pre-season), during crop season (mid-season) and before and during crop harvesting. Such training programme helps the farmers in procurement of the right inputs in right time and to take corrective measures during crop season for getting higher yields. Demonstration as an effective training method is being used for enhancing learning activity of participants. The demonstrations are interactive type and used in different phases of training intended to inculcate skill practicing among trainees. These are conducted either in the classroom or in the fields. The KVK usually conducts the demonstrations on interactive mode in the following areas.

- ? Operation of implements like drill ploughs, etc.
- ? Operation of plant protection equipment like sprayer, dusters, etc.
- ? Technique of collecting soil samples
- ? Preparation of biopesticides like NSKE etc.
- ? Preservation of fruits and vegetables
- ? Raising nursery plants
- ? Pruning techniques of fruit plants
- ? Techniques of plant propagation

These demonstrations equip the farmers with essential skills to carryout various day-to-day field operations effectively and getting benefits from improved technologies.

#### 6.16. Demonstrations at Instructional Farm :

The KVK instructional farm has several

demonstration units in an area of 11 hectares separately for annual crops, horticulture crops, agri-horti system, nutrition garden, organic compost, vermicompost, zero energy cool chamber, livestock, floriculture and medicinal plants. The land under the farm representing the characteristics of major soil profile of Rangareddy district. The farm is being served as 'live lab' for conducting skill oriented training programmes by the KVK for its clientele. Details of various demonstration units of KVK farm are given in

Table 23 : Details of various demonstration units of KVK

Demonstration Unit	Area / No. of animals / birds
Poultry birds	100 no.
Quails	200 no.
Emu birds	4 no.
Rabbits	12 no.
Sheep	30+2 no.
Goat	3
Oilseed crops	3 ha
Floriculture	300 mt.sq. yards
Nutrition garden	1000 sq.mt.
Medicinal plants	250 sq.mt.
Cereal crops	3 ha
Pulses	2 ha
Mango orchards	1 ha
Guava	1 ha
Amla	1 ha Custard apple 1 ha
Vegetable crops	0.3 ha



S. No.	Demo Unit	Year of estt.	Area	Variety	Details of production	
					Produce	Usage
1	Vermi compost	1997	135 cu. Mt	E.foietida	Compost	Demonstration and Used at KVK farm for fruit and vegetable production
2	Nutrition Garden	1980	0.1 ha	All improved varieties (fruit & veg.)	Fruits / Vegetables	Demonstration and Sale purpose
3	Income Generation Unit (Home Science)	2004	23.76 sq.mt	-	Pain balm Phenyl Vaseline	Produced by women trainees and for exhibiting the products



Vermi compost Unit at KVK



Nutrition Garden Unit



Livestock Units



Emu Birds Unit



Medicinal Plants Unit

6.18. Model watershed :

Krishi Vigyan Kendra with the expertise from CRIDA has established model watershed in an area of 4 ha by establishing Agri-horticulture system. The water harvesting pond with the capacity of 2000 m<sup>3</sup> of water was constructed for delivering stored water during the periods of water stress and life saving irrigation to vegetable crops and horticulture plantations with improved water management practices such as Drip and Sprinkler irrigations.

? Construction of water harvesting structure.

New: 1) 2000 m<sup>3</sup>, without lining

2) 650 m<sup>3</sup>, with HDPE lining

? Renovation of existing farm ponds 2 nos. one with

cement lining another with soil cement lining.

? Construction of water ways for safe disposal of excess runoff.

? Installation of Micro-Irrigation system in 4.56 ha. for existing and new plantation. 2 sets of sprinkler irrigation equipment procured and one set of rain-gun assembly procured for demonstration purpose. (2.0 ha. sprinkler irrigation, 1.0 ha. rain-gun assembly).

? Land development in 4.0 ha. and conservation structures like gabion structure, loose boulder structures.

Total cost of watershed Rs. 9,90,000/- .



Water Harvesting Pond



Watershed Area at KVK Farm-Agri-Horticulture system



Vegetable Cultivation by irrigating through water harvest pond





## CHAPTER 7

### TECHNOLOGY VERIFICATION

#### 7.1 Technology Assessment and Refinement :

One of the major tasks of the KVK is to search for suitable solutions for solving the problems faced by the farmers of the area. The problem may be either non-suitability of technology or in compatibility with the current farming system of farmer. The researcher has to find a way out to reduce the level of risk in adoption of new techniques and make it a part of the existing farming environment / system. The solution should satisfy the farmer and enhancing his decision making ability for adopting a new technology / practice. KVK organized several on-farm research activities for finding out the technologies suitable to the micro-farming situation. The following steps are usually followed.

- ? Problem identification
- ? Present situation
- ? Problem analysis
- ? Solution
- ? Experimentation
- ? Assessment of results
- ? Refinement
- ? Recommendation and diffusion

On-farm Trials/Testing (OFTs) were conducted on the following aspects for finding out optimum technical interventions.

Problem	Technical intervention through OFTs
Low plant population and less area coverage plough High cost of weeding	" Introduction of new seeding devices like CRIDA drill " Introduction of manual weeders
Yield loss due to pests and diseases in castor and pigeonpea	" Helicoverpa control in pigeonpea " Semi-looper control in castor " Botrytis control in castor
Low yield potentiality of existing genotypes	" Introduction of high yielding genotypes of oilseeds, pulses and other crops
Soil loss due to erosion resulting in low productivity of rainfed crops	" Introduction of suitable soil and water conservation measures like CRIDA terrace, graded bund, etc.
Lack of suitable paddy varieties under saline soil conditions	" Introduction of saline resistant varieties, viz., MTU-1010, Tella Hamsa, etc.
Low efficiency of water use and non-availability of sufficient irrigation water for paddy cultivation	" Introduction of System of Rice Intensification (SRI) method opting for alternate crops like sunflower
Lack of suitable paddy varieties in place of existing ones like Tella Hamsa	" Introduction of high yielding varieties, viz., Krishna Hamsa, Triguna and Shanti
Loss of crop season due to irregular monsoon / lack of contingency planning	" Contingency cropping of sunflower and greengram under late sown kharif conditions
Alternate crops for rainfed conditions in place of sorghum	" Introduction of crops like maize with low risk and good yields

The on-farm trials were found to be giving satisfactory solutions to the problems faced by the farming community and finding place in their farming system for regular adoption. The results of some of the OFTs conducted by the KVK are given hereunder.

On-Farm Trial	Result
Performance of low cost soil and water conservation techniques on productivity of rainfed crops	" CRIDA terrace and graded bund of 0.5 sq.mt. in watershed area enhanced the castor yield by 20 per cent over sowing the crop along the slope
Paddy varieties for saline soil conditions	" Out of two varieties tried, viz., MTU-1010 and Tella Hamsa, MTU-1010 performed better by registering 16.14 per cent more yield
SRI method vs. farmers' method	" The increase in yield over local method was ranged from 21.34 to 36.98 per cent with significant reduction in cost of cultivation
Testing and evaluation of seeding devices	" Use of CRIDA drill plough increased the coverage of castor seeding by 1.5 times over the traditional method
Contingency cropping	" Sunflower and greengram were found to be economical compared to castor under late sown conditions in kharif
Potentials of improved crop genotypes of castor	" Castor variety DCS-9 proved better for wilt prone areas
Helicoverpa control in pigeonpea	" Use of neem based pesticides and pheromone traps proved better for controlling pod borer
Potentials of improved chickpea varieties ICCV-	" Among seven varieties, viz., Annegiri, ICCV-2, ICCV-10, 37, Jyothi, etc., Annegiri performed better registering 43.82 per cent increase in yield over control
Performance of paddy varieties	" Out of three varieties, viz., Krishna Hamsa, Triguna and Shanti, the variety Shanti has performed better (15 per cent increase over local)
Soil Test Based Fertilizer recommendations in paddy	" Based on location specific soil testing results, the farmers were advised to apply recommended doses of NPK fertilizers and Micronutrients and yield differences were recorded comparing with the farmers practices.
Rice Yellow Stem borer control	" Installing yellow stem borer pheromone traps for mass trapping followed by chemical control has resulted to better control of the pest in rice
Use of paddy seed drum as an alternate planting method	" Use of paddy seed drum for direct sowing of pre germinated paddy seeds compared with normal transplanting method resulted in 20% increase in plant stand and better yields and 30% savings in transplanting costs.
Use of manual weeder and Power weeders	" The use of manual weeder/power weeders resulted in 65 per cent reduction in cost of cultivation due to saving of labour

Technology verification through on-farm testing has provided the KVK the required confidence for advocating right type of technology suitable for varied farming situations and crop enterprises.



OFT on Soil Test Based Fertilizer application in Rice



OFT on Drum seeder Direct method of Sowing in rice

## CHAPTER 8 EXTENSION ACTIVITIES

### 8.0. Extension Activities :

The farmers need to have knowledge not only about the improved farm techniques, but also they should aware of other aspects related to production systems, research institutions, schemes and programmes of various development departments. In order to create wider awareness about all these aspects, KVK is conducting various extension activities like Farmers Days, Field Days, film shows, study tours, exhibitions, etc. for the benefit of farming community of the district (Table 6). The KVK with the help of host institute, CRIDA organizes Farmers' Day during cropping season every year. All research institutions of ICAR and ANGRAU are used to participate in the programme along with the development departments in the district. A large number of farmers from surrounding districts of Mahaboobnagar, Medak and Nalgonda participate in the event to get themselves exposed to latest technologies and to interact with the Subject Matter Specialists / research scientists. The KVK conducts need-based study tours for the

practicing farmers and women groups to different places of agriculturally important. Field Day is an important activity of KVK to publicize the achievements of frontline demonstrations and showing the potentiality of technologies. Brainstorming sessions or seminars both on campus and in villages set the tone for change by discussing in depth about the current issues on agriculture. KVK conducts special programmes of national events like World Food Day, Women in Agriculture Day etc., for creating awareness and interest among clientele for intensification of their efforts in those fields. KVK staff gives radio talks and Television presentations on various topics of agriculture and rural development to reach larger audience. The extension activities of the KVK are covered regularly in all the leading newspapers of the district. Besides, KVK has published extension literature (folders, etc.) on all major aspects of agriculture technology relevant to the needs of farming community and distributes to farmers, trainees, visitors, extension personnel etc.

