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Canola Diseases in Western Australia

Ravjit Khangura
Grains Industry, Department of Agriculture & Food Western Australia (DAFWA)

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GRDC Grains Research & Development Corporation

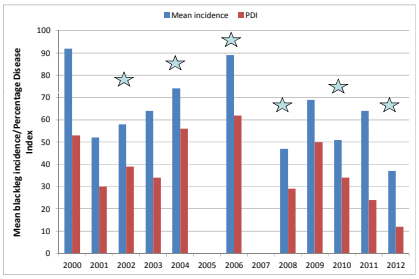
Canola disease issues

• Blackleg	Very wide spread
• Sclerotinia stem rot	Common in NAR
• Downy mildew	Isolated incidence in HR
• White leaf spot	Common but low impact
• Club root	Perceived risk to NAR
• Charcoal rot	Identified in CAR
• Beet Western Yellows Virus	Common and damaging
• Root Lesion Nematodes	Common and damaging?

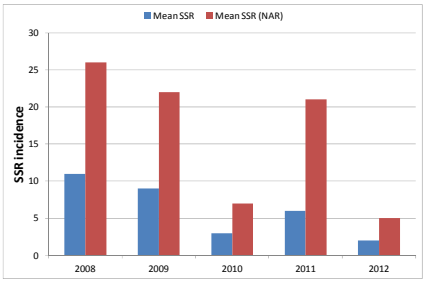
Reporting seasonal occurrence of canola diseases in WA

- Pestfax Map
  - Advisors
  - Growers
  - Researchers
  - Extension Specialists
  - Diagnostic Services
  - Growers Groups
- Canola disease surveys

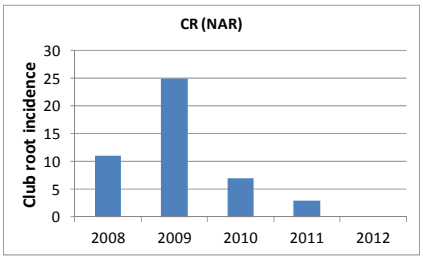
Blackleg incidence severity in WA 2000-2012



Sclerotinia stem rot

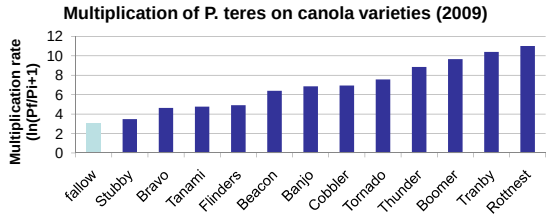


Club root



Nematodes in canola– Katanning 2009

- Canola...increases in *P. teres*



Courtesy S. Collins

Better managing blackleg - Foliar fungicides an additional tool

Treatment	Fung Cost/ha ($)	Grain Yield (t/ha)	Gross return/ha ($)	Profit over untreated ($)
Nil	0	1.69	845	0
Jockey®	4	1.95	975	121
Impact® –in-furrow	8	2.17	1085	227
Impact® foliar (single spray at 400ml)	8	2.09	1045	187
Impact® foliar (two sprays at 200ml)	8	2.32	1160	297
Prosaro (single spray at 400ml)	26	2.16	1080	204
Prosaro (two sprays at 200ml)	26	2.19	1095	214
Canola price	500			
Cost of fungicide application	5			

Better Managing blackleg – National linkages

- Staying ahead of blackleg
  - monitoring blackleg populations
- Blackleg ratings project
  - disease nurseries

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Better managing SSR –new fungicide

Fungicide efficacy trial (Two sprays, one each at 10 and 40% bloom)

	Cost/ha	Yield (t/ha)	Gross return/ha	Profit over untreated
Untreated	0.00	2.21	$1105	
Rovral 2L/ha	$36.00 x 2= $72.00	2.57	$1285	$98
Prosaro 375ml/ha	$24.70 x 2 = $49.40	2.78	$1390	$225
Prosaro 525ml/ha	$34.65 x 2 = $69.30	2.85	$1425	$240
Fortress 500 1L/ha	$65 x 2 = $130	2.57	$1285	$40
Amistar xtra 2L/ha	$140 x 2 = $280	2.54	$1270	$-125
Filan 2L/ha	$178 x 2 = $356	2.61	$1305	$-166
Application cost	$5.00 (single application)			
Canola price	$500			

Better managing SSR –new fungicide

Opportunistic trial (single spray at 15% bloom)

	Cost/ha	Yield (t/ha)	Gross return/ha	Profit over untreated
Untreated		2.7	$1350	
Rovral 2L/ha	$36.00	2.94	$1470	$79
Prosaro 575ml/ha	$34.65	3.17	$1585	$200
Application cost	$5.00 (single application)			
Canola price	$500			

Better managing SSR – Identifying sources of resistance

- Glasshouse experiments
  - Macerated mycelium inoculations (intact cotyledons)
  - Agar plug inoculations
  - Used about 30 different isolates
  - 20 genotypes (experiments repeated 4-5 times)
- Field experiment
  - Stem inoculations

Drop inoculations with macerated mycelium

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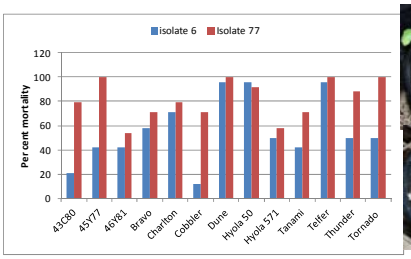
SSR Research – Glasshouse screening for resistance (Agar plug)



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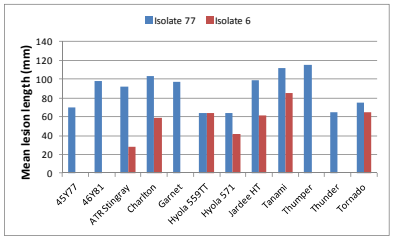
SSR Research - Field screening for resistance



Pros & Cons of Seedling vs Adult Plant Screening

Seedling screening

- Rapid and easy ☺
- Disease pressure extreme
- Resistance identified at seedling stage may not express at AP stage

Adult plant screening

- Slow and cumbersome
- Disease pressure reasonable ☺
- No such issues with AP screening ☺

Both methodologies identified pathogenic variations

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Conclusions

- Blackleg and Sclerotinia are the most economically important diseases in Western Australia.
- Other foliar diseases are present but sporadic
- Club root has significance in the Northern Agricultural Region and requires constant vigilance
- Seasonal conditions play a major role in the occurrence of these diseases
- We need good site and season specific management tactics
- We need better understanding of new variety reactions and yield loss, particularly for RR canola

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THANK YOU
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