

Tribal Sub Plan (TSP) Annual Report - 2017-18



Prepared and Compiled By

Dr. E. Karuna Sree, Senior Scientist & Head

Dr. A. Devivaraprasad Reddy, Scientist (Fish Sci)

Dr. K. Venkata Subbaiah, Scientist (Horti)

Sri. G. Shali Raju, Scientist (Ento)

Dr. V. Deepthi, Scientist (Agri. Extn)

Dr. T. Vijaya Nirmala, Scientist (Vety Sci.)



Krishi Vigyan Kendra

Dr. YSR Horticultural University
Venkataramannagudem
West Godavari District, A.P.

Annual Report of KVK, Venkataramannagudem on TSP activities for the year 2017-18

Name of the KVK implementing TSP : Krishi Vigyan Kendra, Dr.YSRHU,
Venkataramannagudem

State : Andhra Pradesh

1. Summary table of all activities under TSP

S.No	Name of the Activity	Achievement during 2017-18	
I	ON- FARM TRIALS (OFTs)		
	Title of the trial	No. of trials	Number of beneficiaries
	Horticulture		
1	Improved ridge gourd cultivation	5	5
2	Improved bitter gourd cultivation	5	5
3	Improved ivy gourd cultivation	5	5
4	Improved brinjal cultivation	5	5
5	Improved okra cultivation	5	5
	Plant protection		
6	IPM in Brinjal	6	6
7	IPM module on management of YVMV disease in Bhendi	6	6
8	Integrated pest Management in vine vegetables (Ridge gourd & IVY gourd)	6	6
	Crop Production		
9	Assessment of Nutritional enriched paddy variety DRR Dhan-45 in tribal areas	10	10
10	Introduction of improved ragi variety vakula in tribal areas	6	6
11	Introduction of improved korra variety SIA-308 in tribal areas	6	6
	Veterinary Science		
12	Introduction of Srinidhi birds in tribal areas	25	25
13	Introduction of Gramapriya birds in tribal areas	25	25
14	Assessment of fodder sorghum CoFS 29	06	06
	Fisheries Science		
15	Assessment of water quality parameters during carp culture in small ponds	5	5

II	FRONTLINE DEMONSTRATIONS (FLDs)		
	Title of the demonstration	No. of trials	Number of beneficiaries
1	Low cost ripening chamber for mango	10	10
2	Integrated crop management in sorghum	10	10
3	Integrated Crop Management in Cashew	300	300
4	Integrated crop management in cotton	10	10
5	Effect of concentrate feed on productive parameters of dairy animals in tribal areas	10	10
6	Demonstration of Aseel birds rearing in tribal areas	25	25
7	Introduction of composite fish culture in tribal areas	4	4
8	Development of integrated fish culture cum horticultural/poultry for livelihood of tribal folks	25	25

TRAINING PROGRAMS

III	Training to Practicing Farmers		
	Name of the training	Duration	No of participants
1	Improved vegetable cultivation	1	85
2	Importance of integrated nutrient management in horticultural crops	1	50
3	Flower management and grading in cashew nut	1	45
4	Importance of Bio-fertilisers in Agricultural & Horticultural Crops	3	25
5	IPM in Pulses	1	30
6	IPM in cashew	1	50
7	IPM in vegetables	1	50
8	IPM practices in cotton	1	20
9	Scientific management practices in backyard poultry rearing	3	16
10	Various diseases in Poultry and their control	1	20
11	Control of Endoparasites in small ruminants	1	22
12	Clean milk production	1	25
13	Poultry hatchery management	1	18
14	Good management practices in composite fish culture	1	16

15	Feed management in fish ponds	1	21
16	Management of algae during fish culture	1	13
17	Fish harvest and post-harvest Technology	1	24
IV	Training to Rural Youth		
	Name of the training	Duration	No of participants
1	NIL	NIL	NIL
V	Training to Extension Personnel		
	Name of the training	Duration	No of participants
1	Sustainable Agricultural Practices	1	40
2	Improved production Technology of Vegetables & Pulses	1	40
VI	Extension activities		
	Name of the Extension activity	Duration	No of participants
1	Demonstration of Mulch laying on beds (15.03.2017; 24.3.2017; 12.4.2017; 22.4.2017; 10.5.2017; 19.5.2017; 09.6.2017; 14.6.2017; 28.6.2017; 08.7.2017; 21.7.2017; and 11-8-2017)	1 day each (12 demos)	120
2	Demonstration on mango ripening in low cost ripening chamber	1 day each (5 demos)	25
3	Demonstration on coconut plantation on pond dykes	1	24
4	Field day on Paddy	1	30
5	Field day on cashew	1	300
6	Field day on Blackgram	1	30
7	Field day on Groundnut	1	40
8	Field day in paddy	1	20
9	Diagnostic field visits (All disciplines)	38	126
10	Demonstration on using of feeders and drinkers for feeding and drinkers of poultry	1	12
11	PPR vaccination in sheep and goat	1	32
12	Deworming in sheep and goat	1	27
13	World adivasi day	1	160
14	International rural women day	1	147
15	IBD vaccination in poultry	1	30
16	Demonstration on operation of poultry incubator machine	1	13
17	Demonstration on preparation of balanced concentrate feed for dairy animals	1	28

18	Demonstration of maize hydroponic green fodder production	1	10
19	Group discussion on goat husbandry activities in tribal areas	1	21
20	Pruning in cashew orchards	1	85
VII	Skill Development Training Programs		
	Name of the training	Duration	No of participants
1	NIL	-	-
2			
VIII	Seed supplied (Q)		
	Name of the crop / variety	Quantity (Q)	No. of beneficiaries
1	Black gram var.TBG-104	2	25
2	Groundnut var.Dharani	5	50
3	Paddy	1.8	10
4	Ragi	1	6
5	Korra	1	6
6	CoFS 29 fodder seed	0.12	06
7	Okra seed	0.3	10
8	Ridge gourd	0.1	10
9	Bitter gourd	0.1	5
IX	Planting material supplied		
	Name of the crop	Number	No. of beneficiaries
1	IVY Gourd cuttings	36000	25
2	Brinjal seedlings	30000	30
3	Coconut plantations	125	25
X	Live-stock strains and fish fingerlings supplied		
	Name	Number	No of beneficiaries
1	Srinidhi variety birds	1000	30
2	Gramapriya variety birds	1000	30
3	Vanaraja variety birds	500	25
4	Aseel variety birds	500	25
5	Fish Fingerlings (Catla, Rohu, Mrigal, Grass Carp, and Common carp)	2,00,000	25
6	Fish Feed – Floating type	3 mts	25
7	Fish Feed – Sinking type	50 mts	25

XI	Soil, water, plant, manures samples analyzed/ Soil Health Cards issued		
	Nature of the sample	Number	No of beneficiaries
1	Soil sample	300	300
2	Water sample	8	8
XII	Mobile agro- advisory provided to farmers		
	Nature of the advisory	No of messages	No. of beneficiaries
1	SMS	50	287
2	Tribal farmers Network (whatsapp group)	34	14
XIII	Physical Assets / micro-enterprises established		
	Nature of asset	Number of units supplied / established	Number of beneficiaries
1	Poultry rearing shed	1	10
2	Poultry cages on the pond dykes	25	25
3	Syntax tanks for transportation of fish seed	25	25
4	Poultry incubator machine	1	10
5	Generator (10KVa)	1	10
6	Drag nets for fishing	2	25
7	Cast nets for fishing	4	25
8	Mulch rolls (400 mts)	500	100
9	Sticky Traps	500	50
10	Light Traps	25	25
11	Feeders and drinkers to the poultry group	80	10

Note: The seed, planting material, poultry strains, fish fingerlings, feed, traps, poultry shed along with incubator and generator were provided under ICAR-TSP funds and TSP funds.