Table 24: Details of extension activities conducted by KVK

Activity	Number / period (years)			
	1990-95	1996-2000	2001-05	2006-08
Farmers' Day	05	05	02	03
Field Day	09	09	04	15
Study tour / exposure visit	-	01	05	04
Radio talk	31	43	13	08
T.V. show	-	-	04	01
Film show	20	36	-	-
Seminar	-	04	04	02
Kisan Ghosthi	-	10	-	14
Kisan Diwas	-	-	01	-
Exhibition / Agri. Trade Fair	-	08	09	06
Horticulture show	-	01	01	01
World Food Day	-	-	03	02
Women in Agriculture Day	-	-	01	03
Animal Health Camp	-	01	02	01
News paper coverage	-	04	40	36
Parthenium Awareness week	-	-	-	2

Activity	Number / period (years)			
	1990-95	1996-2000	2001-05	2006-08
National Nutrition Week	-	-	-	2
National Science Day	-	-	01	01
TTC Club	-	-	01	-

### 8.1. Farmers Days :

It is one of the major extension activities of the KVK. It is organizing Farmers Day during cropping season every year with the help of host institute, CRIDA. Usually 1000-1500 farmers from surrounding Rangareddy, Nalgonda, Mahabubnagar, participate in the programme to get themselves exposed to various technologies and to interact with the subject matter scientists. This is the annual celebration every year and there is tremendous enthusiasm among the farmers to attend the Farmers Day where they get their doubts cleared from the concerned experts.

#### Farmers' Day



### 8.2. Field Days :

The KVK is conducting Field Days on all important crops of the area, usually at the middle or end of the crop season and in most convincing stage of the crop for the visitors. The crop technologies demonstrated through the FLD programmes are highlighted during the Field Day event. Field Days are being participated by the farmers of the village, neighbouring villages, field extension staff, scientists of KVK and other institutions. These are conducted in all villages of KVK, which adopts about 10-15 villages every year. Thus these technologies are spread through Field Days also.



Field day on Cotton

### 8.3. Study tour-cum-exposure visits :

The KVK, Rangareddy has organized field visits to local places like ICRISAT, DRR, DOR, ANGRAU, NRCS, NBPGR and also study tours to distant places like KVKs other, Research Institutions and progressive farmers fields in coastal Andhra and Rayalaseema regions of Andhra



Pradesh. The visits are conducted to farmwomen groups (SHGs) to DWACRA Bazar and other such places of their interest. These visits significant gain of knowledge and awareness among the rural folk by closely observing the researchfields / farms.



#### 8.4. Open house discussions / Seminars :

The KVK, Rangareddy organizes subject matter seminars on the occasion of CRIDA Formation Day (during April) by bringing farmers from different villages and made them to participate in the interactive discussions on different subjects like 'WTO agreement role of farmers', 'Rainfed agriculture prospects', 'Technologies for marginal land development' etc.

#### 8.5. Exhibition :

The KVK is participating in all the national / district level agriculture exhibitions for displaying the improved technologies as well as the activities of the KVK.



Southern States Agriculture Fair - Exhibition at ANGRAU

#### 8.6. Vikas Voluntary Vahini (VVV) Clubs :

The KVK has realized the benefits of working with farmers groups for sustainability of TOT activities and organizing Farmers' Clubs in the adopted villages. A maiden VV Club by name 'Sri Veeranjanya Technology Transfer Club' was formed in Saireddiguda village during 2004-05 with the financial support from NABARD and technical backup from KVK. The SHGs formed by women in the villages are strengthened by the KVK to empower them with necessary technical skills.

#### 8.7. Peripatetic Training :

Under this programme, KVK group of trainers along with necessary teaching aids/ demonstration material are reaching the villages and imparting training to the targeted clientele. During last few years the KVK has covered seventy five percent of the mandals in the district through this programme. The main beneficiaries were farm women.

#### 8.8. Extension Literature :

The KVK has published literature on all aspects of improved farming, viz., agronomic practices, improved implements, soil and water conservation, plant protection, alternative crops for drylands, vermicompost, medicinal and aromatic plants, sheep and goat management etc. for the benefit of farmers :



Item	Title	Authors name
Technical bulletins	1)Contribution of KVK in R.R.dist (English)	Dr.M.S.Prasad, Dr.S.Dixit, Dr.Y.S.Ramakrishsna
	2)Feeding and management of small ruminants (English)	A.K.Mishra, D.B.V.Ramana, M.S.Prasad, Dr.Y.S.Ramakrishsna
	3)Improved scientific management practices for livestock development (Telugu)	D.B.V.Ramana, A.K.Mishra, G.Nirmala, M.S.Prasad, Dr.Y.S.Ramakrishsna
	4)Improved management practices for production of different crops (Telugu)	R.Joseph, R.D.R.Reddy, S.M.Vidyasekar, B.M.K.Reddy, M.S.Prasad, Dr.Y.S.Ramakrishsna
	5)Improved management practices for cultivation of fodder crops / grasses	G.Nirmala, D.B.V.Ramana, M.S.Prasad, Dr.Y.S.Ramakrishsna
	6)Improved management practices for higher production of pulse crops (Telugu)	B.M.K.Reddy, V.Maruthi, M.S.Prasad, N.N.Reddy, R.D.R.Reddy, Y.S.Ramakrishsna P.R.Singh, M.S.Prasad, N.N.Reddy, Y.S.Ramakrishsna
	7)Improved management practices for higher production of fruit crops (Telugu)	P.R.Singh, M.S.Prasad, N.N.Reddy, Y.S.Ramakrishsna
	8)Management practices for higher production of vegetable crops (Telugu)	A.K.Mishra, D.B.V.Ramana, M.S.Prasad, Dr.Y.S.Ramakrishsna
	9) Strategies for forage production and utilization (English)	D.B.V.Ramana, A.K.Mishra, M.S.Prasad, Dr.Y.S.Ramakrishsna
	10)Management of Dairy Animals (English)	V.Maruthi, P.R.Reddy, B.M.K.Reddy, R.D.R.Reddy, M.S.Prasad, Y.S.Ramakrishsna, G.Subba Reddy
	11)Maize cultivation (Telugu)	P.R.Singh, M.S.Prasad, V.S.Rao, N.N.Reddy, Y.S.Ramakrishsna
	12)Management practices for higher production of flower crops (Telugu)	M.Prabhakar, Y.G.Prasad, R.D.R.Reddy, M.S.Prasad, Y.S.Ramakrishsna
	13)Integrated pest management in dryland crops (Telugu)	A.Vidyadhari, M.S.Prasad, A.Sambrajyam, M.Srinivasa Rao, C.A.Ramarao, E.Anjaiah, K.Srinivas, G.Pratibha, S.M.Vidyasekar, M.S.Prasad
	14) Rural livelihood – cooperation of KVK (Telugu)	A.Sambrajyam, Sushma Dhavan, M.S.Prasad, N.Laxminarasu, Y.S.Ramakrishsna
	15)Crop management practices in integrated pest management (Telugu)	A.Sambrajyam, M.S.Prasad, Y.S.Ramakrishsna, Y.V.R.Reddy, P.K.Mathad
	16)Different recipes from water melon fruit (Telugu)	B. Sanjeeva Reddy, C.R. Thyagaraj, I. Srinivas, R.V. Adke, P.K. Mathad, B. Venkateswarlu
	17)Organic fertilizers (Telugu)	G. Nirmala, C.R. Thyagaraj, M.S. Prasad, K. Sridevi Shankar, P.K. Mathad, B.. Venkateswarlu
	18) Improved farm implements for Dryland Agriculture (Telugu)	C.R. Thyagaraj , S.M. Vidya Sekhar, G. Nirmala , , R.V. Adke , B. Sanjeeva Reddy , M.S. Prasad, P.K. Mathad
	19. Watershed Development and Management by local bodies (Telugu)	
	20. Enhancing water productivity through Sprinkler and Drip Irrigation	

Item	Title	Authors name
Extension literature	Organic Farming (Brochure)	A.Sambrajyam , S.Dixit, M.S.Prasad, B.Venkateswarlu
	Neem in Plant Protection (Brochure-Telugu)	M.Prabhakar, Y.G.Prasad, R.D.R.Reddy, Y.S.Ramakrishna, B.Venkateswarlu
	NPV in Plant Protection (Brochure-Telugu)	M.Prabhakar, Y.G.Prasad, R.D.R.Reddy, Y.S.Ramakrishna, B.Venkateswarlu
	Improved implements & machinery for rainfed farming (Bulletin-Telugu)	B.Sanjeeva Reddy, CR Thyagaraj PK Mathad & B.Venkateswarlu
	Impact of Maize frontline demonstration on Knowledge and adoption of farmers	R.Joseph, K.Ravi Shanaker, K.Naga Sree, M.V.Padmanabhan, M.S.Prasad, C.R.Thyagaraj & B.Venkateswarlu

### 8.9 Special days:

The KVK is regularly organizing extension activities like special days viz., ICAR Foundation Day, World Food day, Women in Agriculture Day, National Nutrition Week, Parthenium Awareness Week etc. and giving information through AIR / Doordarshan for the benefit of farmers. It organized 'Kisan Diwas' during 2002 at Institute level and honoured ten outstanding farmers / farmwomen in the areas of agriculture and allied fields on the occasion. In order to create and strengthen 'Farm Knowledge' Centres at village level, the KVK has started providing farm magazines, publications, Vyavasaya Panchangam of ANGRAU etc. to progressive farmers in a cluster of 10 villages in the district where its activities are taken up in an intensive manner.



