

# IMPACT ANALYSIS

OF KVK ACTIVITIES OF  
SOUTH TRIPURA



### 3. Profile of Training programmes conducted by KVK, South Tripura during 2007-13 for farmers

Sl. No.	Thematic area	2007-08		2008-09		2009-10		2010-11		2011-12		2012-13	
		C	B	C	B	C	B	C	B	C	B	C	B
1.	Crop production	4	44	10	211	10	253	18	418	16	388	16	505
2.	Horticulture											-	-
	i. Vegetable crops	5	89	4	81	6	93	13	312	8	162	-	-
	ii. Fruits	2	26	3	44	10	174	1	20	2	40	-	-
	iii. Ornamental crops	-	-	-	-	-	-	-	-	-	-	-	-
	iv. Tuber crops	1	11	1	16	-	-	1	14	2	43	-	-
	v. Spices	-	-	-	-	-	-	-	-	-	-	-	-
3.	Soil health and fertility management	-	-	6	96	7	133	6	102	7	180	5	91
4.	Livestock production and management	7	197	8	232	8	145	-	-	-	-	-	-
5.	Home Science/ women empowerment	-	-	-	-	-	-	10	271	9	198	5	108
6.	Plant protection	9	72	10	175	10	192	10	238	7	147	3	45
7.	Agri. Engineering	4	57	-	-	-	-	-	-	4	80	9	145
8.	Fisheries	4	53	11	227	-	-	-	-	14	109	12	246
9.	Capacity building and group dynamics	-	-	17	465	-	-	11	226	10	200	-	-
10.	Agro-forestry	-	-	-	-	-	-	-	-	-	-	-	-

**C-Course (No.), B-Beneficiaries (No.)**

### 4. Profile of Extension Activities conducted by KVK, South Tripura during 2007-13 for farmers

Sl. No.	Thematic area	2007-08		2008-09		2009-10		2010-11		2011-12		2012-13	
		N	B	N	B	N	B	N	B	N	B	N	B
1.	Diagnostic visits	190	267	32	161	17	38	12	81	4	61	1	6
2.	Advisory Services	-	-	16	179	35	174	37	102	27	156	98	254
3.	Animal Health Camp	-	-	3	199	1	85	-	-	1	150	-	-
4.	Awareness Camp	-	-	10	108	7	38	7	38	12	330	7	231
5.	Training manual	-	-	-	-	-	-	1	-	-	-	-	-
6.	Celebration of important days	2	-	3	-	3	-	2	-	2	-	2	500
7.	Exhibition	-	-	2	-	3	-	4	-	2	-	3	2200
8.	Exposure visits	1	28	1	36	3	92	3	72	3	81	-	-
9.	Extension Literature	5	-	8	-	4	-	3	-	1	-	1	-
10.	Farm Science Club Conveners meet	-	-	-	-	-	-	-	-	2	32	2	300
11.	Farmer's Scientist Interaction	-	-	-	-	2	300	1	150	1	105	-	-
12.	Farmers Seminar	-	-	-	-	-	-	6	607	1	86	-	-
13.	Farmers Visit to KVK	-	480	-	520	-	175	-	142	-	489	48	556
14.	Field Day	3	60	10	284	8	195	5	124	5	183	2	263
15.	Film Show	-	-	25	448	15	135	15	263	27	454	6	105
16.	Group meetings	1	11	10	158	3	48	5	80	9	183	6	109
17.	Kisan Gosthi	-	-	1	19	4	191	3	90	3	139	-	-
18.	Kisan Mela	-	-	1	75	1	500	1	600	1	500	2	300
19.	Lectures delivered as resource persons	6	187	8	229	3	31	12	586	11	1036	11	242
20.	Mahila Mandal Conveners' meetings	-	-	-	-	-	-	-	-	-	-	-	-
21.	Method Demonstrations	-	-	15	176	12	233	45	309	24	280	6	166
22.	Newspaper coverage	2	-	9	-	4	-	1	-	3	-	2	-
23.	Popular articles	1	-	2	-	2	-	5	-	2	-	3	-
24.	Radio talks	7	-	10	-	-	-	-	-	6	-	4	-
25.	Scientists visit to farmers field	1	668	21	249	28	301	54	375	61	445	64	362
26.	Self Help Group Conveners meetings	-	-	2	30	-	-	-	-	-	-	-	-
27.	Soil health Camp	-	-	-	-	2	111	2	51	3	80	1	32
28.	Soil test campaigns	-	-	-	-	-	-	-	-	-	-	-	-
29.	TV talks	-	-	2	-	-	-	-	-	-	-	-	-
30.	Technical bulletins/report/leaflets	-	-	7	-	8	-	6	-	5	-	5	-
	<b>Total</b>	<b>219</b>	<b>1701</b>	<b>198</b>	<b>2871</b>	<b>165</b>	<b>2647</b>	<b>230</b>	<b>3670</b>	<b>216</b>	<b>4790</b>	<b>274</b>	<b>5626</b>

