

**Upper canopy infection:**  
Yield loss, flowering time and control options

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7 March 2018

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### Upper Canopy Blackleg

### Brief history

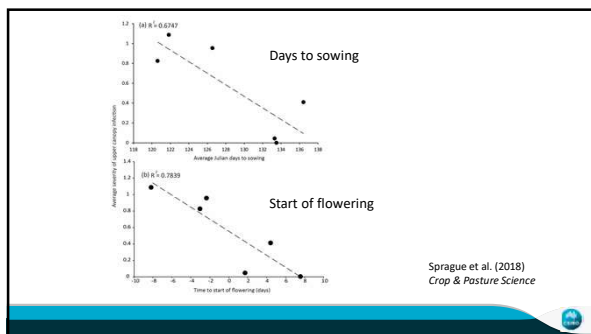
**2010**  
Symptoms observed in commercial crop in SA  
*L. maculans* confirmed as causal agent

**2011 – 2017**  
~25 sites monitored annually (NVT)

**2016-2017**  
Experimental research  
National Canola Pathology } GRDC  
Optimised Canola Profitability }

### Upper canopy infection 2011-16 : Stingray

State	Site <sup>a</sup>	Year					
		2011	2012	2013	2014	2015	2016 <sup>b</sup>
	Beckom (1)	1	0	1	1	2	1
	Coonamundra (2)	0	0	0	1	2	0
New South Wales	Cudal (3)	0	0	1	0	0	1
	Gerogery (4)	0	0	0	2	0	1
	Greenfield (5)	0	0	0	3	0	1
	Lockhart (6)	0	0	0	2	1	0
	Parkes (7)	0	0	0	3	4	1
	Wagga Wagga (8)	0	0	0	3	0	1
	Arthurton (9)	0	0	0	1	1	1
	Bordertown (10)	0	0	0	1	0	1
	Frances (11)	0	0	n.a.	1	1	n.a.
South Australia	Mount Hope (12)	0	0	1	1	2	2
Australia	Riverton (13)	0	0	0	0	1	1
	Spalding (14)	0	0	2	2	0	1
	Turretfield (15)	0	0	0	1	1	1
	Yeelanna (16)	0	0	0	0	1	1
	Diggora (17)	0	0	0	0	0	1
	Hamilton (18)	0	0	1	0	0	1
	Kaniva (19)	0	0	0	2	1	1
Victoria	Streatham (20)	0	0	0	0	1	1
	Mnyip (21)	0	0	2	0	0	1
	Wangmoo (22)	0	0	1	0	1	1
	Yarrowonga (23)	0	0	0	1	0	1



