NICRA Annual Report 2019-20

I. Module I : NRM

Table. Performances of demonstration of in-situ moisture conservation technologies

Technology demonstrated	No. of farmers	Area (ha)	Yield (q/ha)	Economics of demonstration (Rs/ha)		
				Gross Cost	Net Return	BCR
Green manuaring (dhaincha) in rice	10	4	13 t green matter /ha	-	-	-
Brown manuaring in rice						
Summer Ploughing in rice	10	4	-	19800	-	-
Azolla in Paddy	-	-	-	-	-	-
Zero Tillage in wheat / Maize/ Others crops	-	-	-	-	-	-
Repair of bund	-	-	-	-	-	-
Horticultural production through land embankment development (River bed community plantation)	72	1	-	-	-	-
Organic mulching in vegetables	-	-	-	-	-	-
Mulching (Brinjal)	10	1	333	107200	102800	1.95
Any intervention not covered in above						
Vermicomposting	10	-	3.0 q/unit	-	-	-
Vermiwash production	10	-	08litre/ unit	-	-	-
Vermiculture production	10	-	4 kg/unit	-	-	-
Radish cultivation in Ridge and furrow method	10	0.4	230	62600	62400	1.99
Cow pea cultivation in Ridge and furrow method	10	0.4	83	56700	43301	1.76
Total						

Mention the variety and Enclosed2/3 photos

Table.Performances of water harvesting and recycling for supplemental irrigation

Technology demonstrated	No. of farmers	Area (ha)/Unit	Output (q/ha)	Economics of demonstration (Rs/ha)		
				Gross Cost	Net Return	BCR
Renovation of pond for fish production and irrigation						
Renovation of canal						
5% Model						
Bora bandh						
Renovation of Well for irrigation						
Bund making leveling in paddy field						
New water harvesting structure			-	-	-	-
Raising of land embankment						
Ground water recharge						
Desiltation of defunct water harvesting structures						

Technology demonstrated	No. of farmers	Area (ha)/Unit	Output (q/ha)	Economics of demonstration (Rs/ha)		
				Gross Cost	Net Return	BCR
Renovation of irrigation channel						
Newly Check dam						
Renovation of common pond						
Construction of new community pond	12	0.1	-	-	-	-
Total						

Enclosed 2/3 photos

Table. Performance of artificial ground water recharge technologies demonstrated

Technology demonstrated	No. of farmers	Area (ha)	Output (q/ha)	Economics of demonstration (Rs./ha)		
				Gross Cost	Net Return	BCR
Field bunding for rice	12	4.8	-	-	-	-
Water management through bunding of rice	12	4.8	-	-	-	-
Ground water recharge through SRI by sub-soiler						
Any intervention not covered in above						
Total						

Enclosed 2/3 Photos

Table. Performance of different water saving irrigation methods

Technology demonstrated	No. of farmers	Area (ha)	Output (q/ha)	Economics of demonstration (Rs./ha)		
				Gross Cost	Net Return	BCR
Irrigation system (micro Irrigation system)						
Application of biofertilizer in rice/crops						
Vermi-compost from biodegradable wastes	10	10 unit	3q/pit	1800	2700	2.5
Production of crops on farm bund						
RBF in crops						
LEWA in crops						
Sprinkler irrigation in crops						
Radish cultivation in Ridge and furrow method	10	0.4	230	62600	62400	1.99
Cow pea cultivation in Ridge and furrow method	10	0.4	83	56700	43301	1.76
Total						

Mention the variety and Enclosed 2/3 photos

Table. Performance of other demonstrations

Technology demonstrated	No. of farmers	Area (ha)	Output (q/ha)	Economics of demonstration (Rs./ha)		
				Gross Cost	Net Return	BCR
Low cost poly tunnel for vegetable seedling	05	0.1	92 % of			

rasing			survival rate of seedlings			
Demo 2						
Demo 3						
Others if any						
Total						