**N-Number, B-Beneficiaries**

# Socio-Economic Impact

## a) Benefit due to change in cropping system through KVK Programmes in South Tripura

Village	Existing cropping system		Demonstrated cropping system		Increase in income (Rs.)
	Kharif	Rabi	Kharif	Rabi	
Dudhpushkarini	Fallow	Fallow	Groundnut Red gram	Fallow Fallow	26,000 41,750
Mirza	Fallow	Fallow	Groundnut Red gram	Fallow Fallow	22,000 41,750
Hrishyamukh	Rice	Rice	Rice Rice	Groundnut Lentil	20,500 8,500
South Takma	Fallow	Fallow	Groundnut	Fallow	31,100
Satchand	Rice	Rice	Rice	Groundnut	14,000
Chaltabankul	Fallow	Fallow	Groundnut	Fallow	22,000

## b) Impact in terms of productivity in the adopted villages

Item	Unit	In 2007-08	In 2011-12
Change in cropping pattern	(%)	Nil	50
Change in productivity of-	(kg/ha)		
(a) Cereal crops		3500	4500
(b) Pulses		600	750
(c) Oilseeds		600	800
(d) Overall		1400	2017
Use of HYV (high-yielding varieties)	(%)	5	25
Uses of fertilizers (NPK) (nutrient)	(kg/ha)	10	20
Use of FYM and other biofertilizers	(kg/ha)	2500	5000
Tractor/machinery (Power Tiller)	(No.)	Nil	20 %
Change in economic indicators	(No.)	Nil	2
a. Net returns/ha/yr (Rs/ha) (by crop/enterprise)	Paddy Mustard Sesamum	6000 5000 12000	25000 11500 25000

**c) Profitability and productivity enhancement of demonstrating farmers**

<b>Crop Production</b>		
<b>Rice</b> (Var. TRC-2005-1, Naveen)	Yield: Yield of local check: Effective Gain: Productivity enhancement:	60q/ha 40 q/ha Rs. 19000 /ha 50%
<b>Maize</b> (var. RCM-1-3)	Yield: Yield of local check: Effective Gain: Productivity enhancement:	25.31 18 q/ha Rs. 7428/ha 40.61%
<b>Black Gram</b> (var. PU-19, PU-13)	Yield: Yield of local check: Effective Gain: Productivity enhancement:	8.8 q/ha 6.5 q/ha Rs. 4550/ha 35.38%
<b>Green Gram</b> (var. HUM-16, TMB-37)	Yield: Yield of local check: Effective Gain: Productivity enhancement:	6.5q/ha 8.5q/ha Rs.5500/ha 30.76%
<b>Arhar</b> (var. UPAS120, Narendra-1)	Yield: Yield of local check: Effective Gain: Productivity enhancement:	6.5q/ha 8.5q/ha Rs. 5500/ha 30.76
<b>Lentil</b> (var. WBL-58, B-77)	Yield: Yield of local check: Effective Gain: Productivity enhancement:	6q/ha 8q/ha Rs. 7795/ha 41.66%
<b>Groundnut</b> (var. GG-20, GG-7)	Yield: Yield of local check: Effective Gain: Productivity enhancement:	11.0q/ha 16.5q/ha Rs. 22500/ha 50%
<b>Sesamum</b> (var. ST-1683, B-67)	Yield: Yield of local check: Effective Gain: Productivity enhancement:	5.8q/ha 8.5q/ha Rs. 6900/ha 46.55%
<b>Mustard/Toria</b> (var. B-9, TS-36, RAU-TS-1683)	Yield: Yield of local check: Effective Gain: Productivity enhancement:	8 q/ha 13q/ha Rs. 13300/ha 62.5%

