Feed the Future Country Fact Sheet

Online Version: https://www.feedthefuture.gov/article/weevils-are-no-match-beneficial-nematodes-zamorano-university

Weevils are No Match for Beneficial Nematodes at Zamorano University

Fintrac

Monitoring for pests in vegetable crops in Honduras.

Zamorano University in Honduras, an innovative research institution, has been training youth from Central and South America in agriculture production, processing and marketing for more than 75 years. Now, Zamorano is introducing a new product that improves crop viability and increases food production. It also reduces pesticide use and poisoning, which is an acute problem throughout Central America. The introduction of this product was made possible with support from **Feed the Future Partnering for Innovation**, a United States Agency for International Development program that helps companies scale and market agricultural technologies for smallholder farmers.

Branded as NemaPower, the new product's potency comes from an interesting source: nematodes, or microscopic worms that are the most numerous multi-cellular organisms in the world. Beneficial nematodes are a natural solution to the age-old problem of stopping pests from harming horticulture and coffee crops and are different from their evil nematode cousins, which harm crops. In fact, certain kinds of beneficial nematodes actually help production by killing pests such as white grubs, the coffee berry borer, and the sweet potato weevil.

Although beneficial nematodes were first observed more than 40 years ago, Zamorano only began producing and selling these soil-based microscopic organisms fairly recently. One of its main customers, Monty Farms, approached Zamorano for help in 2011 when weevils infected 70 percent of its sweet potato crop. After applying Zamorano's beneficial nematodes, the crop improved in just two weeks.

Others, especially coffee farmers, have been clamoring for NemaPower as a way to reduce pesticide use, but Zamorano's ability to produce mass quantities was limited and labor intensive. With support from Partnering for Innovation, it has expanded its biocontrol laboratory, adding both space and new equipment. The university is also implementing new practices that will make it possible to produce the beneficial nematodes in 12 instead of the 55 days it currently takes, causing the annual supply to increase by a factor of 20 or more.

To support farmer uptake and proper application of the beneficial nematodes, a Feed the Future project and field technicians from the Honduran Coffee Institute are training smallholders in the use of biological controls. This includes education on the advantages of beneficial nematodes, such as being safe for humans, plants and animals, as well as the environment. As it scales up production, Zamorano is also working with commercial distributors to ensure rapid sales. Most importantly, the crops produced using natural pest control can enter the lucrative North American organics market, allowing farmers to receive a higher price for their products.

There are, however, challenges in commercializing beneficial nematodes. They are difficult to produce and need expensive equipment and highly trained technicians. They have a shelf life of only six weeks and require refrigerated storage, whereas chemicals can be stored for up to two years. However, the biggest challenge may be human behavior change. To use beneficial nematodes, farmers must alter their practices and beliefs, since the idea that insects can combat pest control is not well understood. And, with beneficial nematodes having only been introduced to the Honduran market in 2008, most local farmers are not aware of biological pest control options. In the long term, however, they are less expensive than chemical insecticides, and farmers apply them to crops using the same equipment.

In the next two years, Zamorano expects to target its sales to more than 9,000 smallholders farming 25,000 hectares of land in Honduras. If all goes well, as Zamorano students graduate with specialized training in beneficial nematode production, they will return to their home countries and introduce this technology to other Central American countries such as Guatemala, El Salvador and Nicaragua.