

PhD Projects at Warwick Crop Centre

Liam Harvey¹ - *The role of naturally occurring insect pathogenic fungi in regulating aphid populations on vegetable Brassica crops (HDC).*

- Aphids are important pests of Brassicas and control relies on chemical insecticides.
- Aphid population dynamics are characterised by a mid-season population 'crash'.
- Natural enemies, particularly entomopathogenic fungi, are implicated in the crash, but little is known of their biology.
- This project aims to quantify the effects of entomopathogenic fungi on aphid populations on field brassicas and to develop a forecast model of infection which would alert growers when a crash is imminent, allowing them to withhold insecticide sprays.



Lauren Chappell² – *Exploiting Next Generation Sequencing to investigate the genetics of parsnip root disease resistance and develop a marker assisted breeding strategy (BBSRC & Elsoms).*

- Parsnips are a speciality crop within the UK.
- Losses due to root canker, caused by fungal pathogens, are the major constraint to production.
- The project will increase understanding of the epidemiology of canker pathogens, use specific plant bioassays to identify resistant parsnip breeding lines and develop markers for mapping QTL conferring resistance.
- This will improve the sustainability of parsnip production in the UK.

Rachel Warmington³ – *Pathogen diversity, epidemiology and control of sclerotinia disease in vegetable crops (HDC).*

- *Sclerotinia sclerotiorum* is a fungal pathogen with a world wide distribution and host range of over 400 plant species, including many important crops.
- Current control methods include fungicides and cultural practices such as crop rotations.
- This project is assessing the effectiveness of organic soil amendments (focusing on biofumigation using Brassicas) as a new control measure.
- It is also investigating the effect of pathogen diversity on aggressiveness and the diversity and epidemiology of a related species, *Sclerotinia subarctica*, only recently discovered in the UK.



Spencer Collins⁴ – *The biology of the cabbage whitefly, Aleyrodes proletella (HDC).*

- Cabbage whitefly has become an increasing problem for the Brassica industry, especially on Brussels sprout and kale.
- Knowledge about its biology and ecology is limited.
- This project will increase understanding of whitefly ecology to inform an IPM strategy to prevent large infestations developing within a crop and increase the efficiency of control methods.



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