<b>Horticultural Crops</b>		
<b>Cowpea</b> (var. <i>Kashi Kanchan</i> )	Yield: Yield of local check: Effective Gain: Productivity enhancement:	48.77 q/ha (green pod) 39.50 q/ha (green pod) Rs. 45,000/ha 24.35 %
<b>Brinjal</b> ( var. <i>Singnath &amp; Bholanath</i> )	Yield: Yield of local check: Effective Gain: Productivity enhancement:	210 q/ha 180 q/ha Rs. 2,04,900 /ha 24.35 %
<b>Cauliflower</b> (var. <i>Kimaya, Suhashini</i> )	Yield: Yield of local check: Effective Gain: Productivity enhancement:	20q/ha 18q/ha Rs. 97,750/ha 10 %
<b>Cabbage</b> (var. <i>BC-76, Quisto</i> )	Yield: Yield of local check: Effective Gain: Productivity enhancement:	340 q/ha 250 q/ha Rs. 72500/ha 35.4%
<b>Tomato</b> (var. <i>Allrounder</i> )	Yield: Yield of local check: Effective Gain: Productivity enhancement:	268 q/ha 205 q/ha Rs. 98500/ha 37 %
<b>Okra</b> (var. <i>SG-152</i> )	Yield: Yield of local check: Effective Gain: Productivity enhancement:	122 q/ha 82 q/ha Rs. 79130/ha 48 %
<b>Home Science</b>		
<b>Value Addition</b> ( <i>Fruits and Spices</i> )	Pineapple: Guava: Olive: Green chilli:	Rs. 30 per 2 pairs Rs. 30 per 2 pairs Rs. 90 per kg Rs. 350- 370 per kg
<b>Fisheries</b>		
<b>Fish</b>	Productivity enhancement: Before Training : After Training:	26 % 1200 to 1300 kg per ha 1600 to 1800 kg per ha
<b>Plant Protection</b>		
<b>IPM</b>	Yield increased due to IPM Cole crops: Brinjal: Rice: Mustard: Cow pea: Groundnut:	34% 7.08% 48.5 % 33.33% 20.64% 39.13%

## Diversification of Agriculture

- Integration of piggery with fishery through conducting demonstration and trainings was done in different agro-ecological situation for 16 farmers covering four blocks of the district. Now more than 100 farmers started to adopt this technology along with plantation of fruit and plantation crops (mango, citrus, banana, papaya, coconut and arecanut) around fishery ponds.
- Integration of rural poultry, goatary, bee keeping, plantation of fruit and plantation crops, mushroom farming, off season vegetables, vermicomposting and rain water harvesting in homestead farms was done 5 blocks of the district. Agriculture and Horticulture department started replicating this technology in RoFR (Forest area) tribal villages.
- Demonstration of groundnut, green gram, black gram, sesame and maize in fallow medium upland during kharif season created an awareness to use such land for better income generation.
- Use of rice fallow areas for cultivation of mustard/toria, groundnut, lentil, potato, cauliflower and watermelon during rabi season by utilising residual moisture and harvested water in the pond increased the cropping intensity and farmer's income to a greater extent.
- Change of single cropping to mixed cropping system like cowpea-chilli, ginger-chilli, mustard-cole crops/tomato, and practices of intercropping of groundnut-arhar, banana-black gram, potato-mustard and potato-maize, etc. given an option to harvest multiple crops from a small farm unit (< 1 ha) of farmers.
- Replacement of old variety of crops with new high yielding variety (HYV) increased the yield of following crops:

