Innovations for Managing *Moko* of Plantain in Colombia

Elizabeth Álvarez, Germán Llano, John Loke, Juan F. Mejía (CIAT), Silverio González (FEDEPLÁTANO)

Importance of plantain to Colombia

Currently in Colombia, 450,000 hectares are cultivated under plantain, the country's most important crop after coffee. Not only is it a food staple for Colombians, but plantain also generates 4.1% of the country's agricultural and agroindustrial employment. Furthermore, its exports are increasing, contributing to the country's foreign exchange.

Moko: a significant problem

Moko, a wilt caused by the bacterium *Ralstonia solanacearum*.

About 95% of the country's farms are affected by *moko*, a bacterial wilt that can cause a 100% crop loss. Farmers consider current recommendations for managing *moko* as inefficient and demand that formalin, used to disinfect soil, be replaced with a nontoxic alternative.

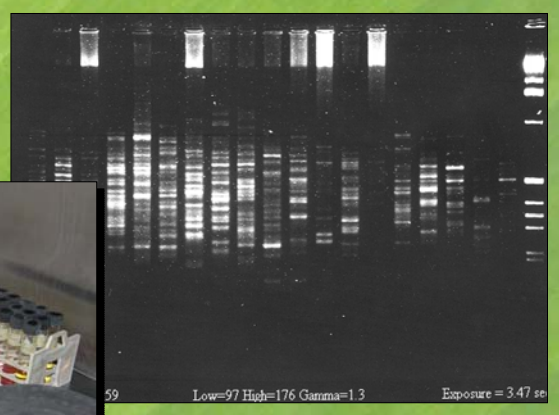
Innovations

CIAT and its collaborators accelerate the production of compost of plantain floral stalks and its use as a biofungicide and biofertilizer on 100 farms in Colombia.

- The pathogen can now be detected and identified, using molecular markers.
- Our experiments have shown that French marigold (*Tagetes patula*) reduces bacterial populations in the soil by 85%. Several farmers are now planting this flower, integrating it into their production system.
- Another promising option for reducing the bacterial population is the application of Calfos, a calcium and phosphorus organic fertilizer.

Technology adoption and participatory processes

Participatory diagnoses and technology assessments have been carried out by the "Moko Club" and at CIAT, resulting in the important achievement of farmers supporting new plant health resolutions.



Other technologies being adopted are the use of quaternary ammonium, sodium hypochlorite, and iodine to disinfect tools, using bacterial strains selected by Bio-PCR and RAM.

New ideas

Scaling up results to other countries.

Reinvesting in research: bioinputs producers have initiated patent proceedings for the lixiviate of compost, which also controls powdery mildew in rose, sigatoka in banana and plantain and, possibly, coffee rust.

Creating local agricultural research committees (CIALs, the Spanish acronym).

Developing kits for the rapid detection of the *moko* bacterium on farms.

Community production of clean and certified seed in nurseries.

In 2003 and 2004, 5000 farmers and technicians were trained at CIAT and the farm "La Helena".

Correspondence: e.alvarez@cgiar.org