World Food day



Parthenium control Awareness programme



ICAR Foundation Day



#### 8.10. KVK Website :

<http://www.crida.ernet.in/KVK/KVKHOMEPAGE.HTM>

Krishi Vigyan Kendra (KVK) website was developed by providing links to information on KVK activities, Infrastructure, FLDs, OFTs, Success stories, linkages, IPM packages, Package of practices, Market information, Online Newsletter, Women empowerment, KVK photo gallery and links to CRIDA website. Presently the website is hosted through CRIDA website and later will be hosted independently through server provided under ICAR E-connectivity programme for KVKs through ERNET.

#### KVK-Home page



#### 8.11. Seed Production at Village Level :

In order to encourage the farmers to produce their own seed, KVK has started this programme during 2004. A group of 22 farmers were motivated to take up the seed production of castor (DCS-9) in an area of 35.5 acres in Saireddiguda village with the help of other institutions like DOR and NSC. The programme was successful and good amount of seed

was produced and utilized by the farmers. This gained a momentum and farmers are practicing on castor and maize also with the help of the private seed production agencies.

#### Seed Production at Village Level

Village	: Saireddiguda, Rangareddy District
No. of farmers involved	: 22
Crop	: Castor (DCS-9)
Season	: Kharif 2004
Total area (acres)	: 35.5
Total yield (Quintals)	: 201.625
Maximum yield per ha	: 12.5
Minimum yield per ha	: 7.5
Average yield per ha	: 9.16
Cost of cultivation (Rs/acre)	: Rs.1915
Returns @ Rs.20 per kg	: Rs.11,359/acre
Cost Benefit Ratio	: 1:5.93

#### 8.12. Working through Rythu Samakhya An Innovative methodology of Transfer of Technology :

The Krishi Vigyan Kendra is implementing various activities for the benefit of farmers to reach them in different corners of the district. However, considering the limited man power and resources at its disposal, it may be a different task to transfer the technologies to large farming community of the district by the KVK on its own. Hence, it is inevitable, to link its activities to various organizations including those formed by the farmers. 'Rythu Samakhya' or Federation of associations of farmers of Ranga Reddy district is such an organization formed at CRIDA during 2005. It was formed at CRIDA on 25<sup>th</sup> July 2005 as its members have assembled and decided to take advantage of improved farm technologies advocated by the KVK in the district. 50 members attended the first meeting

from different, mandals of the district. The 'Rythu Samakhya' had elected its executive body and office bearers and decided the agenda to be followed. They discussed different issues in agriculture, crops, dairy, sericulture, water management, farm implements, sources of availability of different inputs etc., It was decided to conduct regular meetings of Rythu Samakhya members on 1<sup>st</sup> Monday of every month involving. Specialists from Agricultural University, ICAR Institutes, KVK and Officials from various line departments of State and Central Governments. Besides discussing on organizations matters for strengthening the organization during these monthly

meetings, farmers will be exposed to latest farm technologies covering Horticulture, INM , IPM, Improved implements etc., The KVK used to coordinate these meetings, arranging, training sessions and exhibition of different technologies, (like implements etc.,) publications etc., for creating awareness among farmers. A number of such 'Rythu Sadassu' meeting were organized involving the KVK at different places of the district. Due to this net work of farmers' federation, KVK could reach more number of villages and farmers in different corners of the districts and spread the technologies for the benefit of farmers.

Table 25: Rythu Sadassu meetings conducted by the KVK, CRIDA 2005 onwards.

S.No.	Place	Date	No. of farmers attended	Remarks
1	CRIDA,Hyderabad	25-07-2005	80	Formation of Rythu Samakhya of R.R.dist
2	CRIDA,Hyderabad	05-09-2005	38	Ist Meeting with Rythu Samakhya
3	CRIDA,Hyderabad	03-10-2005	40	Knowledge empowerment through training programmes and Rythu Sadassu
4	CRIDA,Hyderabad	07-11-2005	35	..
5	CRIDA,Hyderabad	05-12-2005	48	..
6	CRIDA,Hyderabad	02-01-2006	52	..
7	CRIDA,Hyderabad	06-03-2006	50	..
8	Bandlaguda, Rajendranagar	21-06-2006	75	..
9	Dharur Mandal, R.R.dist	04-12-2006	73	..
10	Rythu Bazar Mehdipatnam	05-03-2007	40	..
11	Rythu Bazar Yerragadda	09-04-2007	75	..
12	Rythu Bazar Kothapeta	09-07-2007	68	..
13	Rytu Bazar, Kukatpally	06-08-2007	70	..
14	CRIDA, Hyderabad	03-09-2007	40	..
15	CRIDA, Hyderabad	10-09-2007	78	..
16	Nawabpet, R.R.dist	01-10-2007	68	..



S.No.	Place	Date	No. of farmers attended	Remarks
17	Virakabad, R.R.dist	05-11-2007	72	Knowledge empowerment through training programmes and Rythu Sadassu
18	Sirirpuram village, Marripalli, R.R.dist	10-12-2007	76	..
19	CRIDA, Hyderabad	27-12-2007	150	..
20	Chimaladari, Mominpet	08-02-2008	68	..
21	Bandlaguda, R'nagar	01-07-2008	82	..
22	Poddutur,Sharkarpally	14-10-2008	86	..
23	Dharoor, Dharoor	02-12-2008	112	..
24	Medipally, Moinabad	25-06-2009	102	..



Rythu Saddassu at Vikarabad Mandal



Rythu sadassu at Proddutur , Sankarpally Mandal

### 8.13. Soil Health:

Farmers were educated about the importance of maintaining soil quality by opting for soil test based fertilizer recommendations for various crops. During 2005-07, about 500 soil samples were collected from the farmers' fields of Kandukur and Shabad mandals of the district with the active involvement of farmers. All the farmers were issued the soil health cards by the KVK (see Annexures). Under this activity KVK is propose to give a health care card to each farmer regarding their soil health and suitably advise him about the fertilizer doses or organic farming techniques in the adopted villages.

## CHAPTER 9

### WOMEN EMPOWERMENT

#### 9.0. Women Empowerment :

The KVK has given more emphasis on improving the livelihood conditions of rural women and empowering them with the help of appropriate technologies for improvement of farm and home conditions. The female population in the district is 57.03 per cent. The area is mostly mono-cropped with few packets of irrigated areas where the farmers are producing vegetables and paddy. Most of the farmwomen and the agricultural labour left with no activity during off-season. The labour wages are low and less in comparison with male labour. The agriculture returns are also unstabilized due to uneven distribution of rainfall. With the results, the income levels of rural families in this region are low and not meeting fully the family needs. In this context, the KVK has implemented many activities for women including capacity building, concerned with how to utilize the locally available resources and convert them into useful products for earning additional income for their families. These are :

#### 9.1. Activities on-farm :

- ? Plant propagation techniques
- ? Preparation and use of bio-pesticides like NSKE
- ? Vermi-composting
- ? Backyard poultry
- ? Raising of vegetable nurseries
- ? Use of improved implements for seeding, weeding and interculture

#### 9.2. Activities Non-farm :

- ? Preparation of detergents and phenyl
- ? Preparation of Vaseline and pain balm
- ? Preparation of fruit and vegetable preserves
- ? Candle making

- ? Bakery
- ? Preparation of handicrafts
- ? Tailoring and embroidery
- ? Adda leaf making
- ? Production of mushrooms

Besides, farmwomen were also provided training in scientific storage of food grains, rural sanitation, and nutrition and health aspects. The details of training programme conducted for farmwomen are given in Table 7.

Pickle making



Agarbatti making





Table 26: Training programmes conducted for farmwomen by the KVK (1977-2008)

Title of training programme	Number of programmes	Number of women trained
Crop production	40	1000
Horticulture production	25	500
Farm implements	12	300
Plant protection	20	400
Integrated watershed management	12	288
Income generation activities	89	1824
Scientific storage of foodgrains	30	1500
Backyard poultry	40	800
Fruit and vegetable preservation	25	625
Mushroom production	5	100
Fuel management (biogas)	8	150
Rural crafts	8	150
Tailoring and embroidery	20	400
Nutrition & child care	30	602
Health and sanitation	20	400
Total	360	8518



Solar Cooker



Mushroom production Training programme



Tailoring and Embroidery

### 9.3. Training and Demonstration :

The main approach was to create awareness and equip the women with necessary skills through practical training. The modules involved for different training themes are completely participatory in approach where all the trainees are motivated for active involvement in learning of skills.

### 9.4. Removal of Drudgery

The traditional method of seeding was done by dropping the seed and fertilizer in the open furrow,

which results in too much strain in the spine and waist parts of the body. By using the plough planter developed by CRIDA, many advantages are noticed. With the plough planter not only was saving of labour and seed (Rs.900/- per ha) achieved, but also more uniform crop stand was obtained. Normally the intra-row weeding is done by the farmwomen either by bending or sitting with forward movement using local sickle, which involves great physical strain. In order to solve this problem, KVK has introduced the manual weeder developed by CRIDA and trained the women in using it. With the introduction of dryland weeder 0.14 to 0.16 ha per day could be covered by just one person where 72 per cent of the time is saved besides removing the drudgery.



#### 9.5. Dryland Horticulture :

Under this programme, plant propagation and rising of vegetable nurseries was given emphasis. Women were imparted training in skills and multiplication of fruit plants like mango, custard apple, ber, phalsa, guava, drumstick, etc. They were trained in improved methods of nursery rising especially in tomato and chillies. Youth (girls) in the villages are attending to such works to earn additional amount.