Results – OFTs

Discipline: Horticulture

Discipline		Horticulture		Intervention : OFT No. 1		
Scientists Involved		Dr. K. Venkata Subbaiah, Scientist (Horti) Sri. G. Shali Raju, Scientist (Ento) Dr. Karuna Sree, Senior Scientist & Head				
Background information on farming situation (Irrigated/rainfed, kharif / rabi, soil type)		Observed more weed flora, more water consumption and less and low quality yield in traditional way of cultivation. Irrigated and Rain fed				
Title of OFT		Improved ridge gourd cultivation.				
Source of Technology		Dr. YSRHU				
Year of initiation		2016-17		Season : Kharif and Rabi		
No. of locations		5		Area (ha)		1
Treatments		T1: Improved cultivation				
		T2 :Farmer practice				
Critical inputs		Seed material, plant protection chemicals, water soluble fertilizers				
Technology option	No.of locations	Yield (t/ha)	Cost of cultivation (Rs/ha)	Gross income (Rs/ha)	Net returns (Rs/ha)	B:C ratio
T1: Improved cultivation	5	33.0	87,500	3,96,000	3,08,500	4.5:1
T2 :Farmer practice		17.5	96,250	2,10,000	1,13,750	2.18:1



Ridge gourd field diagnostic visit



Ridge gourd field view

Discipline	Horticulture		Intervention : OFT No. 2			
Scientists Involved	Dr. K. Venkata Subbaiah, Scientist (Horti) Sri. G. Shali Raju, Scientist (Ento) Dr. Karuna Sree, Senior Scientist & Head					
Background information on farming situation (Irrigated/rainfed, kharif / rabi, soil type)	Observed more weed flora, more water consumption and less and low quality yield in traditional way of cultivation. Irrigated and Rain fed					
Title of OFT	Improved bitter gourd cultivation.					
Source of Technology	Dr. YSRHU					
Year of initiation	2016-17			Season : Kharif and Rabi		
No. of locations	5	Area (ha)	1			
Treatments	T1: Improved cultivation					
	T2 :Farmer practice					
Critical inputs	Seed material, plant protection chemicals, water soluble fertilizers					
Technology option	No.of locations	Yield (t/ha)	Cost of cultivation (Rs/ha)	Gross income (Rs/ha)	Net returns (Rs/ha)	B:C ratio
T1: Improved cultivation	5	13.0	50,000	1,95,000	1,45,000	3.9:1
T2 :Farmer practice		9.75	45,000	1,46,250	1,01,250	3.25:1



Bitter gourd field view



Bitter gourd ready for market

Discipline	Horticulture	Intervention : OFT No. 3				
Scientists Involved	Dr. K. Venkata Subbaiah, Scientist (Horti) Sri. G. Shali Raju, Scientist (Ento) Dr. Karuna Sree, Senior Scientist & Head					
Background information on farming situation (Irrigated/rainfed, kharif / rabi, soil type)	Observed more weed flora, more water consumption and less and low quality yield in traditional way of cultivation. Irrigated and Rain fed					
Title of OFT	Improved ivy gourd cultivation.					
Source of Technology	Dr. YSRHU					
Year of initiation	2016-17	Season : Kharif and Rabi				
No. of locations	5	Area	1			
Treatments	T1: Improved cultivation					
	T2 :Farmer practice					
Critical inputs	Seed material, plant protection chemicals, water soluble fertilizers					
Technology option	No.of locations	Yield (t/ha)	Cost of cultivation (Rs/ha)	Gross income (Rs/ha)	Net returns (Rs/ha)	B:C ratio
T1: Improved cultivation	5	15.25	77,500	1,52,500	75,000	1.96:1
T2 :Farmer practice		8.0	45,000	80,000	35,000	1.7:1



Harvesting of IVY gourd



Review of Director of Extension, Dr YSRHU and the harvest is ready for market

Discipline	Horticulture	Intervention : OFT No. 4				
Scientists Involved	Dr. K. Venkata Subbaiah, Scientist (Horti) Sri. G. Shali Raju, Scientist (Ento) Dr. Karuna Sree, Senior Scientist & Head					
Background information on farming situation (Irrigated/rainfed, kharif / rabi, soil type)	Observed more weed flora, more water consumption and less and low quality yield in traditional way of cultivation. Irrigated and Rain fed					
Title of OFT	Improved brinjal cultivation.					
Source of Technology	Dr. YSRHU					
Year of initiation	2016-17	Season : Kharif and Rabi				
No. of locations	5	Area (ha)	1			
Treatments	T1: Improved cultivation					
	T2 :Farmer practice					
Critical inputs	Seed material, plant protection chemicals, water soluble fertilizers					
Technology option	No.of locations	Yield (t/ha)	Cost of cultivation (Rs/ha)	Gross income (Rs/ha)	Net returns (Rs/ha)	B:C ratio
T1: Improved cultivation	5	30.25	60,000	1,53,750	93,750	2.57:1
T2 :Farmer practice		21.25	80,000	1,06,250	26,250	1.32:1



Diagnostic visit to brinjal field



Ready for marketing

Discipline	Horticulture	Intervention : OFT No. 5				
Scientists Involved	Dr. K. Venkata Subbaiah, Scientist (Horti) Sri. G. Shali Raju, Scientist (Ento) Dr. Karuna Sree, Senior Scientist & Head					
Background information on farming situation (Irrigated/rainfed, kharif / rabi, soil type)	Observed more weed flora, more water consumption and less and low quality yield in traditional way of cultivation. Irrigated and Rain fed					
Title of OFT	Improved okra cultivation.					
Source of Technology	Dr. YSRHU					
Year of initiation	2016-17	Season : Kharif				
No. of locations	5	Area (ha)	1			
Treatments	T1: Improved cultivation					
	T2 :Farmer practice					
Critical inputs	Seed material, plant protection chemicals, water soluble fertilizers					
Technology option	No.of locations	Yield (t/ha)	Cost of cultivation (Rs/ha)	Gross income (Rs/ha)	Net returns (Rs/ha)	B:C ratio
T1: Improved cultivation	5	8.25	30,000	82,500	52,500	2.75:1
T2 :Farmer practice		6.00	37,500	60,000	22,500	1.6:1






