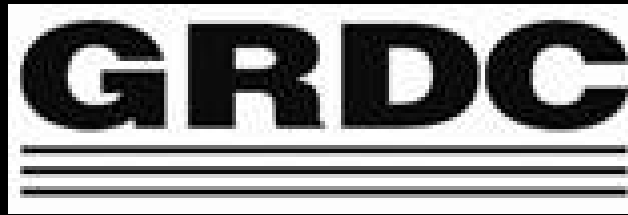


Salisbury, Van de Wouw (JPL<sub>1</sub>), Marcroft (JPL<sub>2</sub>), Lindbeck, Wratten,  
Burton, Potter, Howlett .

Supported by



**DIFFERENTIAL PROJECT UPDATE**

# Why do it?

- Currently do not know what resistance genes we have in our Australian varieties
- Therefore can not determine whether new cultivars truly have a different source of resistance
- This is a problem if we are to implement management strategies such as 'rotation of resistance'

# The French do it!

- The French routinely characterize R genes in breeding lines and commercial varieties
- They use a differential set of isolates that can discriminate Rlm<sub>1</sub> – Rlm<sub>10</sub> and LepR<sub>3</sub>.
- We can not import these isolates due to quarantine restrictions



**Thierry Rouxel**  
**Mylene Balesdent**

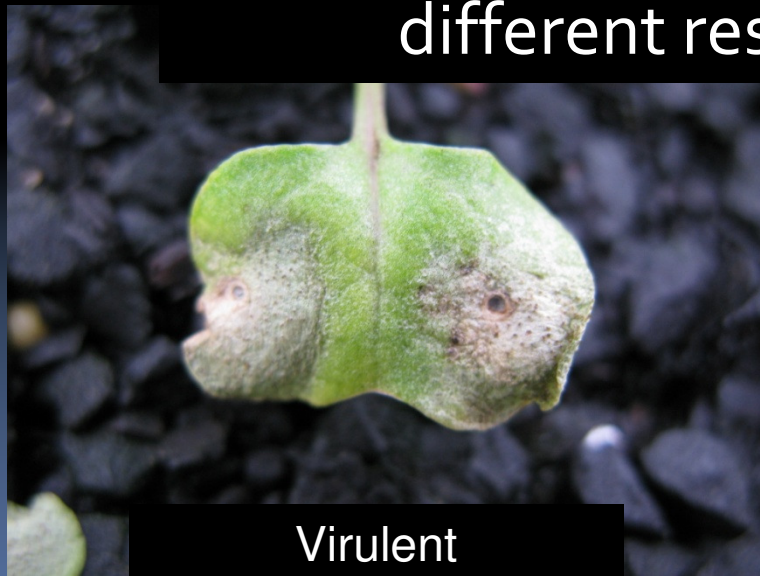
# The project aim

- Identify Australian blackleg isolates that can be used to screen for known or unknown blackleg resistance genes
  - Major gene resistance
  - Adult plant (minor gene) resistance
- Use these isolates and screening methods to characterise resistance genes in Australian cultivars and lines

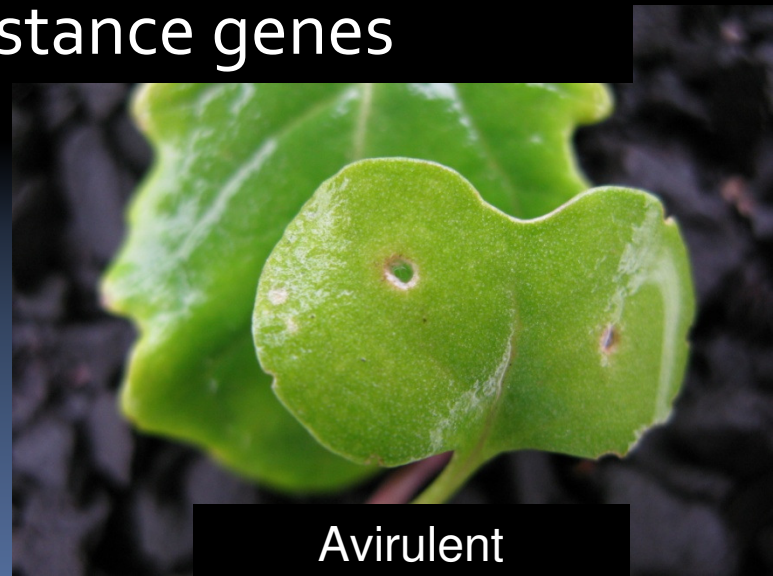
# Cotyledon pathogenicity screens

- Identify major gene resistance (Rlm1-Rlm10, LepR1-4)

Same isolate screened on varieties with different resistance genes



Virulent  
(susceptible reaction)



Avirulent  
(resistant reaction)

# Identify different sources of adult plant resistance



# Methodology

- Completed experiments to determine most reliable screening method
- Use the same plants to screen both major gene and adult plant resistance







# The French are doing it for us

- A set of 30 Australian canola lines are being screened by Rouxel et al to determine which cultivars have which Rlm genes (Rlm1-Rlm10, LepR3).
- We will use this knowledge to identify a set of Australian differential blackleg isolates



Thierry Rouxel  
Mylene Balesdent

# We can do it ourselves

- By the end of the project we will have:
  - Methodology
    - Major gene (Rlm1-Rlm10, LepR3)
    - Adult plant (minor gene) resistance
  - differential blackleg isolate set
- Use these isolates to characterise the resistance genes in Australian cultivars and lines

# Routine screening

- Commercial cultivars will be screened for known and unknown resistance genes
- We will be able to screen NBGIP new sources of blackleg resistance
- Commercial service for all breeding programs?

This work is proudly sponsored by an organisation with a 4 letter acronym

