Success story on Integrated Pest Management in Paddy to combat major insect pests.

Plant Protection Division, Krishi Vigyan Kendra (KVK), Dhalai, Salema-799278

Rubin Debbarma, Abhijit Debnath, A K Mohanty, A K Singha, R Bordoloi

Corresponding address: KVK Dhalai, Salema- 799278, Email – kvkdhalai@gmail.com

Challenges:

Dhalai is one of the most important and largest in terms of area among the eight districts of Tripura where rice is grown both in hills and valleys. Jhum or shifting cultivation is practiced in hill regions whereas settled farming is in plain areas. The major farming system is a rice-based farming system which is basically rainfed. Due to a lack of awareness majority of the farmers follows traditional cultivation method without any proper management and preventive measures against pest and pathogens. As a result, annually 20-30% yields loss due to pest infestation. The major causing problem in paddy includes stem borer (cause dead heart), brown plant hopper (cause hopper burn), Gundhi bug (cause chaffy grain) and leaf miner, etc. Further, to minimize the infestation of these pest farmers follows the indiscriminate use of systemic pesticide leads to resistance development in the pest population towards those chemicals and develop super pest. In addition to, indiscriminate and non-judicious chemical pesticide application in the field cause the destruction or killing of non-target pests especially beneficial insects such as pollinators (honey bees) and predators (praying mantis), etc. Therefore, it is necessary to develop eco-friendly, sustainable management practices such as integrated pest management (IPM) to tackle the pest problem. IPM practice in rice production initiatives includes regular pest monitoring, optimal use of pest control chemicals, complementary weed control strategies and alternate cultural and biological controls. The current project

under tribal sub plan was under taken with the following objectives.

a) Promotion of Integrated pest Management in Rice through farmers' participatory approach &
b) Refining the production technologies aimed at high input use efficiency

Initiative:

To overcome this problem in paddy cultivation Krishi Vigyan Kendra (KVK) Dhalai, Salema, took initiative to develop IPM module suitable for Dhalai agro climatic condition in collaboration with NCIPM, New Delhi. The strategies adopted under this module includes-

a) Community Nursery approach was adopted for easy control of pest attack.
b) Transfer of Technology with improved package & practices.
c) Balanced use of fertilizers and micro-nutrients as per local recommendations
d) Use of biological pest control measures
e) Creating mass awareness among the farmers through training, field day and demonstration.

Package of practice Followed:

a) Clip the seedling tips before transplanting to eliminate egg masses and collect and destroy the egg masses in main field
b) Install pheromone trap@20/ha
c) The scirpo-lure was changed at every 15 days interval after first installation which was done after 15 days of transplanting of rice.
d) Use light traps @ 1/ha to attract and kill the moths.
e) Need based application of chemical pesticide at ETL i.e 25 % dead heart or 2 egg mass/m2

Training cum awareness programme and input distribution:

Basic training on IPM like insect & theirdominance, types of pest, economic damage level, concept of pest management, and different component of IPM is very much necessary for capacity building of farmers of Dhalai district. Along with training programme mass awareness programme is also very much needed to spread the technology to the farmers doorstep. Under the project component total 4 nos. training programme conducted covering 40 nos. of from three different GP VC which namely kochucherra, jamthum and manikbandar, which were selected on the basis of Participatory Rural Appraisal (PRA) exercise.

Monitoring and surveillance:

Regular monitoring and surveillance is one of the important components of IPM module to understand the pest behavior, time of infestation and no. of pest population to initiate the management procedure. Therefore, we surveyed at regular seven days intervals in the farmer's fields to ensure proper management strategies were followed during the vegetative stage to the milking stage of the crop.

