INTERNATIONAL DEVELOPMENT RESEARCH CENTRE

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CANADA

MEMO TO EDITORS:

This month's IDRC Features package contains a variety of stories from around the world.

- From Kathamandu, Krishna Prashad Sigdyal, senior reporter for the National News Agency of Nepal, writes on the colossal environmental damage threatening not only his country, but also neighbouring India and Bangladesh. For the world news page.
- A new, safe way for farmers to control insect pests in being developed in Africa and the Caribbean. Michelle Hibler, writer and editor for IDRC, visited the research centre in Trinidad and reports on a facinating story. For your science page or agriculture section.
- Young Japanese-Canadian journalist Carrie Mishima takes a look at the problems and prospects in the field of population control. Presented in two parts, this story could also be used as a single article - for the features or op. ed. page?
- Science World is a new IDRC Feature making its debut this month. Containing a selection of brief (200 words max.) newsy items on science and development, it can be used as a featured column, or as good quality filler material.

IDRC Features are articles by reputable writers from around the world, dealing with topics related to science and technology for development in a popular style. The service is published 10 times a year by the Communications Division of the International Development Research Centre, and distributed free of charge, primarily to news media in Third World countries.

No fee is charged for the use of any of this material, but editors are requested to send one clipping of each article used to IDRC. Your comments and suggestion would also be appreciated.

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FEATURE

A monthly features service on scientific, technical, and educational subjects pertinent to development.

Approx.
850 words

ARTFUL SCIENCE

by MICHELLE HIBLER

By turning one insect against another, it is possible to protect crops from the ravages of a pest. Biological control, as it is called, demands not only the knowledge of science, but the skill of art and the patience of rigorous screening.

The idea is to introduce a pest's natural enemies into a field so that, by the law of predator and prey, the crop's pest is kept in check. Such methods are under study now as the most practical and safe way to combat cassava mites and mealybugs in Africa.

Unlike conventional chemical pesticides, biological control carries no threat of pollution or environmental damage and requires almost no energy to produce. Its methods are economical and permanent: once natural enemies against a pest are established, the pest is under control without further effort or expense.

On the other hand, biological control can pose risks. If the wrong parasites or predators are introduced, they may attack beneficial insects or in the case of biological weed control, may cause severe damage to crops. Therefore careful screening trials are needed before parasites or predators are released into a new area.

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And certainly biological control is tricky business. There are no hard-and-fast rules to apply since many variables must be considered, such as geographical location and the pest to be controlled. Also, the methods may take years to become fully effective.

In East Africa, the pest causing serious concern is the green spider mite, which is credited with losses of up to 50 percent of the cassava crop. Cassava is an important staple food or, in some areas, serves as a famine crop to ensure survival when the local staple fails. Thousands of the mites can appear on a single cassava leaf, sucking its juices and causing them to fall off prematurely. A heavy infestation can denude a plant, severely retarding its growth.

The mite came to Africa in the early 1970s from South America, travelling on illegally-imported cassava cuttings. By 1972, severe infestations were reported near Kampala, Uganda, and a year later much of the country was infested. It quickly spread to neighbouring countries.

The problem came to the attention of the Commonwealth Institute of Biological Control (CIBC) in Curepe, Trinidad, where the cassava mite has been known for some time. In 1974, Dr. Fred D. Bennett, CIBC's director, with assistance from Canada's International Development Research Centre (IDRC), undertook extensive surveys of the mite and of its natural enemies in their natural environment.

Dr. M. Yaseen, an entomologist at CIBC, surveyed the mite in many Latin American and Caribbean countries. He and Dr. Bennett discovered many mite predators, one of which was particularly interesting -- the small black beetle, Oligota minuta cam.

The beetle's development period is short -- 15 to 18 days -- so it can react quickly to a buildup of mites. It feeds voraciously and consumes both the larvae and adults of the green mite. They also found a predatory mite, Phytoseiidae Tryphodromalus limonicus, which is adaptable to varying climates.

Studies in Uganda confirmed the findings in Trinidad, so in 1976 and 1977 the black beetle and the predatory mite were released in cassava fields in East Africa. Since neither is native to Africa, rearing chambers were set up at the Kenya Agricultural Research Centre at Muguga near Nairobi.

At the same time as the green mite was ravaging East African crops, a new cassava pest appeared in Central and West Africa, called the mealybug. As it became a serious threat to cassava crops, the CIBC began to study its possible biological control, again with IDRC support.

Studies revealed that the mealybug is prey to many pests and parasites in Latin America, although it has few natural enemies in Africa. Three kinds of parasites were sent to Zaire and so far laboratory and field tests have been encouraging. In Senegal another shipment of the parasites are now being cultured for release in trial plots. Facilities for rearing the parasites are also being established in the Congo, with field work carried out by the Nigeria-based International Institute of Tropical Agriculture (IITA).

As research enters its third phase Dr. Bennett is hopeful the two predators identified so far, the black beetle and the predatory mite, will provide effective control for the green cassava mite in Africa. He is also optimistic for progress in the mealybug project.

"If we were to take a guess as to which project -- mite or mealybug -- had the best chance of succeeding, I'd say the mealybug because there has been success in mealybug work before," he says.

He adds that since the parasites and predators selected for trials are specific to the pests, there is no danger they will become pests themselves.

END

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