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.







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.

- 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.
- 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.
- 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.

Spencer Collins⁴ – The biology of the cabbage whitefly, Aleyrodes

 It is also investigating the effect of pathogen diversity on aggressiveness and the diversity

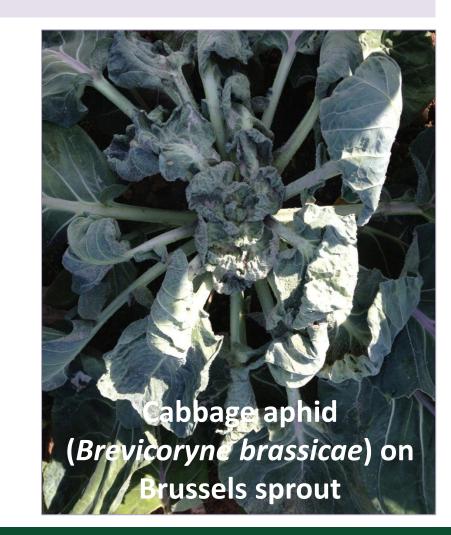




proletella (HDC).

- 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.





and epidemiology of a related species, *Sclerotinia subarctica*, only recently discovered in the UK.



Cabbage whitefly (Aleyrodes proletella)

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