

# Effect of leaf waxes on pest and disease interactions

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Previously - in OREGIN 4 (2017)

WP4.3 Assessed impact of modified leaf wax types in disease and pest interactions.

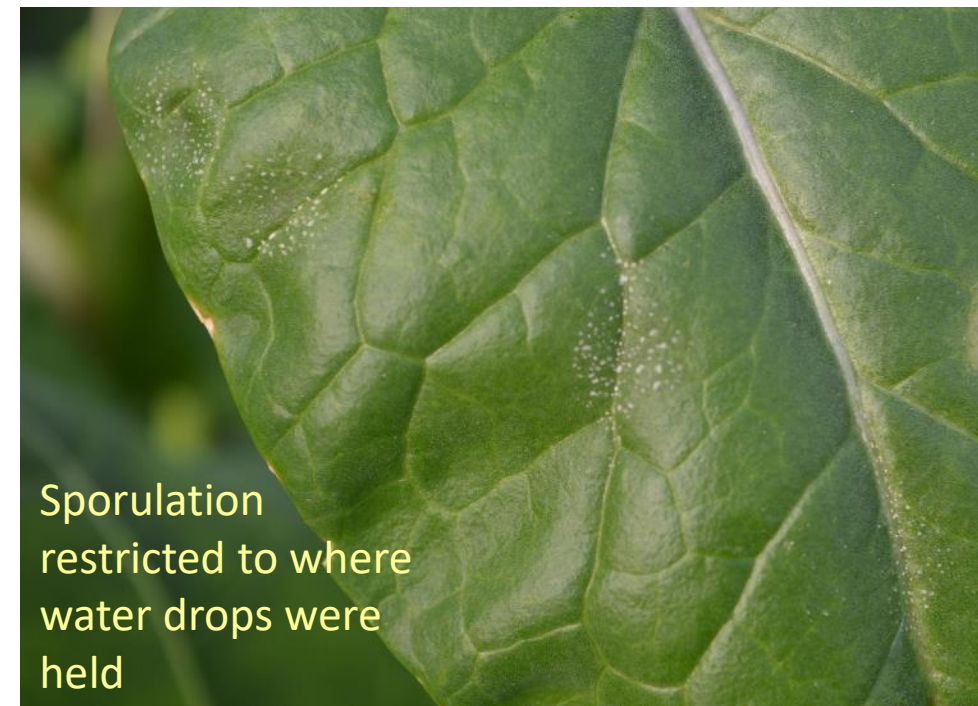
- \* Used genotypes displaying different wax profiles from the RIPR sLoLa project (Dr Fred Beaudoin).

- \* 25 Selected lines and three commercial OSR cvs (from Elsoms) were investigated for disease resistance to *Sclerotinia sclerotiorum*, *P. brassicae* and *L. maculans* (Jon West) and damage by cabbage stem flea beetle (Dr Sam Cook) in replicated polytunnel and glasshouse experiments autumn-winter 2017.



Results in 2017 were quite varied

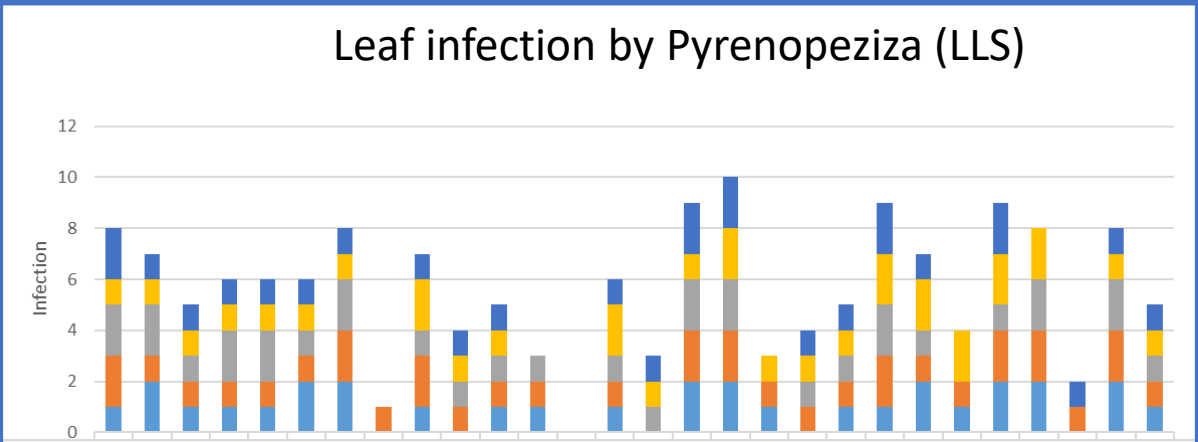
- For *P. brassicae*, the greatest effect of leaf wax was the ability of leaf surfaces to hold water droplets and water films with some leaves extensively covered with infection and others restricted to veins or the mid-rib where waxes were different. However, in addition, some lines appear to have tissue specific resistance, shown as a dark flecking phenotype; some lines allowed sporulation on petioles and veins but not on leaf laminae, others the reverse effect.
- A new experiment in 2021 investigated *Sclerotinia*, *P. brassicae* and flea beetle on 12 genotypes of *B. napus* and *B. rapa* with 10 replicates



