



Status of Invasive Field Crop Pests in Minnesota

2025 Annual Report

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Minnesota Department of Agriculture

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Surveys for Field Crop Invasive Pests

Several emerging and invasive insects and plant pathogens threaten Minnesota commodities. These pests have the potential to cause problems for both production and export if they become established. The Minnesota Department of Agriculture (MDA), along with partners at the United States Department of Agriculture (USDA), conducts an annual review of invasive pests that pose the greatest threat to crops in Minnesota. Many of these pests have not been found in Minnesota, while others are present but not widespread.

Survey efforts are designed to detect these pests early by targeting high-risk areas. Commodity crops represent a large portion of Minnesota's agricultural industry. Surveys are focused on counties with the highest acreage of the commodities being monitored.

Corn Survey

In 2025, the MDA monitored corn fields for several invasive pests that are currently not known to occur in Minnesota or that have limited distributions within the state. These surveys were jointly funded by the USDA Animal and Plant Health Inspection Service (APHIS) Plant Protection Quarantine Program (PPQ) and the MDA. Table 1 shows the target pests and survey methods used.

Table 1: Survey target pests and survey methods.

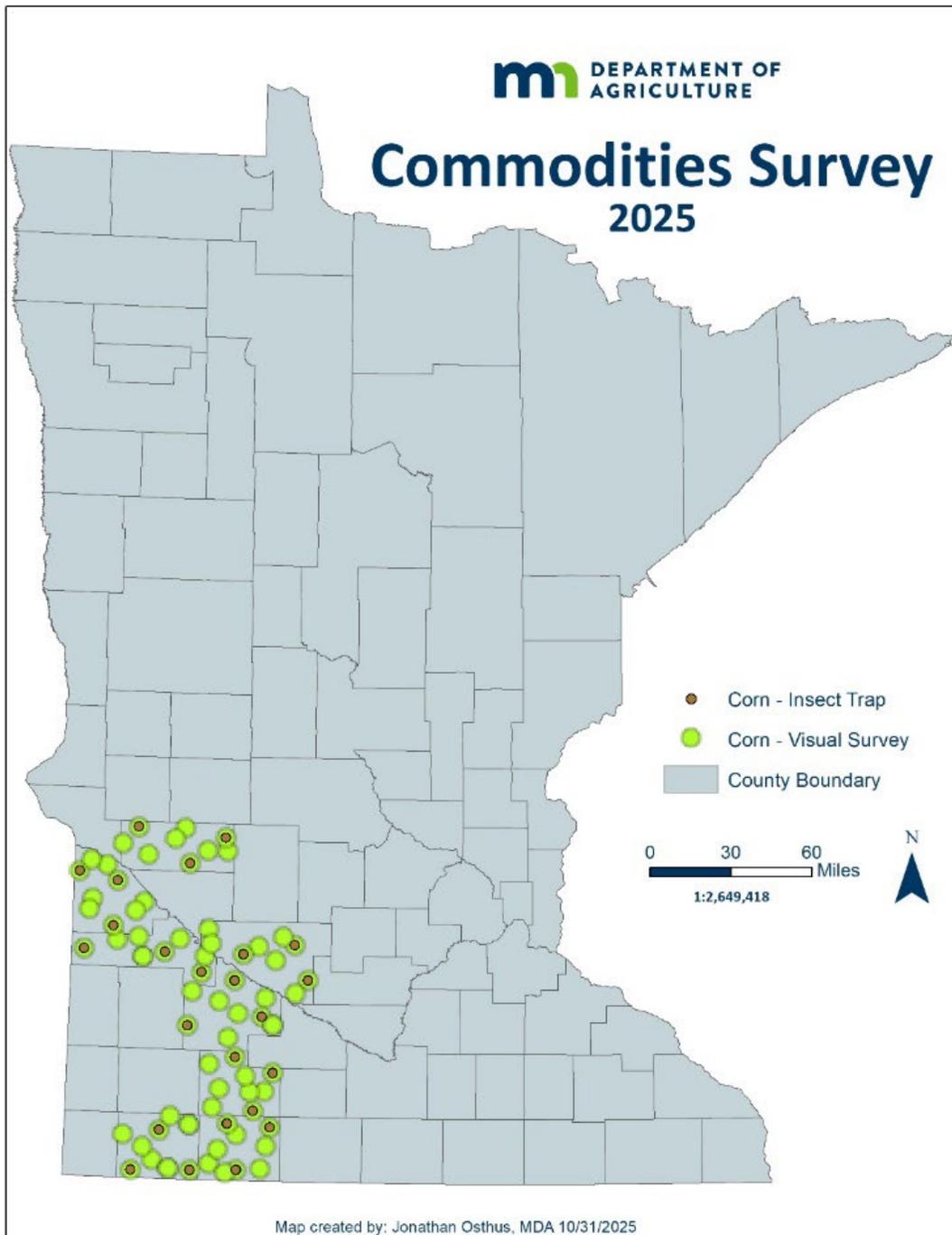
Survey	Scientific Name	Common Name	Survey Method
Corn	<i>Helicoverpa armigera</i>	Old World bollworm	Trap and pheromone lure
Corn	<i>Autographa gamma</i>	Silver Y moth	Trap and pheromone lure
Corn	<i>Diabrotica speciosa</i>	Cucurbit beetle	Visual observation
Corn	<i>Halyomorpha halys</i>	Brown marmorated stinkbug	Visual observation
Corn	<i>Magnaporthiopsis maydis</i>	Late wilt of corn	Visual observation
Corn	<i>Peronosclerospora philippinensis</i>	Philippine downy mildew	Visual observation
Corn	<i>Phyllachora maydis</i>	Tar Spot	Visual observation
Corn	<i>Popillia japonica</i>	Japanese beetle	Visual observation
Corn	<i>Puccinia polysora</i>	Southern corn rust	Visual observation

Visual Survey

Corn fields were visually inspected for the presence of target pests. Each field was surveyed at four locations, with 10 plants randomly selected for observation, for a total of 40 plants per field. Fields were objectively selected for survey, but an effort was made to space sampled fields throughout each county (Figure 1). Fields were scouted for target pests (Table 1) from mid-June through mid-August.

