

## Golden Nematode

The golden nematode is one of the world's most damaging potato pests. First detected in the United States in 1941 in Nassau County on Long Island, New York, it was subsequently found in eight other New York counties. For over 60 years, an effective Federal and State quarantine program has confined the pest to nine counties in New York. If golden nematode were to become more widely established in U.S. potato, tomato, and eggplant production areas, annual crop losses could reach \$4.8 billion.

### Background

The golden nematode is primarily a pest of potatoes and is also referred to as a species of potato cyst nematode. In the larval stage, it bores into the roots of host plants and feeds on their juices. Because the above-ground damage is not visible during the early stages of infestation, the pest can remain undetected for years. The first sign of a golden nematode infestation is poor plant growth in one or more areas of a potato field. As an infestation builds, the damaged area increases and eventually the entire field displays poor plant growth. Large numbers of the nematodes cause wilting, stunted growth, poor root development, and early plant death. Golden nematodes can also reproduce on the roots of eggplant, tomatoes, and several solanaceous weeds.

### Life Stages

The golden nematode goes through three life stages—egg, larva, and adult. The process can take anywhere from 38 to 48 days. The eggs are enclosed in protective cysts that are the size of pinheads and can contain up to 500 eggs and larvae. The eggs remain inactive in the soil until they are stimulated by a chemical released from the roots of the host plant. The larvae then migrate and enter the roots. Without host plants on which to attach themselves, nematode cysts can remain dormant for up to 30 years.

### Golden Nematode Survey in New York

The U.S. Department of Agriculture's Animal and Plant Health Inspection Service (APHIS) and the New York State Department of Agriculture and Markets work together to prevent the spread of golden nematode to uninfested areas. Since 1944, this successful Federal/State partnership has been aggressively using survey, quarantine, and control methods with the

goal of eradicating this destructive pest. Plant health inspectors collect soil samples from potato fields and potato-grading stations. To ensure an early detection of any new golden nematode infestations, all potato-producing areas in New York are surveyed annually.

### Control Efforts

The golden nematode is spread primarily by the transport of cysts in soil. Spread may occur through the movement of soil adhering to farming equipment, seed potatoes, nursery stock, flower bulbs, and potatoes. To prevent this type of spread, field workers must clean and disinfect equipment before moving it from an area infested with golden nematode. Growers should plant vegetation strips (sod strips, hedgerows, etc.) between fields and along highways and plant cover crops as soon as possible when the land is not in use.

The primary means of controlling golden nematode is through the systematic planting of nematode-resistant potato varieties in rotation with non-host crops. Since the discovery of golden nematode in the United States, more than 40 new nematode-resistant potato varieties have been developed. Scientific research has proven crop rotation to be an effective tool in keeping fields in production and decreasing the chances of a golden nematode infestation. Potato growers should rotate potato crops with non-host crops such as corn, soybeans, or wheat. Nematicides, a chemical product used to control nematodes, may also be used in special situations.

APHIS' Plant Protection and Quarantine officers diligently search for nematodes in shipments from foreign countries containing soil, burlap bags, and packing straw. Due to the presence of golden nematode in nine New York counties, the interstate movement of potatoes, equipment, and other regulated materials is restricted from those areas.

### How You Can Help

You can help prevent the spread of golden nematode by taking the following precautions:

- Do not use secondhand containers such as burlap bags, crates, and barrels when harvesting potatoes;
- Do not bring used machinery on a farm unless it has been steam-cleaned or fumigated;
- Do not spread soil and debris from potato-grading operations onto farm lands;
- Plant only non-host crops or nematode-resistant potato varieties in rotation with non-host crops on

land where golden nematode is known or suspected to occur;

- Plant only certified seed; and
- Rotate crops on potato fields, but do not plant tomatoes or eggplants in the rotation.

To learn more about golden nematode, please visit:  
[http://www.aphis.usda.gov/plant\\_health/plant\\_pest\\_info/nematode/index.shtml](http://www.aphis.usda.gov/plant_health/plant_pest_info/nematode/index.shtml)

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