Rice	: Naveen & Gomati replaced Sambha masuri, Krishna Hansa & Puja
Cauliflower	: Kimaya variety replaced Shuhasini
Cowpea	: Kashi Kanchan replaced local variety
Maize	: RCM-1-3 replaced local variety
Sesame	: ST-1683 replaced local variety
Black gram	: PU-19 and PU-37 replaced old variety
- Practices of use of biofertilisers, vermicompost and micronutrients under INM replaced the imbalanced use of chemical fertilisers.
- Practices of IPM and IDM relaced the use of chemical control for pests and disease in rice, brinjal, ginger, tomato, groundnut, chilli, etc. to some extent.
- Use of water harvesting structure (pond), Jal Kunds and water pumps for live saving irrigations increased the cropping intensity through double cropping in lowland areas.
- Integration of mini-dairy (9 units), bio gas units (31 nos.) and vermicompost units (40 nos.) by rural youth of Matabari and Kakraban Blocks given an opportunity to establish micro-enterprises in the farming system.

## Livelihood Security of the Farmers

- Demonstrated technology of KVK increases productivity (30-60 per cent) of different agronomic crops during 2007-12 in the district which ultimately ensures the nutritional and livelihood security of the farmers. Benefit due to change in cropping system through KVK Programmes is given below:

Demonstrated cropping system		Increase in income (Rs.)
Kharif	Rabi	
Groundnut	Fallow	26,000
Red gram	Fallow	41,750
Groundnut	Fallow	22,000
Red gram	Fallow	41,750
Rice	Groundnut	20,500
Rice	Lentil	8,500
Groundnut	Fallow	31,100
Rice	Groundnut	14,000
Groundnut	Fallow	22,000

- Adoption of new technology for cultivation of different horticultural crops, mixed cropping system and use of HYV increased the livelihood security for the farmers. The use of HYV of cowpea (Kashi Kanchan) enhanced the net income up to Rs. 45000 per hectare with expenditure of Rs. 15000 within 2 months.
- Production of about 50000 – 100000 mango planting materials every year by a group of 40-50 farmers in the district. Income of the each participating farmers has been reached about Rs. 20000-200000 per year.
- Cultivation of improved variety of groundnut improve the income status of farmers as they sale the groundnut seed @ Rs. 35-45 per kg in the local market and earning up to Rs. 66,500 per ha.
- Homestead Farming System as demonstrated by KVK, a farmer's family can earn up to Rs. 67000/- with the expenditure of Rs. 18000. The system is unique since there is livestock-crop integration with flow of inter activity resources making homestead farmer a sustainable income for their livelihood.
- Under Scientific Backyard Pond Aquaculture demonstrated by KVK, a fish farmer is earning net income up to Rs. 18000 per year with an expenditure of Rs. 12000 by selling 380 kg of fishes from 0.16 ha pond area.
- Integrated Pig-cum-Fish farming providing Rs. 46500 per year to the farmer with expenditure of Rs. 27500 by selling 14 piglets and 350 kg of fishes from 0.16 ha pond area. The parent stock further providing additional income from second year onwards and strengthening the livelihood of farmer's family.
- SHG groups earn net income of Rs. 3075 after 1.5 months from a small mushroom production unit (50 cubes) for generation of supplementary income of SHG's family.
- Milk production through mini dairy by 125 farmers in 9 villages providing continuous income @ Rs. 22-25 per liter with some bonus and subsidy on animal feed for their livelihood.
- Use of water harvesting structure (ponds), Jalkunds to conserve water and life saving irrigation, farm mechanisation increased the income up to 30% thereby increased the livelihood security of the farmers.



- Nutrition gardening is a technology which was introduced during 2010 to some of the farmers of Satchand, Sonaichari, Bagma, Dudhpushkarini, Moghpushkarini, Sataria from where they can be nutritionally secured and add a part to their livelihood security.