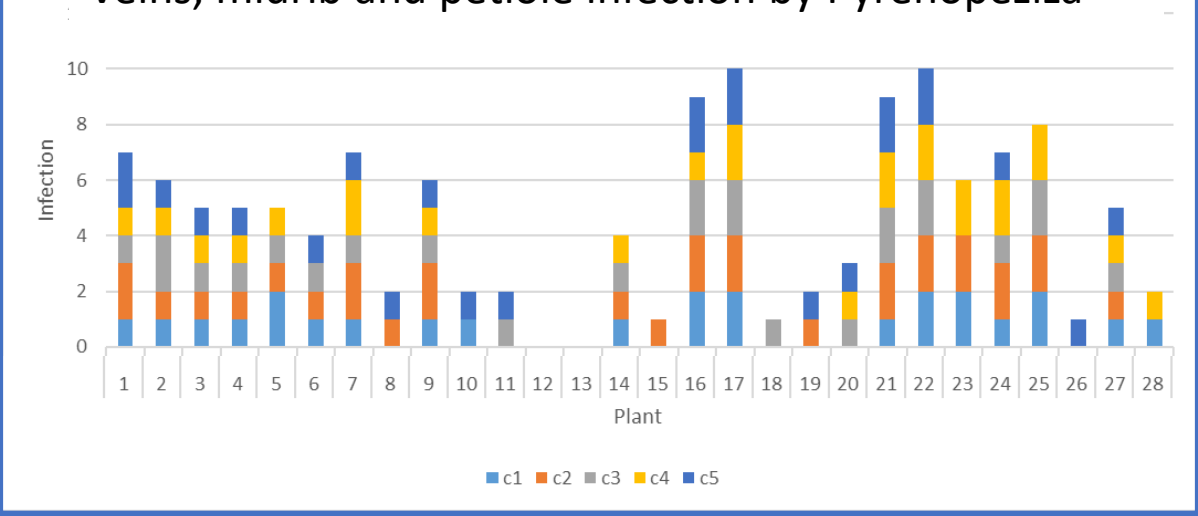


2017 results

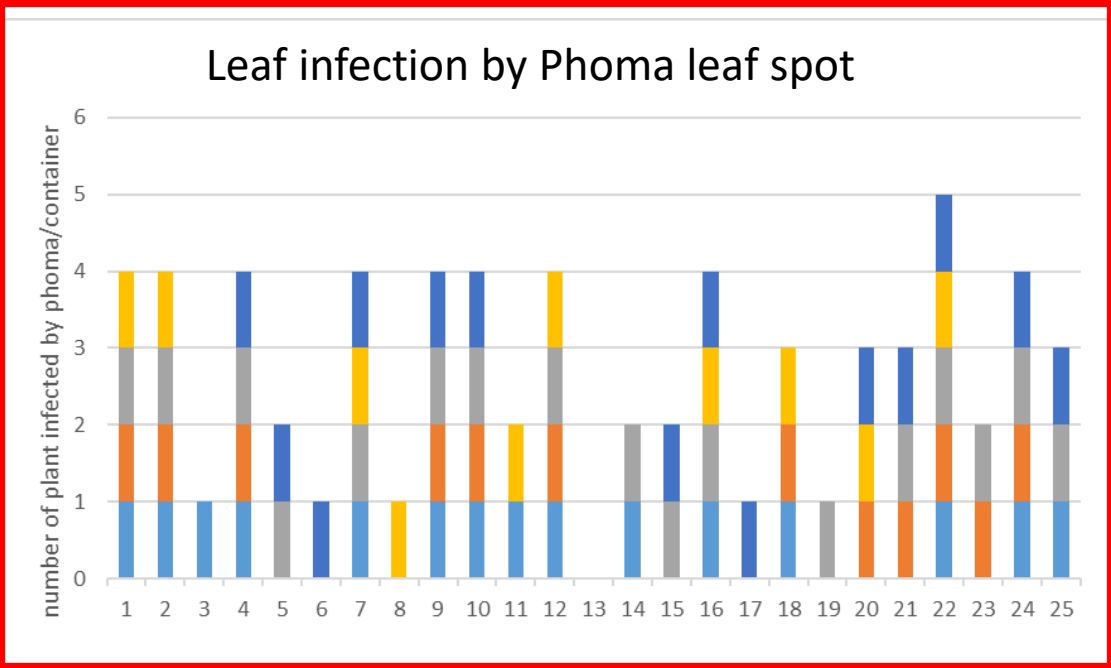
Leaf infection by Pyrenopeziza (LLS)