Field view of Okra

Review of Director of Extension,
Dr. YSRHU

Produce ready for market

Discipline: Plant Protection - OFT: 1

1	Title:	IPM in Brinjal	
2	Scientists involved	Sri. G.Shali Raju, Scientist (Ento) Dr. K. Venkata Subbaiah, Scientist (Horti) Dr. E. Karuna Sree, Senior Scientist & Head	
3	Background information on farming situation (Irrigated/rainfed, kharif / rabi, soil type)	Rabi Irrigated Deltaic alluvial & red clay loams and red sandy loams with medium fertility status in N, medium fertility status in P & low fertility status in K with seasonal rainfall 800 – 1100 mm	
4	Problem identified/ addressed :	Pest Incidence causes a loss of 35 – 40% yield reduction in Brinjal. Indiscriminate use of chemicals against pest & diseases in brinjal	
5	Technology Assessed	T ₁ : Inter crop (Mari gold) + Use of sticky traps and Water Pan Traps+ NSKE 5% + <i>Trichogramma chilonis</i> (20000 /ac.) + Need based PP Chemicals	
6	Source of Technology	Dr.YSRHU	
7	No. of trials & farmers (locations)	6	
8	Farmers method (Practice)	T ₂ : Chemical control of pest& disease in brinjal	
	Results:		
S.No	Variable /parameter	IPM (T1)	FP(T2)
1	Yield t/ha	30.75	21.25
2	Per cent Increase over check	4.71%	
3	Cost of cultivation (Rs./ha)	60,000	80,000
4	Gross returns (Rs./ha)	1,53,750	1,06,250
5	Net returns (Rs./ha)	93,750	26,250
6	B:C Ratio	2.56:1	1.33:1
7	Pest incidence (%)	BSFB (40), Leaf webber (10), Epilachna beetle (30), Little leaf of brinjal (10), Wilt (6)	
			
IPM plot at Mettugudem		IPM Plot at Kapavaram	
			
		Produce ready for market	

OFT: 2

1	Title:	IPM module on management of YVMV disease in Bhendi	
2	Scientists involved	Sri. G.Shali Raju, Scientist (Ento) Dr. K. Venkata Subbaiah, Scientist (Horti) Dr. E. Karuna Sree, Senior Scientist & Head	
3	Background information on farming situation (Irrigated/rainfed, kharif / rabi, soil type)	Rabi Irrigated Deltaic alluvial & red clay loams and red sandy loams with medium fertility status in N, medium fertility status in P & low fertility status in K with seasonal rainfall 800 – 1100 mm	
4	Problem identified/ addressed :	Incidence of YVMV disease causes a loss of 20 – 25% yield reduction in Bhendi	
5	Technology Assessed	T1:Seed treatment with imidacloprid 5 g/kg + Installation of Yellow sticky traps @ 10/ac + use of Neem &Pongamia soap @ 5 g/lit + need based application of insecticides	
6	Source of Technology	Dr.YSRHU	
7	No. of trials & farmers (locations)	6	
8	Farmers method (Practice)	T ₂ : Chemical control of YMV	
9	Results:		
S.No	Variable /parameter	IPM (T1)	FP(T2)
1	Yield t/ha	8.25	6
2	Per cent Increase over check	37.5	-
3	Cost of cultivation (Rs./ha)	30,000	37,500
4	Gross returns (Rs./ha)	82,500	60,000
5	Net returns (Rs./ha)	52,500	22,500
6	B:C Ratio	2.75:1	1.60:1
7	Pest incidence (%)	Spodoptera (20%),Fruit borer (15%) and YMV (20%)	



IPM Plot at Kapavaram



IPM Plot at seethappagudem



Produce ready for market

OFT: 3

1	Title:	Integrated pest Management in vine vegetables (Ridge gourd & IVY gourd)	
2	Scientists involved	Sri. G.Shali Raju, Scientist (Ento) Dr. K. Venkata Subbaiah, Scientist (Horti) Dr. E. Karuna Sree, Senior Scientist & Head	
3	Background information on farming situation (Irrigated/rainfed, kharif / rabi, soil type)	Rabi Irrigated Deltaic alluvial & red clay loams and red sandy loams with medium fertility status in N, medium fertility status in P & low fertility status in K with seasonal rainfall 800 – 1100 mm	
4	Problem identified/ addressed :	sucking pests causes severe yield loss in vine vegetables by transmitting various viral diseases	
5	Technology Assessed	T1: Installation of Yellow & blue sticky traps @ 20/ac+ Fruit fly traps @ 10/ac + use of Neem & Pongamia soap @ 5 g/l + Need based pp chemicals	
6	Source of Technology	Dr.YSRHU	
7	No. of trials & farmers (locations)	6	
8	Farmers method (Practice)	T ₂ : Chemical control of pest complex	
9	Results:		
S.No	Variable /parameter	IPM (T1)	FP(T2)
1	Yield t/ha	15.25	11.32
2	Per cent Increase over check	34.71	-
3	Cost of cultivation (Rs./ha)	65,000	78,750
4	Gross returns (Rs./ha)	1,83,000	1,35,840
5	Net returns (Rs./ha)	1,18,000	57,090
6	B:C Ratio	2.82:1	1.72:1
7	Pest incidence (%)	Leaf miner (30),fruit fly (16.7),Thrips (32),Mites (10),Aphids (28) & White fly (36)	



IPM plot at Marlagudem



Release of parasitoids



Produce ready for market

Discipline: Crop Production - OFT: 1

1	Thematic area:	Varietal Evaluation
2	Title:	Assessment of Nutritional enriched paddy variety DRR Dhan -45 in tribal areas
3	Scientists involved:	Sri.G.Shali Raju Scientist (Entomology) Dr.V.Deepthi Scientist (Agricultural Extension) Dr.E.Karunasree ,Senior scientist and Head
4	Details of farming situation: Describe the farming situation including Season, Farming situation (RF/Irrigated), Soil type, fertility Status, Seasonal rainfall (mm) No. of rainy days etc	Kharif, Rainfed, Red sandy loams with medium fertility status in N and P & poor fertility status of K received seasonal rainfall of 832 mm
5	Problem definition / discription: (one paragraph)	To overcome the Nutritional deficiency in tribal people by introduction of nutritional enriched paddy variety DRR Dhan - 45
6	Technology Assessed: (give full details of technology as well as farmers practice)	T1: Paddy seed DRR Dhan - 45 + <i>T.chilonis</i> 10 CC + Cartap hydrochloride 4G – 8Kg /acre+ Tricyclazole 75 WP – 100 g /acre.
7	Farmers method (Practice)	T2 : Paddy variety MTU 1010
8	Results:	Variety (DRR dhan - 45) is performed better than the existing variety. Moderately resistant to Blast, Sheath rot & tungro virus. DRR dhan – 45 recorded higher yield (4.5 t/ha) than local variety (4 t/ha)
9	Feedback of the farmers involved:	Farmers accepted Paddy variety DRR Dhan - 45 with higher yields than the local variety. But cooking quality of DRR Dhan – 45 is inferior than the local variety.
10	Feed back of the scientist	Medium duration (125 days) variety with non lodging plant type and long slender grains for irrigated conditions. It is moderately resistant to Blast, Sheath rot & tungro virus

