

Farmers have been traditionally ignored in conventional scientific agricultural processes. Their store of local knowledge and experience in the field is often neglected. Instead, primary importance is given to "basic" research that is often far from the actual reality of the farmers' fields, and when utilised endangers farmers' health and environment. Farmers' knowledge is vital because the agro-ecosystems in which they live are diverse and fiercely local. There often are large variations from field to field, season to season, and between microclimates. Conventionally, farmers are offered 'package solutions' by government agriculture extensionists who often see farmers as the source of agricultural problems. IPM farmers across Asia are endeavouring to change this pattern. They are depending less on external information and inputs, and more on their own research and local knowledge.

IPM Farmers are doing research. They perform experiments with various inputs; they make field transects to collect data on local ecology; they gather detailed agro-ecological information; and they analyse resulting information. Understanding the ecosystem of their fields helps farmers reduce the amount of inputs, including pesticides, and practice sustainable agriculture. Taking a look at 2 places in Indonesia, Pangelangan and Ciamis, where IPM farmers have grouped together to do their own science, demonstrates the pressing need for agricultural institutions and governments to incorporate and value farmers' abilities and knowledge when creating agricultural programs.

Pangelangan:

IPM Farmer Trainer Association (TP4)

Pangelangan sub-district is in the hills of West Java, about 40 kilometres south of Bandung. TP4 is an association of IPM Trainers in this sub-district. The primary aim of the group is to institutionalise IPM principles in the farming community and also to educate consumers about food produced in a more ecological manner. Farmers in this region face problems with:

- High price of inputs
- Low soil fertility
- High incidence of pest and disease problems
- Pesticide residues

Cabbage is one of the major crops in this area. Generally, farmers and extension services believe that cabbage cannot be grown without the use of pesticides. People further doubt that farmers can train other farmers to grow cabbage without pesticides. However, the TP4 farmer trainers in this area run Farmer Field Schools (FFSs), teaching other farmers ecologically sustainable methods of agriculture. These Field Schools are held in farmers' villages, and conducted in the field itself. This direct method of learning encourages participants to do the same in their own fields - to observe, describe, analyse, make action decisions and apply those decisions. (For more information on FFSs, see fact sheet on Community IPM).

Farmers were facing problems with a cabbage disease, clubroot, so an IPM alumni group facilitated a study in order to find an appropriate solution. After various experiments it was discovered that an extract made from turmeric, traditionally used for healing wounds, could effectively control the disease in the cabbage root system. A new pest, the leaf miner, was also

affecting potato yields, so farmers joined in a study with FAO, the International Potato Centre and several universities. This study revealed the existence of various local beneficial insects that proved to be more effective than pesticides. These two cases highlight how farmers can be an integral part of developing new approaches to pest management that is appropriate to their environment and their specific local problems.



IPM Kiosk

TP4 farmers have established an IPM kiosk in their village in order to not only sell their products, but to also serve as a place where ideas can be exchanged between farmers. The kiosk is not profit-oriented; it offers non-IPM farmers a chance to find out more about the IPM program and the work TP4 trainers are doing. The kiosk sells vegetable seedlings, potato sprouts, equipment, fertilisers, compost and botanical and bio-agents (bacterial pathogens), which the farmers have made themselves. Chemical pesticides are also sold as part of the strategy to attract and educate non-IPM farmers. When farmers come to buy chemical pesticides, TP4 farmers inquire about the problem the customer is having in the field. They ask about the age of the crop, what inputs have already been used, and try to offer explanations for the problem that the farmer is facing. If the farmer is unsure about the advice that is given, field evidence of the TP4 experiments is not far from the shop. In some cases, non-IPM farmers are invited to join various studies to learn ecologically sustainable methods themselves.

Farmer Profile

IWAN KUSMAWAN, Pangelangan



Iwan enjoys the opportunity to study IPM, and to research issues relevant to his life. Before he joined IPM, Iwan sprayed pesticides 12 times in a season, often resulting in acute poisoning: he frequently felt itchy and tired after spraying. After attending a FFS, he only sprays according to his analysis of the field, maybe 1 or 2 times in a season, sometimes not at all. If and when he does think pesticides are required, he always uses protective

clothing. For safety reasons, Iwan stores his pesticides underground, hiding the chemicals from his children and avoiding contamination of his family's environment.

Before IPM, pesticides comprised 40% of Iwan's production costs. He now saves enough money from his reduced pesticide use that he has expanded the area that he cultivates. Iwan sees many benefits of IPM. He not only protects his health and environment from his