SUCCESS STORY

**Eggplant grafting transforms life in Bangladesh**

by Miriam Rich

“Change happens slowly, but once it happens, it goes on and on.”

—Rezaul Karim, IPM IL researcher

In Gaidghat, a small village in western Bangladesh, under the shade of a bamboo-framed thatch roof, Shovarani Kar and Trishna Rani Biswas sit and work with razor blades and eggplant seedlings. With quick and careful movements of hand on plant, the two women are able to graft a high-yielding variety of eggplant onto the rootstock of another variety that is resistant to a devastating soilborne scourge: bacterial wilt.

The USAID-funded eggplant grafting program is part of a Virginia Tech-managed effort to reduce poverty in developing countries. Through training sessions, women throughout the district are learning how to perform this grafting. This simple technology reduces the need for pesticide applications and increases yields. Word has traveled that people in this village are now earning more because of improved agricultural practices, and villagers from surrounding towns and even distant villages travel regularly to Gaidghat to learn how to achieve the same results.

The women, who can each complete about 300 grafts a day, use the money they earn to purchase milk to improve their children’s diet and to buy them clothing and school-related necessities, such as books, notebooks, and pens. In the village of Gaidghat, all the children attend school, and health problems are down. Because the people are earning more, their social status has risen, and they are addressed with more respect. On a global scale, these changes are small, but they make a big difference in the lives and livelihoods of people like Shovarani Kar and Trishna Rani Biswas.

Eggplant grafting has not solved all of the farmers’ problems. But the program’s leader, Rezaul Karim, is optimistic. “Change happens slowly, but once it happens, it goes on and on.”

The technological impact of an improvement in agriculture is hard for Americans to grasp, since so few of us are directly involved in agriculture—two percent, by some estimates. In Bangladesh, two-thirds of the population is employed in the agricultural sector.

Additionally, Bangladeshis consume 114 pounds of eggplant per person annually because it is a standard ingredient in their daily dish of rice and curry. So when a disease or insect pest strikes this crop, it is a threat similar to that of the boll weevil on cotton in the American South of the
Extension agents at a training session at the Bangladesh Agricultural Research Institute learn how to perform an eggplant graft.

1890s, harming the livelihoods of millions of people and changing an entire economy.

In many areas of the country today, and in Jessore before the grafting technique was introduced, Bangladeshis dealt with pests and diseases by using chemicals supplied by pesticide makers. Beginning in the 1950s, these pesticides were given free to farmers. The government still subsidized the cost in the 1970s, but in 1979, farmers began having to pay full price.

Although using pesticides was satisfying at first because farmers could see lots of dead insects, the negative effects began to show up quickly. People developed frequent headaches and burning eyes. They lost sleep and their skin started to itch. To make matters worse, children did the spraying. But IPM IL studies showed that spraying does not necessarily decrease pest infestation and, in fact, may increase it as the pests develop resistance. Besides, with soilborne pathogens such as bacterial wilt, one cannot see the problem.

“What we saw,” says Dr. Syed Nurul Alam, a researcher at Tech’s partner organization, the Bangladesh Agricultural Research Institute (BARI), “is that an insecticide-based pest management system totally failed to control insect pests.” While spraying might temporarily reduce the number of “bad” insects, it also kills the “good” ones — those that are natural enemies of harmful insects. In addition, some of the toxic chemicals remain as residue on the vegetables and get into the water supply.

But in Gaidghat, the integrated pest management program has been so successful that farmers have been able to reduce their purchase of chemical pesticides. Their cost of production has gone down, and their yield has gone up — resulting in higher income. The farmers use the extra money to repair houses, buy cattle, and save to buy more land on which to grow vegetables. Vegetable production across Bangladesh has increased so much in recent years that produce now is being exported to the Middle East and to some European countries.

The IPM IL, managed by Virginia Tech’s Office of International Research, Education, and Development, has been addressing problems in developing countries around the world since 1993. In Bangladesh, Virginia Tech has partnered with scientists at Pennsylvania State University and Ohio State University since 1998. The eggplant grafting program was introduced in Jessore, known as the “vegetable basket” of the country, in 2003.

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