Southern corn rust, caused by *Puccinia polysora*, and tar spot, caused by *Phyllachora maydis*, were the only target diseases identified in corn in 2025.

Figure 1. Corn fields surveyed in 2025.



Southern Rust

Southern rust, caused by the fungus *Puccinia polysora*, can reduce corn yield by stealing nutrients from the crop and causing premature dry down. This plant pathogen prefers temperatures over 80°F and needs a live plant to survive. Although it is not likely to overwinter in Minnesota, southern rust produces thousands of airborne spores that are carried north on wind currents each year. Spores need high temperatures and high humidity to infect corn plants. Once infection occurs, new spores are produced in as little as seven days, resulting in new infections in the crop. In 2025, Southern rust was found at five sites in Nobles, Lac Qui Parle, Redwood, Renville, and Yellow Medicine counties. The first infections were detected in late July.

Figure 2. Orange pustules of Southern rust on the upper surface of a corn leaf.



Tar Spot

Tar spot is a fungal disease of corn caused by *Phyllachora maydis*. Raised, black, shiny leaf spots form on infected corn leaves and occasionally on husks. Tar spots can be found on both green and brown leaf tissue and cause the most damage when significant portions of the leaf are infected.

Tar spot was first reported in Indiana in 2015 and has since spread throughout the upper Midwest and into Canada. In Minnesota, tar spot was first reported in 2019 in Fillmore, Faribault, Winona, and Freeborn counties. Since then, it has spread through the state and is now present in most counties in southern Minnesota (<https://corn.ipmpipe.org/tar-spot/>). In 2025, MDA field staff identified tar spots in five fields across Jackson, Nobles, and Redwood counties.

Trapping Survey

Plastic bucket traps (Figure 3) with species-specific pheromone lures were placed to monitor for Old World bollworm, (*Helicoverpa armigera*) and Silver Y moth (*Autographa gamma*) at 24 sites across eight counties. At each site, traps for both insects were placed at least 65 feet apart along field edges. Traps were checked and lures changed mid-season. Trap samples were screened and specimens that could not be eliminated as target species were submitted to the MDA Laboratory Services Division. Specimens that could not be eliminated as suspects by the MDA were submitted to the USDA for final identification. No target insects were found in 2025.

Figure 3. Plastic bucket trap hanging next to a corn field.



Potato Survey

Potatoes grown for seed are at high risk for moving certain soil-borne pathogens. Unlike potatoes grown for other uses, seed potatoes are not washed at any time and replanted back into the soil. Some of the most important soil-borne pathogens affecting seed potatoes are nematodes that produce cysts.

Nematodes are microscopic worms that feed on the plant roots, reducing growth and yield. Female cyst nematodes attach to potato roots to feed. When the female dies, she can have 200-600 eggs inside of her. Her body then forms a tough protective casing called a cyst that protects the eggs and allows them to survive in a field for many years. One cyst moved on a seed potato can introduce hundreds of plant parasitic nematodes into the field where the seed is planted. Several cyst nematodes are considered quarantine pests. Detection of these pests can result in severe, long-term restrictions on the movement of plant material and equipment from affected areas.

To export seed potatoes to Canada, a grower must have documentation confirming that the field from which the seed potatoes were harvested was free of potato cyst nematodes (PCN) based on a survey following USDA guidelines. The MDA surveys Minnesota seed potato fields for two species of PCN, pale cyst nematode (*Globodera pallida*) and golden nematode (*Globodera rostochiensis*). Both are quarantine pests in potato growing areas worldwide, including the United States.

The Minnesota PCN survey has been conducted annually since 2009. As a result of the longevity of this project and careful record keeping, the MDA can identify fields that qualify for exemption from sampling based on the 2014 USDA guidelines. Minnesota was the first state to have a field qualify for exemption based on this survey.

Survey Procedure

After harvest, samples are taken of the surface soil of the seed potato crop at the rate of one five-pound sample per acre. Samples are collected by hand and with a mechanical sampler.

Table 2: Potato pest targets and survey methods in 2025.

Scientific Name	Common Name	Survey Method
<i>Globodera pallida</i>	Pale cyst nematode	Soil sample
<i>Globodera rostochiensis</i>	Golden nematode	Soil sample
<i>Heterodera ciceri</i>	Chickpea cyst nematode	Soil sample
<i>Heterodera schachtii</i>	Sugar beet cyst nematode	Soil sample

Survey Results

In 2024, soil samples were collected from 405 acres in Clay, Kittson, Itasca, Lake of the Woods, Red Lake, Sherburne, and Wadena counties at the request of seed potato growers. Three fields totaling 595 acres in Lake of the Woods County qualified for exemption in 2024 and did not require sampling. All soil samples were sent to the USDA pale cyst nematode lab in Idaho for processing and identification of cyst nematodes. No target cyst nematodes were detected in 2024.

In 2025, soil samples were collected from 490 acres in Clay, Cass, Marshall, Lake of the Woods, and Norman counties at the request of seed potato growers. Two fields totaling 210 acres in Lake of the Woods County qualified for exemption in 2025 and did not require sampling. All soil samples will be sent to the USDA pale cyst nematode lab in Idaho for processing and identification of cyst nematodes. Results for 2025 are pending.

More information on potato cyst nematodes is available on the [MDA PCN webpage](#).

For More Information

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