



# Invasive Nematodes

6A

## Potato Cyst Nematodes

Photo: Ulrich Zunke,  
University of Hamburg,  
Bugwood.org



Photo: Ulrich Zunke,  
University of Hamburg  
Bugwood.org



6B

## Pine Wilt Nematode

Photo: USDA Forest Service - Region 2 -  
Rocky Mountain Region Archive,  
USDA Forest Service,  
Bugwood.org



Photo:  
L.D. Dwinell, USDA  
Forest Service,  
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6C

## Cereal Cyst Nematodes

Photo: DAFF Archive, Bugwood.org





Ulrich Zinke, University of Hamburg, Bugwood.org

## Potato Cyst Nematodes

**Class: Secernentea**

**Order: Tylenchida**

**Species: *Globodera* spp.  
(numerous species)**

Potato Cyst Nematodes (PCN) are microscopic roundworms which are parasitic to plants. The PCNs don't actually feed on potato tubers, but rather on the roots which feed the tubers. Female PCNs attach themselves to the roots and stay sedentary there. Females lay up to 200-600 eggs at a time which are contained in cysts. Cysts can lay dormant in the soil for up to 30 years, making control of nematodes difficult. PCN's live in soil and plant tissues, and more than one species may occur in a field. Farmers must use extra caution as soil sticking to farm equipment and harvested potatoes provide the means for this nematode to spread. Tomatoes, eggplant, and other plants in the nightshade family are very susceptible to these parasites. You can help stop the spread of Potato Cyst Nematodes by planting certified potato root stock and reporting any sightings to your local Extension office. For more information and to visit the source link to:

[http://www.aphis.usda.gov/publications/plant\\_health/content/printable\\_version/pa\\_potatocyst.pdf](http://www.aphis.usda.gov/publications/plant_health/content/printable_version/pa_potatocyst.pdf)

<http://www.agri.idaho.gov/Categories/PlantsInsects/PlantDiseasesAndOtherPests/Documents/PCNPestAlert.pdf>

<http://www.inspection.gc.ca/plants/plant-protection/nematodes-other/potato-cyst-nematodes/inspection/eng/1337016451272/1337016555455>



USDA Forest Service - Region 2 - Rocky Mountain Region Archive, USDA Forest Service, Bugwood.org

## Pine Wilt Nematode

**Class: Secernentea**

**Order: Aphelenchida**

**Species: *Bursaphelenchus xylophilus*  
(Steiner & Buhrer) Nickle**

Pine wilt is a pine tree destroying disease that kills affected trees in a very short period of time, less than 3 months. The pine wood nematode (*Bursaphelenchus xylophilus*) which causes affected pine trees to die is microscopic. Most plant-parasitic nematodes are associated with plant roots, but the pine wood nematode is found in aboveground parts of the tree. The nematodes are moved as they hitch a ride with pine sawyer beetles (*Monochamus* spp.), which fly from tree to tree. Many different species of pine trees are susceptible to this disease. The pine wood nematode was found widely distributed in the United States after its rediscovery in a dying tree in 1979. In the United States, the highest incidence of the disease is currently in the Midwest. Worldwide, the problem is epidemic in Japan and other parts of Asia. For more information and to visit the source link to:

[http://www.na.fs.fed.us/spfo/pubs/howtos/ht\\_pinewilt/pinewilt.htm](http://www.na.fs.fed.us/spfo/pubs/howtos/ht_pinewilt/pinewilt.htm)

<http://www.apsnet.org/edcenter/intropp/lessons/Nematodes/Pages/PineWilt.aspx>



DAFF Archive, Bugwood.org

## Cereal Cyst Nematodes

**Class: Secernentea**

**Order: Tylenchida**

**Species: *Heterodera*  
spp. (numerous species)**

Cereal Cyst Nematodes (CCN) are cereal crop destroyers. Plant nematodes are tiny (less than 1mm) roundworms that occur worldwide in nearly all environments. Although many nematodes are beneficial to agriculture because they help crop residue decay and are important members in the food chain, about 15 percent of the species are parasitic to plants and cause massive crop losses. CCNs spread rapidly as they can move on shoes, equipment, plants, and by wind and water. CCNs affect roots of crops causing poor root growth and stunting. There are several species of cyst nematodes that affect cereal crops worldwide. CCN detection and identification require the services of a professional nematologist. For more information and to visit the source link to:

<http://bit.ly/1KT62wh>