#### 9.6. Integrated Pest Management :

In order to promote the eco-friendly technologies like IPM, farmwomen were trained in preparation and use of bio-pesticides like neem seed kernel extraction (NSKE), Pongamia cake, Pongamia oil etc. in place of chemical plant protection, which is not eco-friendly or farmer-friendly. Hence bio-pesticides are given more emphasis in cultivation of different crops in addition to practicing IPM in villages for reduction of the cost and increasing the

organic products in the rural areas as organic products are more valuable and cost effective in addition to maintenance of good health.

#### 9.7. Post-harvest Technology :

Training programmes were organized in scientific storage of food grains for the women through educating them in the techniques in controlling storage pests and using improved grain storage structures. Neem leaf or dried Pongamia leaf etc. can be used (putting in the storage bin or bag) in preserving the food grains for longer time. Sixty Metal storage bins were supplied by the Indian Grain Storage Institute, Rajendranagar, Hyderabad during the last 2 years and about 100 farmers purchased on their own the metal storage bins.

#### 9.8. Nutrition Gardens :

Under this programme women were trained in nutrition management and rising of nutrition gardens in their backyards in the villages. The vegetable crops especially creepers were grown to have vegetables, fruits etc. for their consumption which will improve the nutrition status of the people.

#### 9.9. Use of Improved Chullha :

The KVK has introduced improved Chullha 'Priagni' a mobile iron chulha supplied from NEDCAP. By using these, 40 per cent of the fuel is saved and the cooking time is reduced by 20 per cent.

#### 9.10. Fruit and Vegetable Preservation :

The preparation of preserves by local farmwomen was limited to buy a few items (mango, lemon). But there are many varieties of vegetables such as tomato, brinjal, drumstick, red chillies, green leaves, gooseberry are grown in plenty during season but are not preserved. The KVK has taken up the programme of imparting skills involved in preparing the pickles, chutneys, squashes, jams, jellies, etc. by women. Now-a-days people in rural areas in Rangareddy district started taking pickles, chutneys with the food and particularly with curd rice and mostly the people of lower strata are using these preparations. This activity has resulted not only in improvement of nutritional status of rural women but also in reduction of work load at home due to

availability of food preservatives. CRIDA Vegetable Preservator was also demonstrated widely in villages.



Demonstration of Vegetable Preservator

#### 9.11. Training in Non-Farm Technology :

KVK has extended training to women in various non-farm activities, viz., tailoring and embroidery, nutrition and child care, rural crafts, bakery, preparation of detergents and cleaning powders, phenyl, candles, leaf plates, dying and printing works etc. in order to equip them with necessary skills to earn income and for self-employment.

The skills learned by the women under these activities proved to be creating better quality of life for rural people with the improvement of earning capacity. The

Table 27: Particulars of cost and returns of products prepared by farmwomen

Product	Quantity	Cost (Rs.)	Returns (Rs.)	Profit (Rs.)
Washing powder	100 kgs	25,000	35,000	10000
Candle	5 kgs	300	600	300
Pain balm	1 kg	420	1,040	620
White phenyl	100 lit	1,500	2,000	500
Cleaning powder	60 kgs	200	480 @ 8/-	280
Moisturizer	1 kg	165	400	235
Redgram dal	100 kgs	1,400	1,750	350

#### 9.12 Impact of Livelihood Activities :

The feed back received from the surveys of ex-trainees as a part of monitoring and follow up has revealed that farmwomen who mostly adopted the farm related skills like improved implements, nursery management (vegetables), food grain storage, bio-pesticides (NSKE) etc., which are indirectly helped them to improve their farm production. The income invisible and for need part of their total income. The Scientists in agricultural economics evaluated such programmes found that drudgery due to traditional system in case of women was more compared to present technologies. They, women farmers are benefited to reduce the drudgery. In addition, the employment has been increased per annum from 195 days to 305 days incase of women as against 183 days to 275 days incase of men. Similarly, the income has increased to the tune of 30-40 percent compared to traditional technologies in all crops. The standard of living of people has increased incase of education, health, clothing, nutrition, etc and the additional income was worked out to be Rs.2000-Rs.6000

per household per annum in KVK adopted villages compared to non-KVK villages in the same region. However, incase of income generated from the adoption of skills related to non-farm activities like candle making, pain balm, bakery, washing powder etc., considered by women as additional or extra income apart from those earned through farming. These activities are taken up by women as part time activity only. The details of adoption of such activities by the trained women and benefits accrued by them are given here under.

Activity	Benefits
Candle making	Adopted by 25 percent of trainees and monthly earning of Rs.300/- per month
Washing powder preparation	Adopted by 18 percent of trainees earning Rs.300/- per month
Preparation of pain balm	Adopted by 12 percent of trainees earning Rs.150/- per month
Stitching garments	Adopted by 30 percent of trainees earning Rs.500-600 per month
Adda leaf making	Adopted by 10 percent of trainees earning Rs.450/- per month

## CHAPTER : 10 LINKAGES

### *10.1. Research Extension :*

The KVK, primarily a technology dissemination organization has inbuilt mechanization of regular flow of research technological information for its various activities through its Scientific Advisory Committee (SAC). The SAC meets twice in a year to discuss about the technical programme and review the activities of KVK. Director of the host institution of KVK as its Chairman, the SAC has members from Zonal Coordination Unit of ICAR, SAU, AIR, Doordarshan, NGOs, officials of development departments of concerned State Government and farmers and women representatives of the district. The collaborative programmes between KVK and other departments / TOT agencies are planned, implemented and reviewed during the SAC meetings. Besides, scientists from various other research organizations of ICAR are also invited for SAC Meeting to take their suggestions.

### *10.2. Institutional :*

The KVK has established strong functional linkages with so many state and central government organizations, viz., A.P. State Department of

Agriculture, Animal Husbandry, Horticulture, Sericulture, Acharya NG Ranga Agricultural University, Directorate of Oilseeds Research, Directorate of Rice Research, Project Directorate on Poultry, National Plant Protection & Training Institute, National Research Centre for Sorghum, Andhra Pradesh State Seed Development Corporation, National Institute of Nutrition, Indian Grain Storage Institute, Regional Station for Forage Production & Demonstration, etc. for successfully implementation of its activities. The KVK has formed a 'consortium of rural development' by regularly consulting several NGOs like AWARE, REEDS, JSS, etc. for implementing several collaborative programmes. The nature of linkage is involving specialists as resource faculty for capacity building of clientele, scientific investigation in respect of performance of technologies, conducting FLDs, OFTs, supply of seed / plant materials and conducting field visits for the trainees, etc. These linkages were proved to be beneficial mutually for planning and implementing various programmes that requires a strong persuasion and mobilization of clientele.

Institution	Programme of activity
Central Research Institute for Dryland Agriculture	The host institution of the KVK. The Training Organizer specialized in Agriculture Extension and Training Associates of KVK in the disciplines of Horticulture, Home Science, Extension, Plant Protection, Agronomy and Agriculture Engineering are using their expertise in implementing various programmes. Besides, the KVK is consulting scientists of CRIDA for various programmes related to Soil & Water Conservation, Dryland Horticulture, Agronomy, Agro-forestry, Food & Nutrition, Agricultural Engineering, Post Harvest Technology, Animal Nutrition, Plant Protection (IPM), Soil Science (INM) and Agricultural Economics. The major programmes are crop production, implements, IPM, Horticulture and improved management of animals (dairy / milch, sheep, goat) etc.



Institution	Programme of activity
Acharya NG Ranga Agricultural University	The KVK is involving subject matter experts of ANGRAU, DAATC in the programmes of Rice Production (SRI), rabbitary, quails production, Emu birds, poultry management, livestock production and management etc.
Directorate of Rice Research (ICAR)	Involving experts in the programmes of rice production (HYV), plant protection aspects of rice, special problems like rice propagation, saline soils, IPM, etc.
Directorate of Oilseeds Research (ICAR)	Involving experts in oilseed production for different crops, viz., castor, safflower, sunflower, sesame, soybean, gingerly, etc.
National Research Centre for Sorghum (ICAR)	Involving experts in sorghum crop production and management (FLD programmes)
Project Directorate on Poultry (ICAR)	Involving experts in backyard poultry programme
Indian Grain Storage Institute, Govt. of India, Hyderabad	Involving specialists in training of farmers in improved storage structures, inputs for construction of grain storage structures in the villages
National Institute of Nutrition, Hyderabad	Involving specialists in training rural women in nutrition and health care
Regional Station for Forage Production & Demonstration, Govt. of India, Mamidipally, Hyderabad	Involving experts in fodder production. Training of farmers and input supply of sample fodder seed of improved grasses
Directorate of Maize Research (ICAR), New Delhi	Conducting FLDs on maize
NRC for Soybean, Indore	Conducting FLDs on soybean
Indian Institute of Pulse Research (ICAR), Kanpur	Conducting FLDs on pigeonpea, greengram, blackgram, chickpea
Central Institute of Cotton Research (ICAR), Coimbatore	Conducting FLDs on cotton
NAARM (ICAR), Hyderabad	Utilizing the advises of experts in conducting PRA, RRA and impact studies
National Plant Protection & Training Institute, Govt. of India, Hyderabad	Utilizing the services of experts on IPM and plant protection measures, rat control etc.

### 10.3. Local Line Departments :

Regional Soil Testing Lab, Govt. of A.P., Hyderabad	For conducting soil testing and support for farmers training
Department of Agriculture, Govt. of A.P.	Conducting training programmes for farmwomen in different mandals of Rangareddy district in collaboration with FTC, Rajendranagar
Directorate of Animal Husbandry	Involving subject matter specialists in livestock production and management

Department of Sericulture	Involving specialists in farmers training and demonstration of sericulture technology - planting, mulberry plantations, cocoons (eggs, larva, cocoon management)
Khadi Gramodyog	In demonstration of apiculture
Department of Horticulture	Floriculture and plantation crops. Conducting trainings and demonstrations
State Bank of Hyderabad etc. (Dist Lead Bank)	Utilizing their services for getting the loans to the farmers, farmwomen to purchase farm inputs and for extending finance for SHGs self help units.

