



A Guide for Managing PCN in Great Britain – Essential Facts



THE PEST

1. The potato cyst nematode (PCN) species inhabiting UK soils are *Globodera rostochiensis* and *Globodera pallida* and are just a small proportion of the numerous nematode species found in UK soils.
2. Since the 1960's there has been a shift in soil populations of PCN from mainly *G. rostochiensis* to *G. pallida* thanks to the introduction of the 'H1 resistance' gene in many of the potato varieties e.g., Maris Piper now being grown in the UK.
3. There are a number of pathotypes within both species of PCN and the H1 gene confers resistance only to *G. rostochiensis* pathotype 1 (Ro1).
4. PCN co-evolved as root parasites of wild potato and other Solanaceae plant species and have adapted to survive, as eggs within hard robust cysts, for long periods (20+ years) in the absence of a host plant.
5. Each cyst can contain up to 600 eggs which are actively stimulated to hatch by the presence of potato root exudates.
6. The juvenile nematodes migrate along the root exudate gradient towards the root tips, enter the roots and grow into either adult males, which exit the roots to mate, or adult females, which remain attached and develop within the roots.
7. Fertilised females ultimately evolve into the egg containing cysts and can be seen attached to roots and tubers in PCN affected crops.



8. PCN infected soils can impact upon crop yield by up to 80% depending upon:
 - a) The initial PCN population.
 - b) The tolerance of the variety grown to PCN feeding.
 - c) Any other stress that the crop is suffering (Eg: drought, excess water, soil compaction, etc).
 - d) Secondary infection of potato plants, weakened by PCN feeding, by opportunist pathogens E.g., *Rhizoctonia solani*.
9. PCN is classified as a quarantine pest in the UK and, as such, is referred to in a number of UK regulations which are listed within the following Defra Plant Health Portal link: [Plant pest factsheet PCN](#)

Spread and Multiplication of PCN

1. PCN is mainly spread through the transfer of soil and/or the use of potatoes as farm saved seed from contaminated fields.
2. PCN cysts can also be spread as a result of soil wind erosion or surface water run-off from contaminated fields.
3. Growing a susceptible variety can result in up to a 30+-fold multiplication of the PCN population in 1 year with an equal further multiplication the next year if groundkeeper potato plants are inadequately controlled.
4. The soil PCN population will naturally decline over time but, in the absence of any control measures, it can take 10+ years for a high population (100 g-1 soil) to decline enough (3-11 eggs g-1 soil) to economically grow an intolerant variety.
5. Seed potatoes produced within the Seed Potato Classification Scheme must be produced on land sampled and found free of PCN.