Monitoring of farmers field by KVK Scientists

Key results/interesting fact:

Name: Ajit Das

S/O: Anil Ch. Das

Village: Kochucherra

Qualification: 8th pass

Adopt technology: Last two years

Contact: 943618434

Before IPM

Package of practice	% pest infestation	Yield (qt/ha)	Gross Cost (Rs/ha)/	Gross Return (Rs/ha)	Net Return (Rs/ha)	BCR

Traditional	32.9	46.51	32056	65114	33058	2.03

After IPM

Package of practice	% pest infestation	Yield (t/ha)	Gross Cost (Rs/ha)/	Gross Return (Rs/ha)	Net Return (Rs/ha)	BCR
IPM module	15.6	57.14	30487	79996	49509	2.62

Name: Prasenjit Das

S/O: Prafulla Ch. Das

Village: Kochucherra

Qualification: 12th pass

Adopt technology: Last two years

Contact: 8119992815

Before IPM

Package of practice	% pest infestation	Yield (qt/ha)	Gross Cost (Rs/ha)/	Gross Return (Rs/ha)	Net Return (Rs/ha)	BCR
Traditional	29	47.15	31190	66010	34820	2.11

After IPM

Package of practice	% pest infestation	Yield (t/ha)	Gross Cost (Rs/ha)/	Gross Return (Rs/ha)	Net Return (Rs/ha)	BCR
IPM module	14.9	58.74	30122	82236	52114	2.73

Name: Rintu Das

S/O: Krishna Ch. Das

Village: Dabbari

Qualification: BA graduation

Adopt technology: Last two years

Contact: 9436318004

Before IPM

Package of practice	% pest infestation	Yield (qt/ha)	Gross Cost (Rs/ha)/	Gross Return (Rs/ha)	Net Return (Rs/ha)	BCR
Traditional	35.4	44.20	32895	61880	28985	1.88

After IPM

Package of practice	% pest infestation	Yield (t/ha)	Gross Cost (Rs/ha)/	Gross Return (Rs/ha)	Net Return (Rs/ha)	BCR
IPM module	20.73	51.29	30627	71806	41179	2.34

Name: Pradip Das

S/O: Pramod Lal Das

Village: Dabbari

Qualification: 12th pass

Adopt technology: Last two years

Contact: 8729943018

Before IPM

Package of practice	% pest infestation	Yield (qt/ha)	Gross Cost (Rs/ha)/	Gross Return (Rs/ha)	Net Return (Rs/ha)	BCR
Traditional	29.90	46.88	33863	65632	31769	1.93

After IPM

Package of practice	% pest infestation	Yield (t/ha)	Gross Cost (Rs/ha)/	Gross Return (Rs/ha)	Net Return (Rs/ha)	BCR
IPM module	12.08	59.22	31895	82908	51013	2.59

Name: Sunil Das

S/O: Lt. Mahadev Das

Village: Kochucherra

Qualification: 9th pass

Adopt technology: Last two years

Contact: 6033231607

Before IPM

Package of practice	% pest infestation	Yield (qt/ha)	Gross Cost (Rs/ha)/	Gross Return (Rs/ha)	Net Return (Rs/ha)	BCR
Traditional	31.45	45.80	32741	64120	31379	1.95

After IPM

Package of practice	% pest infestation	Yield (t/ha)	Gross Cost (Rs/ha)/	Gross Return (Rs/ha)	Net Return (Rs/ha)	BCR
IPM module	18.20	58.78	30270	82292	52022	2.71

Impact:

The IPM strategy was implemented in farmers' fields as a pilot project basis in a demonstration unit in selected areas and its use was extended in the adjoining villages too. It was observed that, earlier farmers apply 3 – 4 times chemical spray in a week. Now, after using this IPM module chemical sprays reduce from 3-4 times to once in a

week. Labor requirement decreased for those farmers who adopted this IPM technology. Farmer's profit margins and production level increased significantly. Due to less use of chemical sprays reduced the environmental risk associated with pest management and provides economic benefits due to sustained development, increased productivity and reduced pest damage. The majorities of the farmers were happy as this technique is environment friendly, improve the crop quality, reduces the chemical sprays and preserved the soil fertility level. After seeing this result, now they want to expand more areas under paddy cultivation by using the IPM technology.

1. What did you learn in this process? What is difficult or challenging?

The lesson learnt in this process is that farmers are ready to adopt the IPM technology which provide higher yield than the conventional method. The major challenges are the lack of awareness about management strategies and preventive measures against pest diseases and unavailability of IPM kits in the local market.

2. How did you face these challenges?

Motivate the farmers through various training and awareness programme using video images and also create a linked with scientist of all farmers through whatsapp application to detect the insect pest quickly and their proper management strategies.

3. If you were to do it again, what would you do differently?

Select major paddy cluster areas to develop model village under IPM technology for rapid and wider dissemination of technology in different areas.