



Newsletter



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INTRODUCTION

Technology Demonstration Component (TDC) of NICRA offers a great opportunity to work with farmers to address current climate variability with matching responses. Getting existing technologies into the hands of small and marginal farmers and developing new technologies like drought or flood tolerant crops to meet the demands of a changing climate also come under the purview of NICRA programme. Climatic vulnerability of selected 15 KVK districts of Bihar, Jharkhand, West Bengal and union Territory of A & N Islands assessed during implementation of NICRA programme brought forward definite requirement in terms of technological support, human resource development and overall empowerment of farming community to enable them to cope up with climate vulnerabilities like droughts, erratic rainfall, heat wave, flood, cyclonic storm. Two

more districts from the zone have also been included from this year for implementing the activities in various interventions. Plan of action, accordingly, was prepared for its implementation through executing technological interventions to initiate crop production, resource conservation, livestock and fish rearing, water harvesting etc. in the vulnerable villages of KVK districts. Interventions executed in NICRA adopted villages by the NICRA-KVKs has not only enabled the farmers to cope up with climatic vulnerability as well as empowered them in sustaining their livelihood. Short duration crop, salt, flood, drought, disease-pest tolerance crops and crop diversification are introduced in the adopted villages. Formation of VCRMC and setting up of custom hiring centres under NICRA in all the adopted villages added to the grass-root level monitoring of the project followed by initiating farm mechanization as per suitability of small and marginal holdings.

KVK PORT BLAIR

Introduction of Tank cum well and pond system of irrigation

Tank cum well and pond system of irrigation was introduced and promoted in the fields of Port Mount and Badmas Pahar. These systems were used as a water source

for harvesting the rainwater for efficient utilization during the post monsoon deficit period to meet the crop water requirement for development of one pond based IFS model. One tank of size 30m X 22m X 2.5m was constructed during March, 2013 to harvest 1194 cum of





rainwater in the field of Port Mount village which is a drought hit village. This pond is used as a water source for harvesting the rainwater for efficient utilization



during the post monsoon deficit period to meet the crop water requirement for development of one pond based IFS model. The harvested seepage water from

the tank is stored in the well and pumped out and irrigated the vegetable crops like maize, cowpea, okra and french beans during the dry spells. IMC fingerlings were supplied under the project. A gross return of Rs 1,40,000/ha was observed against gross cost of cultivation



of Rs 59,500/ha with a net profit of Rs 80,500/ha and B:C of 2.35. The other tank cum well system of irrigation promoted was in the field of Badmaspahar village. The farmer has two nos. of tanks that are constructed 15 years back and one well of 2 dia and 5m depth. Due to silting the volume of water availability in the ponds is less. Hence under



the project, desilting activities was undertaken in the month March, 2015 which enhances the volumetric capacity of the ponds by 20%. In convergence with the NAIP project of CIARI, Port Blair two nos. of BBFs were constructed. To facilitate the dry season crop cultivation, seeds of brinjal, tomato, okra and fingerlings of IMC are supplied under the project. The irrigation system constitutes 2 nos. of ponds, one well and water availability in the trenches of the BBFs. Irrigation is allowed from the ponds till the end of April or when one pond is dried up and the ground water from the well is used from the month of May onward.

KVK AURANGABAD

Life saving irrigation for pulse crops

Major climatic constraints in crop production are scarcity of water, draught and diseases. Due to low availability of water during Rabi crops the productivity is very low. (Lentil-2.5 q/ha, wheat-20.0 q/ha, chickpea-6.5 q/ha & Mustard-2.0 q/ha). In this village 9 ponds had been digging and 51 sprinkler sets distributed among the farmers. Total rain water storage capacity



in 9 ponds are about 12699 m³ from those pond total 6.5 ha area irrigated through flood irrigation where as 9.3 ha area irrigated by sprinkler. Due to sprinkler irrigation irrigated

area increased 69% due to increase in water use efficiency. The productivity of pulse crops is very low. The farmers aware about the sprinkler system through training and



demonstration and they gradually adopt this technique and they found better yield in lentil 11.2q/ha, chickpea-9.0 q/ha and wheat-40.0 q/ha. After the adoption of sprinkler irrigation system, they got a tremendous change in crop production.