10.4 Developmental programmes through local line departments The various developmental programmes are being implemented by the local Line Departments for the benefit of farmers and for increasing production and productivity in different crops in Rangareddy district. Some of these programmes are viz;

S.No.	Name of the Programme	Objective
1	National Oilseeds Production Programme	To increase the production under oilseed crops by increasing area and productivity with high yielding varieties
2	National Pulses Development Project	To increase the production under pulses by increasing area and productivity with HYV and reduce losses due to pest incidence and better nutrient management
3	Integrated Cotton Development Programme	To increase the productivity level and quality produce thereby higher returns to the farmers. Decrease the cost of cultivation through IPM and less usage of plant protection chemicals by 15%
4	Work Plan on Macro Management Basis (Rice)	To increase the production and productivity in rice by educating the farming community on production technology
5	Work Plan Macro Management Basis (Farm Mechanization)	Increase inefficiency of farm operations, cost reduction and improvement of quality of produce, various farm implements and machinery are being distributed on 50% subsidy
6	Soil Health Management	Application of green manure and promotion of usage of bio-fertilizers and soil test based fertilizer application will be popularized for improvement of soil fertility
7	Agriculture Intensification Programmes under APERP	To increase the productivity of irrigation crops and to improve water use efficiency
8	Intensive cultivation of mango	To plant more plants (70 plants/acre) per acre and to get more yield and income (7.5 m x 7.5 m spacing with drip irrigation)
9	Cultivation of Tissue Culture plants	To get more yield at one time by raising disease free plants / seedlings
10	Agro Economic Zone (AEL) " Training programmes on mango cultivation " Training programmes on grape cultivation	Imparting training in cultivation practices of mango like cuttings, plant protection and harvesting
11	Implements for harvesting of mango	To use improved implements for harvesting of mango

S.No.	Name of the Programme	Objective
12	Integrated development of vegetable cultivation	To grow hybrid vegetables
13	Flower cultivation in green house	To grow flower crops like Jarbera, carnation for meeting the needs of urban / city people
14	Cultivation of aromatic plants	High and stabilized income through cultivation of aromatic and medicinal plants
15	Oil extracting machine for medicinal and aromatic plants	To encourage farmers in these aspects and extend 50% subsidy (not more than Rs.40,000/- subsidy)

All these programmes of have clear objectives of extending area under improved technology and with an offer of good amount of subsidy on critical inputs to the farmers / users. Most of the farmers are not exposed to these technologies and not trained in using these inputs. However, the programmes implemented by the KVK are different from those operated by different Line Departments. Foremost among all the activities of KVK is the conductance of vocational training programmes. The Line Departments do not have necessary facilities and infrastructure to train the farmers in the technologies. In this regard KVK is playing active role to offer training in watershed development, dryland horticulture, improved implements, IPM etc. to farmers deputed by the Line Departments. The farmwomen are also given training by the KVK in collaboration with the State Line Departments. The representatives of Line Departments usually attends the Scientific Advisory Committee meetings of the KVK and offered their suggestions and seek the collaboration of KVK in their programmes. Also, the Line Departments used to

send their extension personnel for the training programmes offered by the KVK (in areas like communication skills, use of implements, IPM etc.). Thus there is a great understanding and cooperation between these agencies and KVK for mutual benefit. The KVK also educate the farmers in the villages about various schemes offered by the Line Departments. The Line Departments are bringing their clientele to KVK Instructional Farm for an exposure visit. The KVK used to invite the Line Departments for participation in the Farmers Days, Field Days and other interactive meetings with the farmers of the district to share common platform with the scientists of KVK. The strong training component of the KVK has made all the Line Departments to depute their clientele to KVK for undergoing skill oriented training, which helps them to operate their programmes successfully.

## CHAPTER : 11 IMPACT OF ACTIVITIES

### 11.1 Case Studies

Interaction with trainees, field visits and surveys were employed for getting feedback and impact of various activities of the KVK. Few case studies of successful adoption of technologies by farmers are represented hereunder.

#### Case Studies of Adoption of Improved Crop Production Technologies by Farmers :

		Case study-1	Case study-2
Name of the farmer	:	Sri Murka Yadaiah	Mrs.K. Yadamma
Village	:	Nandi Wanaparathi	Meerkhanpet
Mandal	:	Yacharam	Kandukur
District	:	Rangareddy	Rangareddy
Farming situation	:	Rainfed - irrigated dry	Rainfed
Soil type	:	Alfisol	Alfisol
Crop and variety	:	Sunflower (MSFH-8)	Castor (PCS-4)
Year & Season	:	1999-2000 Rabi	2000-01 Kharif
Inputs used per ha.	:	Seed 8 kg, Endosulphan - 0.25 lit., DAP - 65 kg, Urea - 65 kg	Seed 10 kg, DAP - 65 kg, Urea - 65 kg, FYM - 5 C.L., Endosulphan - 500 ml.
Yield	:	12 q/ha	9.3 q/ha
Cost of cash inputs (Rs/ha)	:	Rs.1735	Rs.1665
Gross returns (Rs/ha)	:	Rs.10,800	Rs.7810
Cost Benefit Ratio	:	1:6.2	1:4.69
		Case study-3	Case study-4
Name of the farmer	:	Sri J. Deva	Smt.Islavath Laxmi (ST)
Village	:	Begerkancha (Meerkhanpet) (ST Thanda)	Saireddiguda
Mandal	:	Kandukur	Kandukur
District	:	Rangareddy	Rangareddy
Farming situation	:	Rainfed	Rainfed
Soil type	:	Alfisol	Alfisol
Crop and variety	:	Pigeonpea (PRG-100)	Castor (PCS-136) (Kiran)
Year & Season	:	2000-01 Kharif	2003-04 Kharif
Inputs used per ha.	:	Seed 10 kg, DAP - 65 kg, Endosulphan - 1.25 lit., Pheromone Traps - 8 nos., Neem seed - 5 kg	Seed 10 kg, DAP - 65 kg, Endosulphan - 500 ml., monocrotophos - 200 ml., Pheromone Traps - 8 nos., neem seed - 5 kg, FYM - 8 C.L.

		Case study-3	Case study-4
Cost of cash inputs (Rs/ha)	:	Rs.680	Rs.2180
Gross returns (Rs/ha)	:	Rs.5520	Rs.8840
Cost Benefit Ratio	:	1:8.1	1:4.05

### Case-Study No.5

Name of the farmer	:	Sri K. Rajaiah
Village	:	Mutcherla
Mandal	:	Kandukur
District	:	Rangareddy
Farming situation	:	Rainfed
Soil type	:	Alfisol
Crop and variety	:	Castor (PC-124) (Haritha)
Year & Season	:	2004-05 Kharif
Inputs used per ha.	:	Seed 10 kg, FYM - 8 C.L., DAP - 65 kg, Bavistin - 200 gm., Urea - 65 kg
Yield	:	10.25 q/ha
Cost of cash inputs (Rs/ha)	:	Rs.2186
Gross returns (Rs/ha)	:	Rs.10400
Cost Benefit Ratio	:	1:4.75

#### 11.2. Improved Implements :

Table 27 : Farm Implements developed by CRIDA and utilized by the KVK-farmers (2002-2008)

Implements	No. of units purchased by the farmers
Drill plough	25
Plough planter	80
Two row planter	10
Four row planter	51
Six row planter (tractor drawn)	36
Nine row planter (tractor drawn)	20
Manual weeder	651
Bullock drawn weeder	38
Castor sheller	35
Groundnut striper	36
Vegetable preservator	240
Orchard sprayer	8
Chaff cutter	06
Bhendi ring cutter	76
Marker for SRI cultivation	01
Cono Weeder	05
Total	1318

#### 11.3. Training in scientific storage of food grains A success story in KVK Villages :

Table 28: Scientific storage of food grains Beneficiaries

Village	No. of families adopted the metal storage bins
Nallavelli	33
Nomula	33
Kishanpalli	33
Mogullavampu	33
Nazdeek Singaram	50
Ayyavari Gudem	50
Meerkhanpet	50
Nandiwanaparthi	10
Tallapally	50
Total	342



#### 11.4. Permanent storage structures of 1 M.T. capacity :

Village	No. of families adopted
Nallavelli	50
Mogullavampu	01
Nazdeek Singaram	50
Total	101

#### 11.5. Significant contributions made by the KVK towards the development of agriculture :

The Krishi Vigyan Kendra which was established during 1977 has conducted many activities fulfilling its mandate for benefiting large number of farmers in Ranga Reddy district. The KVK through its systematic and regular training programmes imparted need based technical skills to large number of practicing farmers, women, rural youth and extension functionaries (about 51,000 on record) in seventy five per cent of the existing mandals in rural areas of the district. The KVK has conducted 6157 frontline demonstrations on different crops. The yield increase was very high in maize compared to local varieties / practices. However, the area under maize has increased four folds reducing the area under sorghum. Similarly the area under cotton and pulses has increased through reduction in the area in bajra and castor. Soybean has been initiated only recently. The yield levels in all the crops were more than 30-60% and the income accrued was also on higher side. Hence farmers were happy with the FLDs and on-farm trials which solved their problems through practical demonstrations and participatory research.