Enclosed 2/3 photos

Table: Rainwater harvesting structures developed

RWH structures	No.	Storage capacity (cu.m)	No. of farmers	Protective irrigation potential (ha)	Increase in cropping intensity (%)
Desilting Pond					
New Pond created	01	480	12	4	-
Pond Renovation					
Canal					
Checkdam					
5% model					
Pyne					
Well					
Inlet Channel					
Desiliting drainage channel					
Bora bandh (Temporary check dam)					
Repaired well					
Jalkund					
Small ditches for jute retting					
Landshaping and rain water harvesting structure					
Total					

Enclosed 2/3 photos

Module II: Crop Production

Table. Performance of different drought tolerant varieties

Technology demonstrated Crops with varieties	No. of farmers	Area (ha)	Yield(q/ha)		% increase	Economics of demonstration (Rs./ha)		
			Demo	Local		Gross Cost	Net Return	BCR
Cultivation of flood tolerant rice variety Swarna Sub-1	25	10	42/ha	36/ha	17	47500	26000	1.54
Demonstration of Rice BlackgramPaira cropping	50	30	62/ha (REY)	-	-	65000	43500	1.67
Cultivation of cauliflower using vermicompost	10	1	290	210	38.1	62500	100100	2.88

Technology demonstrated Crops with varieties	No. of farmers	Area (ha)	Yield(q/ha)		% increase	Economics of demonstration (Rs./ha)		
			Demo	Local		Gross Cost	Net Return	BCR
Maize + Cowpea	5	0.4	82 (MEY)	-	-	78000	45000	1.58
Crop diversification								
-Cultivation of Sweet corn F1 variety Green cob	10	1	110	-	-	58200	91800	2.6
Cultivation of Rabi groundnut variety Dharni	15	5	23.5	21.4	21	59000	58500	1.99
Cultivation of Capsicum variety NS292	10	1	210	No practice	-	1,80,000	2,40,000	2.33
Cultivation of Broccoli variety NS50	10	1	148	No practice	-	94300	127700	2.35
Cultivation of Bitter gourd variety Kathali	10	1	189	158	19.62	99200	100800	2.01
Cultivation of Cabbage variety Asmitha	10	1	330	295	11.86	62500	137500	3.2
Cultivation of Cauliflower variety NS555	10	1	310	220	40.91	62500	100100	2.88
Varietal replacement								
Cultivation of Tomato variety ArkaRakhsayak	10	1	310	250	24.00	102830	83170	1.81
Cultivation of Papaya variety Red Lady, PusaNanha	10	1	Vegetative stage	-	-	-	-	-
Cultivation of Bottle gourd variety NarendraSibani	10	1	245	245	19.62	52360	70140	2.33
Cultivation of Marigold variety Bisi Orange	10	1	145	110	31.82	-	-	-
Crops in post flood situation								
Post flood potato cultivation	10	1	295	210	40.48	92350	84650	1.91
Cultivation of blackgram variety Blackgram PU-31 in post flood situation	20	20	5.5	4.8	14.5	21500	14250	1.66

Technology demonstrated Crops with varieties	No. of farmers	Area (ha)	Yield(q/ha)		% increase	Economics of demonstration (Rs./ha)		
			Demo	Local		Gross Cost	Net Return	BCR
Cultivation of Cultivation of Horsegram variety Urmi in post flood situation	10	10	6.8	5.9	15.25	19500	11100	1.56

Mention the variety and Enclosed 2/3 photos

Table. Performance of different salt tolerant paddy varieties

Technology demonstrated (Crops with varieties)	No. of farmers	Area (ha)	Yield (q/ha)		% increase	Economics of demonstration (Rs./ha)		
			Demo	Local		Gross Cost	Net Return	BCR
Crop I	-	-	-	-	-	-	-	-
Crop 2								
Crop 3								
More if any								
Total								

Enclosed 2/3 photos

Table. Performance of different flood tolerant varieties

Technology demonstrated (Crops with varieties)	No. of farmers	Area (ha)	Yield (q/ha)		% increase	Economics of demonstration (Rs./ha)		
			Demo	Local		Gross Cost	Net Return	BCR
Rice	25	10	42	36	17	47500	26000	1.54
Crop 2								
Crop 3								
More if any								
Total								

