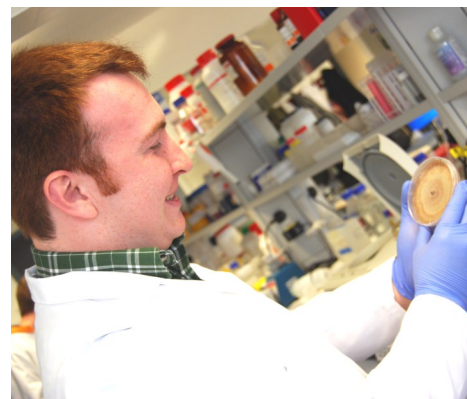


Getting to the root of disease problems in oilseed rape

Harper Adams University

Current Postgraduate Research Briefing



Oilseed rape and loss of yield

Oilseed rape is an important worldwide crop, grown for its oil-rich seeds from which industrial lubricants, cooking oils and, increasingly, biodiesel are produced.

In the UK, the area planted has increased dramatically since its introduction in the 1960s, resulting in it being the third most commonly-grown arable crop. However, during the last 20 years, crop yields have failed to reach their full potential.

The loss in potential yield is thought to be associated with an increase in oilseed rape cropping. This has resulted in the build-up of diseases caused by fungi and nematodes present in the soil.

Little research has been undertaken on these types of diseases in agricultural crops, particularly oilseed rape. In some situations, nematodes and fungi can work together to exacerbate diseases.

Study aim

This study aims to investigate the occurrence of the **beet cyst nematode** and six fungal diseases present in UK soils. The research will then focus on how these organisms interact to accentuate the disease symptoms in oilseed rape.

Use of The Princess Margaret Laboratories

DNA was extracted from root samples of oilseed rape in **the Molecular Diagnostics Laboratory**. The quantity of fungi and nematodes are being determined, via their DNA, using the **quantitative polymerase chain reaction (qPCR) equipment** (see panel photo).

Fungi are cultured from infected plant material and from the soil using **the Microbiology Suite of laboratories**,



harper.ac.uk/labs

What next?

In the long-term, finding out about the causes of loss in oilseed rape yield should enable future management strategies to be developed.



harper.ac.uk/research

PhD programme

This briefing outlines the initial work of a three-year PhD research programme by **Alex McCormack**, a graduate of Harper Adams University and now Postgraduate Researcher.

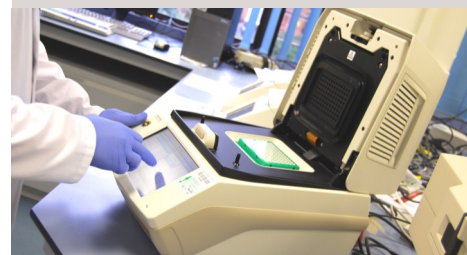
Director of Studies :

Dr Matthew Back, *Senior Lecturer/Researcher in Plant Pathology and Nematology.*

Harper Adams University

Nematology Laboratory

Nematodes are being extracted from soil samples using facilities in **the Nematology Laboratory**. **Microscopes** and **imaging software** provide a means of initial identification.



Analysing DNA using qPCR machine

Acknowledgements

The external funding from HGCA-AHDB, the Morley Agricultural Foundation and the Felix Thornley Cobbold Agricultural Trust is gratefully acknowledged.



Harper Adams
University