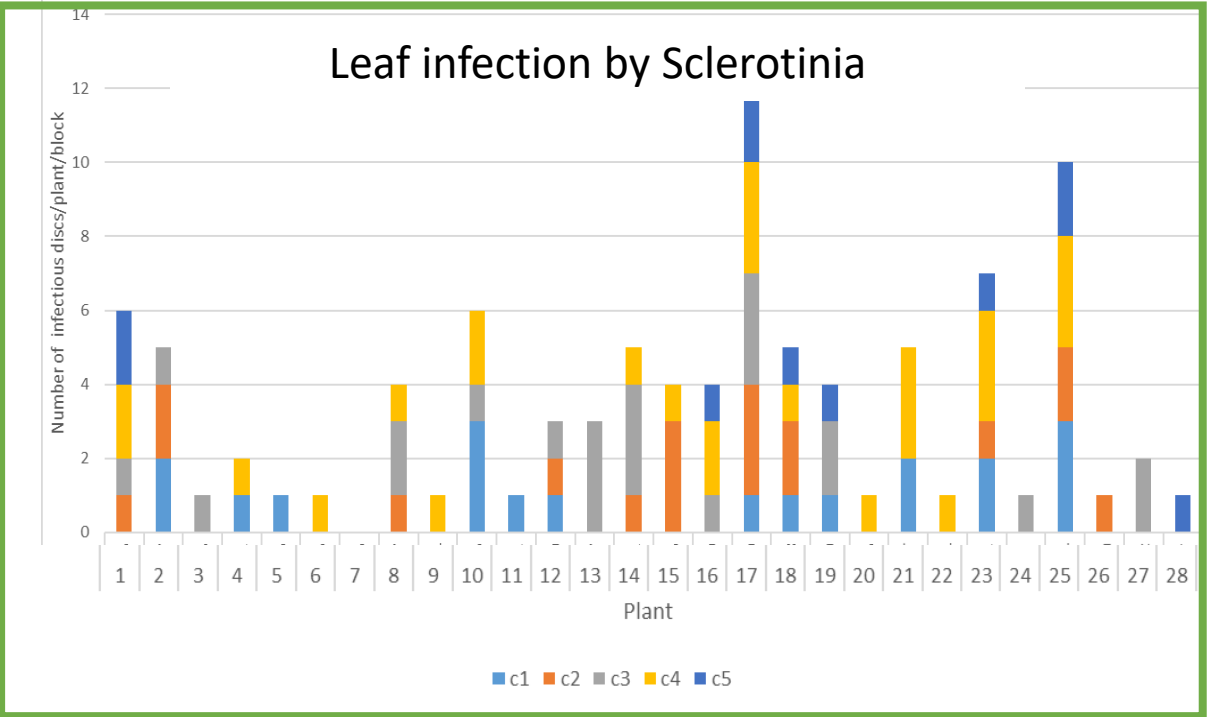
Veins, midrib and petiole infection by Pyrenopeziza