### **Creation of Job Opportunities**

- Farmers started production of seed of groundnut, rice, green gram, black gram, lentil, arhar and cowpea in the demonstration area and selling in the village to fulfill the village requirement.
- After training of KVK, many of the rural youth established their own small nurseries for production of quality planting material of Mango (var. Amrapali) at their home garden for self employment. Employment opportunity in the private nursery also created for doing grafting during May-July every year. In this system, income of each farmer youth is about Rs. 15000-25000 per year in addition to income from their own nursery.
- Training on production of vermicompost, mushroom farming, sericulture and bee keeping helped in getting the bank credit and establishment of small scale units of such enterprises.
- Many of the farmers are trained in the use of farm power machinery and implements like power tiller, water pumps, weeders, sprayers, thrasher, reaper, maize Sheller etc. Thus they got self employment and also providing services to their fellow farmers on payment basis.
- Local production of fish in the district is not sufficient to meet the requirement of fish and hence, marketing opportunity exists for fish in the district. Less availability of local fish and its high price in market creates the opportunities for income generation through fish production and enhancement of productivity of culture fisheries. Through various training-cum-demonstration programmes of KVK, now farmers are able to involve in fish production and hence, created a sustainable income from backyard pond aquaculture.
- Milk production through mini dairy by 125 farmers in 9 villages providing self employment to the farmers.
- Some of the trainings that were conducted under Home Science unit enabled farm women to engage themselves in tailoring and stitching, to fulfil the stitching job for school students and thereby making themselves empowered.

### **Skill Development of Farmers**

- Crop production skills like water management (use of residual moisture, mulching, use of life saving irrigation, time and system of water application, critical stages of crop growth), cropping system (cereal-legumes system, deep rooted crop with shallow rooted crops, inter crops of legumes), nutrient management (use of biofertilisers, vermicompost, foliar spray of micronutrients, organic fertilisers), water harvesting (Jalkund techniques), Integrated crop management etc. were done to more than 350 farmers under SWPAL programmes of ICAR during the 11<sup>th</sup> Plan period.
- Nursery management and production of quality planting materials of mango (var. Amrapalli). More than 150 farmers were trained on nursery management and grafting techniques.
- Skill development on training, pruning and rejuvenation of fruit orchard especially mango, litchi and sapota.
- Skills on off-season and protective cultivation of vegetables to the vegetables grower in five blocks of South Tripura.
- Skill development for production of vermicompost, honey bee rearing and sericulture in four blocks.

- Skill upgradation of farm women of SHGs on mushroom farming like preparation of substrate, cube making, quality management, harvesting, processing, etc.
- Training to rural youth for control of pests and diseases through IPM and IDM techniques in rice, vegetables and spices crops.
- Use of farm machinery and implements like power tiller, water pumps, weeders, sprayers, thrasher, reaper, secateurs, maize Sheller etc.
- Construction of water harvesting structures, Jalkunds, and soil-water conservation measures like contour / graded bund, half moon terrace, and bench terraces.
- Health and disease management of pig, cattle, poultry and duckary.
- In fisheries, method of application of lime, manure and fish feed were the important aspects of skill development.
- Preparation of value added products like Jam, Jelly and Pickle from different fruits and vegetables.
- Cutting and stitching of ladies garments and preparing of quilted cushion covers.
- Fodder (maize, sorghum) and azolla production for mulching animals for milk and fat content enhancement.

### **Entrepreneurship Development**

- Seed production of groundnut, lentil and paddy by more than 150 farmers of Dudhpushkarini, Mirza, Garjee, Hrishyamukh, South Takma and Matai villages.
  - Establishment of Amrapali Mango nursery by 45 farmers of Bokafa and Kakraban Blocks.
  - Mushroom farming by farm women of 15 SHGs of Belonia, Chittamara, Dudhpushkurini, Garjee, Bagma, Chandrapur and Sataria villages.
  - Production of vermicompost by more than 40 farmers of Kakraban, Matabari, Satchnad, Rupaichari and Hrishyamukh Blocks.
  - Production Rohu, Catla and Mrigal fishes by fish farmers in Belonia, Kakraban and Bokfa Block.
  - Production of cross bred piglets through farmer of 16 piggery units established in Killa, Kakraban, Rupaichari and Bokafa blocks of the district.
  - Establishment of Mini-Dairy by 125 farmers of Matabari and Kakraban Blocks.
  - Production of value added products like Jam, Jelly and Pickle from different fruits and vegetables and cutting and stitching units of ladies garments and preparing of quilted cushion covers by farm women of Chandrapur, Fulkumari, Garjee and Lakhicherra villages.
-