Under horticulture programme saplings of mango, guava, sapota, lemon, citrus, drumstick, pomegranate, phalsa, fig were distributed in Ranga Reddy district and these are planted as plantation as well as kitchen / nutrition garden

#### 11.6. Impact of training on Knowledge Level and Adoption of Technologies-Frontline demonstrations in Maize A Study :

type in addition to planting at nearby wells. With the help of Department of Forestry, many saplings of different forest plants were distributed among the farmers in addition to planting on wastelands in Kandukur and Shabad mandals in Rangareddy district. Pongamia and Jatropha plants were also distributed covering about 15 hectares in these mandals. 450 households were given poultry birds (1+5) units. A number of the farm implements, manual weeder in case of dryland crops and the roller marker and cono-weeder for System of Rice Intensification (cultivation) were supplied to farmers. Training on livelihood programmes pertaining to different aspects of non-farm sector helped the farmwomen, girls, etc. to have self-employment to realize the income. Local Deccan sheep was upgraded through supplying Nellore Brown Rams to different categories of shepherds. The productivity of the dairy animals was also increased to the extent of 20-30% through proper feeding, prevention & control of diseases and judicious management.

The impact of KVK programmes was felt and realized by the farmers. The productivity of yields of different crops increased to the tune of 20-60% and the productivity of livestock has also been increased 20-40% through utilizing proper technologies concerned. There is an improvement in the productivity, employment, income generation and standard of living of people in all KVK villages compared to non-KVK villages in addition to gaining more knowledge in all aspects pertaining to rural development. KVK became an instrument of wheel for socio-economic change in all KVK adopted villages in different mandals.

Table- 29. Distribution of the Farmers on the Basis of their Knowledge Levels

S. No.	Maize production technologies	Before training n (%)	After training n (%)	t-value
1.	Land preparation	59 (98.3)	60 (100.0)	6.08**
2.	Seed treatment	0 (0)	60 (100.0)	21.76**
3.	Sowing time	1 (1.67)	59 (98.3)	8.39**
4.	Germination test	0 (0)	60 (100.0)	33.58**
5.	Spacing	0 (0)	49 (81.6)	18.96**
6.	Weeding	55 (91.6)	60 (100.0)	4.43**
7.	Fertilizer application	25 (41.6)	35 (58.3)	33.48**
8.	Plant protection	12 (20.0)	34 (56.6)	19.68**
9.	Water requirement	10 (16.7)	40 (66.6)	22.89**
10.	Harvesting	15 (25.0)	30 (50.0)	14.62**
11.	Storage	20 (33.3)	40 (66.6)	42.07**
12.	Marketing	10 (16.7)	30 (50.0)	22.02**

From the above table, it was clear that all the 60 farmers had gained knowledge about land preparation and seed treatment after training. Because of land preparation, they were convinced that soil borne pests would die on exposure to sun. They were convinced of seed treatment (with thiram/imidachloprid) that it would significantly reduce seed borne pests and diseases. Also, this would considerably reduce subsequent cost on purchase of expensive chemicals for control of pests and diseases.

All the farmers (60) gained knowledge on importance of germination testing for maize seed because of the need for establishing required plant population in effecting higher yields. Fifty-nine farmers gained knowledge on the need for sowing maize seeds at 4 inches depth from soil surface for effecting high germination capacity. They were made aware of the need to sow seed and fertilizers at required depths in the soil, which helps in better plant stand.

There were 49 farmers who gained knowledge in spacing. The remaining 11 farmers were not maintaining required distance between row-to-row as well as plant-to-plant. Another important practice was water requirement at critical stages of crop and plant protection measures. It was noticed that 40 farmers gained knowledge on the use of water at critical stages of crop where as 34 farmers improved their knowledge on identification and control of different pests and diseases. A slight improvement in knowledge was noticed for practices namely fertilizer application (10), harvesting, storage and marketing skills

(15,20 and 20 farmers respectively) because of the difficulty in lifting the water from their bore wells, lack of storage facilities at village level and inability to take their produce to the market respectively.

From the above table, it was clear that all the practices in maize production technology, viz., from land preparation to marketing had significant t-values at 0.01 levels. It means to say that knowledge gain after demonstration was significantly high among farmers for all the production technologies.

Land preparation values (6.08) were significantly high since the demonstrations introduced practice of ploughing across the slope along with summer tillage. Seed treatment values (21.76) were high because it is an important operation which when practiced would significantly reduce seed borne pests and diseases, thereby resulting in higher yields. Values of germination test (33.58) were very high because it was only after demonstration and the farmers were convinced to maintain the required plant population and to establish seed vigour, germination is *sine qua non* for higher yields. Previously, farmers were following 10-12 cm spacing within plants and 30 cm between rows, which resulted in difficulty for intercultural and plant protection operations. This was overcome with demonstration, which recommended 25 cm within plants and 75 cm spacing between rows. This was evidenced by the high t-value (18.96). Previously, farmers were habituated to apply only basal dose of NPK fertilizers, that too less than the

recommended levels. With training, farmers were convinced of the benefit of additional N-application in the form of urea as top dressing resulting in increased growth and yield potential, t-values (33.48) stand testimony to this. Plant protection values (19.68) were significantly high because the training exposed the farmers in adopting IPM methods for control of stem borer like establishment of bird perches, pheromone traps, Neem Seed Kernel Extract (NSKE) application, etc. These methods proved cost effective and environmentally safe who were previously adopting only chemical application of pesticides.

T-values for water requirement were high (22.89) because the FLDs educated the farmers about the need to shift from paddy cultivation (high water requiring) to maize. Also irrigation to maize at critical stages viz., flowering to pod formation increased yields significantly which was not

practiced by the farmers before demonstration. Training helped the farmers to maintain required moisture percent like shade drying for one week that form part of effective storage practices and hence the high t-value (42.07). Marketing values were significantly high (22.02) during post training because the farmers were taught healthy market practices, viz., grading, packing that fetched better prices to them. Also, awareness regarding sale of produce on the basis of market fluctuations was imparted to the farmers, which resulted in remunerative prices being received by them. Hence, from the above table, it can be concluded that the impact of demonstrations on knowledge difference was highly significant which in turn implies that there was a positive change after training in all the selected practices of Maize production technologies and is not a result of chance combination.

Table. 30 . Farmers' Adoption of Maize Production Technologies

S. No.	Production Technologies	Extent of Adoption		t-value
		Before n (%)	Aftern (%)	
1.	Land preparation	59(98)	60(100)	1.00**
2.	Germination test	0(0)	60(100)	17.99**
3.	Seed treatment	1(2)	59(98)	21.68**
4.	Soil testing before sowing	0(0)	60(100)	22.19**
5.	Method of sowing	49(82)	60(100)	3.39**
6.	Weeding	55(92)	60(100)	2.31**
7.	Fertilizer application/acre			
	i) Basal application			
	a) Quantity	18 (30)	42(70)	1.05**
	b) Method	52(87)	60(100)	3.01**
	c) Time	52(87)	60(100)	3.01**
	ii) Top dressing			
	a) Quantity	1(2)	59(98)	23.61**
	b) Method	2(3)	58(97)	13.95**
	c) Time	4(7)	56(93)	7.98**
8.	Marketing	2(3)	58(97)	11.67**
9.	Plant Protection	49(82)	60(100)	18.11**
10.	Water requirement at critical stages	49(82)	60(100)	13.75**

The data presented in table 2 gives an overall view of extent of adoption of 10 selected practices of maize crop by farmers before and after training/demonstration. Regarding land preparation (summer tillage), almost all the farmers are practicing before training programme (98 per cent). All the selected farmers followed the same practice after the training programme. None of the farmers have followed the practice of seed germination and soil testing before attending the training, where as, after training all of them are adopting both the practices. Regarding seed treatment, 98 per cent of farmers are adopting it after the training programme. Regarding the method of sowing, 82 per cent of them are adopting it before training programme, the remaining 18 per cent are adopting after attending the training. Ninety two per cent of farmers practiced weeding even before training and the remaining eight percent did it with Atrazin after training. Regarding basal application of fertilizers, the quantity, method and time were adhered by 30, 87 and 87 per cent of the farmers respectively before training programme. After training, 70, 100, 100 percent of them considered it important to adopt the quantity, method and time of basal application of fertilizers respectively. Regarding the top dressing of urea the quantity, method and time of

applications that were adhered by the farmers were 2, 3 and 7 per cent respectively before attending the training as against, 98, 97 and 93 per cent respectively after the training. Only three per cent of farmers followed market survey before training programme which changed to 97 per cent after attending the training. This shows that majority of the farmers were convinced of the advantages of market survey prior to sowing. Plant protection practices were adopted by 82 per cent of farmers before training for some components. After training, all the farmers were adopting the entire package. Nearly 82 and 100 per cent of farmers before and after training respectively adopted to maintain the required irrigation at critical stages of Maize.

From table 2, it was clear that all the practices in maize production technology had significant t-values at 0.01 levels. It means to say that adoption rate after demonstration was significantly higher among farmers for all the production technologies.

The impact created by the training programme was studied by considering the following components namely percentage increase in area, cost of cultivation, level of confidence, yield levels and market survey.

Table 31. Impact of the Training Programme

S. No.	Characteristics	Impact of training Frequency (%)
1.	Area increase	29 (48)
2.	Rise in cost of cultivation	24 (40)
3.	Confidence levels	
	a) Seed treatment	34 (57)
	b) Germination test	56 (94)
	c) Fertilizer application	59 (98)
	d) Critical irrigation stages	54 (90)
	e) Plant protection	54 (90)
4.	Yields	58 (97)
5.	Market survey	41 (68)

From the above table 3, it is clear that the characteristics viz., area (48%), cultivation cost (40%), confidence levels in terms of various stages of crop production, market survey (68%) and yields (97%) were significantly higher after training. The reasons for these were as follows:

Area was found to increase after training because the farmers felt it was a profitable venture to increase area

of maize cultivation with the production recommendations given during the training. The costs of cultivation post training increased because of the fact that all production, recommendations in maize cultivation carried with them some economic costs. The confidence levels of farmers with respect to various crop production stages also increase and very high

percentages were recorded in stages like germination test (94%), fertilizer application (98%), irrigation (90%) and plant protection (90%). This was due to the fact that seed germination, fertilizer application, irrigation at critical stages and plant protection were crucial recommendations, which were well recognized by the

farmers and were being adopted. Hence, their impact was significant. Market survey was also recognized by farmers as crucial because ultimately the price recovered from the sale of crop was of much importance to them. Hence, 68 per cent of farmers recognized this practice and the result was significant increase after training.