Leaf infection by Phoma leaf spot



Leaf infection by Sclerotinia



# Sept-Nov 2021 - WP 4.3 Research on the effect of leaf waxes on pests and diseases

30 Sept 2021



10 Oct Flea Beetle Trial

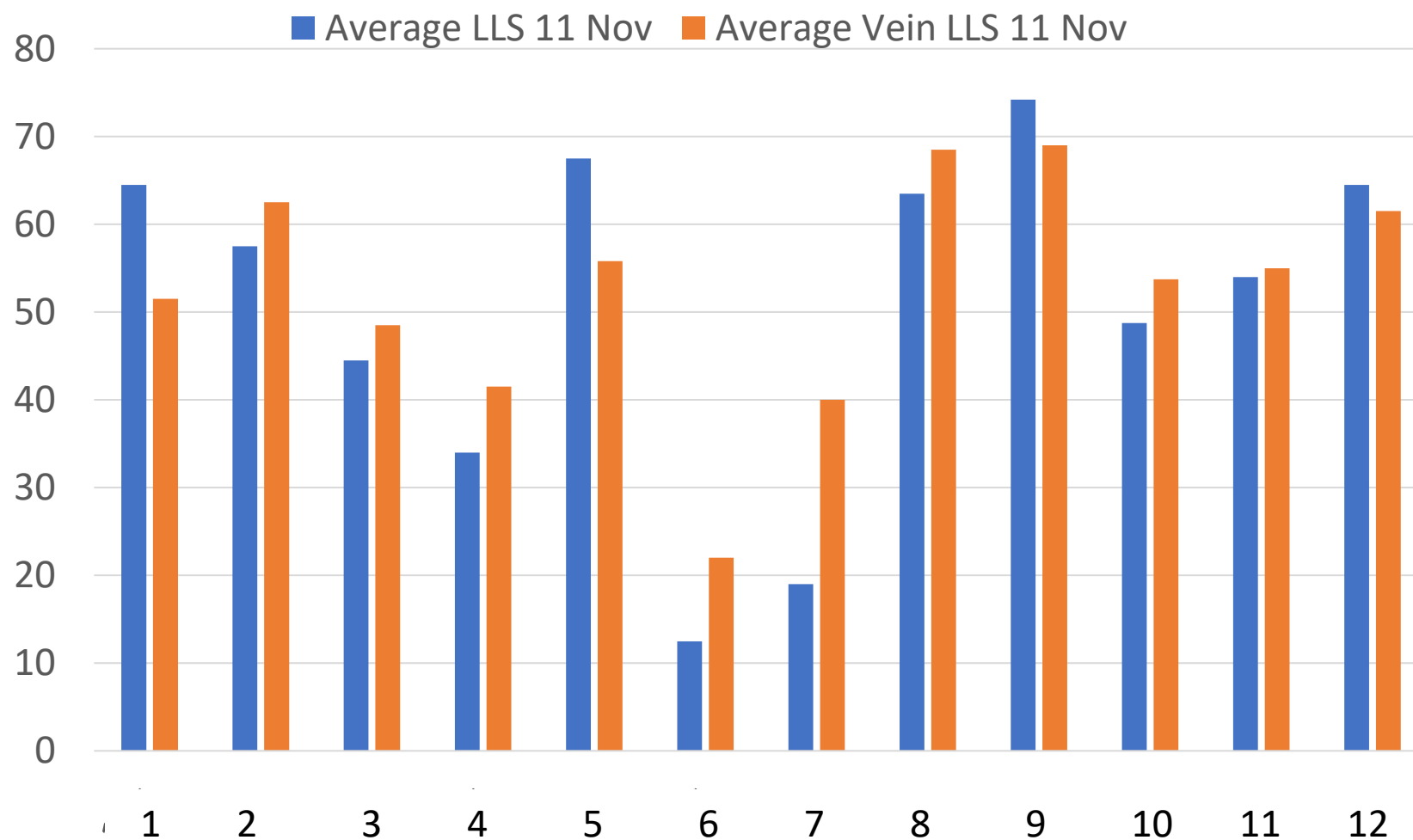


15 Oct Pathogen Inoculation

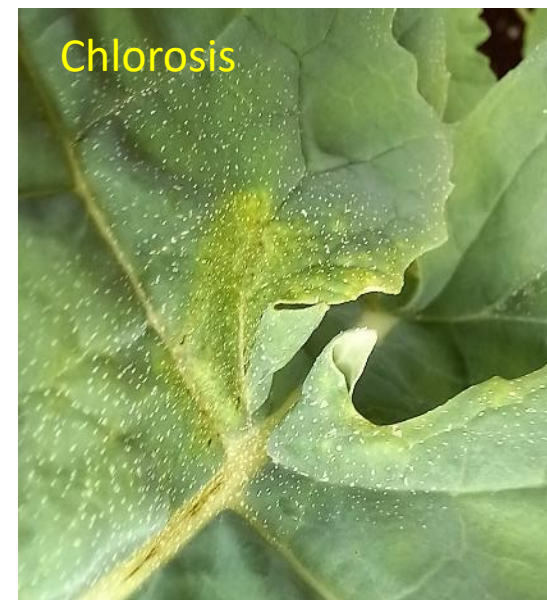
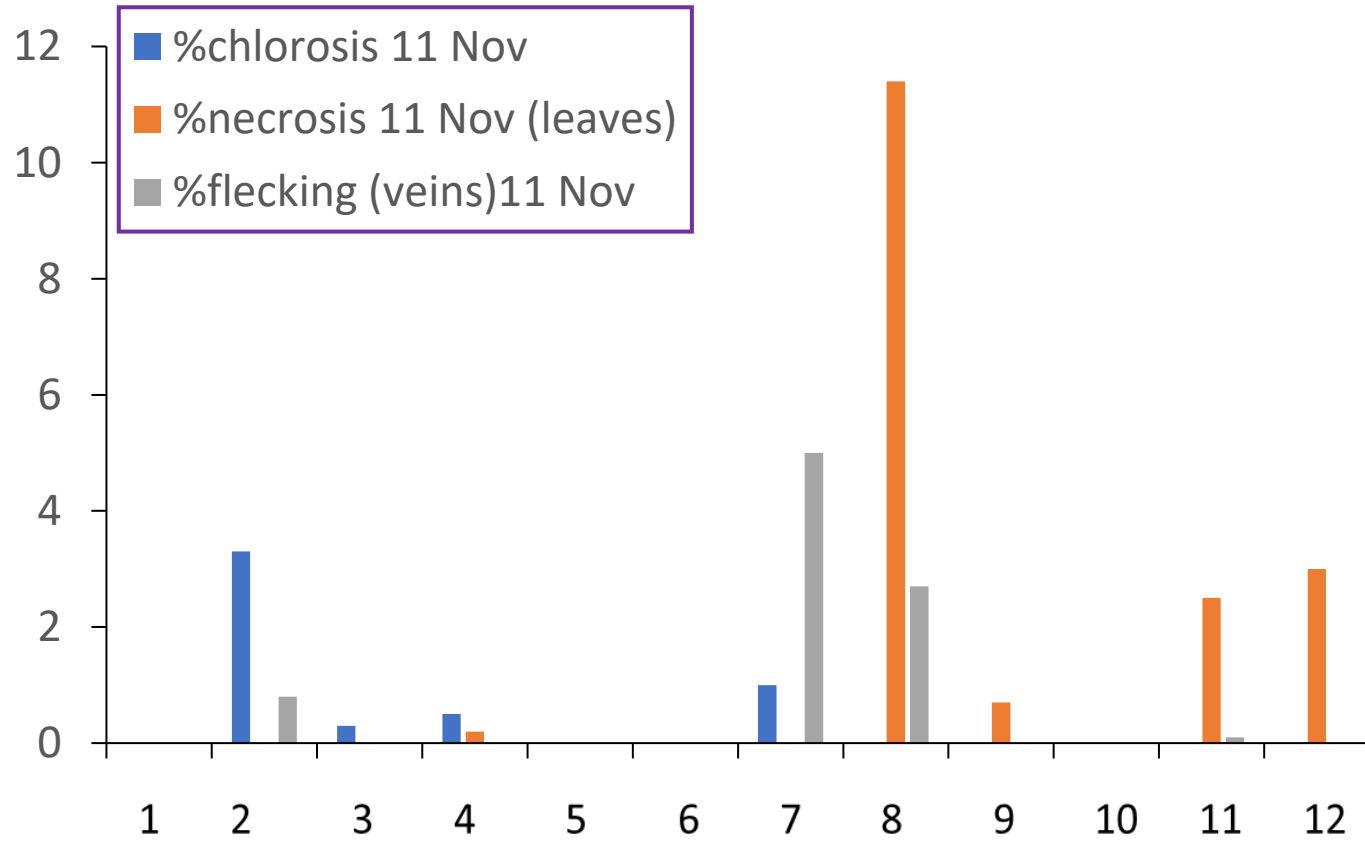