RESULTS

Technology option	No.of locations	Yield (t/ha)	Cost of cultivation (Rs/ha)	Gross income (Rs/ha)	Net returns (Rs/ha)	B:C ratio
T1: DRR Dhan-45	6	4.5	44,884	69750	24866	2.21:1
T2 :Paddy variety MTU1010(FP)		4.0	50,772	62000	11228	1.8 :1



Field day on paddy



DRR Dhan – 45 variety

OFT: 2

1	Thematic area:	Varietal Evaluation
2	Title:	Introduction of the improved ragi variety vakula in tribal areas
3	Scientists involved:	Dr.V.Deepthi Scientist (Agricultural Extension) G.Shali Raju, Scientist (Entomology) Dr.E.Karunasree ,Senior scientist and Head
4	Details of farming situation: Describe the farming situation including Season, Farming situation (RF/Irrigated), Soil type, fertility Status, Seasonal rainfall (mm) No. of rainy days etc	Kharif, Rainfed, Red sandy loams with medium fertility status in N and P & poor fertility status of K received seasonal rainfall of 832 mm
5	Problem definition / description: (one paragraph)	To promote alternate crops for paddy and to promote minor millets in tribal areas for enhancing nutritional security
6	Technology Assessed: (give full details of technology as well as farmers practice)	T1: Seed 2kg/acre+ bio fertilizers 2kg/acre+ micro nutrients+ need based plant protection chemicals
7	Farmers method (Practice)	T2: Paddy variety i.e MTU 1010
8	Feed back of the farmers involved:	Farmers expressed paddy crop requires more water compared to minor millets
9	Feed back of the scientist	Resistant to leaf blast and tolerant to drought

Results:

Technology option	No.of locations	Yield (t/ha)	Cost of cultivation (Rs/ha)	Gross income (Rs/ha)	Net returns (Rs/ha)	B:C ratio
T1: Improved ragi variety vakula	6	2.9	22,500	55,100	32600	2.4:1
T2 :Paddy variety MTU1010(FP)		4	50,772	62000	11228	1.2:1



Distribution of ragi seed



Ragi crop

OFT: 3

1	Thematic area:	Varietal Evaluation
2	Title:	Introduction of the improved korra variety SIA-308 in tribal areas
3	Scientists involved:	Dr.V.Deepthi Scientist (Agricultural Extension) G.Shali Raju, Scientist (Entomology) Dr.E.Karunasree ,Senior scientist and Head
4	Details of farming situation: Describe the farming situation including Season, Farming situation (RF/Irrigated), Soil type, fertility Status, Seasonal rainfall (mm) No. of rainy days etc	Kharif, Rainfed, Red sandy loams with medium fertility status in N and P & poor fertility status of K received seasonal rainfall of 832 mm
5	Problem definition / description: (one paragraph)	To promote alternate crops for paddy and to promote minor millets in tribal areas for enhancing nutritional security
6	Technology Assessed: (give full details of technology as well as farmers practice)	T1: Seed 4kg/acre+ bio fertilizers 2kg/acre+ micro nutrients+ need based plant protection chemicals
7	Farmers method (Practice)	T2: Paddy variety i.e MTU 1010
8	Feed back of the farmers involved:	Farmers expressed paddy crop requires more water compared to minor millets
9	Feed back of the scientist	Performed well in tribal areas with low availability of water resources

RESULTS:

Technology option	No.of locations	Yield (t/ha)	Cost of cultivation (Rs/ha)	Gross income (Rs/ha)	Net returns (Rs/ha)	B:C ratio
T1: Improved korravariety SIA-308	6	8	12500	36000	23500	2.8:1
T2 :paddy variety MTU1010(FP)		4	50,772	62000	11228	1.2:1

**Korra crop**

Discipline : Veterinary Science**OFT: 1**

1	Thematic area	Evaluation of breeds				
2	Title	Introduction of Srinidhi birds in tribal areas				
3	Scientists involved	Dr.T.Vijaya Nirmala, Scientist (Veterinary Science), Dr.A.Devivaraprasad Reddy, Scientist (Fish Sci) Dr.E.Karunasree, Senior Scientist & Head				
4	Farming situation	Backyard poultry farming				
5	Problem definition / description: (one paragraph)	Less body weight gain and less egg production of desi birds				
6	Technology Assessed: (give full details of technology as well as farmers practice)	T1: Rearing of desi birds T2: Rearing of Srinidhi bird				
7	Critical inputs given: (along with quantity as well as value)	Each farmer provided one month old 20 birds, total cost is Rs.2000 (Rs.100/bird)				
8	Results: Table : Performance of the technology					
	Technology Option	No.of trials	Yield	Net Returns (Rs. in ha)	B:C ratio	Data on Other performance indicators*
	T1: Rearing of desi birds	25	Average body weight - 2.1 Kgs Egg Production - 61	Rs. 4275	1.33	Body weight at 6 weeks age:273.46 g Age at first egg production:202 days
	T2: Rearing of Srinidhi bird		Average body weight - 2.8 Kgs Egg Production - 140	Rs. 9600	1.71	Body weight at 6 weeks age: 624.74 g Age at first egg production: 166 days



Scientists reviewing the backyard poultry birds program and collecting the feedback from the farmer



Srinidhi birds

Discipline : Veterinary Science**OFT:2**

1	Thematic area:	Evaluation of breeds				
2	Title:	Introduction of Gramapriya birds in tribal areas				
3	Scientists involved:	Dr.T.Vijaya Nirmala, Scientist (Vet. Science), Dr.A.Devivaraprasad Reddy, Scientist (Fish Sci), Dr.E.Karunasree, Senior Scientist & Head				
4	Details of farming situation: Describe the farming situation including Season,	Backyard poultry farming				
5	Problem definition / description: (one paragraph)	Less body weight gain and also low egg production of desi birds				
6	Technology Assessed: (give full details of technology as well as farmers practice)	T1: Rearing of desi birds T2: Rearing of Gramapriya birds				
7	Critical inputs given: (along with quantity as well as value)	Each farmer provided one month old 20 birds, total cost is Rs.2000 (Rs.100/bird)				
8	Results: Table : Performance of the technology					
	Technology Option	No.of trials	Yield	Net returns (per unit)	B:C ratio	Data on Other performance indicators*
	T1: Rearing of desi birds	25	Average body weight - 2.1 Kgs Egg Production -62	Rs. 4425	1.34	Body weight at 6 weeks age:256.74 g Age at first egg production:201 days
	T2: Rearing of Gramapriya bird		Average body weight - 2.6 Kgs Egg Production - 160	Rs. 11,550	1.85	Body weight at 6 weeks age: 479.86 g Age at first egg production: 162 days



