Learning eco-friendly ways of managing pests

Anitha Pailoor

Sugarcane farmers in Alnavar near Dharwad in Karnataka state are no more worried about the insect 'wooly aphid' which destroys their crop. They need not run to the Agricultural University or the Agriculture Department to get the predator. A walk to Hasanbi's house in the village would solve the problem. Hasanbi Muktumsab Haltikoti is an expert in preparing pupae of brown lace winged insect, the crop defenders.

Hasanbi attended the first meeting of Integrated Pest Management training in a nearby village Kadabagatti, in 2004. Later, she participated in the training programme on pest management in cotton, organized by the Agriculture Department. During the six month programme, she learnt the pest management techniques and mastered the multiplication of pupa. When she heard of this sugarcane pest, she learnt about its predator from the university and started multiplying it on her own.

Search for ecological alternatives

By the end of the last decade, farmers were frustrated with continuous pesticide sprays yielding lesser outputs. Both low yields and increased cost of production had disturbed their minds and lives. Human health was also affected severely. Naturally the farmers were curious to learn about the low-cost methods of growing cotton. It was during that period, that the Agriculture Department in Karnataka implemented IPM programme with the support from Food and Agriculture Organisation and European Union.

The process

IPM training is unique in many ways. Participatory approach holds the farmers' interest alive till the end of the programme. The training which stretches through the cotton season addresses the problems of growing cotton and uses farmer-friendly and eco-friendly methods to tackle them. Cotton Eco System Analysis or CESA, is most popular among farmers. Ratna Tadkod, a farmer facilitator of IPM says, "*Once we learn the logic behind the crop, we started identifying each insect in the field and observed their life cycle. Now we repent for destroying all the 150 insects that cotton harbours, of which only 30 are pests*."

Farmers find it easy to control the pests by eco-friendly means. Women are fascinated towards these methods than destroying the bionetwork. During IPM training, agriculture officers visit the village once a week and facilitate farmers involvement in the process from planning to implementation. One field is chosen as experimental plot. This two-acre field is divided into three parts. In the first part IPM is practiced, the middle one is for long term experiments like natural resource management, soil and water conservation and the last one is for farmers' practices, using pesticides.

Integrated Pest Management practices have driven many farmers to find their own ways of crop protection by maintaining the eco-balance in the field.

Farmers analysing cotton eco-system in Gerigevada village in Dharwad district

Renuka Kallimani, a farmer, who has been a part of IPM trainings since 2002 says that since every practice is demonstrated on the field, the participants would be totally convinced about the new method. Initially, participants followed what they saw in the experimental plot in a small patch of the land only to feel that they should have done it on a larger area. The yield remained the same in both practices. But the cost of production decreased from Rs. 5,000 to few hundreds. This made a great difference in managing their farms.

Farmers as facilitators

Agriculture Department decentralised the entire process, by involving farmers as facilitators in their IPM programme. The concept of Farmer Field School was introduced. A couple of enthusiastic farmers were engaged by the department to spread the awareness in other villages. Initially Agriculture Officers accompanied them, but within a year or two the facilitators started helping the farmers independently.

Farmers' methods of controlling pests and diseases

Five percent neem seed decoction

Powder five kilograms of dried neem seed by pounding. Soak it in ten litres of water for 12 hours. Prepare a mixture of detergent less soap with water at the proportion of one gram for one litre. Then mix both solutions and spray on the crop either early in the morning or late in the evening. Any spray during the day time is not effective.

Chilli garlic extract

Grind three kilos of green chilli into a paste and soak in ten liters of water overnight. Grind 500 grams of peeled garlic and soak in 250 ml of kerosene and keep overnight. Next day these two extracts should be filtered separately. Eighty grams of detergent less soap is diluted in one litre of water. Once the three solutions are done, mix them and leave for four hours. Then dilute the extract adding 70 litres of water and spray when the climate is cool.