### Southern NSW - Optimised Canola Profitability Project 2016 & 2017

27 July



30 March

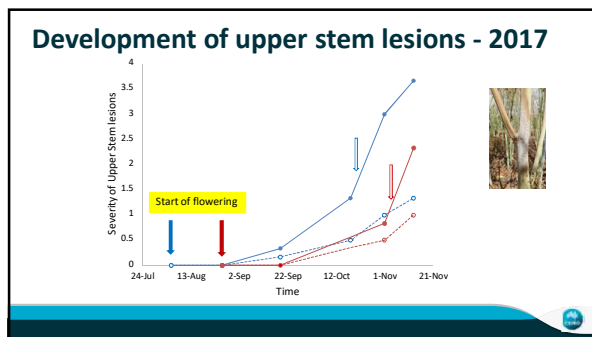
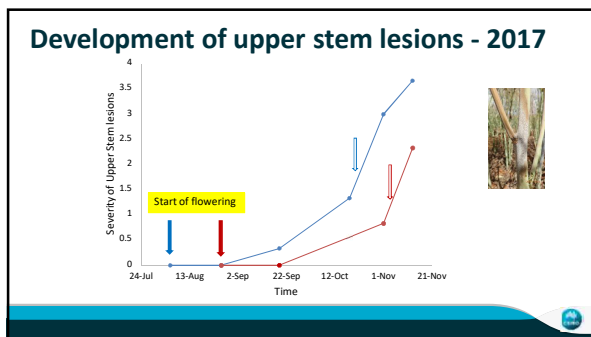
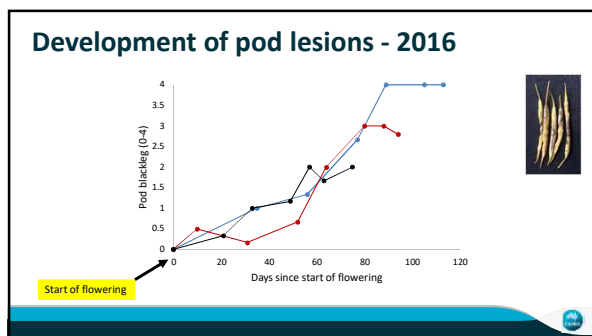
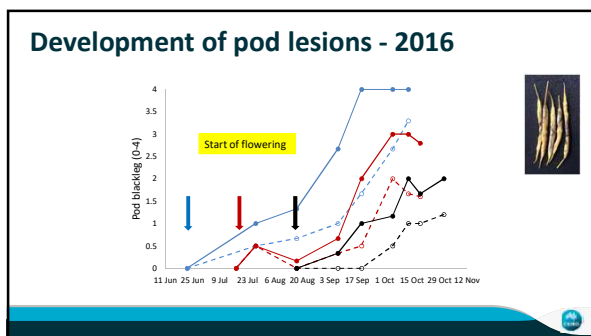
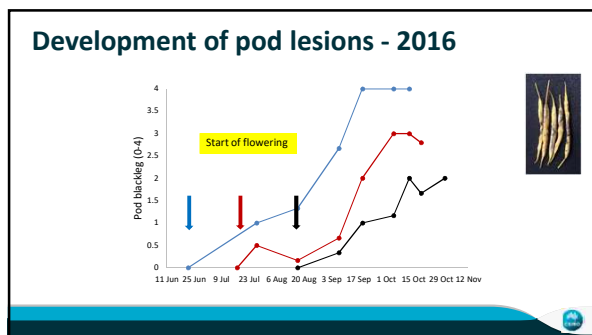
14 April

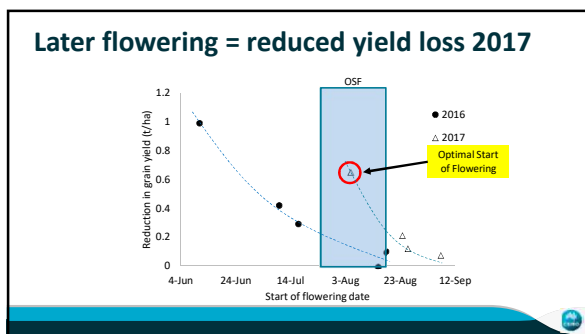
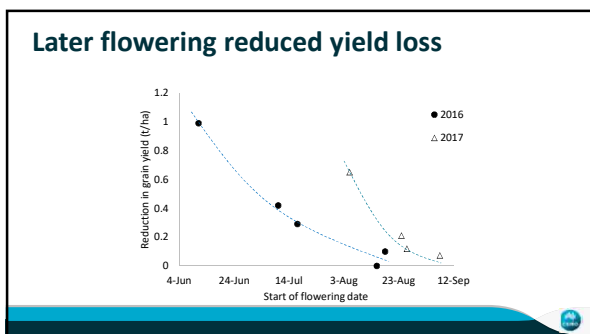
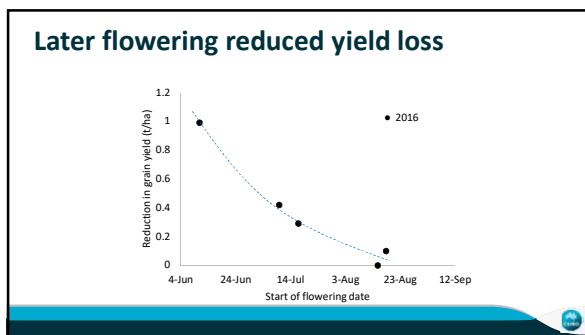
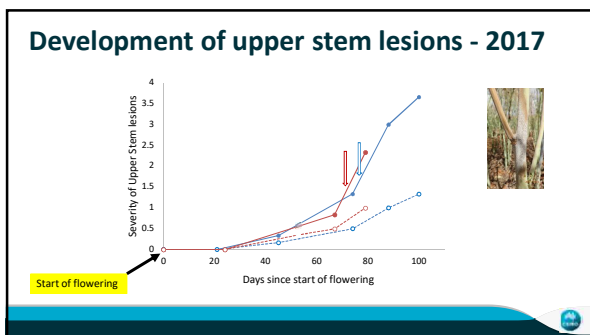
29 April