KVK BUXAR

Introducing pearl millets in moisture stress condition

KVK Buxar has introduced two pearl millet vars. *HHB 67* and *VBH 380* in 6 ha (beneficiaries 15 farmers) and 24 ha (Beneficiaries 100 farmers) area respectively. *HHB 67* is an extra early maturing hybrid which matures in 60-65 days. Plants are medium tall with profuse tillering and have thin stem with thin leaves. Ear heads are dense with medium bold grains. This variety is very well suited for inter and multiple

cropping system and highly resistant to downy mildew and lodging. Its yield was 29.75 quintals/ha against local var. yields 26.60 quintals with BC ratio 1.91. Secondly, *VBH 380* yields 32.75 q/ha with BC ratio 2.11 against local checks. The percent increase in yield was



11.84 and 23.12 in *HHB 67* and *VBH 380* respectively.

KVK JEHANABAD

Low cost poultry shelter

A low cost bamboo based poultry shelter for poultry birds designed in NICRA village which is portable and its dimension is 6'x3'x2.5' suitable



for 20 birds. The environmental temperature is minimized by covering with jute bags. It has been a successful intervention



which can withstand with high heat and adverse climatic situation and decrease the mortality rate upto 20-30%. It is most suitable for low socio-economic farmer and its cost approx- Rs. 1200/unit. On their own expense five farmers of this village made this shelter. One pair of Sirohi goat and buck was introduced for breed up

gradation in NICRA village. Now there are 20 kids of cross breed (*Sirohi x Black Bengal*) having average weight 2.5 kg each. Besides these, a low cost pashu chocolate machine is fabricated and demonstrated for supply of balanced nutrient diet to cattle that improves health, fertility and milk production.



KVK NAWADA

Improving the Resilience of Poor Farmers by Reclaiming Cultivable Wastelands

The cluster of villages Vidyasagar & Gadimajhila, Nawada is predominantly

inhabited by Rajvanshi and Ravidas communities. The undulated lands are located in

the fringe areas of forests and not cultivated despite being fertile. These were completely

unprotected from grazing animals and rainwater harvesting and storage structures (*ahars*) could not convey water due to their higher elevation. The cultivable fallow was brought



back into crop production by motivating the community to participate in reclaiming the



lands by bunding and leveling. About 15 ha was planted with pigeon pea during *kharif* leading

to a harvest of 10,000 kg of pigeon pea worth Rs.3,50,000/-. For the first time, the farmers of these villages could realize such a harvest and this helped them to appreciate the worth of their land.



KVK SARAN

Guava based multiple cropping

In order to enhance productivity and profitability of the farm land, under NICRA village innovated a Guava based Multiple Cropping System taking 4 crops per year apart from main crop of guava. Firstly, established a guava garden, keeping planting geometry in such a manner that there was easy movement of tractor



operated farm implements and no shading effect of guava canopy on the agricultural crops. Regular training and pruning of guava garden was done to keep the canopy well maintained. Four rows of *kharif* maize were planted in between the two rows of guava. All the farm operations were done as usual based on maize recommendations. After the harvest of maize, *Toria* was

taken that could be harvested by 15th of January. Now summer vegetables like bottle gourd + Lady's finger was taken. Banana was planted all around the guava garden to give a protective wall and to act as wind break from hot and high speed westerly wind, apart from giving additional yield. During summer months, natural mulch of paddy straw was applied in the bottle gourd+



Lady's finger and worms were released in the field for in situ vermin-composting, moisture

retention and nutrient supply for longer periods. For keeping the moisture level maintained, used

to spray the crop by Sprinkler Irrigation and gross income from this farm is approx Rs. 50000.00.

KVK SUPAUL

Mulching in Okra crop

Plastic mulch in Okra crop has been demonstrated in half acre of land in Rabi 2014. The Kashi Pragati variety of Okra was used in demonstration. The crop was sown in the 2nd week of February 2015. The total yield obtained till 15.06.2015 is 21 quintals and sold with varying

rate of Rs. 40/Kg, Rs. 30/Kg, 20/Kg and Rs. 10/Kg. The total earning from okra is 48500/-.



