Program 2: Coordinating international blackleg research and development

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Focus area 1: Identification of resistance genes in Australian cultivars

- Differential isolates maintained and expanded when necessary
- All commercial Australian cultivars screened with differential isolates and resistance groups provided to industry
- GM isolates with targeted mutations developed for understanding resistance
  - DAIs for identifying masked R genes or novel combinations of R genes
  - CRISPR isolates to knock out avirulence genes
- Resources provided to the other programs



Focus area 2: Development of international resources

- Current lack of common resources for international blackleg research community
  - No consistency between research groups
  - Leads to duplication of research efforts
  - Results in redundancy in research e.g. LepR3/RlmS/BLMR1.1
- Identify a common set of internationally recognised differential isolates and differential R control lines
  - Screened in different jurisdictions to confirm accuracy
  - Isolates/lines will be genotyped and phenotyped for all known Avr/R genes
  - All information stored in a public database and made freely available
- All information will feed into the other programs

New Challenges for R group

- Previously had R groups for Rlm1 (A), Rlm3 (C), Rlm4 (B), Rlm6 (F), Rlm7 (H), LepR1 (D), RlmS (S)
  - Ignored Rlm2 and Rlm9. Reasons were because I couldn't reliably phenotype and all isolates were virulent
- We can now use molecular markers to distinguish these genes
- All isolates to date have been AvrLm2. All isolates are phenotypically virulent towards Rlm9 however this would change if Rlm7 overcome.
  - Will be offering as a routine screening service for breeders via MGP
- Do we need to give Rlm2 and Rlm9 a group and provide information to growers?