

Pecan growers fight pests with technology

Farmers test natural insecticide

By Ursula Simms
The Battalion

The Texas Pecan Growers Association received a \$25,000 grant from the Texas Department of Agriculture to study the effectiveness of computer maps and Bacillus thuringiensis (BT), a naturally-occurring insecticide, to control the pecan nut casebearer from destroying pecan trees across Texas.

The pecan nut casebearer is a major nut-feeding insect that can cause significant damage to pecan trees. The insect, which is the larva of a moth, is deposited on the pecan nutlet until maturation at which time the insect burrows into the nutlet, which serves as its source of food.

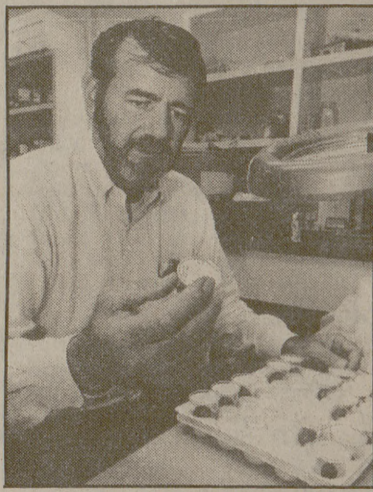
The state of Texas has about one million acres of native pecan trees. Nearly 250,000 of these acres have undergone treatment to control the casebearer.

"We always encourage producers to scout orchards for pecan nut casebearer activity to determine if they need to treat or not," said Bill Ree, an extension entomologist. Casebearer activity is noted by

eggs laid on the nutlets and the appearance of a webbed-like material which occurs as the insect burrows into the nutlet.

In 1988, the most effective insecticide for controlling the pecan nut casebearer was lost due to product registration problems, Ree said. As a result, research has shown that Bacillus thuringiensis, particularly the BT product Javelin, is effective in controlling the casebearer without harming other insects.

Dr. John Jackman, extension specialist, said Bacillus thuringiensis is a naturally-occur-



DARRIN HILL/The Battalion

Marvin Harris sorts through plastic cups containing pecans that are the food supply for the larva of the pecan nut casebearer moth.

Agricultural Cooperation offices.

"It is a very safe product for homeowners in an urban environment," said Ree.

The grant will also fund re-

ring insecticide because it was originally extracted from insects found in the wild. The bacteria is now produced chemically.

"It is so selective, if other insects were to eat it, it would not affect them," said Ree. "When the larva ingests the bacteria on the foliage it causes them to get sick and die."

Furthermore, Ree said that commercial sizes of Javelin are available for homeowners in

search for the use of computer maps to track the occurrence of the pecan nut casebearer.

The computer maps will be a "tool for producers to use to determine if they need to treat or not," Ree said.

The old computer map models were not as effective since the only used cities and dates to predict casebearer activity.

The new model will be a map of Texas which predicts the activity of the pecan nut casebearer based on degree-days, since the casebearer develops according to temperature, said Ree.

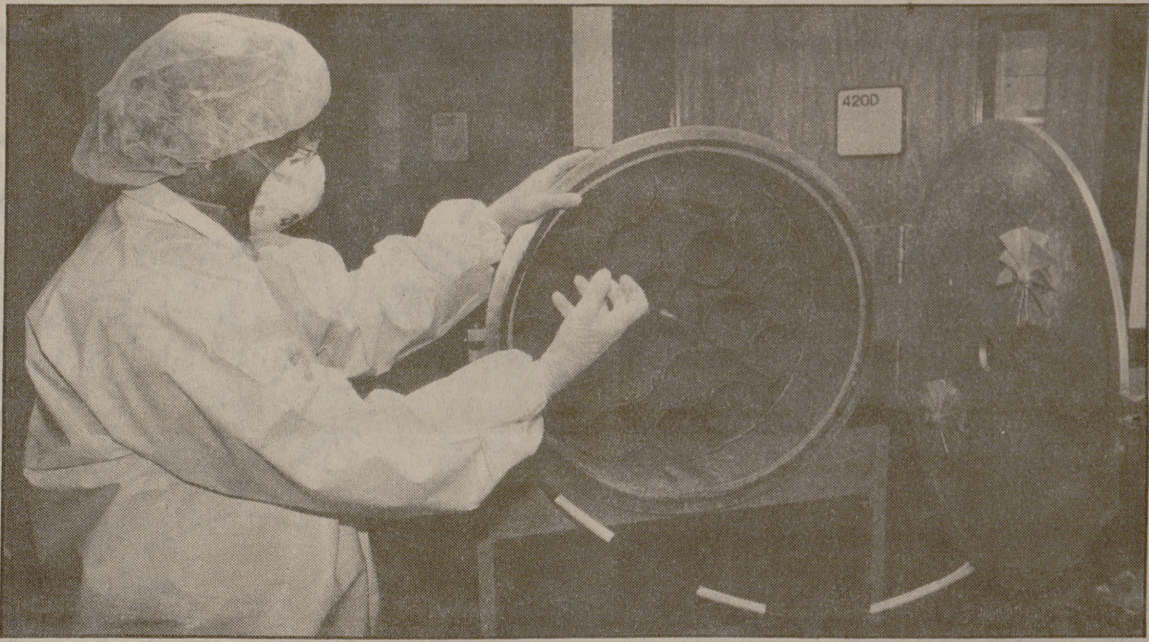
Jackman said the computer map is constructed through the Geographical Informational Services which produces a map of county lines running across it.