KVK CHATRA

Bio agent applications against Fusarium wilt

In order to demonstrate the benefit of vegetable cultivation in terms of nutritional security and income generation Chatra Krishi Vigyan Kendra organized front line demonstration on improved



variety and related management practices of cultivation of Tomato, Brinjal and Cauliflower. The demonstration on Tomato

and Brinjal were conducted to show the effect of wilt resistant varieties i.e. *Arka Alok*, and *Arka Abha* for Tomato and *Swarnshree* and *Swarnamani* for Brinjal and that of on cauliflower (Snowball) were to show the benefit of application of Borex (10kg/ha). All together the demonstration was conducted in the field of 30 farmers (10 for each crop). Apart from this seed treatment and seedling drenching were also done through *Trichoderma*, *Pseudomonas* (Plant Bio agent-3) for effective control of wilt (*Fusarium wilt* in brinjal and tomato). Result of the front line demonstrations envisaged that all the demonstrated variety and techniques were promising, performed extremely well when compared with local variety

grown earlier. The recorded average yield was found to be 220q/ha in tomato and 245 q/ha for brinjal and 289 q/ha in



cauliflower which on an average 48% higher than that of the earlier variety grown under farmer practices. On an average net income of Rs. 1,32,000 in Tomato, 1,47,000 in Brinjal and 2,00,300 in cauliflower, respectively were received by the farmers.

KVK EAST SINGHBHUM

Khaki Campbell duck rearing for tribal community

On the basis of Khaki Campbell duck performance studied under

front line demonstration in East Singhbhum district it was decided to promote duck

rearing in the backyard as an additional source of income and better resources management in NICRA villages. Six farm families

of NICRA villages were selected and trained in duck rearing during 2014-15. They were given 54 ducks of about 2.5 months. As Khaki Campbel ducks can sustain and perform well under harsh (temperature >40°C) and adverse environment (drought condition) with a small water

body (ditches) prevailing in free range backyard farming. The net income through duck rearing

(sell of egg, ducks) was Rs. 7500/ in 1.5 years.



KVK GUMLA

Integrated farming system model for livelihood security of tribal people

Considering the physical, social and economical limitation of the district, a small integrated farming system model was developed in the field of Belagarha village of Ghaghra



block during 2010-11 to 2013-14. The model comprises in two ha area in the vicinity of tribal settlement and integrated with six components. The critical

input assistance was provided under NICRA. Technological intervention was made through 03 piglets (Cross breed T & D),



Fifty thousand Fingerlings for fish production, high yielding paddy variety (*Lalat*), Maize (*Suwan-1*), Plantation of Sixty Mango fruit plant, Vegetable seed crop Pumpkin, One Vermicompost unit for waste recycle and renovation of well. The capacity Building programme and technological backstopping was provided to the villagers in

whom the beneficiary farmers also participated.

Successfully harvested higher paddy yield 38.5 Q/ha after intervention as compared to 26.0 q/ha paddy yield before the intervention. Maize cultivar *Suwan-1* provided 40 q/ha as compared to local cultivar yield 27 q/ha. The vegetable yield increased considerably after intervention which gave 0.18 lakh net return from pumpkin cultivation. In second year the no. of piglet increased to 15 including with 3 pigs.



KVK KODERMA

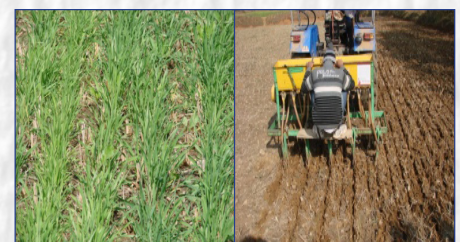
Zero tillage for boom of wheat cultivation

Wheat cv. K 307 in that 0.5 ha land with zero tillage machine under supervision of KVK. At the time of sowing about 30 farmers from that village and neighboring villages were present. The vast majority of farmers present at site was advocating for conventional tillage (CT) in which farmers in general plough

the field at least 3-4 times before sowing of wheat and then broadcast the seed @ 150-180 kg/ha followed by planking.

