How researchers found corn cyst nematode

CHESTERTOWN, Md — A corn cyst nematode has been indentified in soil from four cornfields on one farm in Maryland's Kent county. This nematode, a microscopic worm has never before been reported in the Western Hemisphere.

How it came to be in the fields of Maryland is not know.

"We do not know at this time how destructive the pest will be," Krusberg says, "because no one in this country has had any experience with it. The infestation appears to be widespread and heavy in all four fields sampled.

"We will be conducting research studies to find out as much as possible about the nematode this summer," Krusberg continued.

He explained that soil will be sampled in adjoining fields and on adjoining farms radiating out from the original location, to see how widespread the infestation is. The scope of the survey will go as far as time, facilities and personnel will allow.

"We have obtained permission of the farmer to establish research plots to test corn cultivators for resistance to the nematode, to determine what other plants serve as hosts for the pests, and to test nematicides for its control," Krusberg said.

Even though this particular nematode has never been reported in the Americas, it might have been here for many years since corn originated in Central America.

H. zeae might still not have been isolated and identified except for a series of related events and some careful laboratory work by researchers at the University of Maryland The original soil samples containing this corn cyst nematode were collected as part of survey partially supported by Mobil Chemical Company with the cooperation of Roger W. Roth.

James Milliken, Kent County extension agricultural agent, submitted the soil sample to Krusberg's laboratory as part of the special Delmarva cooperative nematode survey. Krusberg thought there might be nematodes in the sample, but he expected to find the previously reported soybean cyst nematodes.

When Sandra Sardanelli, nematode assay laboratory manager, began to examine the soil samples, she did indeed find cyst nematode larvae. But they did not look like the expected soybean cyst nematodes.

"We knew it was something we had not seen before," she said, "because it did not fit the description of soybean cyst nematode and then we learned that the fields had been planted continously to corn for many years."

Krusberg and Michael Groff, of Maryland's Department of Agriculture, then resampled three of the four fields and all the samples yielded the same cysts.

Sardanelli began to look for possible answers to the problem. but since this particular nematode was never reported here, she was not aware of descriptions of it in the literature. She and Krusberg took their specimens to A. Morgan Golden, nematode taxonomist at the U.S. Department of Agriculure Nematology Laboratory in Beltsville.

Having been in India and having valid specimens from India in his possession, Golden was able to make positive identification of H. zeae

How the nematodes got to Maryland is still a mystery, but it is known that the tiny worms can be carried from place to place in small amounts of soil Windblown dust or water-borne silt can carry cysts containing live eggs and larvae from one place to another.

Even small amounts of soil eaten by birds and passed out through the digestive tract can carry live cysts. It is even possible for small particles of soil in seed lots to carry viable cysts.

Cyst nematodes can be particularly troublesome because of their high rates of reproduction and the resistant cyst.

One female nematode can produce hundreds of eggs which hatch in the soil and the larvae begin to feed on crop roots. But before the female dies, her body will enlarge greatly retaining large numbers of eggs and larvae. The female's body wall then hardens into the cyst which gives the pest its name, and the young are protected for periods up to several years.

While little is know about this particular nematode, Krusberg notes that several cultural practices can be used against nematodes in general

Crop rotations help keep populations in check because some nematodes thrive only on specific hosts Cyst nematodes can survive in the soil for several years, but breaks in continuous monocropping (corn after corn, for example) helps cut down the population.

Resistant cultivars, either those occurring naturally or ones produced by crossbreeding or selection from large populations, can tolerate fairly heavy infestations without economic loss.

And certain chemical nematicides can reduce populations. However, because of the high repopulations capability of nematodes, chemical control must be timed accurately and the results checked carefully to make sure that the pest numbers are sufficently reduced.

"No one knows for certain how much damage this particular pest will cause," Krusberg concludes, "but because it has been isolated and identified, we can be on guard against it."

Jersey club to seek top unregistered cows

COLUMBUS, Ohio — Approximately 60 agents have been approved by the Board of Directors of The American Jersey Cattle Club to seek out unregistered purebred Jerseys for Genetic Recovery enrollment.

The agents qualify these animals for type and production, according to Eugene P. Barton, Superintendent of Records of the Columbus, Ohio based association

The Genetic Recovery program was instituted in 1975 to identify superior unregistered purebred Jerseys and record their offspring by registered bulls in the AJCC Herd Register. Since the program's adoption, more than 35,000 Jerseys have been enrolled.

All AJCC Area Representatives and official type Appraisers, plus the Columbus-based staff, are approved to qualify these animals and to help dairymen get their unregistered Jerseys enrolled in Genetic Recovery.

An additional group of dairymen, active or retired, Extension personnel and industry associates is now actively seeking out pockets of unregistered Jerseys throughout the country.

These people work on a commission basis with the AJCC to get animals identified, qualified and enrolled

Persons wishing to have their unregistered purebred Jerseys enrolled in Genetic Recovery are encouraged to contact the AJCC office for the name of the agent located nearest to them.

Call or write: The American Jersey Cattle Club, P.O Box 27310, Columbus, OH 43227 Phone 614/861-3636