Potato Cyst Nematodes

PLANT PEST FACTSHEET

Figure 1. Swollen females of the white potato cyst nematode (*G.pallida*) on potato roots (x10)

Hosts

Potato is the most important host for both *Globodera pallida* (the white potato cyst nematode) and *G. rostochiensis* (the yellow potato cyst nematode) (Fig.2). However, potato cyst nematodes (PCN) also attack other solanaceous plants, e.g. tomato, aubergine and, occasionally, weeds such as bittersweet (*Solatium dulcamara*). Each species of PCN has several pathotypes; these differ in their ability to multiply on different potato cultivars.

Geographical Distribution

Widespread in Europe, including the UK; also South America, where they originated. Present to a more limited extent in all other continents. The number and range of pathotypes vary from country to country.

Sources

Mainly introduced by cysts of the nematode in soil attached to potato tubers, farm machinery or footwear; they are only rarely introduced by infested tubers, if certified seed is used. Cysts are also spread locally by wind and floodwater.

Description and Life Cycle

The juveniles and adult male nematodes are worm-like, less than 1 mm long and transparent. They feed within the roots and are not easily seen. As each female matures it swells and becomes almost spherical, bursting through the root wall. Only

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the head of the female remains embedded in the root. The swollen female is shiny, spherical, less than 1 mm in diameter and initially white or cream-coloured. The female of *G. rostochiensis* passes through a prolonged golden-yellow phase as it matures. When the female of either species dies, its body forms a dark, reddish-brown cyst with a hard skin. Each cyst usually contains 200-600 eggs (Fig.3). If infested plants are lifted carefully, the swollen females or the cysts appear as small bead-like objects attached to the roots. With severe infestations, cysts may occasionally be seen on the surface of tubers. At harvest, most cysts become detached from the roots and remain in the soil as a source of infestation for future potato crops. In the absence of host plants, most eggs hatch within 7 years, and the population declines. However, some eggs remain viable in the soil for 10 or more years. A related species, *Globodera achilleae*, attacks yarrow (*Achillea millefolium*), which is found in meadows, hedgerows and field margins. Therefore, care is needed in the laboratory diagnosis of cysts.

Damage

The nematodes damage the roots and reduce yield, even when infestations produce no obvious symptoms in the haulm. With severe infestations, roots are more seriously damaged and may be killed. Severely infested plants are stunted, often chlorotic and typically occur in patches. Rhizoctonia and other fungal diseases associated with nematode feeding may also contribute to the yield loss.

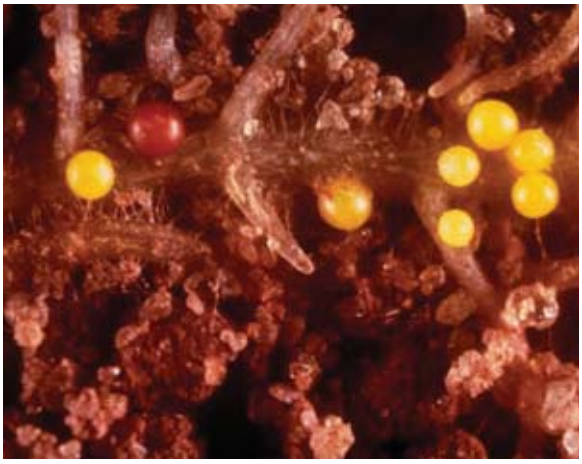

Figure 2. Swollen females and brown cyst of the yellow potato cyst nematode (*G.rostochiensis*) on potato roots (x10)

Figure 3. A Potato Cyst Nematode containing viable eggs and 2nd stage juveniles

Contact

For more information on PCN diagnostic services please contact
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