"Last year we took the data over to the department of forestry and they made a trial run and looked like it would be a success," said Jackman.

"We want to take the predictive information site-by-site and put it into a map form and make it available for the producers," Jackman said.

Tuberculosis resurges in age of AIDS

A&M medical professor researches disease in search for improved vaccine



NICK PENA/The Battalion

Dr. David McMurray explains how to use an aerosol infection chamber to infect guinea pigs for TB research.

By Robin Roach
The Battalion

Six years ago, medical professionals likely would have predicted that the number of cases of tuberculosis would drastically diminish in today's day and age. Just the opposite has happened.

The onset of AIDS has caused the reoccurrence of TB to prevail throughout the world.

"We thought tuberculosis was going away and it's not; it's back," said Dr. David McMurray, professor of medical microbiology at Texas A&M College of Medicine. "The reason why it's back is because HIV-infected individuals are very susceptible to tuberculosis, and tuberculosis is

the only infection AIDS people get that can be transmitted easily to normal individuals."

Tuberculosis is so common in HIV-infected individuals that the presence of the disease is often the initial signal that alerts one to believe he or she is HIV positive.

McMurray, in collaboration with other laboratories across the country and worldwide, is researching TB to find a vaccine that will be 100 percent effective.

There is a vaccine, Bacille Calmette Guerin (BCG), used in 120 countries, but for ethical and health policy reasons it is not used in the United States.

"The question now is, do we need to develop a new vaccine or do we need to reconsider the use of BCG in certain high risk popu-

lations," McMurray said. "For example, contacts of AIDS patients, health care personnel, prison personnel, people who work in shelters for the homeless — because that's where the tuberculosis is and that's where normal individuals come in contact with people who have TB."

McMurray and other researchers are conducting the research in order to develop an improved vaccine.

"The research is trying to understand the immune response against tuberculosis so that we can develop a better vaccine," McMurray said. "It really doesn't have to do with HIV, except in a peripheral way."

With the use of the facilities at the Texas A&M College of Medi-

cine, McMurray is working to test the experimental vaccines that other laboratories across the country have developed. To test the candidates for possible vaccines, guinea pigs are infected with tuberculosis so researchers can observe the effects of each vaccine after it is given to a human model.

"We need a species that is as susceptible to TB as humans are and it turns out the guinea pig is that animal," McMurray said. "The model attempts to mimic the human situation."

TB is easily transmittable through the air. It can be contracted by breathing the air after an individual infected with tuberculosis coughs.

An estimated one third of the world's population is infected with tuberculosis, and 10 million new cases develop each year.

In healthy individuals, drug therapy can cure TB, yet the disease continues to kill three million people a year worldwide. There are some types of the tuberculosis bacteria organism that are resistant to the drugs used to treat the disease.

"We've got the appearance of drug-resistant isolates that can't be treated effectively with the existing antibiotics," McMurray said. "We have the potential for a very large-scale epidemic."

McMurray has been researching TB for 20 years, 16 at A&M. He based his research for his doctorate, which he earned at the University of Wisconsin, on medical microbiology on tuberculosis.

"TB is a disease that too many people have just sort of forgotten about and the more that we get the word out of the increased risk, everyone will have a better understanding of the disease," McMurray said.

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