## LLS sporulation severity (11 Nov 2021)



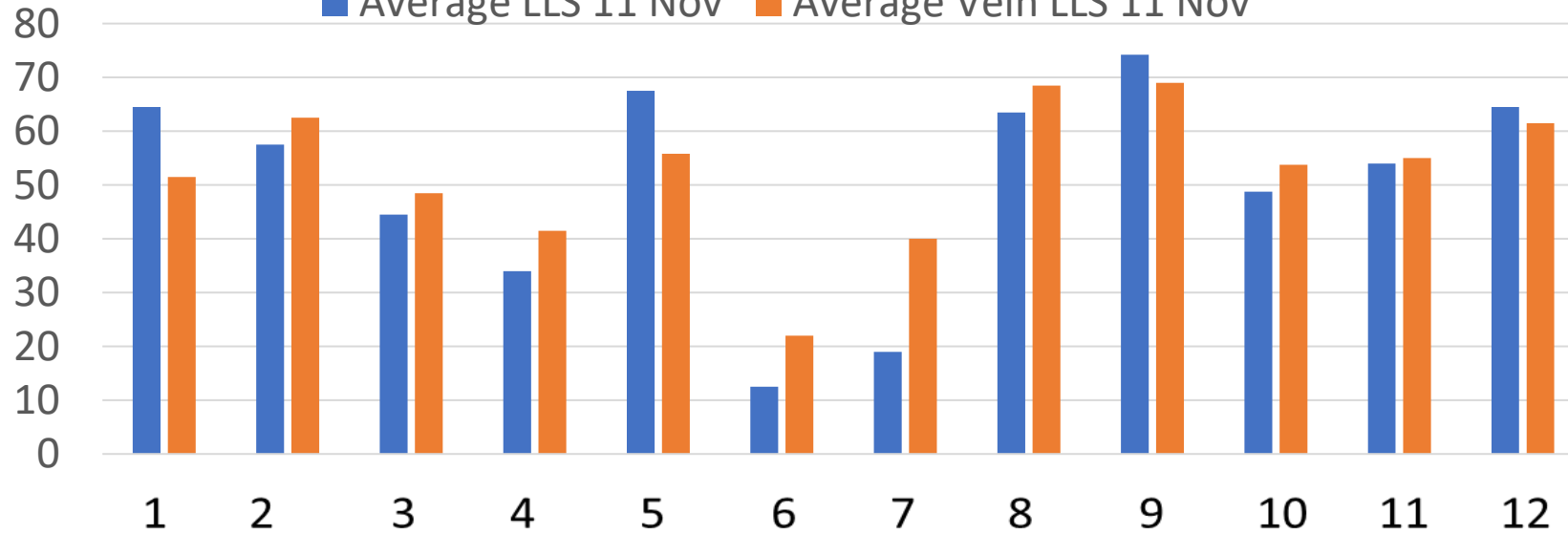
LLS symptom severity



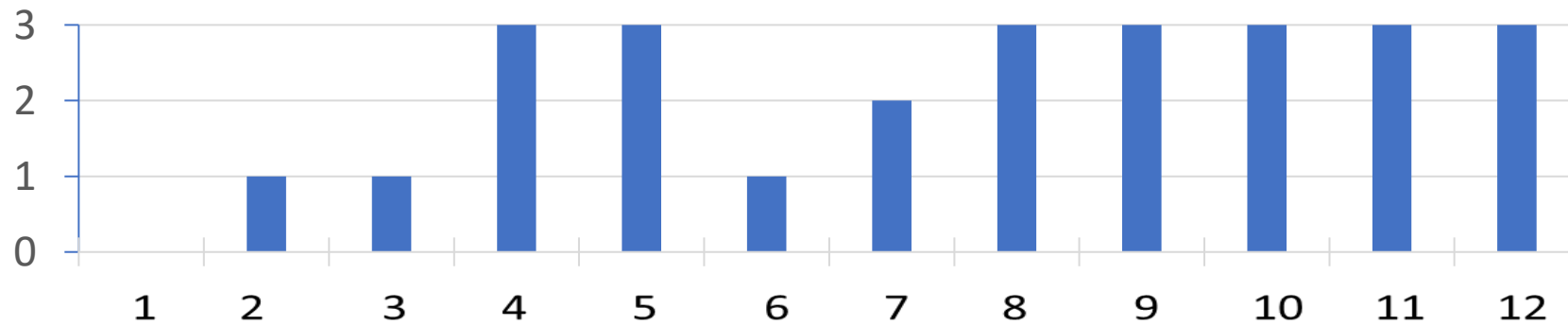


## LLS sporulation severity (11 Nov 2021)

■ Average LLS 11 Nov ■ Average Vein LLS 11 Nov



## leaf water droplet retention



0

Almost all drops bounce off – leaf almost completely dry



1

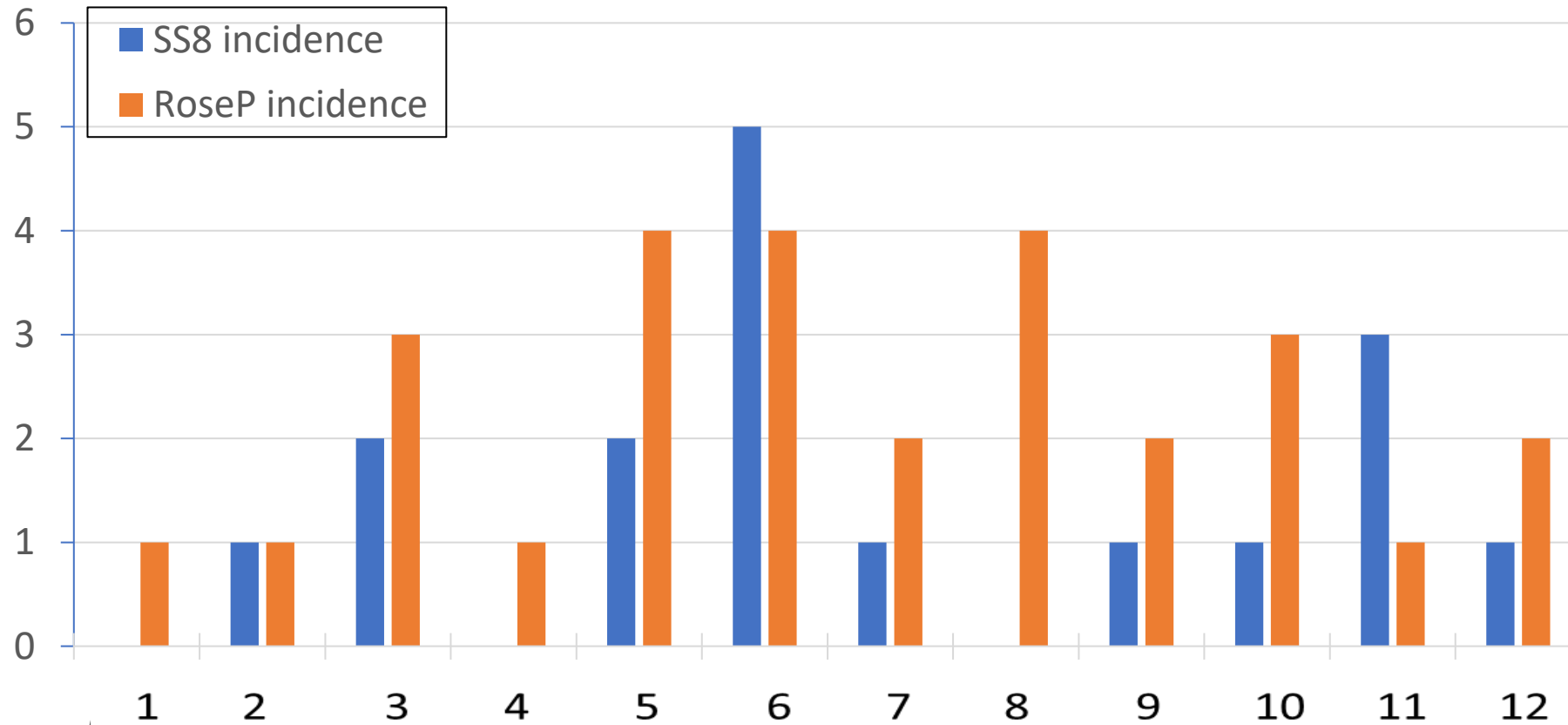
Some drops retained on veins or horizontal surfaces



