

'Farmer Field Schools'

A New Approach on IPM Training

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Integrated Pest Management (IPM) is concerned with combining a number of techniques in a particular cropping system for a whole range of pest species in order to provide an overall coherent strategy for pest management. IPM is now considered as a pre-requisite to the development of sustainable agriculture and ultimate aim of IPM is to redress the lost ecological balance in agro-ecosystems invoked by the adoption of unilateral pest control strategies.

Sri Lanka has been implementing an IPM program for rice with the assistance of FAO-Inter Country Program since 1984. At the beginning of the project, main emphasis was to provide training to all the extension officers in order to commence field demonstration and farmer training. During this period almost all the agricultural extension officers in the country totalling to more than 2500, and over 10,200 rice farmers have been trained on IPM practices. The extension officers were trained as trainers. They trained the farmers. The success shown by pilot scale IPM demonstrations initiated at early phases of the project in few districts provided the impetus to expand the program to 24 agricultural districts including North and East and five major irrigation project areas (Mahaweli) during the two phases of the project. Today IPM has received a national recognition after being

declared it as a policy recommendation in the national food production program in Sri Lanka in 1995.

Successful implementation and sustainable adoption of IPM has been largely due to the novel training methods and effective training/demonstration programs conducted for not only trainers but the farmers as well. At initial stage of the project, IPM training provided was only short-term and the duration did not exceed maximum of two weeks. Most of the training was limited to class-room based conventional methods where information were given primarily in the form of pre-determined advises through flip charts and teaching aids; only little field activities were included. Thus flow of information followed a one way process-only from extension worker to farmer.

Because of the less confidence and skills of farmers on IPM and decision making has not developed to the expected level. For successful adoption of IPM, the farmer must (a) be able to identify problems (b) have access to appropriate control measures and © have the confidence to make appropriate choices or decisions on crop management.

Despite the considerable efforts made at initial stages of the project, IPM gained less prominence among the farming

community and this has been largely attributed to the inherent drawbacks in the training process. However, continuous evaluation of the training methods and training requirements have paved the way to make appropriate adjustments and improvements to make the training more effective. Experience of other countries was also shared in improving the training methodology. As a result, the training has transformed into more practically oriented, season-long field level program where farmers are exposed to develop practical skills and decision making on IPM through their own observations in the field. Through this improved training methodology which follows 'learning by doing' approach, farmers acquire a complete knowledge on cultural practices, biology of rice plant, the relationship of pests and natural enemies and other aspects of the rice ecosystem ecology. All learning activities are based on the direct field observations carried out once a week for a whole growing season and the system of training is known as Farmer Field Schools.

Training Approach in Farmer Field School

Whole training curriculum is experimental and discovery based, aimed at the enhancement of technical IPM expertise, knowledge as well as practical and diagnostic skills among farmers. The curriculum is not limited to pest management *pe se*, but encompass other related areas such as agronomy, biology, ecology, economics etc. to form a holistic approach. No formal lectures are delivered. Instead, training activities are designed to have trainees learn by doing. More than 50% of the training time is spent in the field as it being the main source of learning. The educational program does not provide packages that

present weekly messages. Instead, the program take a broad integrated approach to working with farmers based on the principles that farmers need to learn during a whole seasonal cycle- from planting to harvesting. Farmers generate their own learning materials from field observations and action research. Exchange of information and knowledge is facilitated through observation, brainstorming and discussion within and among farmer groups during the training sessions. Trainers are primarily acting as facilitators and only inject knowledge and information when felt necessary.

This approach also facilitates participatory action research which aims to provide trainers and farmers with analytical ability and skills to investigate into cause and effect relationships of local farming problems. Within IPM training, 'problems' are seen as challenges, not constraints. These challenges stimulate farmers to design a set of action for solving field 'problems' such as varietal trials, fertilizer trials, natural enemy exclusion and defoliation trials etc. Field extension workers and farmers are equal partners in the whole process.

What is "farmer Field School"

IPM Farmer field school is a group of about 25 farmers who have agreed to meet at weekly intervals in the field to learn on integrated crop and pest management through field observations, for an entire cropping season - starting from land preparation through planting to harvesting. Each weekly meeting will run for about half a day and usually 12 to 16 such meetings will be included for the whole training program. This program is also called "a school without walls" as the entire field is being used as a class room for the training.

In each weekly meeting, the farmer group may break into five sub-groups or small teams of similar number and spend one to two hours in the field that contains a farmer-run comparative study of IPM.

The members of the group make their own field observations on various aspects of crop growth including plant health, water management, nutrient status, weed growth. They also collect information on insect pests, predators and parasitoids. The damage caused by pests and diseases are assessed.

Each team then assembles outside the field, discusses the observations made, recognizes pest and non-pest species, analyses the data collected and attempts to provide a causal interpretation about the crop growth status in relation to abiotic and biotic components in the field. The whole exercise is known as Agro Ecosystem Analysis. Usually, the results of the analysis are summarized in a diagram, called ecosystem diagram, and each team presents their diagram to all members of the Field School. Each diagram include a drawing of a typical rice plant in its growth stage for that week. On one side of the rice plant insects/organisms that are supposed to damage rice plant are drawn with giving their population size while on the other side, insects/organisms that feed on the pest organisms are drawn. Information on other ecological factors are also summarized in the diagram. This validates, from field observations, the concept of the balance in nature and of population regulation in a representation that is created by farmers. The experience and knowledge gained through field exposure coupled with the induction received from intra and inter group discussions help the farmers to determine whether pest control is necessary at a given period of crop growth. The ability and confidence of making appropriate decisions on pest management is further enhanced through

the direct field experience gained from participatory research activities set up to demonstrate fertilizer requirements and alternatives, the effect of crop damage on yield and plant compensation for damage as well as impact of pests and effectiveness of alternative control techniques.