Understanding the potential in these self-made facilitators, the department organised a refresher course for them. Soon after the training, thirteen of the trained farmer facilitators formed a society called 'Integrated Pest Management, Agriculture and Rural Development Society'. The then Additional Director of Agriculture who is now the Director of the Agriculture Department, Dr. Rajanna and officers like R.B. Hiremath supported the cause and gave technical guidance and created a favourable environment for them to grow as an organisation.

With an initial support from the Agriculture Department, IPMARDS has been successfully spreading awareness on natural methods for getting a good crop. Presently, it works in Dharwad, Kolar, Doddaballaapur and Tumkur districts of Karnataka with support from the World Bank aided Sujala Watershed projects. There are 26 members in IPMARDS. They work to reinstate the ecological balance in the fields. Women like Renuka Kallimani, who left school after seventh standard now guide the farmer facilitators in the organisation across the state.

The training curriculum

The training curriculum followed is the key to knowledge empowerment - Fifty percent of the time is devoted to enthuse farmers towards science in farming. In this, they are encouraged to do eco system analysis, insect zoo and long term experiments. Twenty five percent of the course involves group dynamics to improve overall personality. Organisational and managerial skills cover twenty percent of the syllabus. Rest five percent is dedicated to discuss the health issues like negative effects of pesticides, local health problems, gender issues etc. This creates a space for farmer leaders to emerge. During the twenty-eight weeks, every person has to present their observation and analysis of the crop before the larger group. This enhances confidence in them. Since every action is based on observation and understanding, it trickles down easily.

Some ecofriendly practices

Though they learnt managing the pests on cotton, these farmers have guided others to experiment successfully on other crops like chilli, groundnut and sugarcane. The farmers practice harmless methods of controlling pests like augmentation of natural enemies in the field and use of biopesticides like Nuclear Polyhydral Virus. Plant-based pesticides like neem kernel extract, chilli and garlic extract, tobacco extract, jeevaamruta, beejaamruta are also used.

Discussion among farmer facilitators at IPMARDS

IPM integrates all modes of pest management to protect the crop and environment. Physical methods like using delta sticky trap, pheromone trap are also used. Their actions are very specific and have no side effect on the ecology. Light traps to attract the insects and trenching are some other practices that are usually practiced. Hand picking of pests is also practiced in certain cases.

Birds play a major role in bengal gram field in protecting the crop. Realising this, farmers spread rice or some grain in their field to attract birds, which in turn feed on the pests. Construction of a farm pond also brings birds back to the field.

Trap crops underline the need for mixed-cropping in the fields. Ladies finger attract a large number of pests. Likewise crysanthamum, maize, red gram and cowpea are grown in farmers fields to protect their main crop. This is one of the easiest methods of controlling the pests.

At the end of the season, farmers do a field day at the experimental plot. This extends the message to many more in the village.

Looking beyond pest management

Once the training is over in a village, IPMARDS organises a self-help group of the participants, which helps the process to continue. They meet every week and exchange information on their crops. Farmer facilitators guide them to prepare bio pesticides independently till the group becomes self-sustainable.

N.G. Naikar, farmer facilitator and president of IPMARDS says that they have not limited their activities to pest management alone. They are following the concept of Farmer Field School, where farmers learn from seed selection and treatment to soil treatment and marketing the produce. They are encouraged to take up all the activities that lead to sustainable agriculture practice. It may be soil conservation, in-situ water harvesting, tree based farming etc.

He feels that dairy animals also have equal stake in agriculture. IPMRDS trains farmers in maintaining healthy cattle. It has popularised azolla - which is a biofertiliser and a component in cattle feed - in its project villages. The entire process has boosted the morale of farmers and brought them closer to their farms.

In the last one year IPMARDS has organised FFS in 227 villages covering various crops. Farmers identify themselves with these facilitators and open up easily. IPMARDS has inspired and helped formation of two similar organisations in Haveri and Chitradurga to cater to the farmers needs in that area.

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Anitha Pailoor
#119, 1st main, 4th cross, Narayanapura,
Dharwad - 580 008
Email: anithapailoor@gmail.com
Ph: 9900517749