### 11.7. SUCCESS STORIES :

#### 11.7.1. Success story of vermin-compost production by entrepreneur farmer trained by the KVK

Name of the farmer and address	:	Sri Bolla Subba Reddy S/o. Sri B. Rami Reddy Plot No.74, Phase I Sharadanagar, Vanasthalipuram Rangareddy district Ph: 24123182 / 9848148895
Location of units	:	1-87/Saheb Nagar, Vanasthalipuram (2 units) Pasumamala village, Hayathnagar mandal, Rangareddy district (1 unit)
Year of start	:	9.6.1996 at Chintalakunta cattle market, Rangareddy district Unit
size (in the beginning)	:	60' x 18' (1 shed)
Unit size (now)	:	110' x 2.5' bed size - 148 beds in 3 units
Raw material used	:	Animal dung and fruit market waste (only paddy straw and banana leaves)
Quantity of raw material used	:	6 tons per bed
Cost of production (per unit)	:	Raw material : Rs.1100 Labour and other maintenance costs : Rs.300 per ton of produce
Production - general	:	1.7 tons per bed (or) 10 tons per shed of 6 beds for a period of every 2 months
At present	:	100 t per month Price of produce: Without sieving and no packing: Rs.2000 per ton
With sieving and packed	:	Rs.2500 per ton (in the form of 50 kg bag)

At present supplying to customers in 8 districts of Andhra Pradesh and outside states of Maharashtra and Karnataka.

#### Activities Related Enterprise

- ? Conducting training programme for physically handicapped farmers and other entrepreneurs
- ? Got established more than 12 units of vermicompost in different districts of Andhra Pradesh under his guidance
- ? Participation in exhibitions conducted by the Department of Agriculture, Government of Andhra Pradesh and other NGO organizations



B. Subba Reddy Vermi-compost Unit



### 11.7.2. Nursery Management Success Story of Drumstick :

Mrs. Chinthapalli Arunamma, W/o. Sri Chintapalli Narendar Reddy of Nazdeek Singaram village, having land under various dryland crops, took up the drumstick PKM-1 plantation as a new venture. She had undergone training along with other farmwomen of the same village on raising and maintenance of drumstick nursery. All the skills involved in raising drumstick nursery were imparted during the training programme.

The details of cost of production are :

Particulars	Cost (Rs)	Remarks
Seed	500	500 gm from TNAU, Coimbatore
FYM, black soil, field soil, SSP and folidol powder mixture	75	-
Polythene bags	200	1000 nos. of ½ kg capacity
Labour charges for polythene bags preparation with filling material	160	4 labourers @ Rs.40/day
Daily watering and day to day maintenance	200	1 Hr. labour for 40 days - 5 mandays (Rs.40/-)
Electricity, pesticide, weeding	100	-
Total expenditure	1235	

The market price during that period was Rs.5 per seedling. So, she could save Rs.377/- on every seedling and on 1000 seedling Rs.3770/- within a span of 40 days period.

### 11.7.3. Improvement of Dryland Horticulture :

Fifteen acres are has been brought under dryland horticulture and developed with different fruit plants by the farmers trained by the KVK, which have already started bearing fruits. The details of different fruit plants are as follows :

S.No.	Name of the village	Farmer's name	Name of he fruit crops	Variety planted	Area covered (acres)
1	Mucherla	Srinivasa Chary	Mango	Benishan	4
			Amla	N-7	1
			Custard apple	Balanagar	1
2	Saireddiguda	Chandramohan Reddy	Mango	Benishan	2
3	Saireddiguda	Ajay Kumar	Mango	Benishan	3
			Amla	N-7	1
4	Nasdiksingaram	Ram Reddy	Mango	Mallika	2
5	Nasdiksingaram	Narsi Reddy	Mango	Mallika	1

### 11.7.4. Backyard Poultry An Income Generation Activity :

The farmers of KVK villages were provided with improved variety of Vanaraj birds with the objective of improving their income levels in addition to the nutritional status.

S.No.	Villages	No. of families	No. of birds supplied
1	Kishan Pally	17	425
2	Nallavelli	110	1250
3	Nallavelli Tanda	06	150
4	Tammaloniguda	09	225
5	Mondi Gourelli	21	525
6	Nazdeek Singaram	13	130
7	Meerkhanpet	55	125
	TOTAL	231	2830

The activity resulted in significant improvement in the returns in comparison to traditional method of rearing poultry birds in backyards. The cost returns particulars are given in the following Table (per unit of 10 birds).

Birds	Initial Wt. (kg)	Wt. Of bird at 1 yr (kg)	No. of eggs / year	Total expenditure (Rs.)	Income per year (Rs)			Benefit Cost Ratio
					Eggs	Meat	Total	
Local	0.35	12.5	230	200	230	750	980	4.9
Vanaraj	0.50	22.0	980	200	1960*	1300	3260	16.0

\* The eggs of Vanaraj birds were sold @ Rs.2 per kg . The birds were watched for one and half year.

Positive points in favour of technology

- ? Attractive feathers colour pattern
- ? Better survivability
- ? Better feed efficiency
- ? Low input cost
- ? Longer egg size
- ? High disease resistance
- ? Desi hens can hatch Vanaraj eggs
- ? Additional income generation

Observations

- ? The local egg sold at the rate of Rs.1/- per egg whereas the Vanaraj egg sold for a minimum of Rs.2 to 5 per egg
- ? 33 non-beneficiary families purchased the Vanaraj eggs and hatched with the local birds
- ? Persons maintaining farm houses purchased a pair of Vanaraj birds for Rs.200-300
- ? Since the size and weight of the Vanaraj egg is more than local, the availability of nutrients are also more than local



Backyard Poultry

#### 11.7.5. Higher and Stable Income through Crop Diversification in Drumstick Plant :

The economic conditions of dryland farmer can be improved and stabilized under limited through income generation activity like nursery raising and crop diversification. In this context, as a part of the IVLP TAR intervention, farmwomen in IVLP villages of Nazdeek Singaram and Meerkhanpet villages of Rangareddy district were trained in raising and maintenance of PKM-1 drumstick nursery the year 1999 in KVK to encourage the farmwomen to generate supplementary income for food security.

The economic conditions of dryland farmer can be

improved and stabilized under limited through income generation activity like nursery raising and crop diversification. In this context, as a part of the IVLP TAR intervention, farmwomen in IVLP villages of Nazdeek Singaram and Meerkhanpet villages of Rangareddy district were trained in raising and maintenance of PKM-1 drumstick nursery the year 1999 in KVK to encourage the farmwomen to generate supplementary income for food security.

During 1999, the trained farmwomen, Smt. Buchi Reddy Hymavathi, W/o. Sri Buchi Reddy Janardhan Reddy of Meerkhanpet village of IVLP TAR took initiative to develop PKM-1 drumstick nursery. The improved variety of drumstick PKM-1 was supplied by TAR. She prepared a mixture with the proportion of 1/3<sup>rd</sup> native soil, 1/3<sup>rd</sup> black soil, 1/3<sup>rd</sup> farmyard manure and 200 gm folidal power and filled 500 polythene covers of ½ kg capacity.

The total expenditure incurred:

1. Polythene covers	:	Rs. 88
2. FYM, SSP, Folidar	:	Rs.208
3. Labour on filling the bags	:	Rs.200
4. Watering for 40 days @ 30 mt/day which workout 3 labour	:	Rs.120
		Rs.616

Thus, the cost of each seedling worked out to be Rs.1.23 while the market price of each seedling sold by commercial nursery was approximately Rs.5/- that enabled her to earn the net profit of Rs.3.77 per seedling. Just in 40 days duration she could earn the profit of Rs.1885/- successfully.

#### 11.7.6. Success Story of Nutrition Gardening :

Mrs. Vaidehi, W/o. Shri Rami Reddy of Saireddiguda village, Kandukur mandal, and Rangareddy district has 80 sq.yards area of place in her house compound. Before attempting to raise nutrition garden in her backyard, be cleared the place, which was full of heaps of stones, bricks, dung, other waste material. After clearing the waste material from the area she applied good quantity of FYM. The following vegetables were grown by her in the compound over a period of seven months (August to February).

Gourds: Bottle gourd, bitter gourd, ridge gourd

Greens: Ambada, Coriander, Methi, Palak

Other vegetables: Brinjal, Tomato, Bhendi, Cluster bean

Roots & Tubers: Carrot, Raddish

She used to spend an amount of Rs.240 per month (on average) on vegetables. Now after taking up the kitchen gardening besides meeting her house requirement she sold worth of Rs.200/- of vegetables per month from August to December (for 5 months).

So, the total income she could get Rs.440/- on average per month and in total of Rs.2200 for a period of five months.

#### 11.7.7. Income Generating Activities Success Stories from KVK Village :

Mrs.Yachem Sobha, D/o. Prabhakar, Tallapally village, Shabad Mandal underwent the training programme organized by KVK on the 'preparation of Vaseline and pain balm'. Since the family is already running the General Stores (Kirana Shop) this particular training helping them to sell the prepared products.

Preparation of pain balm: By investing an amount of Rs.430 to prepare 130 bottles of pain balm she is profited Rs.325/-. The material cost of one bottle is Rs.3.50 and she is selling for a price of Rs.6/-. The same quantity bottle is sold in the market for Rs.14/-.

Preparation of Vaseline: By investing an amount of Rs.165/- on raw material to prepare 80 bottles of Vaseline she is profited Rs.160/- per month.