Follow up visit
Discipline : Veterinary Science

Gramapriya birds

OFT:3

1	Thematic area:	Feed and fodder management			
2	Title:	Assessment of fodder sorghum CoFS 29			
3	Scientists involved:	Dr.T.Vijaya Nirmala, Scientist (Vet Sci), Dr.E.Karunasree, Senior Scientist & Head			
4	Details of farming situation: Describe the farming situation including Season, Farming situation (RF/Irrigated), Soil type, fertility Status,	Irrigated, red sandy loams			
5	Problem definition / description: (one paragraph)	Low yield of fodder sorghum CoFS27			
6	Technology Assessed: (give full details of technology as well as farmers practice)	T1: Cultivation of fodder sorghum CoFS 27 T2: Cultivation of fodder sorghum CoFS 29			
7	Critical inputs given: (along with quantity as well as value)	2.0 Kgs of CoFS 29 Fodder seed to each farmer, it costs around Rs.1325/-			
8	Results: Table : Performance of the technology				
	Technology Option	No.of trials	Yield (t/ha)	Net Returns (Rs. in lakh./ha)	B:C ratio
	T1: Cultivation of fodder sorghum CoFS 27	06	43.825	27,075	2.61:1
	T2: Cultivation of fodder sorghum CoFS 29		162.8	1,49,300	12.05:1



Distribution of fodder sorghum CoFS 29



Collecting the feedback from the farmer

Discipline : Fishery Science**OFT:1**

1	Thematic area:	Aquaculture			
2	Title:	Assessment of water quality parameters during carp culture			
3	Scientists involved:	Dr.A.Devivaraprasad Reddy, Dr.T. Vijaya Nirmala and Dr. E. Karuna Sree			
4	Farming situation	Inland Fisheries – Fresh Water Aquaculture			
5	Problem definition / description: (one paragraph)	Water quality parameters influence the pond production and reflects in the yield			
6	Technology Assessed: (give full details of technology as well as farmers practice)	T1:Water test based application of manures T2: Farmers practice: Traditional method			
7	Critical inputs given: (along with quantity as well as value)	Water quality parameters were tested by using kits and testers purchased under ICAR-TSP			
8	Results: Table : Performance of the technology				
	<i>Technology Option</i>	<i>No.of trials</i>	<i>Yield</i>	<i>Net Returns (Rs. /acre)</i>	<i>B:C ratio</i>
	T1:Water test based application of manures	6	940 kg/acre	Rs. 54,000/-	2.35:1
	T2: Farmers practice: Traditional method		860 kg/acre	Rs. 36,000/-	1.72:1



Fish pond



Sample collection from pond



Collection of water quality samples



Analysis of water quality samples

Frontline Demonstrations (FLDs)

Discipline : Horticulture

Action Plan 2017-18		
Discipline	Horticulture	Intervention : FLD No. 1
Farming situation	Irrigated	
Problem diagnosed with intensity	Indiscriminate use of calcium carbide for mango ripening instead of ethylene gas	
Title of OFT	Low cost ripening unit for mango	
Source of Technology	IIHR, Bengaluru	
Year of initiation	2016-17	Season : Summer
No. of locations	10	
Treatments	T ₁ : 2 ml Ethrel + 5 g NaOH/m ³ (250 Kg.) T ₂ : Traditional or Calcium carbide	
Type & Cost of critical inputs	Low cost ripening chamber	
Observations to be recorded (Results for ongoing OFTs)	PLW (%), TSS (⁰ B) and Sensory evaluation	

S.No	Treatments	PLW (%)	TSS (⁰ B)	Sensory evaluations
1.	T ₁ : 2ml Ethrel + 5 g NaOH /m ³ (250 Kg.)	2.12	17.25	Highly acceptable
2.	T ₂ : Treated with Calcium carbide	3.14	16.50	Not recommended



Fabrication of low cost ripening chamber



Demonstration of low cost ripening chamber



Ripened manga using low cost ripening chamber



Distribution of low cost ripening chamber

Discipline: Plant Protection**FLD: 2**

1	Title:	Integrated crop management in sorghum	
2	Background information on farming situation (Irrigated/rainfed, kharif / rabi, soil type)	Rabi Irrigated Deltaic alluvial & red clay loams and red sandy loams with medium fertility status in N, medium fertility status in P & low fertility status in K with seasonal rainfall 800 – 1100 mm	
3	Problem identified/ addressed:	Reduction in area of sorghum cultivation due to lack of new & high yielding varieties of sorghum	
4	Technology Assessed	T1: Seed + seed treatment with thiram or captan 3 g/l + thiodicarb 75 WP @ 1.5 g /l + Carbofuran 3G @ 4 kg/a	
5	Source of Technology	ANGRAU	
6	No. of trials & farmers (locations)	10	
7	Farmers method (Practice)	T ₂ : Local variety	
8	Results:		
S.No	Variable /parameter	ICM (T1)	FP(T2)
1	Yield q/ha	22.55	17.0
2	Per cent Increase over check	32.64 %	
3	Cost of cultivation (Rs./ha)	17,500	15000
4	Gross returns (Rs./ha)	2,02,950	153000
5	Net returns (Rs./ha)	1,85,450	138000
6	B:C Ratio	11.59:1	10.2:1



Diagnostic visit to Sorghum field at Pandirimamidigudem



Field view of Sorghum field at Pandirimamidi village

Discipline: Plant Protection**FLD: 3**

1	Title:	Integrated crop management in cashew	
2	Background information on farming situation (Irrigated/rainfed, kharif / rabi, soil type)	Rabi Irrigated Deltaic alluvial & red clay loams and red sandy loams with medium fertility status in N, medium fertility status in P & low fertility status in K with seasonal rainfall 800 – 1100 mm	
3	Problem identified/ addressed :	Tea mosquito bug & CSRB causes sever yield loss in cashew	
4	Technology Assessed	T1: Neem soap @ 5 g/l + Monocrotophos @ 1.6 ml/l at new flush stage, Chlorpyrifos @ 2 ml/l at flowering stage and Profenofos @ 1 ml/l at peanut stage for Tea mosquito bug management & Cashew trees swabbing with Neem soap @ 5 g/l & Chlorpyrifos @ 10 ml/l after mechanical removal of larvae (CSRB)	
5	Source of Technology	Dr.YSRHU	
6	No. of trials & farmers (locations)	300	
7	Farmers method (Practice)	T2: No Chemical control (TMB) & Cashew trees affected with CSRB – chiseling, removal of larvae & with out treatment of chemicals	
8	Results:		
S.No	Variable /parameter	IPM (T1)	FP(T2)
1	Yield q/ha	6.1	4.9
2	Per cent Increase over check	24.49 %	
3	Cost of cultivation (Rs./ha)	16,400	13,200
4	Gross returns (Rs./ha)	85,400	58,800
5	Net returns (Rs./ha)	69,000	45,600
6	B:C Ratio	5.2:1	4.45:1
7	Pest incidence (%)	CSRB (6), TMB (20) & Blossom blight (30)	

**Supply of critical inputs****Method demonstration on spraying of Neem soap & Chlorpyrifos against Tea mosquito bug in cashew**

Discipline: Crop production (FLD: 4)