FUNGICIDE APPLICATIONS



### Seasonal effects on Blackleg UCI

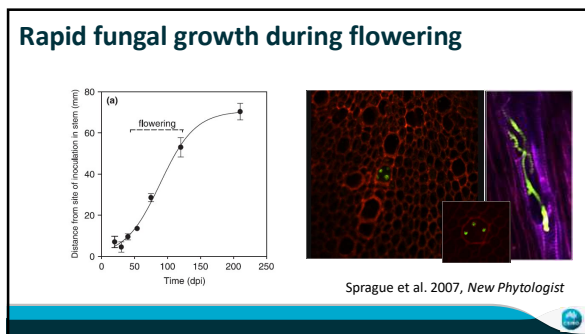
2016	2017
<ul style="list-style-type: none"> <li>pod infection</li> <li>mild/wet finish = no stress</li> </ul> 	<ul style="list-style-type: none"> <li>stem/branch infection</li> <li>warm/dry finish = stress</li> </ul> 

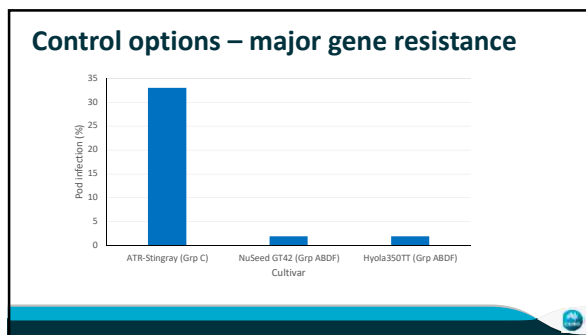
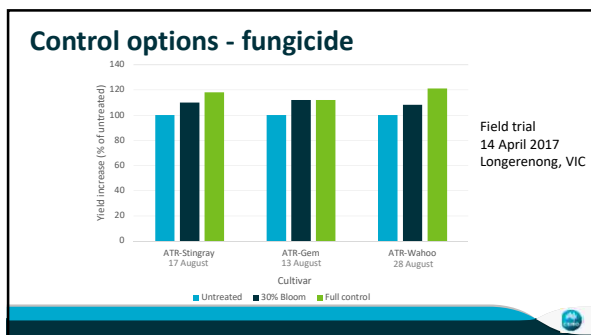




### Yield loss: seasonal differences

2016	2017
 <ul style="list-style-type: none"> <li>pod infection</li> <li>cool/wet finish = no stress</li> <li>Yield loss = pod loss + smaller seed</li> <li>Infection AFTER seed set</li> </ul>	 <ul style="list-style-type: none"> <li>stem/branch infection</li> <li>warm/dry finish = stress</li> <li>Yield loss = reduced pods/m<sup>2</sup> + seeds/pod</li> <li>Infection BEFORE/DURING seed set - compromised vascular function?</li> </ul>





### Next steps?

**Epidemiology & cytology**

- ✗ timing of infection, *in planta* disease progression, visual assessment
- ✗ ascospore production