Mention the variety and Enclosed 2/3 photos

Table. Performance of advancement of planting dates in different crops

Technology demonstrated	No. of farmers	Area (ha)	Yield (q/ha)		% increase	Economics of demonstration (Rs./ha)		
			Demo	Local		Gross Cost	Net Return	BCR

Crop I								
Crop 2								
Crop 3								
More if any								
Total								

Mention the variety and Enclosed 2/3 photos

Table.Performances of water saving technologies

Technology demonstrated	No. of farmers	Area (ha)	Yield (q/ha)		% increase	Economics of demonstration (Rs./ha)		
			Demo	Local		Gross Cost	Net Return	BCR
Water saving technology through SRI								
Aerobic Rice								
Direct seeded brown manured rice								
DSR								
Sowing of rice/ wheat / Maize with ZTD machine								
Others if any								
Total								

Mention the variety and Enclosed 2/3 photos

Performance of Community nurseries

Technology demonstrated	No. of farmers	Area (ha)	Yield (q/ha)		% increase	Economics of demonstration (Rs./ha)		
			Demo	Local		Gross Cost	Net Return	BCR
Rice	25	0.2	-	-	-	15000	17500	2.17
Crop 2	35	0.1	-	-	-	12500	18500	2.48
Crop 3								
More if any								
Total								

Mention the variety and Enclosed 2/3 photos

Table.Performance of different location specific intercropping systems

Technology	No. of	Area	Yield	%	Economics of

demonstrated	farmers	(ha)	(q/ha)		increase	demonstration (Rs./ha)		
			Demo	Local		Gross Cost	Net Return	BCR
Maize+ Cowpea	5	0.4	82 (MEY)	-	-	78000	45000	1.58
Crop 3 + Crop 4								
More if any								
Total								

Mention the variety and Enclosed 2/3 photos

Table. Performance of different crop diversification in NICRA villages

Technology demonstrated	No. of farmers	Area (ha)	Yield (q/ha)		% increase	Economics of demonstration (Rs./ha)		
			Demo	Local		Gross Cost	Net Return	BCR
Blackgram PU 31	20	20	5.5	4.8	14.5	21500	14250	1.66
Crop 2	10	10	6.8	5.9	15.25	19500	11,100	1.56
Crop 3	15	5	23.5	21.4	21	59000	58500	1.99
More if any								
Total								

Mention the variety and Enclosed 2/3 photos

Table. Performance of other demonstration under crop production module

Technology demonstrated	No. of farmers	Area (ha)	Yield(q/ha)		% increase	Economics of demonstration (Rs./ha)		
			Demo	Local		Gross Cost	Net Return	BCR
Demo 1								
Demo 2								
Total								

Mention the variety and Enclosed 2/3 photos

Module III : Livestocks and Fisheries

Table. Performance of different fodder demonstration in community lands

Technology demonstrated	No. of farmers	Unit/ Area (ha)	Output (q/ha)		% increase	Economics of demonstration (Rs/ha)		
			Demo	Local		Gross Cost	Net Return	BCR
Fodder 1								
Fodder 2								

Total			

Mention the variety and Enclosed 2/3 photos

Table. Performance of improved fodder

Technology demonstrated	**No. of farmers**	**Unit/ Area (ha)**	**Yield (q/ha)**		**% increase**	**Economics of demonstration (Rs./ha)**		
			Demo	**Local**		**Gross Cost**	**Net Return**	**BCR**
Hybrid napier co4	5	0.4	200	-	-	70000	30000	1.42
Fodder 2								
Total								

Mention the variety and Enclosed 2/3 photos

Table. Performance of various vaccination camps organized

Technology demonstrated	**No. of farmers**	**Unit/ No./ Area (ha)**	**Measurable indicators of output*** (q/ha)		**% increase**	**Economics of demonstration (Rs./ha)**		
			Demo	**Local**		**Gross Cost**	**Net Return**	**BCR**
Vaccination camp against FMD Cattle & PPR against goat	40	1	-	-	-	-	-	-
Vaccination for PPR in goat and Ranikhet in Poultry.	30	1	-	-	-	-	-	-
Deworming								
Mineral mixture								
Proper De-worming								
Vaccination camp against other diseases								
Total								