1	Title:	Integrated crop management in cotton	
2	Background information on farming situation (Irrigated/rainfed, kharif / rabi, soil type)	Rainfed light sandy loams with medium fertility status in N, medium fertility status in P & low fertility status in K with seasonal rainfall 800 – 1100 mm	
3	Problem identified/ addressed :	Lack of improved practices in cotton cultivation	
4	Technology Assessed	T1: Seed +Bio fertilizers 2kg/acre+ traps 6-8/acre+,KNO ₃ 0.1 % + Need based plant protection chemicals	
5	Source of Technology	ANGRAU	
6	No. of trials & farmers (locations)	10	
7	Farmers method (Practice)	T ₂ : Local variety	
8	Results:		
S.No	Variable /parameter	ICM (T1)	FP(T2)
1	Yield q/ha	25	20
2	Per cent Increase over check	25%	
3	Cost of cultivation (Rs./ha)	29,500	37,500
4	Gross returns (Rs./ha)	1,00,500	80,400
5	Net returns (Rs./ha)	71,000	42,900
6	B:C Ratio	3.4:1	2.1:1



Method demonstration on stem application of imidacloprid against sucking pests in cotton



Field view of ICM in Cotton

Discipline: Veterinary Science (FLD : 5)

Discipline		Veterinary Science			
Title		Effect of concentrate feed and mineral mixture feeding on productive performance of dairy animals in tribal areas			
Problem diagnosed with intensity		Lower milk yields of dairy animals			
Solution recommended		Supplementation with concentrate feed and mineral mixture			
Crop/ Technology		Concentrate feed and mineral mixture			
Source of Technology		Buffalo Research Station, Venkataramannagudem			
Year of initiation		2017-18	Season : Kharif/Rabi		
No. of locations		10	No. of units: 10		
Treatments		T1: Concentrate feed and mineral mixture supplementation along with farmer practice			
		T2 : Farmers practice: Open Grazing and feeding with paddy straw			
S.No	TREATMENTS	Average milk yield for 90 days (per animal) and fat percentage	Additional costs incurred	Additional returns	B:C ratio
1.	T1: Concentrate feed and mineral mixture supplementation along with farmer practice	532.8 lit. 7.42 %	Rs.3420/-	Rs.8343/-	2.43:1
2.	T2 : Farmers practice: Open Grazing	347.4 lit 5.96%	-	-	-



Preparation and distribution of concentrate feed to the farmers



Followup visit to observe the performance of dairy animals

FLD :6

Discipline		Veterinary Science				
Title		Demonstration of Aseel birds rearing in tribal backyards				
Problem diagnosed with intensity		Low productivity of local fowl				
Solution recommended		Rearing of Aseel birds				
Crop/ Technology		Aseel birds				
Source of Technology		TANUVAS, Chennai				
Year of initiation		2016-2017	Season : Kharif/Rabi			
No. of locations		10 (@20 birds)				
Treatments		T1: Rearing of Aseel birds				
		T2: Rearing of Desi birds				
S.No	TREATMENTS	Body weight & egg production	Gross Cost (Rs/ bird)	Gross Income (Rs/ bird)	Net Income (Rs/bird)	B C Ratio
1.	T1: Rearing of Aseel fowl	2.37 Kg, 85 Nos	350	1442.5	1092.5	4.12
2.	T2: Rearing of Desi fowl	1.94 Kg, 52 Nos	320	1005	685	3.14



Distribution of aseel chicks to tribal farmers



Follow up visit to aseel birds rearing at Chegondapalli village



Collecting the feedback from farmer on performance of aseel birds



Reviewing of aseel birds rearing at K. Nagampalem by Director of Extension, DrYSRHU

FLD: 6

Discipline	Fisheries				
Farming Situation	Inland Fisheries - F.W. Aquaculture				
Problem diagnosed with intensity	Underutilization of water bodies and culture of single species				
Title	Introduction of composite fish culture in tribal areas				
Crop /Technology	Indian Major carps (IMC)			Rearing	
Source of Technology	Central Institute of Freshwater Aquaculture, Bhubaneswar			College of Fishery Science, SVVU, Muthukur	
No. of locations	04	Area (ha)		4	
Treatments	T1: Technology Assessed: Culture of composite fish culture with IMC and Exotic carps				
	T2:Farmers practice: Single species culture / underutilized water body				
Technology Option	No.of trials	Cost of Production (Rs.)	Yield	Net Returns (Rs./acre)	B:C ratio
T1: Technology Assessed: Culture of composite fish culture	4	45,000/-	890 kgs/acre	44,000/-	1.97:1
T2: Farmers practice: Single species culture / underutilized water body		40,000/-	560 kgs/acre	16,000/-	1.4:1



Demonstration of feed on the pond



Review of activities by Hon'ble VC along with Director of Extension



Harvesting of fish



Harvested fish in boxes

FLD :7

Discipline	Fisheries				
Farming Situation	Inland Fisheries - F.W. Aquaculture				
Title	Development of integrated fish culture cum horticultural/poultry for livelihood of tribal folks				
Problem diagnosed with intensity	Underutilization of water bodies and culture of single species				
Crop /Technology	Indian Major carps (IMC)		Rearing		
Year of initiation	2016-17		Season: Whole Year		
No. of locations	5	Area (ha)	5		
Treatments	T1: Technology Assessed: Development of integrated fish culture cum horticultural/poultry in tribal areas				
	T2: Farmers practice: Single species culture or underutilized water body				
Technology Option	No.of trials	Yield	Cost of Production (Rs.)	Net Returns (Rs./acre)	B:C ratio
T1: Technology Assessed: Development of integrated fish culture cum horticultural/poultry in tribal areas	25	Fish – 1.3 tons/acre Poultry – 11,700/-	65,000/-	81,200/-	2.24:1

		Horticulture crops – 4500/			
T2: Farmers practice: Single species culture or underutilized water body		Fish – 0.45 tons/acre	25,000/-	20,000/-	1.8:1



Fish fingerlings distributed to farmers and being released in their fish ponds



Distribution of poultry birds



Plantation of coconut (var. Godavari Ganga) on pond dykes and distribution to the farmers by the Director of Extension, DrYSRHU.



Review of activities by Director of Extension, DrYSRHU



Poultry birds on the cages and dykes



Distribution of cast nets and drag nets to the farmers by the Director of Extension, DrYSRHU and the PHO, ITDA, KR Puram



Chilli field on the pond dykes



Beans plantations on the pond dykes



Selling of fish



Consumers are taking fish to home after purchase at farm gate

5. Success stories of KVK interventions under Tribal Sub Plan during 2017-18

Success Story – 1: A Model Poultry Farm & Hatchery for tribal women at Muddappagudem

In adopted tribal villages of KVK, most of the farmers are facing acute problem due to mono cropping pattern of the area due to poor soil status, erratic rainfall, lack of quality seeds/breeds. There is no proper avenue to augment income for rural folks also. Despite the fact that almost every family use to keep poultry birds as a secondary source of income but the ultimate return is poor due to non-availability of good genetic stock and improper management.

Keeping this in view, a backyard poultry farm & hatchery model was initiated in the tribal area of West Godavari district of Andhra Pradesh. This model has been initiated by Krishi Vigyan Kendra, Dr. YSR Horticultural University, Venkataramannagudem with the financial support of ICAR- TSP with an aim to provide self-employment and auxiliary income to the tribal women. Other reason for choosing backyard poultry was because of its multifarious advantages including low incubation period, minimal investment that could be easily managed by the family members and availability of ready market for chicken.

