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For Immediate Release
April 8, 2011

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Corn Nematode Research Helps Michigan Farmers

LANSING, MICH. – With symptoms that are commonly mistaken as nutrient deficiency, disease or other problems, corn nematodes are corn-damaging pests that Michigan farmers frequently overlook. By damaging the plant's root system, nematodes can stunt growth and affect yields. As many nematologists around the Corn Belt believe populations of nematodes are on the rise, the minuscule pests present a growing threat to Michigan's nearly 12,000 corn farmers.

To help Michigan's farmers understand the impact of corn nematode damage and implement effective management practices, the Corn Marketing Program of Michigan (CMPM) has partnered with B&M Crop Consulting, Inc. to conduct corn nematode research. The main objective of this year's study was to determine baseline nematode levels across Michigan and evaluate their potential threat.

To accomplish these tasks, Missy Bauer, principal researcher, implemented a nematode sampling system throughout Michigan. The system used a sampling procedure that included 10 to 12 soil cores from the corn's root zone and five root balls for each sample. The samples were shipped to Michigan State University's Plant and Pest Diagnostic Lab for nematode analysis. In total, 366 samples were collected from twenty different counties and were processed and analyzed for dagger, lance, lesion, needle, pin, spiral, stubby root and stunt nematodes.

Since each nematode has its own threshold and multiple nematodes are often present in one sample, a risk index is used to label the sample results. The risk index levels are as follows: 0 – non-detected; 1 – low; 2 – moderate-2; 3 – moderate-3; 4 – high; and 5 – severe. Of the 366 corn nematode samples, 7.1 percent of the samples had a high to severe risk index level and are therefore subject to yield loss due to corn nematodes. Those results with a risk index of moderate-3 would also have a potential for yield loss, and nearly 15 percent of samples fell into this category. In total, the survey indicated that yield loss may be occurring from nematodes in 22 percent of corn fields and Michigan corn growers should monitor their fields for the pest.

Although only 22 percent of the samples had moderate to high risk levels, 97.5 percent of the samples contained nematodes at some level. The most common nematode detected was the lesion nematode, which was found in 83 percent of samples. The dagger nematode was detected in 39 percent of samples. Both lesion and dagger nematodes are considered moderate risk as they can cause yield reduction. Spiral and stunt nematodes (lower risk) were in 59 percent and 46 percent of the samples, respectively. The lance and stubby root nematodes present only moderate risk, however, these were found in 6 percent or less of the samples. The pin nematode, considered to be low risk, was detected in 5 percent of the samples. Fortunately, the needle nematode (very high risk) was found in only 1 percent of the samples.

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This survey indicates that corn nematodes are common in Michigan and that there is a potential yield threat for farmers. Corn growers in Michigan should be sampling their own fields to determine how common nematodes are and their potential risk index. There are currently seed treatment products on the market which offer protection from yield loss as the result of corn nematodes. These products should be utilized in fields that have a moderate-3 or above risk index to determine if higher yields can be achieved.

“Farmers should be aware of all potential threats to their crops,” said Clark Gerstacker, CMPM president, National Corn Growers Association Corn Board member and corn grower from Midland. “Nematode damage usually goes undiagnosed, which means farmers are suffering yield losses they don’t need to. This baseline research is very valuable for growers across Michigan as it will help to bring awareness to the issue and aid farmers in correctly identifying nematode problems.”

Headquartered in Lansing, the CMPM is a legislatively-established statewide program that utilizes one-cent per bushel of Michigan corn sold. Investments are made in the areas of research, education, market development, and new uses in an effort to enhance the economic position of Michigan corn farmers. The CMPM works cooperatively with the Michigan Corn Growers Association (MCGA), a grassroots-membership association representing the state’s corn grower’s political interests since the 1970’s. Michigan’s corn industry adds more than one billion dollars to the state’s economy annually and in 2010, Michigan’s corn farmers harvested a record setting crop of more than 315 million bushels. For more information, visit the website of the MCGA and the CMPM at [w.ww.micorn.org](http://www.micorn.org).

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