She is a widow and taking care of her two children. So, these particular items are helping her to raise her income monthly by Rs.485/-.

#### 11.7.8. Success story 2006 :

Livelihood with introduction of Dal Mill



Farmers Name : Smt. Rajita Group  
Village : Tallapalli, Shabad Mandal

Processing cost		(2400 Kg)
Electricity	=	Rs. 590
Edible oil	=	Rs. 360
Labour	=	Rs. 1920
Total:		Rs. 2870
Output :		
Quantity of Dal (75%)	=	1800 Kg
By-products	=	600 Kg
Returns By processing (Rs. 2/kg)	=	Rs. 4800
By-products (Rs. 5/kg)	=	Rs. 3000
Total:		Rs. 7800
Profit : Rs. 7800-2870	=	Rs. 4830

#### 11.7.9. Success Story 2005 :

##### Livelihood programmes Making Adda leaf plates

Techniques of preparation of leaf plates and cups by using adda leaf were imported by the KVK farm women through its training programmes. The members of SHGs well as other women showing keen interest in learning this techniques as there is good demand for these products in the rural areas. Because, these were relatively cheap and used in social functions like marriages, etc. The equipment needed for undertaking this activity are tailoring machine for stitching the leaves and pressing machine for bringing to final shape and usable form to the stitched leaves. The vocational training programmes on these aspects encouraged farm women to take up this practice and they are earning an amount of Rs.450/- per month (one can easily earn about Rs.120-180 per person per day) (The profitability was worked out to be 120 percent).



Adda leaf making machine beneficiaries

#### 11.7.10. Success Story Enhancing Nutritional status of Farm women and Children with locally harvested Maize (Value added products of Maize)

Name of the Village : Tallapally, Shabad Mandal, RR District Year : 2006

Though the maize is produced by the farmers for the last 3-4 years from this village, the farm produce is being sold in the market by the farmers and not utilizing the produce for house hold consumption. By seeing nutritional importance of maize, as given in the table below, an attempt was made in the village by educating the farm women on nutritional aspects of Maize and training was given to 20 farm women from Tallapally village in 2006 (on and off campus) in preparing the value added products (maize recipes) from locally harvested maize by the farmers. The training was successful and farm women successfully demonstrated the ability in preparing the maize recipes from their farm produce ( photos) which ultimately enhance the nutritional status of their family including children by consuming the value added products of Maize in their diet.

Table 32 : Comparative nutritive values of locally used cereals and millets (100 g edible portion)

Crop	Protein (g)	Fibre (g)	Fat (g)	Minerals (g)
Rice	6.8	0.5	0.2	0.6
Bajra	11.6	5.0	1.2	2.3
Maize	11.1	3.8	2.7	1.5
Sorghum	10.4	2.0	3.1	1.4
Ragi	7.3	1.3	3.6	2.7



## Maize Recipes



Farm women exhibiting the maize recipes



### 11.7.11. Adoption of Cotton Production Technology :

Shri. A. Lourshu Reddy, was one of the successful beneficiaries of cotton cultivation in Mariapuram village of Rangareddy district. He contacted the KVK and attended the training programmes in improved production technologies of cotton. He selected Bunny Bt cotton variety and sowed the crop on 8<sup>th</sup> June 2007. Technologies viz; seed treatment with imidacloprid 70 WS @ 10g / kg of seed, timely sowing, use of manures i.e. 10 cart loads FYM per acre and 120:60:60 kg NPK per ha were followed. Under weed management, the farmer maintained weed free crop till 8-9 weeks after sowings and a hoeing between crop rows (18-20 days after emergence of seedlings). He used castor and marigold as trap crops with maize as barrier crops as a part of IPM package. He attended practices viz; stem application with monocrotophos / imidocloprid (1:4/1:20) installation of pheromone traps @ 10 per acre (for heliothis & spodoptera) and yellow sticks traps 2 per acre for white flies, 8-10 bird perches per ha for predatory birds, delta sticky trap for pink bollworm,

after 60 days of crop growth. He followed the practice of topping or clipping terminal shoots on 90-110 days of crop growth. He attended last harvest of his crop on 24<sup>th</sup> December 2007. The farmer obtained an additional income of Rs.13,860 per ha with an additional expenditure of Rs.1300 per ha i.e. a return of Rs.10.66 per every rupee he has invested. This he could achieve with the adoption of recommended production technologies and IPM module. Now, many other farmers of the same village and neighboring villages are showing keen interest to adopt the improved techniques in their fields for increased returns. The yields of the crop was 3380 kgs per ha with an increase of 25 percent over his earlier / traditional practice of cotton cultivation.

### 11.7.12. Adoption of Maize Production Technology :

A progressive farmer Shri. Narsimulu of Yanakatala Village in Mominpet Mandal of Ranga Reddy district was one of the successful farmers, who cultivated maize crop with technical advice given by the KVK. He attended the training programmes conducted by the KVK and learned the methods of improved kharif maize cultivation. He selected Kaveri hybrid maize type and sowed the crop on 18<sup>th</sup> June 2007. He followed the fertilizer application in 100:40:40 kgs of NPK per ha. He maintained a plant population of 65000 per ha. He has not applied irrigation. He harvested the crop during October. He obtained an yield of 7400 kgs per ha (an increase of 56 percent local practice) got a net profit of Rs.39,716 per ha. Realizing the benefits obtained by him, neighboring farmers are approaching him and are eager to adopt the new techniques for getting higher yields.

### Cotton Production Technology Demonstrations (Mariapuram)





Maize Production Technology Demonstrations  
(Yanakatala)



## CHAPTER - 12

### FUTURE VISION

#### 12.1 EVOLUTION :

KVK was established with the motive of imparting need based skill oriented training to farmers with the principles of 'Learning by doing' and 'teaching by doing'. Though the initial years mainly concentrated on skill oriented training programmes to farmers and farm women, the methodology slowly changed from demonstrations at farm level to farmers field through front line demonstrations by emphasizing more on "Seeing and believing" at field level. The shift in concept from class room skill oriented training programmes to off campus training programmes and demonstration at farmers field level evolved. With the advancement of mass media, various extension tools viz. leaflets, pamphlets, radio, television shows, film shows, live exhibits etc., farmers were more benefited by the transfer of technology methods adopted by KVK. Of recent years, the mandate of KVK further enhanced with the introduction "On farm testing" besides demonstrations and trainings. Under "On farm testing", KVK identifies the technologies suitable to the local needs from the inventory of technologies under "NARS" system and tests the technologies under Assessment and refinement modes before demonstrations to farmers on large scale. If the technologies suits to the local needs, this will be demonstrated and if there is any refinement is needed, the technology will be refined back to scientists (lab) for refinement and assessment. The KVK is implementing the programmes as per the new mandates opined from time to time.

#### 12.2 New challenges before KVK

##### 12.2.1 Urbanization:

Rapid urbanization process has its influence on the Ranga Reddy KVK which is located adjacent to the State capital Hyderabad. The net cultivable area in and around city was reduced ( 2.88 to 2.06 lakh hectares) . Most of the cultivable land was converted to constructional and developmental activities . The mandals affected during this process were Medchal, Saroornagar, Uppal, Maheswaram, Kandukur, Rajendranagar, Shamshabad, Serlingampally, Malkajgiri, Balanagar.

The crops that were affected are vegetables,

jowar, castor, bajra, redgram. By keeping in view of the urbanization, KVK has to integrate its resources for more productive development of the existing cultivable area in other mandals of the district and by taking horticulture and floriculture enterprises near by city for easy accessibility.

##### 12.2.2 Labour Shortage:

Due to urbanization and NREGS activities, the farm labour migrated to works, caused a greater problem to farmers in farm of labour shortage and increased labour cost for agricultural operations. In this scenario, farm mechanization has a crucial role to play in order to reduce the labour cost and solve the problem of scarcity of labour. Farm mechanization is the only alternative for taking up timely farm operations to overcome the problems of labour cost and scarcity. Several farm implements and machinery are available right from seed treatment to harvesting viz. transplanters, weeders, inter culture equipment, seed cum fertilizer drill, combined harvesters as threshers for different crops. Through KVK is demonstrating these implements in a limited scale, needs to take up more demonstrations for spreading the technology in farmer fields for wide adoptions to overcome the problem of labour

##### 12.2.3 New technologies like web, ICT

With the advancement of technology, information and communication technology (ICT), has taken a leap in quick mode of reaching the target clientele for better transfer of technology. Among the different tools in ICT, Web technologies and mobile technologies have a major role to play in KVK activities for better communication between the farmers and extension functionaries. Farm Advisory services including weather reports can be communicated to farmers through mobile technology. Some KVKs have already made good progress in this regard. KVK Ranga Reddy has created its website in 2006 and launched through CRIDA Website. Efforts were initiated usage of mobile technology for farm advisory services to farmers. KVK Ranga Reddy was included as one among the 200 KVKs to receive the "e-connectivity-Information hub" from ICAR and under this project one server, five desk tops with laser printer, scanner and V-SAT connectivity and ERNET linkage were established. This will enhance the ICT usage among the KVKs for better communicated between the policymakers, Zonal unit, KVKs and farmers.

### 12.3 Future Vision :

By keeping intact the mandate envisaged by the ICAR and new developments that are taking place in Agriculture from time to time, for the future programmes of KVK more emphasis should be given to:

- ? Farm Mechanization
- ? Integrated crop management practices
- ? Soil test based fertilizer management
- ? Pest & Disease surveillance based integrated pest & disease Management
- ? Climate change Influences on cropping systems /patterns
- ? Farming systems Approach
- ? Watershed Management Farm Ponds
- ? Dryland technologies
- ? Animal pest & Disease surveillance and Animal Nutrition Fodder production technology
- ? Better use of ICT Web technologies / SMS based mobile advisory services
- ? Innovative Extension Methodologies transfer of technology.