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Impact of Farm Field School on Rice Integrated Crop Management

FFS Rice ICM there integrated approach focused on Integrated pest management, integrated weed management and integrated nutrient management which will lead to improved sustainable yield, grain quality and environmental conservation. ETL based application insecticides and fungicides enhance the natural enemies' population and also reduce the cost of cultivation. Reduction in pesticide spray results in resurgence of natural enemy's population. Seed treatment with antagonistic bacteria pseudomonas protects the crop from diseases as well as reduces the cost on plant protection chemicals. LCC based N application minimizes the urea application this reduces the production cost as well as protect the crop from insect pest and diseases.

INTRODUCTION

A farm field school on Rice Integrated Crop Management was conducted at Patturmelkarai village of Kudavasal block of Thiruvavur district. The productivity in rice was affected due to several a biotic and biotic factors prevailing in the Rice ecosystem. The paddy growing farmers carry out a large number of management activities including development and maintenance of the rice field infrastructure, selection of variety and seed source, determination of the sowing and cropping calendar, land preparation practices, plant establishment techniques, production from weeds, insects diseases and other pests, nutrition supply to meet growth needs etc. During Rice ICM system seeks to develop, management approach at farm level that manages the growing of rice crops as total production system taking into account all factors affecting yield and quality. This rice ICM, FFS helps farmers to evaluate their management skills and to recognize their strength and weakness in order that the subsequent

rice crops may be improved. During this FFS Rice ICM there integrated approach focused on integrated pest management, integrated weed management and integrated nutrient management which will lead to improved sustainable yield, grain quality and environmental conservation. The FFS class handled as theoretical lecture as well as practical class in the form of demonstration, experimentation, field observation and hands on activities. The FFS beneficiaries were supplied with

pseudomonas, Azospirillum, Phosphobacteria, Pheromone trap, Yellow stem borer lure, insecticides and fungicides. The crop was harvested and field day was also conducted on 18.03.2013.

TECHNICAL FEEDBACK ON THE DEMONSTRATED TECHNOLOGIES

- ETL based application insecticides and fungicides enhance the natural enemies'

Crop	Thematic area	Technology demonstrated	Season	Area	No. of Farmers			Reasons forshort fall in achievement
					SC/ST	Others	Total	
Rice	ICM	FFS on Rice ICM	Samba 2013	10 ha	-	25	25	-

Details of farming situation

Crop	Season	Farming situation	Soil type	Status of soil			Previous crop	Sowing date	Harvest date	Seasonal rainfall
				N	P	K				
Rice	Samba 2013	Irrigated	Clay loam	D	G	H	Rice	20.10.12	18.03.13	

Performance of FFS

Crop	Technology demonstrated	Variety	No. of farmers	Area (ha)	Demo yield (Q/ha)			Local check (Q/ha)
					High	Low	Average	
Rice	1.Good seed selection, variety. 2.Seed treatmentwith Azospirillum, Phosphobacteria, Pseudomonas. 3.Seedling root dip with pseudomonas. 4.Soil application of pseudomonas.	BPT 5204	25	10	45	41	4405	38

- Spraying of pseudomonas
- LCC based N application
- Pheromone trap
- ETL based application of insecticides
- PDI based application of fungicides

Economic impact

Average cost of cultivation (Rs/ha)		Average gross return (Rs/ha)		Average net return		BCR	
Demo	Check	Demo	Check	Demo	Check	Demo	Check
28000	29500	89000	76000	61000	46500	3.17	2.57

Analytical review of the component

Parameter with the unit	Demo	Check
YSB catch / pheromone trap	36	-
% Dead heart	1.5	14
% White ear	1	16
Leaf folder % leaf infestation		
Vegetative stage	1	18
Flowering stage	1	19
Sheath rot	Grade 1 (less than 1% leafarea)	Grade 5 (26% leaf area)
Bacterial leaf blight	Grade 1 (less than 1% leafarea)	Grade 7 (26-50 % leaf area)

Ecological Impact

Natural Enemies population	Demo	Check
Spiders / hall	3	-
Ground beetle / m ²	23	6
Coccinellids / m ²	16	3
Mirids / m ²	60	12
Dragon fly naiads / m ²	14	6

population and also reduce the cost of cultivation.

- Reduction in pesticide spray results in resurgence of natural enemies population
- Behavioral control approaches helps in controlling the yellow stem borer population.

FARMERS' REACTIONS ON SPECIFIC TECHNOLOGIES

- Good and quality seed selection improves the plant population stand as well as germination.
- Seed treatment with bio fertilizers such as Azospirillum and phosphor bacteria minimized the fertilizer requirement.
- Seed treatment with antagonistic bacteria pseudomonas protects the crop from diseases as well as reduces the cost on plant protection chemicals.
- LCC based N application minimizes the urea application this reduces the production cost as well as protect the crop from insect pest and diseases.

CONCLUSION

It is concluded that the Integrated Crop Management in Rice found to have negative impact on insect pest of rice with the infestation of paddy stem borer and leaf folder considerably reduced due to application of integrated pest management tactics, similarly the infection of sheath rot and

bacterial leaf blight considerably reduced in demo plot. Moreover, due to reduced application of pesticides, the natural enemies population was also enhanced in demo plot compared to check plot. The LCC based application of nitrogenous fertilizers such as urea results in reduced production cost along with low incidence of pest and diseases. Hence it is concluded that the integrated approach of pest, weed and nutrient management results in sustainable yield with better environmental conservation.