**Impact on yield**

- ✓ pod
- ✗ stem/branch
- ✗ interaction with late season stress

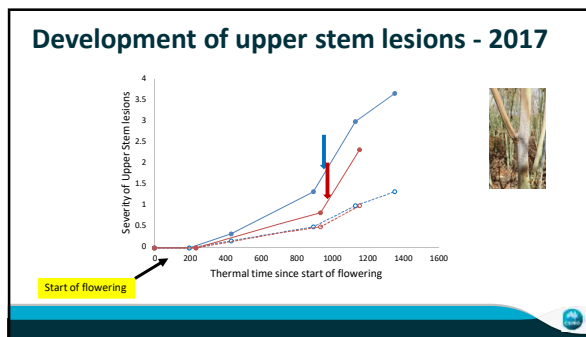
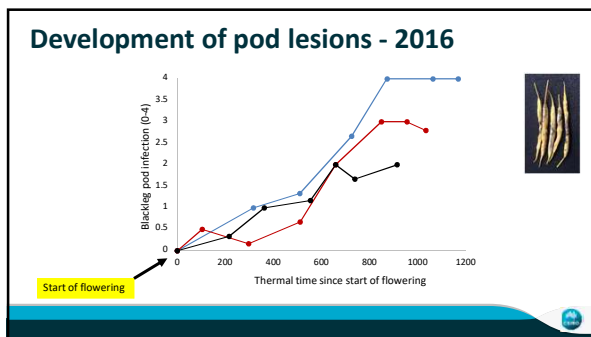
**Control**

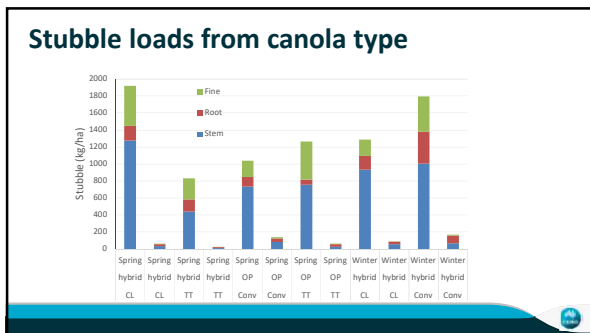
- ✓ effective major genes
- ? flowering time
- ✗ fungicide timing & economics

**Predictive capacity lacking**

### Thank you

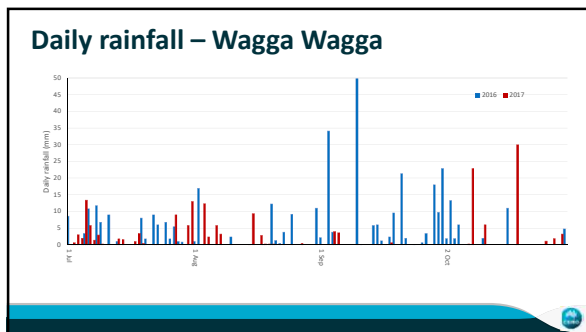
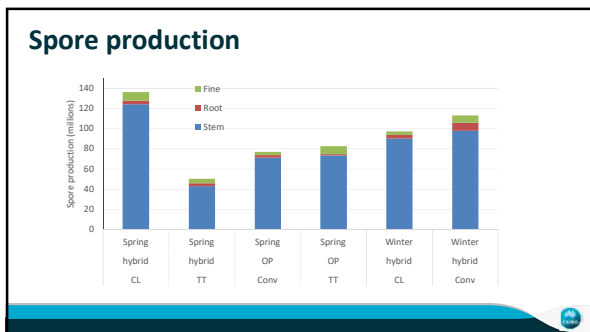
Steve Marcroft: Marcroft Grains Pathology  
Kurt Lindbeck, Rohan Brill & Col McMaster: NSW DPI  
Angela van de Wouw: University of Melbourne  
Andrew Ware: SARDI  
Ravjit Khangura, Andrea Hills: DPIRD





### 6 paddocks – Grp A

	Average spores/100kg x 10 <sup>6</sup>	Range
Roots	2.1	0.1 – 8.2
Stem 0-10cm	6.5	3.0 – 9.7
Stem 10-20cm	3.2	0.5 – 6.9
Fines	1.8	0.1 – 3.6

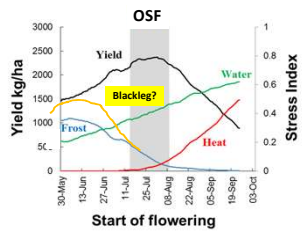


Presenter name | Presenter title  
1 December 2015

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Alternate title slide with lines.  
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### Optimal start of flowering (OSF) & disease



### Later flowering = reduced yield loss

