Technology Transfer to a Women Farmer on Botanical Extract for Control of Rice Yellow Stem Borer

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Mrs.Jouhattrin Sahu is one of the woman farmers in the village of Mudpar, Block & District Rajnandgaon of Chhattisgarh state. She is a Marginal farmer with 2 acres of land. She has an assured irrigation source through a bore well. The whole patch is producing paddy due to a good water level due to the Shivnath River. Earlier she used to apply chemical fertilizers and pesticides on her field.

Chhattisgarh state rural livelihoods mission is being promoted with the goal of sustainable agriculture with the main objective of increasing the production of farmers and reducing the cost of cultivation by using the local available resources like cow dung, urine, Neem leaves and other things. The methods were promoted and recommended by a student of **Certified Farm Advisor- RICE, Devendra Kumar Kurrey.** The method was about Community Managed Sustainable Agriculture (CMSA) which is blend of scientifically proven technology, local wisdom, and, farmer's innovations. Over a period of time this has the capability to build good ecology, where there is a balance between friendly insects and crop pests, leading to reduced or zeroed costs on pest management.

The main principle underlying NPM (Non Pesticidal Management) is that the pests can be managed by understanding their behavior and lifecycle. The emphasis is on prevention rather than control. The fields of farmers were badly infested with Rice Stem Borer before these interventions. The farmers were advised to use NPM methods to control Stem Borer, following package of practices recommended by the trainee of **Certified Farm Advisor**

1. **Summer Deep ploughing: -** summer ploughing exposes the pupae and Egg surviving inside the stubbles and the soil. Depth of ploughing should be more than 6 Inches. Larvae and pupae present within 5-10 cms get exposed.
2. **Seed and Seedling treatment:**-Seed and seedling treatment by beejamritam (soaking 2 kg Cow dung in 10-15 liters of water for 12 hrs. After 12 hrs. mix 500 gm. Termite soil + 50-100 gm lime rock + 2 lit. Cow urine to the extract of cow dung and gentle application of this solution to seeds)is good for prevention of soil and seed borne diseases. We can treat seeds by other Botanical extract too.
3. **Clipping of Tips: -** Yellow Stem Borer, Rice Hispa and Caseworm lay eggs on upper tips of leaves in primary stage of the crop. Clipping of tips reduces the infestation by these pests.
4. **Alley:** - During Transplantation and sowing of seeds 1 feet path should be left at every 2-4 meters interval in the direction of East-West in kharif and North South during Rabi season. It will prevent attack of BPH and diseases like sheath blight.
5. **Bird Perches:** - Encourage birds in the field before flowering by keeping bird perches. This will also help in controlling insects. Bird perches should be kept above the level of the Rice Plants.

6. **Pheromone trap**: - To trap Stem borer in mass, pheromone traps are good and effective. 8-10 traps are enough for one acre of land. Lure is attached inside of this trap which has special pheromone smell which attracts male insects. Lures are available for different species of pests.
7. **Botanical Extract**: - If all of the above mentioned principles are followed religiously, there will not be any need for applying botanical extracts. However for control of yellow stem borer there is a need to apply botanical extract of Neem in primary stage of Crop. If incidence of Stem Borer is high, it is recommended to apply AGNASTRAM in the field.

Mrs. Jauhattin sahu practiced most of the above methods i.e. summer deep ploughing, seed treatment and bird perches but she was unable to do some of them. She has been applying farm manure, Nadep manure, Urea 60 kg, DAP 40 kg. Pesticides were never applied and hand weeding was done once.

After attacking yellow stem borer in her field, she immediately prepared **AGNASTRAM** botanical extract and applied in the field. The Presence of Alkaloids makes this concoction effective in pest control. This concoction is effective against Stem and pod borers like Helicoverpa, Spodoptera and Red hairy cater pillar.

The required Material for preparation of agnastram are

1. Neem leaves – 2 Kgs
2. Tobbacco waste – 1 Kg
3. Garlic – 1 Kg
4. Green chillies – 1 Kg
5. Cow urine – 5 L.

Steps should be taken during Preparation of Agnastram

First grind all the above mentioned materials except tobacco waste then add tobacco waste and 5 L of cow urine to the mixture and store it for 10 days. Stir the solution every day. After 10 days, filter the solution and add 100 L of water. This mixture can be sprayed in 1 acre of land. This can be applied 1-2 times during a crop period to get maximum benefits.

Precautions to be taken while applying AGNASTRAM,

a) Don't store the solution. b) Apply oil to your body while preparing the solution. c) Cover your body while spraying the solution..

System of Rice intensification was also adopted by the farmer. After 3 months of applying AGNASTRAM, trainee of **Certified Farm Advisor** along with the farmer has done Crop cutting experiment. They harvested 5X5 meter square sample and got 16 kg yield in the sampled area i.e.., one acre may yield around 25 quintals .

Before adopting these methods she was getting only 18 -20 quintals per acre. The cost of cultivation reduced due to adoption of sustainable agriculture practices. Earlier, the Cost of cultivation (Only plant protection + expenditure on fertilizers) in an acre of land was about Rs. 7600-8000 but now after adopting botanicals she saved at least Rs. 5000/-. Overall she earned Rs. 37750 from one acre of land. Now she is very happy in adopting sustainable methods in farming.

Certified Farm Advisor trainee – Rice Devendra Kurrey with women Farmer Jauhattirn sahu during taking observation in the field.

CFA Devendra Kurrey during preparation of AGNASTRAM for spray.