

A better understanding of a major potato pest: improved crop management?

Harper Adams University

Current Postgraduate Research Briefing



Most destructive pest of potatoes

The potato cyst nematode is the most destructive pest of the potato crop in the UK and has been estimated to cause £26 million worth of damage annually.

Potato growers need more information on the populations of this nematode living in UK soils. Improved yet cost-effective testing on the potential strength and likelihood of infestation is also vital for them to make more informed decisions on potato management and control methods.

Recent research indicates that the distribution of the two important **potato cyst nematode** species (*Globodera pallida* and *Globodera rostochiensis*) in UK soils has changed since a previous survey around 15 years ago. Clearly, there is a need for more detailed research to update the current distribution map, as well as identifying variation between nematode populations.

Study aim

This study aims to: conduct a survey of the **potato cyst nematode** populations in soils throughout Great Britain; identify the most suitable method for assessing the viability of populations of this nematode; and examine variation between populations in terms of their ability to infest different potato varieties.

Using The Princess Margaret Laboratories and Nematology Laboratory

In **the Nematology Laboratory**, nematode species are extracted from the soil samples. Microscopes and imaging software provide a means of initial identification. Standard nematode egg-viability tests are then undertaken. More precise tests are on-going in **the Molecular Diagnostics Laboratory** (see panel) within **the Princess Margaret Laboratory complex**.



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What next?

In the future, the project will aim to compare and develop various methods to estimate the viability of the nematode eggs, before testing the most promising method under field conditions.



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PhD programme

This briefing outlines the initial work of a three-year PhD research programme by **Katarzyna Dybal**, Postgraduate Researcher.

Director of Studies :

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The Molecular Diagnostics Laboratory

Quantitative polymerase chain reaction (qPCR) equipment is being used to more precisely identify and quantify the **potato cyst nematode** species via their DNA.



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