Enclosed 2/3 photo

Table. Performance of composite and cat fish in the renovated ponds

Technology demonstrated	**No. of farmers**	**Unit/ No. / Area (ha)**	**Measurable indicators of output*** (q/ha)		**% increase**	**Economics of demonstration (Rs./ha)**		
			Demo	**Local**		**Gross Cost**	**Net Return**	**BCR**
Cat Fish 1								
Cat Fish 2								
More if any								
Total								

Enclosed 2/3 photo

Table. Performance of livestock demonstration in NICRA adopted villages

Technology demonstrated	No. of farmers	Unit / No. / Area (ha)	Measurable indicators of output* (q/ha)		% increase	Economics of demonstration (Rs./ha)		
			Demo	Local		Gross Cost	Net Return	BCR
kadaknath	15	300	1.5 kg	1.2 kg	25	175	275	2.57
Colourbird poultry	20	400	2.3 kg	2.0 kg	15	180	280	2.55
If any more								
Total								

Enclosed 2/3 photo

Table.Performance of improved shelters for poultry and dairy animals

Technology demonstrated	No. of farmers	Unit/ No. / Area (ha)	Measurable indicators of output (q/ha)		% increase	Economics of demonstration (Rs./ha)			
			Demo	Local		Gross Cost	Gross Return	Net Return	BCR
Mosquito net in cattle shed	10	38	-	-	-	-	-	-	-
Shelter 2									
Others if any									
Total									

Enclosed 2/3 photo

Module III: Institutional Intervention

Table. Details of the various institutional interventions

Interventions	No.of KVKs	Details of activity			No. of farmers	Unit/ No. /Area (ha)
		Name of crops / Commodity groups / Implements	Quantity(q) / Number / Rent / Charges	Technology used in seed / fodder bank & function of groups		
Seed bank	1	Swarna Sub 1 Rice	10 q	-	25	01
Fodder bank	1	Hybrid Napier	200 q	-	30	01
Commodity groups						
Custom hiring centre	1	Power sprayer,powertiller,Thresher, motor Pump			72	01
Collective marketing						
Climate literacy through a village level weather station						

More if any						
Total						

Enclosed 2/3 photo

Village Climate Risk Management Committee (VCRMC)

A short note of activities with photographs

Custom Hiring Centres:

Detail activities of CHC with fund generation during the year with Photographs of Farm implements and Machinery at NICRA Adopted villages

Table. Revenue generated through Custom hiring Centres and VCRMC in KVKs

Name of KVK	Revenue generated (Rs.)	
	From Custom Hiring Centres (2019-20)	Total under VCRMC
Cooch Behar		
Malda		
South 24 Parganas		
Port Blair		
Ganjam 1		
Kalahandi		
Kendrapara	12500	-
Sonepur		
Jharsuguda		
Total		

Capacity Building

Thematic area	Topic of the training	No. of Courses	No. of beneficiaries		
			Male	Female	Total
Natural Resource Management	Onfarm water conservation in rice	01	18	7	25
Crop Management	Scientific cultivation of swarna sub 1	01	17	8	25

Nutrient Management	INM in Groundnut	01	16	9	25
Integrated Crop Management					
Crop Diversification	Management of maie based intercropping system	01	11	14	25
Resource conservation Technology					
Pest and disease management					
	Integrated pest management in rice	01	14	11	25
Nursery raising	Nursery raising under low cost polytunnel	01	12	13	25
Employment Generation	Mushroom cultivation	01	-	25	25
Nutrition garden	Management of nutrition garden	01	-	25	25
Repair & Maintenance of farm machinery & Implements					
Integrated Farming System					
Livestock and Fishery Management					
	Rearing of feed management of backyard poultry	01	-	25	25

Fodder and feed management					
Lac cultivation					
Farm implements and machineries					
Value addition					
Employment generation					
Others if any					

