



Detailed canopy-scale modelling of canola to inform management of Sclerotinia and upper canopy blackleg

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Canola Pathology Workshop
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Case studies

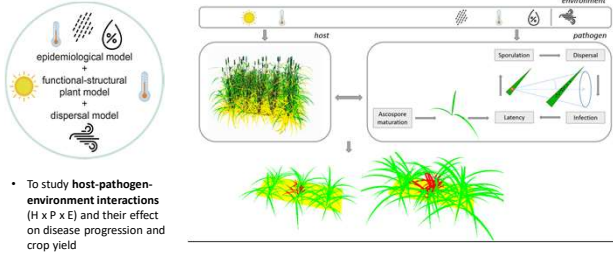
- Upper canopy blackleg and Sclerotinia in canola
- Serious damaging diseases in canola
- How can we use a detailed canopy-scale modelling to perform virtual experiments and to inform management of diseases?
- Effect of architecture on disease spread (on microclimate within the canopy)?



(Sprague et al., 2017; DPIRD, 2018)

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Conceptual model - Yellow spot on wheat

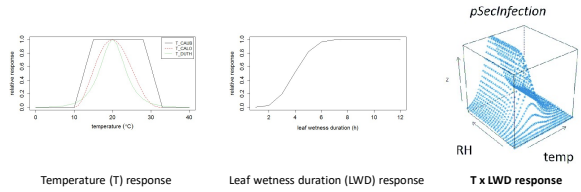


- To study host-pathogen-environment interactions (H x P x E) and their effect on disease progression and crop yield

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Infection response to weather conditions

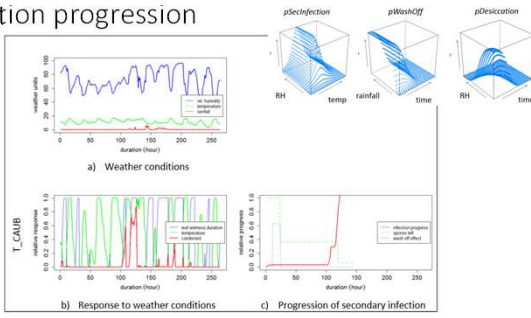
- Infection efficiency / probability
- Combined response model to temperature and leaf wetness duration



Temperature (T) response Leaf wetness duration (LWD) response T x LWD response

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Infection progression



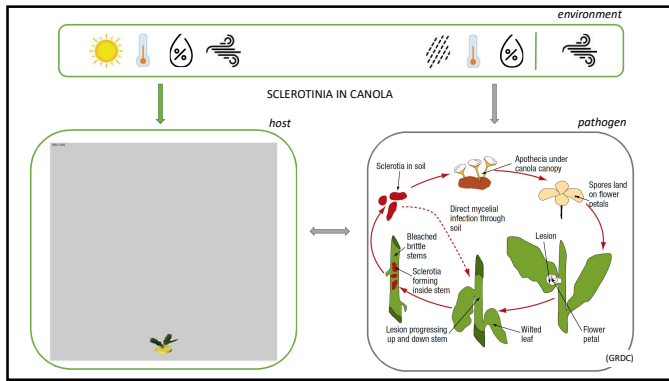
a) Weather conditions b) Response to weather conditions c) Progression of secondary infection

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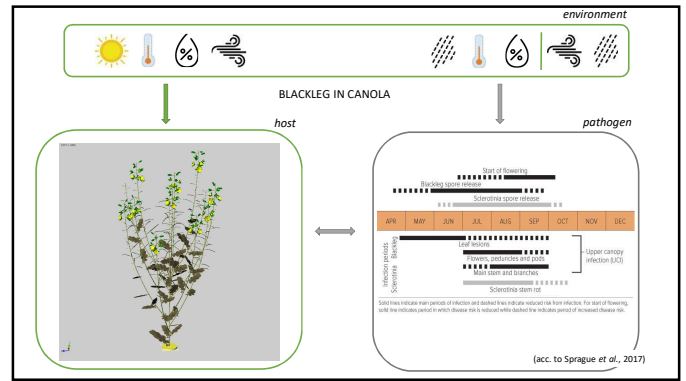
Outputs

- Effect of different weather and architecture
- Negative effect of internode length on disease severity (lesion area)

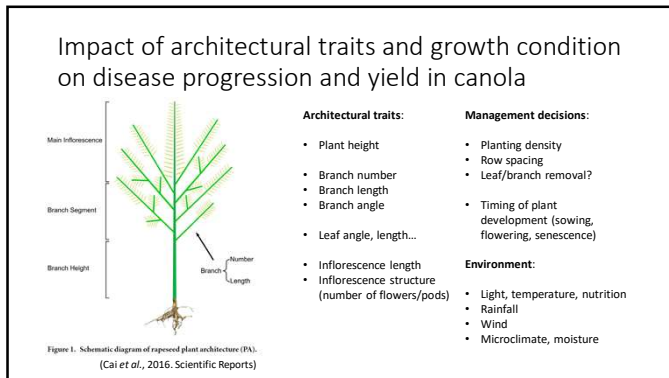
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Discussion and questions?

- Sclerotinia?**
 - Certain architecture may help avoid petals falling onto leaves/leaf axils?
 - Certain architecture may help avoid flower infection?
 - Timing of growth and flowering? – does flowering timing also affect architecture?
 - Other?
- Upper canopy blackleg?**
 - Certain architecture may help avoid spores landing on flowers/pods/stem/branches in the upper canopy?
 - Spores from stubble or lesions?
 - Timing of growth and flowering
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Thank you for your attention!

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