In this, 5 women were formed as one group named it as “**Girimahila Poultry Sangam, Muddappagudem**” with the assistance of Integrated Tribal Development Agency (ITDA), K.R. Puram. Infrastructure requirements like poultry shed of 1500 birds capacity and automatic digitally controlled setter cum hatcher with a capacity of 5000 eggs along with essential spare kits such as egg setting trays, hatcher trays and 10 KVA generator were provided under the project. Initially, pure lines of poultry breeds viz., Aseel (500 No.), Gramapriya (500 No.) and Srinidhi (500 No.) along with required medicines were provided. The technical guidance for bird rearing, feeding practices, health management (Deworming and Vaccination), ecto-endo parasites control, shed management, hatchery management through demonstrations and trainings were provided by KVK scientific staff.

The parent lines of Aseel, Srinidhi, & Gramapriya birds are being maintained for production of quality eggs. A total of 3200 eggs in three batches were kept for hatching and obtained 2481 chicks with a hatchability percentage of about 77.53%. One day old aseel chicks were sold at the rate of Rs 45/- per bird, Srinidhi, Gramapriya @ Rs. 20/- bird. In addition to this, incubation of eggs for hatching on charge basis at the rate of Rs.15/- per egg from other farmers. Likewise in a year approximately 15 batches of eggs can be kept in incubator for hatching of chicks. Excess birds are often sold locally at a premium price @ Rs.150 / kg (Srinidhi&Gramapriya) and Rs.250/Kg (Aseel). Besides this, the earnings from the sale of eggs have considerably added to the gross economic return of the poultry unit. The eggs are sold locally at a price of Rs 5.00 to 6.00/ egg (in case of Srinidhi&Gramapriya) and Rs.10/- (in case of Aseel). On an average each member is earning an amount of Rs. 7000/- to 9000/- per month.

The income generated from the improved poultry breeds viz., Aseel, Srinidhi, Gramapriya birds was encouraging the tribal women to adopt the scientific management skills. The successful introduction of improved backyard poultry birds at Muddappagudem has drawn the attention of other resident tribal families those were previously unaware of the these improved breeds. Of late many farm families have come forward with a deep interest of rearing of improved varieties of birds for income generation and nutritional security.

Brooding management of chicks



Gramapriya variety Srinidhi variety

Aseel variety



Rearing of birds by I. Gangaratnam, Girimahila poultry sangam group member



Hatching of eggs in incubator machine



Selling of eggs, chicks & birds

Success Story-2: Bee Keeping in Tribal areas of West Godavari District

The Collection of honey from wild bee colonies is considered to be one of the income sources for tribal families during lean periods of employment i.e. during November to February. This activity is slowly coming down as the skill in identifying the wild bee colonies and honey extraction is not known to present tribal young farmers. Keeping these points in mind a project entitled “**Introduction of Apiary in Tribal villages for enhanced income & economic security**” has been proposed under ICAR – TSP. After getting the sanction of the Apiary project, preliminary visits were conducted by KVK staff, ITDA, K.R.Puram&RythuNestham NGOs in tribal mandals to select the suitable place for honeybee foraging. The project was successfully implemented in Co-ordination with ITDA,K.R.Puram&RythuNestham NGO in two tribal mandals viz: Velerupadu&Buttaigudem. A total of 3 villages covered in Velerupadumandal namely Katkuru, Koida&Kacharamwhere as 8 villages covered in Buttaigudemmandal namely aliveru, chinnajeedipudi, yerraigudem, pandugudem, bandarlagudem, kamaiahkunta, lankapalli&palakunta. The villages were selected mainly due to the abundant forage availability like tamarind,neem,soapnut,eucalyptus,pongamia,tobacco,cashew and palmerah etc. A Total of 100 Trainees selected in two mandals and three trainings were conducted the details of training as follows

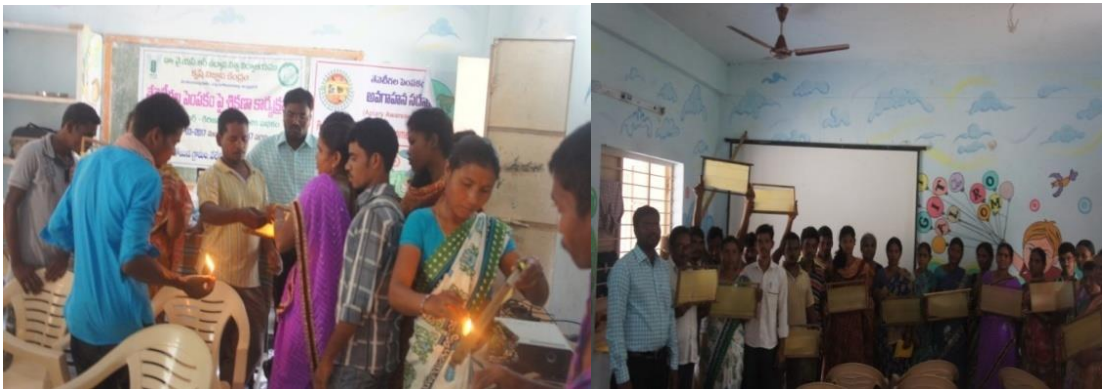
S.No	Name of the training	Duration	Date	No of participants
1	Training programme on bee keeping at Koida	Six Days	13.03.2017 - 18.03.2017	35
2	Training programme on bee keeping at ITDA,K.R.Puram		23.03.2017 - 28.03.2017	40
3	Training programme on bee keeping at Aliveru		23.03.2017 - 28.03.2017	25

After successful completion of six days vocational training programme on apiculture the trainees were provided with the following critical inputs:

- Italian bee (*Apis mellifera*) bee hive boxes – 2, Indian bee (*Apis cerana indica*) bee hive box– 1 and Comb foundation sheets – ½ kg for each trainee
- Honey extractors (*A. mellifera* – 2 & *A. cerana* - 2) per cluster

KVK, Venkataramannagudem in collaboration with ITDA, K.R.Puram Formed 9 individual cluster groups covering 11 villages these individual cluster groups formed the association of honey producers in tribal areas as **Giridhara Honey Producers Society**, ITDA, K.R.Puram for production, marketing of honey and strengthening of bee keeping.

Regular follow up visits were also conducted by the scientists of KVK to the apiary units and advices were also provided for effective maintenance of the bee hive boxes. Now the bee hive colonies are in breeding stage and further expansion of the boxes can be done by the division of the colonies. Support in terms of feeding, protection from ants and termites and making availability of comb foundation sheets are to be provided to these beekeepers for strengthening the activity. Extracted honey from these colonies can be sold @ Rs. 300/- to 500/- per Kg depending on the season and demand. In tribal areas main income is from cashew @ Rs. 40,500/- per acre/year and by adopting apiculture an additional income @ Rs.19,000/- per year was added to each family.