Enclosed 2/3 Photographs

Extension Activities

Name of the activity	Number of Programmes	No. of beneficiaries		
		Male	Female	Total
Agro advisory Services	12	-	-	250
Awareness	2	142	43	185
Diagnostic visit	82	313	132	445
Exposure visits	-	-	-	-
Field Day	4	128	72	200
Group Discussion	6	86	32	118
Method demonstrations	12	80	43	123
KMAS Services	4	-	-	157
Farmers day	-	-	-	-
SHG	2	-	28	28
Campaign Soil Health	1	38	12	50
Popular extension literature	4	-	-	250
Animal Health Camp	1	42	32	74
World earth day	-	-	-	-
KrishakChaupal	-	-	-	-
KishanGosthi	1	17	5	22

Woman health and nutrition	1	-	25	25
Technology week	-	-	-	-
NICRA Workshop at ATARI, Kolkata	1	-	-	-
Scientist visit to field	8	23	12	35
Others if any				
Total				

KVK	Development Scheme /Programme	Nature of work	Amount (Rs.)

Enclosed 2/3 photographs

Table- SHC card distribution at NICRA adopted villages

KVK	Year	No of soil samples collected	No. of samples analysed	SHC issued	No of Farmers involved
Kendrapara	2019-20	36	36	36	120

Enclosed 2/3 Photographs

Table: Convergence of Ongoing Development Programmes/Schemes in NICRA implementing KVKs

Enclosed 2/3 Photographs

Dignitariesvisited NICRA Villages during 2018-19

Name of KVK	Name of VIPs/Experts	Date of visit

Enclosed 2/3 Photographs

- **Success stories of NICRA Village Farmers with photographs**

Cultivation of Swarna Sub.-1

Swarna Sub -1 acts as a boon for the flood affected area where the total crop is damaged due to continuous water stagnation. The adopted village under NICRA Programme of KVK, Kendrapara is Ratanpur, G.P.: Mangarajpur, Block: Marshaghai, Dist. Kendrapara which is most vulnerable to flood condition during kharif season (Aug., Sept. & Oct.) as the village is located beside the river Paika (a subsidiary of the giant Mahanadi River). The main crop of the locality is rice which is mostly damaged by usual flood. Flood is the regular phenomenon of this area, so entire crop get damaged, leading to total or major yield loss. As the rice crop damaged in the main crop season, farmer have no option to grow rice again, under rainfed situation. Keeping these problems in view, KVK, Kendrapara has started a trial on cultivation of Swarna Sub-1 rice variety. This variety has the ability to tolerate water submergence. Swarna Sub 1 is developed by introducing Sub-1 gene into the rulling variety Swarna which imparted flood tolerance potential to the crop. The duration of this variety is 142-145 days. It can tolerate upto 15-17 days of complete submergence. Under this flooded condition average yield is upto 3.5 t/ha. The package of growing swarna sub-1 is similar to any normal rice variety, except we have to apply 20 kg N/ha, just 7-10 days of receding of water for better yield. All the farmers had grown the community nursery of this variety and transplanted the rice variety before flood.

Before introduction of swarna sub-1 variety there was average 50-70 % yield loss due to the flood in particular area of the experimentation. Some year has witnessed complete damage of the crop due to prolonged water stagnation because of the flood. Introduction of the swarna sub-1 has become boon for the farmers of the flood affected area as it has tolerated 12-15 days of water submergence during the flash flood of the river Paika. The yield obtained from this variety was in range of 3.2 -3.8 t/ha where as there is complete loss of yield in other variety. Whatever the resources and energy utilized was going in vein due to the complete failure of the crop due to occurrence of flood and where as this technology given output, after adopting. Farmers are getting return of at least a sum of Rs.30,000 /ha income by adopting swarna sub-1. The variety is gaining popular day by day in the flood affected area and is likely to expand in all over the district in coming 2-3 years.

