Plant clinics help curb pesticide use in Bangladesh

Paula Kelly and Jeffery Bentley of CABI’s Global Plant Clinic were concerned to learn the extent of the misuse of pesticides in Bangladesh. Working with local partners Harun-Ar-Rashid, A.K.M Zakaria and Mostafa Nuruzzaman to investigate ways of improving the flow of advice, they report on innovative plant health services for farmers.

The eggplant fruit and shoot borers, Leucinodes orbonalis, is one of the worst pests that Bangladesh’s farmers face. Farmers spray as many as 150-200 times in a single crop season to try to eradicate it. Fruits are sprayed after harvest to delay larval emergence and deter pests from further attack, in the hope of gaining higher prices on market day. Farmers insist that eggplants cannot be grown without chemicals, but see their profits shrink as they spend as much as one third of crop revenue on pesticides. Farmers report poor results from these chemicals, an alarming sign of increasing pest resistance, so they turn to their peers and pesticide dealers for advice. Dealers recommend stronger poisons, often far in excess of rates required, further perpetuating the problem and reducing future management options.

The cycle needs to be broken. But farmers rarely seek assistance from researchers. Extension often has a limited outreach at the field level, and campaigns to reduce pesticides produce fleeting benefits. A study of local knowledge in Bangladesh highlighted many other misuses of pesticides.

Global Plant Clinics

In 1999 in the small town of Comarapa in Bolivia, the staff of the Center for Research on Tropical Agriculture (CIAT) began responding to farmers who requested identification of crop pests and diseases. CIAT identified the plant health problems in their small lab, and gave farmers a written report. This work inspired the development of the Global Plant Clinics (GPCs). It was soon realised that the concept could be adapted to weekly farm fairs and in 2003 a local Bolivian institution, Proinpa (Foundation for the Research and Promotion of Andean Products) set up a plant clinic every Friday morning in the market town of Tiraque. In 2005, various Nicaraguan institutions supported by Danida, including Funica, asked the GPC to help them create plant clinics in Nicaragua.

Bangladesh

This early work in Latin America gave the GPCs a chance to create formal training on how to run a plant clinic. This was subsequently used to train clinic staff in several other countries. In an effort to improve farmers’ access to information and services in Bangladesh, GPC advisors have teamed up with local partners; Rural Development Academy (RDA), the Agricultural Advisory Society (AAS) and the NGO Shushilan to pilot innovative plant health clinics in the administrative union of Amrool, Bogra, and in the districts of Natore, and Satkira.

Serving the community

Based in the heart of the village, clinics are run on a regular basis so farmers have contact with trained plant doctors; a system analogous to district nurses holding clinics to promote human health. Each partner institution has its own style. With RDA clinics, women parish councillors elected by the community have been trained as plant doctors to run clinics for farmers in each village. AAS uses a variety of service providers already established in the community and has trained enthusiastic volunteers to be plant doctors. Shushilan hired a social scientist to work with farmers and has re-opened its old soil testing laboratory. They hold fortnightly farmer meetings instead of clinics.

Clinics and doctors are supported by trained agronomists, who know that recommending control for plant health problems starts with a good diagnosis. Plant doctors have been taught to recognise key pests and diseases and interpret symptoms using in-the-field training exercises. Their progress is appraised to ensure accuracy.

Pesticide reduction

Plant doctors encourage farmers to use appropriate levels of pesticide, which of course is often no pesticide at all. Farmers often apply pesticides for viruses and other inappropriate causes. The plant doctors know that not all insects cause damage, and applying an insecticide is inefficient if fungi are the cause. Plant doctors are sympathetic to, and promote, other technologies such as organic pesticides, and cultural and mechanical controls. In addition to the use of resistant varieties and collecting and destroying infested shoots and fruits to control L. orbonalis, plant doctors now recommend both biological control and pheromone traps as they are now commercially available in Bangladesh. Trichogramma evanescens and T. chilonis are recommended to control L. orbonalis eggs and Bracon habetor are recommended to control larvae. Pheromone traps are also effective in the field, attracting male moths which are captured and killed without the need for extensive pesticide use. Although reductions in pesticide use have not yet been quantified but it is a topic for future research.

Additional costs are saved as the plant doctors are trained to recommend the appropriate application, timing and dosage of pesticides. Plant doctors write out prescriptions containing pesticide usage guidelines and other control recommendations so that farmers know exactly what to do.
Large posters with colourful images posted in the clinics reinforce the message of using pesticides safely.

Aware of the risks of pesticide poisoning to human health, plant doctors have also asked for training in how to recognise and treat signs of illness. This is particularly important in Bangladesh as the WHO estimate that 55% of attempted suicides are by self-poisoning and that a large proportion of these fatal poisonings are pesticide ingestions. The study suggests that many of these deaths could be prevented though the restriction of pesticides most harmful to humans, the safer storage of chemicals in rural communities, and better access to medical care. Plant doctors can help by recommending safe, approved chemicals and treating pesticide poison victims. Pesticide dealers also have a responsibility for ensuring farmers’ safety and improving services.

RDA approves agrochemical dealers who they know are reliable. Rustam Ali, one RDA approved dealer, has learned many things from his time associated with the RDA clinic, and has attended many practical training sessions with the plant doctors. ‘I knew that pests and diseases were harmful to the crops but now I have a better understanding of the damage they cause and what should be done about it. Training has opened my eyes.’

Other dealers in districts where the clinics operate are also beginning to benefit. They are receiving prescriptions from farmers, who now have the power to request pesticides which are safe and will work. One dealer in Bogra, Md. Hafizer Rahman told us ‘prescriptions are a good idea, because it is easy to dispense chemicals without having to think about the cause of the problem. MD officials have therefore, I’ve made wrong recommendations to farmers’. He was keen to make amsends by joining forces with the plant clinics. Pesticide dealers may be less likely to dispense an adulterated pesticide if a farmer gives a formal prescription.

**Start small get bigger**

Initial set up costs of the clinics are high as doctors require basic equipment and training. RDA plant doctors also require a shelter where they can run the clinics, although AAS already has these facilities. After initial costs are met, running costs are low. Plant doctors receive a small allowance, paid for in RDA’s case by the local council. Some costs are incurred through ongoing training and analysing samples also requires resources. The diversity of clinics run in Bangladesh lends themselves to different models for scaling-up. RDA clinics are firmly based within local government.

Mr Razibul Islam, the chairman of the local council, has made plant clinics central to their council’s core development programme. He tells us ‘the plant clinics are a miracle and a useful innovation. We have never had anything like this in Bangladesh, a doctor for plants! It will be very useful for our country, and it is beneficial for our Union’. Sponsorship of clinics by reputable companies could also be a possibility for the future.

The Bangladesh plant clinics and doctors can be seen on youtube at http://www.youtube.com/watch?v=x14SFd aGSxQ&feature=related

More information on the other GPC run clinics is on the research for development website www.research4development.info and in reference 6.

**References**

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