Preparation of comb foundation sheets



Feed back

Distribution of certificates



Demonstration on Preparation of Bee wax



Collection of pollen by Pollen trap



Honey Extraction

Extracted Honey



Exposure Visits



Grounding of Bee hive colonies in tribal villages



Handling of Bees by tribal farmers

Success Story 3: Improved vegetable cultivation in tribal areas

Survey in tribal areas of Buttaigudem, Polavaram and Jeelugumellimandals on area under cultivation, production and productivity of vegetables was conducted and observed, low vegetable production and productivity. The reasons assessed were due to less availability of water resources, non adoption of improved vegetable cultivation practices like selection of quality seed, growing of quality seedling in nursery, drip with mulch, pendals or trellising system, IPM practices in vegetables. To address the situation a project on “Improved vegetable cultivation in tribal areas” was proposed and got sanctioned. Accordingly, implemented in 24 tribal villages of buttaigudem, Polavaram and Jeelugumellimandals in collaboration with ITDA, K.R. Puram. Under this project selected 50 acres of vegetable area covering 100 farmers. This 50 acres comprises of 20 acres under Ivy gourd cultivation, 10 acres under Okra, 5 acres under ridge gourd, 5 acres under bitter gourd, 5 acres under cucumber and remaining 5 acre area covered under Brinjal crop. For each farmer provided quality seed or planting materials, Polythene Mulch (50 and 30 microns), water soluble fertilizers, traps, biofertilizers, bio control agents, etc. The infrastructure required like permanent pendals and drip irrigation were provided by ITDA, K.R. Puram. As a part of this project we conducted training programmes on Improved vegetable cultivation practices and conducted 10 method demonstrations on laying of mulch, drip lines, pruning operations, erection of sticky and light traps, releasing of bio control agents, installation of trichocards etc. The outcome of the project with respect to yield and quality was very good and also fetched higher prices in the market. At present many farmers are coming to practice the same. The yield and benefit cost ratio with respect to different crops are mentioned in Table-1.

Table 1: Effect of improved vegetable cultivation practices on yield and benefit cost ratio of the different vegetable crops

Sl. No	Crop	Demo plot yield (t/ha)	Control plot (t/acre)	Per cent yield increase	B:C ratio in demo unit	B:C ratio in control
1.	Ivy gourd	15.25	8.0	90.6	1.96:1	1.7:1
2.	Okra	8.25	6.0	37.5	2.75:1	1.6:1
3.	Bitter gourd	13.0	9.75	33.3	3.9:1	3.25:1
4.	Ridge gourd	33.0	17.5	88.5	4.5:1	2.18:1
5.	Brinjal	30.25	21.25	42.35	2.57:1	1.32:1

Conclusions

1. Percentage increase in yield ranges from 33.3 % to 90% in improved vegetable cultivation.
2. Water saving ranges from 50 % to 80 %

3. Quality yield and more remunerative price to the final product.
4. Improved the living standard of tribal farmers.



IVY gourd cutting for plantation purpose

Produce ready for marketing

Success story 4: Under-utilized water bodies for poly culture of fish in high altitudes for livelihood of tribal farmers

Fish polyculture of the Indian major carp, *Catlacatla (catla)*, *Labeorohita (rohu)* and *Cirrhinusmrigala (mrigal)* together with the Chinese grass carp (*Ctenopharyngodonidella*) in stagnant water bodies without aeration was carried in tribal areas of Buttaigudem Mandal, West Godavari District, Andhra Pradesh. Rainwater was harvested in small size water bodies, which were under-utilized and are being used for the storage of water for supplementary irrigation to crops during summer season. These underutilized water bodies were converted into fish culture ponds for the livelihood of tribal farmers and nutritional security. Under tribal sub plan (TSP) activities done by Krishi Vigyan Kendra (KVK), Venkataramannagudem in four such small water bodies in the villages Pandugudem and Bandarlagudem of Buttaigudemmandal were selected for implementation of the programme. Semi intensive culture method with better management practices (BMPs) were followed and aimed at high yields of table size fish during this short duration of water storage. Manures like cow dung, goat dung, poultry excreta, etc., were used to manure the pond for plankton development. The fishes were also fed with rice bran and mixed with commercial pelleted protein rich feed having 24 % protein were provided as critical inputs under TSP activities of KVK, Venkataramannagudem. Maximum growth and size was achieved in the grass carp followed by catla, rohu and mrigal. The production was varied from 2162 kg /ha to 2883 kg/ha and this rose to an average of 2412 kg/ha. The average gross income generated per ha was recorded as about Rs. 1,72,960/- to 1,92,960/- (Average market price of Rs. 80/- per Kg.). The duration of the culture was 10 months and this demonstration shows that the raising of fish in semi-intensive culture for growing of fish in tribal areas for their enhanced income generation and nutritional security.



Release of fish fingerlings in to the ponds



Distribution of feed to the tribal farmers



Harvesting of fish using dragnets



Selling of fish in tribal areas

Success story 5: Integrated farming practices in tribal areas for their enhanced income

The population increase in India has risen tremendously with its corresponding increase in demand for food. Thus, there is a need for suitable sustainable integrated farming system (IFS) to meet the increasing demand and also maximize the utilization of available limited resources without much wastage. Integrated fish farming along with horticulture/poultry offers hope in this direction. This system of farming was introduced into the country some years back with its uniqueness, that it has the capability of combining fish culture with horticulture and livestock production. Among the different livestockbased systems, fish-livestock-vegetable farming systems are recognized as highly assured technologies for fish cultivation. In these technologies, predetermined quantum of waste obtained by rearing livestock in the pond area is applied in pond to raise the fishes with or without any other exogenous supply of nutrients. The concept has been evolved on the principles of productive recycling of farm wastes. The ecological consideration is of paramount importance in integrated fish which in that it allows recycling, and maximum utilization of resources without wastage. Since the small and marginal farmers work hard but then again don't make money. Because there is very little money will be left after their pay for all the inputs *viz.*, seeds, livestock breeds, fertilizers, pesticides, feed, labour etc. Integrated farming system (or integrated horticulture/agriculture/livestock) is a commonly and broadly used word to explain a more integrated approach to farming as compared to monoculture approaches. It refers to agricultural/horticultural systems that integrate livestock and crop production or integrate fish and livestock and may sometimes be known as Integrated Biosystems. In this IFS system an inter-related set of enterprises will be used so that the unused or waste or by product from one component will become an input for another part of the system, thereby reduces the input cost and improves the productivity or/and income. So, these systems work as a system of systems and ensure the reduction of wastes.

25 tribal farmers were selected across 13 villages and implemented this IFS model in their farm. The farmers were provided with quality fish fingerlings, feed, poultry birds, vegetable seedlings, coconut saplings fish cast nets, dragnets etc. The scientists of Krishi Vigyan Kendra (KVK), Venkataramannagudem were provided the technical support throughout the crop duration. Two groups were formed such as “Lakshmi GirijanaMatsyaPempakadarula Sangam” and “Indira GirijanaChepalaPempakadarula Sangam” with 12 members and 13 members respectively. The vegetables produced are utilized in their home itself. The income generated through fisheries was ranging from Rs. 1,12,265/- to Rs. 3, 23,890/- and through poultry Rs. 24,676/- to 36,467/- and the famers realised the revenue generated from multiple sources especially in the IFS farm. During the course of time, the farmers attained their knowledge in various aspects.