Rice fallow to Rice- Blackgram system

Rice is the major crop of the district Kendrapara. Most of the farmers able to grow only single rice crop due to lack of enough moisture in the soil under rainfed situation. NICRA Project adopted village Ratanpur, G.P.: Mangarajpur, Block: Marshaghai, Dist. Kendrapara which is mainly a rainfed situation and only long duration low yielding rice is grown. In the next season the land is remaining vacant due to lack of enough moisture. Looking into the above problem KVK, Kendrapara introduced rice fallow to rice- blackgram cropping system in this flood prone area. In the medium land situation , the long to medium duration rice e.g. Swarna, Pooja is being replaced by the short duration rice DRR -44, Swarna shreya . As a result the rice crop is harvested 20-25 days earlier than the stipulated time period of harvest. In the field rice – blackgram paira cropping is practiced. Before 10 days harvest of the rice crop , blackgram seeds of the variety PU-31 is being broadcasted. As a result we are getting almost 30 days extra with enough soil moisture status due to change in variety and sowing window of blackgram.Rice-Blackgram cropping is a profitable system from economic as well as soil health management point of view. In addition to this it improves soil fertility by following crop rotation principle. This cropping system efficiently utilizes the residual moisture.

Steps in implementing this technology:

- ✓ The existing rice var. Swarna (145 days) which is replaced by an early variety DRR-44 (125 days). As a result soil moisture can be saved for the second crop that is Blackgram.
- ✓ The blackgram is broadcasted in rice crop 10 days before harvest of the rice.
- ✓ Total recommended fertilizer of blackgram (20-40-40) is applied to rice after panicle emergence as DAP & MOP.
- ✓ Two foliar spray of NPK (19-19-19) @ 1.5% at preflowering and pod development stage of blackgram for nutrient and moisture supplementation.

Impact of the technology:

Before the implementation of this cropping system under post flood situation farmers were growing only rice as *kharif* crop followed by fallow land due to lack of the soil moisture for rabi crop. By adopting this technology the following impacts were recorded:

i. Additional revenue generation by taking blackgram as second crop under post flood situation.
ii. The residual moisture in the rice fallow is utilized by the blackgram resulting in higher resource use efficiency.
iii. The existing cropping intensity is doubled due to introduction of double crop instead of sole cropping of rice and fallow.

iv. As a legume crop is introduced into the system it restores soil fertility through biological nitrogen fixation.

v. An extra net income of Rs.10,200/- out of 3.5 q/ha yield of black gram PU-31

The rice-blackgram paira cropping system is now gaining popular and farmers are adopting this technology as they getting more benefits from this cropping system than the existing one.

Potato a remunerative crop under post flood situation

In the September-2018, severe flood occurred in NICRA adopted village- Dusmankul (Ratanpur), Marshaghai Block ,Kendrapara. Due to Heavy flood standing Rice crop got entirely damaged. After receding of flood water, land was laying fallow. Although under this post flood situation the land was fertile due to deposition of alluvial soil . KVK Kendrapara under NICRA Project introduced potato cultivation. In this intervention, all the 71 household affected by flood were provided with QPM of Potato variety Kufri-Sundari. A Late variety of potato maturing in 4 months time. All the recommended cultural practices were followed, starting from tuber treatment with carboxin 37.5%+Thiram 37.5%wp @500gm/ha seed. Dipped for 20min in the solution drying under for 5 min ,before planting. As this variety moderately resistant early blight potato gave an yield of 304 quintal /ha. As procurement price of potato by the private retailers was very low during harvesting time .The growers stored, the properly graded and sorted potato at Nischintakoili cold storage, for meeting their future seed demand.

The rest potato for home consumption stored in thatched house, with false bamboo ceiling (Attughara) with windows remaining to avoid entry of direct sunlight. Those farmers having no Attughara, kept these harvested potato on floor by putting 3-4”inch thickness dry sand for soaking moisture by that increasing the shelf life of potato . Value addition of potato was done by preparation of potato chips.

- **Newspaper coverage**
- **Publication**

Expenditure Statement of NICRA-TDC Budget during 2018-19

KVK	FINAL RE				Expenditure	Closing Balance 01.04.20
	Contingencies	TA	NRC	Total		
Coochbehar						
Malda						
South 24 Parganas						
Port Blair						
Ganjam 1						
Jharsuguda						
Kalahandi						
Kendrapara	9,50,000	40,000	41,000			0
Sonepur						