Recent Developments in IPM Training with FFS

Forty three officers engaged in agricultural extension and education obtained season long training for conducting FFS and graduated as IPM specialists in 94/95 Maha. They started IPM activities from the following Yala season with the latest techniques learnt through the season long training. During this period, these specialist trainers in the DOA conducted FFS each district covering almost the entire country except three districts.

In accordance with the government policy, it was necessary to expand IPM program to cover as many rice farmers as possible. Hence the specialist trainers supported the district program also by training extension officers at their FFS sites through-out the season. Altogether 94 field officers trained in this manner. In addition, the IPM specialist trainers attached to training institutes also trained 84 extension officers to further strengthen the IPM/FFS program. All these trained officers have initiated FFS in their respective districts during 1995/96 Maha season with the assistance of IPM specialist trainers. From 1995 Yala through 1995/96 Maha, around 2200 farmers across the country have undergone IPM training through FFS at the hands of specialist trainers. These farmers are motivated to guide other farmers when faced up with management problems and also act as catalysts in spreading the IPM message.

In order to expedite the expansion of IPM through FFS and further strengthen the training capacity and capabilities of district extension service, the second season long training program was started in November 1996. A group of 36 field officers selected from different districts and Mahaweli Economic Agency have successfully completed this course in February 1977, with them, the number of specialist IPM trainers in each district have increased from one to two.

Major part of the second season-long training has been conducted by the staff of Plant Protection Service who underwent a similar training at the hands of expert resource persons provided by the Inter-Country Program for rice IPM. After conducting of the second season-long training, the trainers from Plant Protection Service have got an adequate experience in conducting and management of season-long training all by themselves. Hence now DOA is equipped with a cadre of national level master trainers who are competent enough to conduct long term training on IPM through FFS.

Impact of IPM Training

The IPM is gaining an increasing popularity among local farming community since the adoption of the experimental learning approach through FFS. The trained farmers are more knowledgeable about both environment and agriculture. Their pesticide use has changed. They have begun to take more rational approach to use pesticides. Pesticide use is guided by necessity, when and how much depends on observations and analyses of field condition. Results of FFS conducted all over the country during Yala 1995 season revealed that frequency of pesticide application has reduced by more

than half, thereby reducing the cost of pesticides by 50-70% while increasing yield by 9-25%. Results of FFS conducted in 1995/96 Maha further support and confirm these observations.

Results of IPM are more impressive when data of the same season between IPM and Farmer Practice (FP) plots are compared. Average frequency of pesticide application has been further reduced, almost by 90 percent where by reducing the cost of pesticide by 90 percent. Yields have been consistently higher in IPM plots than in FP plots.

Follow up studies revealed that there had been also a lateral spread of information on IPM technology among neighbouring farmers leading into reduction of unnecessary pesticide application that they were used to practice previously.

Total extent of 200 hectares with 431 farmers were covered under IPM-FFS program during Yala 1995 season. The total savings on pesticides accrued these farmers due to IPM during Yala 1995 season was approximately Rs. 541393/=. The learning process of the field school also increased the skills and capabilities of farmers. They were more rational when presenting their views and ideas. They have also become skilled in carrying out trials, either at their homes or in the field. Farmers were able to identify major rice pests and their defenders. Their diagnostic capabilities on field problems were improved.

Among the positive impacts of the Farmer Field School approach has been the development of the attitude of the farmers. They felt proud because they have become educated. Therefore their participation has been very enthusiastic.

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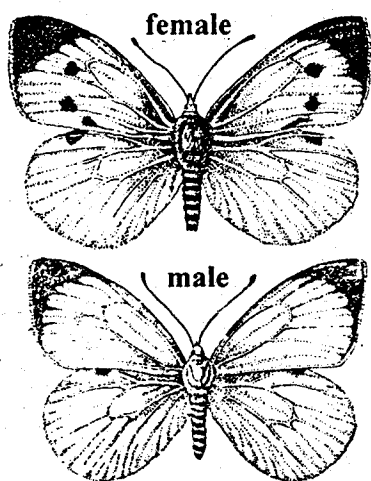
Expansion of IPM

The Hon. President in her policy statement clearly outlines the Governments's interest in popularizing IPM. Presently IPM/FFS program is applied only to rice.

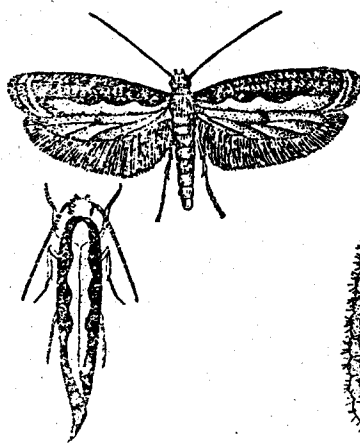
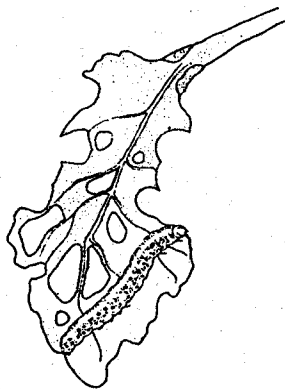
But there is a keen interest and a demand for IPM in other crops, especially vegetables because the highest levels of pesticide overuse is happening in vegetable growing areas. Preliminary studies conducted recently on IPM/FFS for chilies and some vegetables showed encouraging results.

The staff for IPM implementation comes mainly from the Provincial Extension Service. There is a need to upgrade the training capabilities of these officers which will be done gradually.

LEAF EATING CATERPILLARS



LARGE CABBAGE WORM (*Pieris brassicae*)



DIAMONDBACK MOTH (*Plutella xylostella*)