After 2nd irrigation few farmers changed their idea about the technology after seeing the more number of tillering which was more than the conventional method in same variety and profuse growth with less weed population. At the time of crop cutting all the 28 farmers who

were present at the site were observed that by adoption of this technology, the yield of wheat increased with the tune of 21.4% over conventional method (28 q/ha).



KVK PALAMU

Lac cultivation for tribal community

The Palamu district was famous for lac cultivation as secondary agriculture. It was important source of livelihood for poor farmer's but its cultivation reducing gradually due to lac of proper technical knowledge. The KVK



Palamu except this as challenge and take initiative to revive its cultivation on large scale. At present 200 farmers of Dulsulma and Murma village in Satbarwa

block restarted its cultivation on ber and Palash 1080 & 10000 respectively. 10 kg lac harvested per tree and Rs. 400 income per kg lac.



KVK COOCHBEHAR

Solid Waste Management through Composting

Cooch Behar Krishi Vigyan Kendra initiated demonstration programme for proper utilization of cowdung, rural farm waste, kitchen wastes, other locally available organic waste materials and organic residues through preparation



of compost by NADEP method to cut down the shortage of availability of organic manures. Training programme was also organized on low cost preparation of compost by

heap method. Awareness was also developed to improve the quality of cowdung manure with minimum interference.

Laboratory analysis of samples collected was done and found the composition of NADEP compost are: pH-6.9, OC-23.06%, Tot. N-1.06%, Tot. P₂O₅-1.12%, Tot. K₂O-0.82% as compare to the farmers made compost having pH-5.9, OC-22.93%, Tot. N-0.42%, Tot. P₂O₅-0.18%, Tot. K₂O-0.23%. The use of arganic maure through the intervention has been increased from 1600 to 1675 tonnes. It is clearly indicated that quality of organic manures produced through NADEP or heap method was much better than that used by farmers of the village. It is also to noteworthy that use of organic manure has increased in the tune of 75 ton when compared with status of organic manure use

before inception of the project at the village. Now farmers are showing keen interest to



produce organic manure from different organic wastes and residues other than cowdung also. Furthermore, much more precaution is now being taken by farmers while producing cowdung manure from cowdung. Patlakhawa Gram Panchayet is promoting organic manure production through composting under MGNREGA with technical support from Coochbehar Krishi Vigyan Kendra.

KVK MALDA

Crocodile bund for saving crops against flood

Crocodile bund: The adopted villages under NICRA Project

are situated in flood prone area and nearest to the river Ganges. Recurring incidence of flood and incoming of huge water in

the villages not only damage the standing crops but also house and livestock. This type of cultivable land to prevent

the incoming of huge rush of flood water during rainy season. Recurring incidence of flood, the permanent structures for vermi-compost production is not suitable, so production of vermin-compost in vermin bag was started.



KVK SOUTH 24 PARGANAS

Mass production of microbial pesticides

Rural youths were trained and demonstrated on on-farm mass production of microbial pesticides (*Trichoderma viride*). Two youths were assisted with necessary inputs for production. They found it



very interesting and are now actively engaged in production of *Trichoderma* at their home. Ashim Mondal (21 yrs) is now

producing *Trichoderma* for seed treatment, seedling treatment and soil treatment. Seedling treatment with *Trichoderma* completely checked crown rot



in chilli this year compared to 30% crop loss in last year. Seeing this result, 10-15 neighbouring farmers have requested Ashim to supply them *Trichoderma* for their use. Now he does not want to go to the city, instead he would love to assist his father in farming.

Considering the paucity and timely un-availability of quality bio-control agents in the markets of remote areas in Sundarbans, this initiative will certainly bring smile to the farmers who are already aware of the malady of chemical farming. And hope this small effort help us to take a little step towards sustainability



of soil health and production of Green Food.



NICRA Zonal Monitoring Committee visits various KVK states.



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