3

All drops remain well-adhered to leaves

## Sclerotinia Incidence per line and isolate

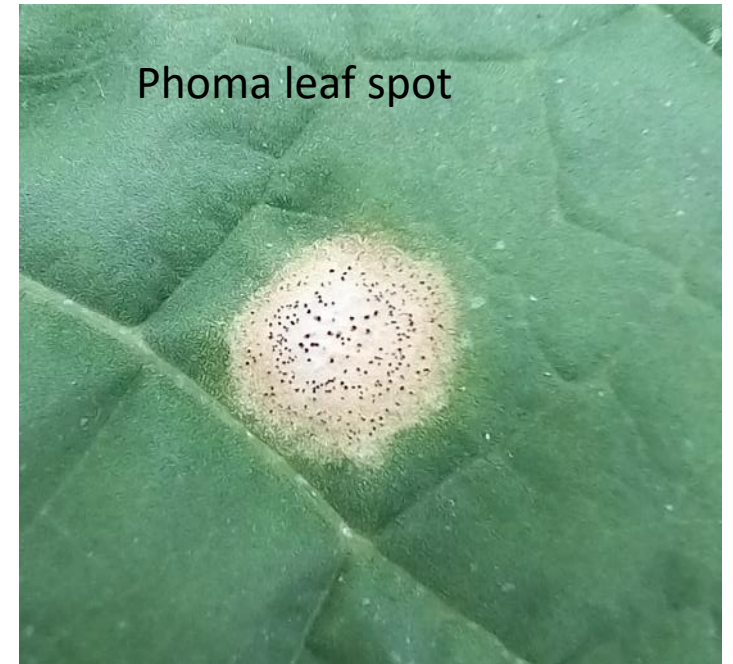
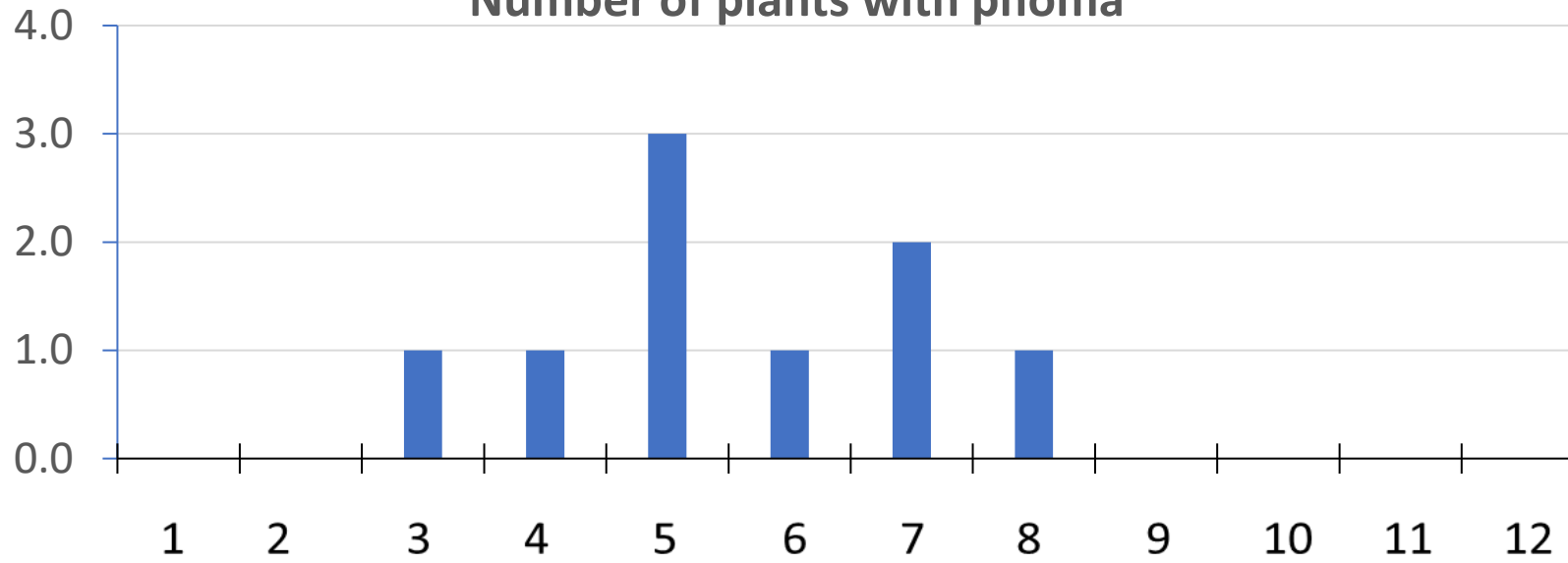


Inoculation plugs of mycelium were removed after 4 days  
further infection spots appeared up to 10 days after inoculation

