

GOLDEN NEMATODE PROGRAM UPDATE

Daniel Kepich
USDA APHIS PPQ
Avoca, NY

In 2015, through the combined efforts of NY State Growers, New York State Department of Agriculture and Markets, Cornell University and USDA, work continued on control and ultimately eradication of a destructive pest of potato known as the Golden Nematode. Thus far, the area under quarantine has been reduced by 76%, from 1,287,207 acres in 9 counties to 380,316 acres in 8 counties. Growers and industry benefit as shipments of potatoes and other crops are no longer subject to quarantine restrictions.

A control strategy using crop rotations of GN resistant potato varieties and non-host crops, combined with careful sanitation of farm equipment, and surveillance through annual soil testing has resulted in the nematode being no longer detectable in areas which had been under quarantine for many years.

Soil sampling is conducted annually in potato production fields throughout New York to ensure agricultural land remains free from this nematode and to detect possible nematode redevelopment on previously infested land or new infestations. In 2015 there were 7,712 soil samples collected from 2,251 acres in 13 counties.

In 2015, there were no detections of GN outside the quarantined area. There was one detection of GN on a previously infested field in upstate New York.

Control of GN is accomplished through strict sanitation to prevent soil movement from infested fields and through crop rotations using resistant potato varieties and non-host crops. In 2015, State and federal personnel performed high pressure washing and steam treatments for more than 5,000 pieces of used farm equipment to prevent spread of GN.

The GN biotype normally found in New York is known as Ro1. One of the challenges facing the program is the control of a second biotype of GN known as Ro2. Ro2 is a genetic variant that develops in fields where multiple consecutive crops of potatoes resistant to the Ro1 strain have been grown. Scientists at USDA and Cornell University are working to develop potato varieties that have resistance to both Ro1 and Ro2.

Although the genetic traits of Ro2 make development of resistance is extremely difficult, there is good news on this front. The variety NY-140, developed by the Cornell Potato Breeding Program, led by Dr. Walter de Jong, has been confirmed to have Ro2 and Ro1 resistance. Field testing was conducted over the past three years in fields where GN Ro2 was detected. Soil samples taken from these fields were negative for GN indicating NY-140 controls both Ro1 and Ro2. Additionally, NY-140 has the marketing qualities and yield growers need. Fourteen years of painstaking plant breeding work by the Cornell team has paid off with this excellent new variety. Stay tuned for a variety name to replace “NY-140.”

The successful containment of GN in New York for over 70 years is the result of hard work by everyone involved. Growers in particular play a key role. As a reminder, here are Best Management Practices that will help keep agricultural production land free from destructive nematodes and diseases:

Best Management Practices to Prevent Spread Nematodes and other Soil-Borne Organisms

- Clean soil from machinery, trucks and equipment before moving it to another field.
- Do not spread grader soil and debris from potato handling operations on farm land.
- Leave hedgerows, sod barriers or sod strips between fields and along highways.
- Weeds in the Solanaceae family such as nightshade can serve as alternate hosts for GN and should be eliminated from potato production areas.
- Avoid planting consecutive potato crops. Grow non-host crops such as corn, and grains in rotation with potatoes.
- For fields in which GN has been detected, do not plant potatoes resistant to GN Ro1 consecutively for multiple years because this can result in GN Ro2 developing.
- Plant cover crops as soon as possible when land is not in use to prevent GN spread by erosion.
- Segregate potatoes in storage—each field should have a definite separation.
- Do not use used bags, containers, etc. for potato transport, and be sure all commercial transport vehicles are free of soil.
- Do not permit employees, custom applicators, hunters or utility companies to bring their vehicles onto your farm land without proper sanitation and do not allow them to bring any equipment, bags, etc. with them to the field.
- Do not use common headlands, farm roads and public roads as turning areas.
- Prohibit non-authorized entry onto farmlands using “No Trespassing” signs.
- Do not assume that non-regulated fields are free of the nematode or disease.
- Good sanitation practices will keep your farm healthy, productive and more profitable in the long run.

Additional information is available at <http://www.aphis.usda.gov/ppq/ispm/nematode/index.html> or by calling USDA APHIS at 607.566.7060 or NY Dept. of Agriculture and Markets, Division of Plant Industry at 518.457.2087.