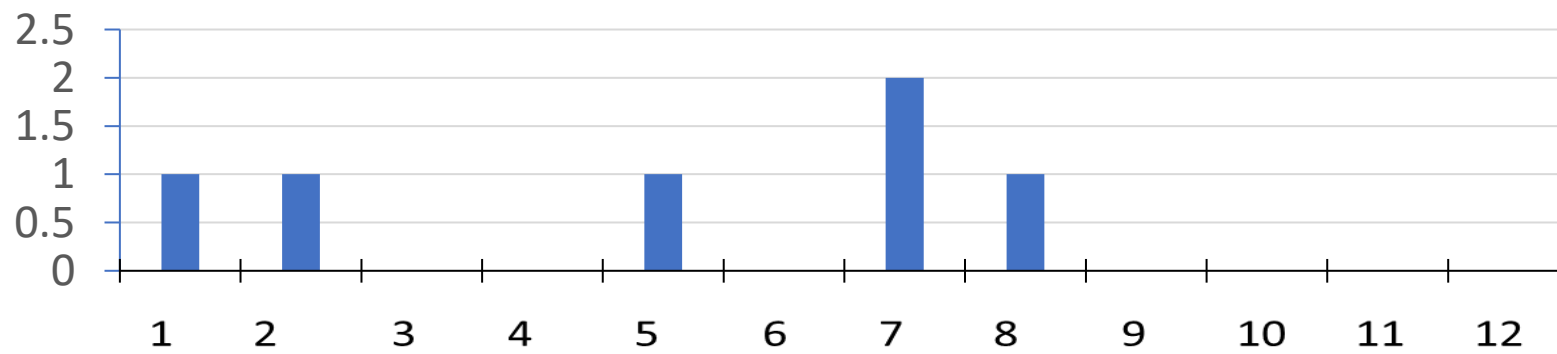




Number of plants with phoma



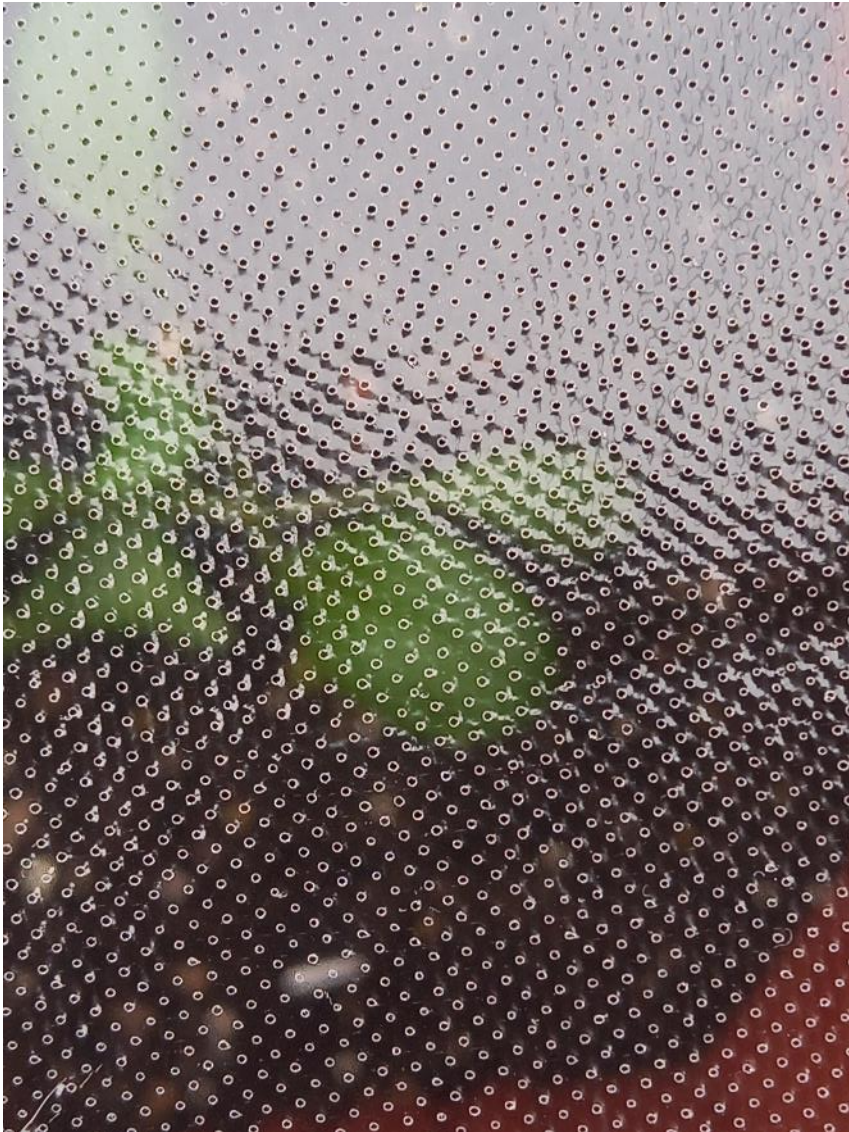
Leaf miner





CSFB data currently being collated & analysed

'bread bag' cover



Beetle-inoculated plants beneath

