CANOLA: The economics of blackleg fungicide application during early bloom in 2023

AUSTRALIAN FUNGICIDE RESISTANCE EXTENSION NETWORK

GRDC GRAINS RESEARCH & DEVELOPMENT CORPORATION

Dr Steve Marcroft
Marcroft Grains Pathology

Wednesday 9 August 2023

Australian Fungicide Resistance Extension Network

AUSTRALIAN FUNGICIDE RESISTANCE EXTENSION NETWORK

GRDC GRAINS RESEARCH & DEVELOPMENT CORPORATION

Regionally specific resources and training to help growers and advisors understand the status, risks and management of fungicide resistance in Australian grains.

Develop and deliver:

- Fungicide resistance management guide
- Workshops, info sessions & webinars
- Factsheets, updates & email alerts

Centre for Crop and Disease Management

GRDC | Curtin University

agcommunicators.

ICAN Independent Consultants Australia Network

Government of South Australia, Department of Primary Industries and Regions | SARDI Research and Development

FAR Australia

University of Southern Queensland

NSW Government Department of Primary Industries

marcroft GRAINS PATHOLOGY

The University of Melbourne

Government of Western Australia, Department of Primary Industries and Regional Development

Agriculture Victoria

The University of Sydney – Institute of Agriculture

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Housekeeping

AUSTRALIAN FUNGICIDE RESISTANCE EXTENSION NETWORK

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- To ask a question:
  - Go to the Q&A window in the bottom of your screen.
  - Click on Q&A, open the window and enter your question.
  - Your question will then be posted ready to be answered. You can also tick “send anonymously” if you don’t want your name attached to your question.
- In the unlikely event of webinar hacking, the webinar will be immediately shut down and a new webinar link will be sent to you via email within 10 minutes.

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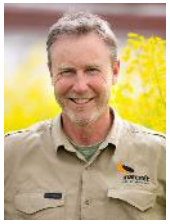
Steve Marcroft

Blackleg update

EP AG:
Andrew

MGP:
Steve Marcroft
Biz Sheedy
Alistair Smith
Buffy Harrison
Nick Perndt



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Living Farm:
Andrew Wherrett

NSW DPI:
Kurt Lindbeck

BlacklegCM apps (DPIRD) –
Art Diggle
Rebecca O'Leary
Anna Hepworth
Adam Sparkes
Jean Galloway
Fumie Horiuchi
Steve Collins

DPIRD:
Andrea Hills

UM:
Alex Idnurm
Angela Van de Wouw

CSIRO:
Susie Sprague

30% Bloom fungicide

- Alternaria?

Powdery mildew

Sclerotinia

Sclerotinia

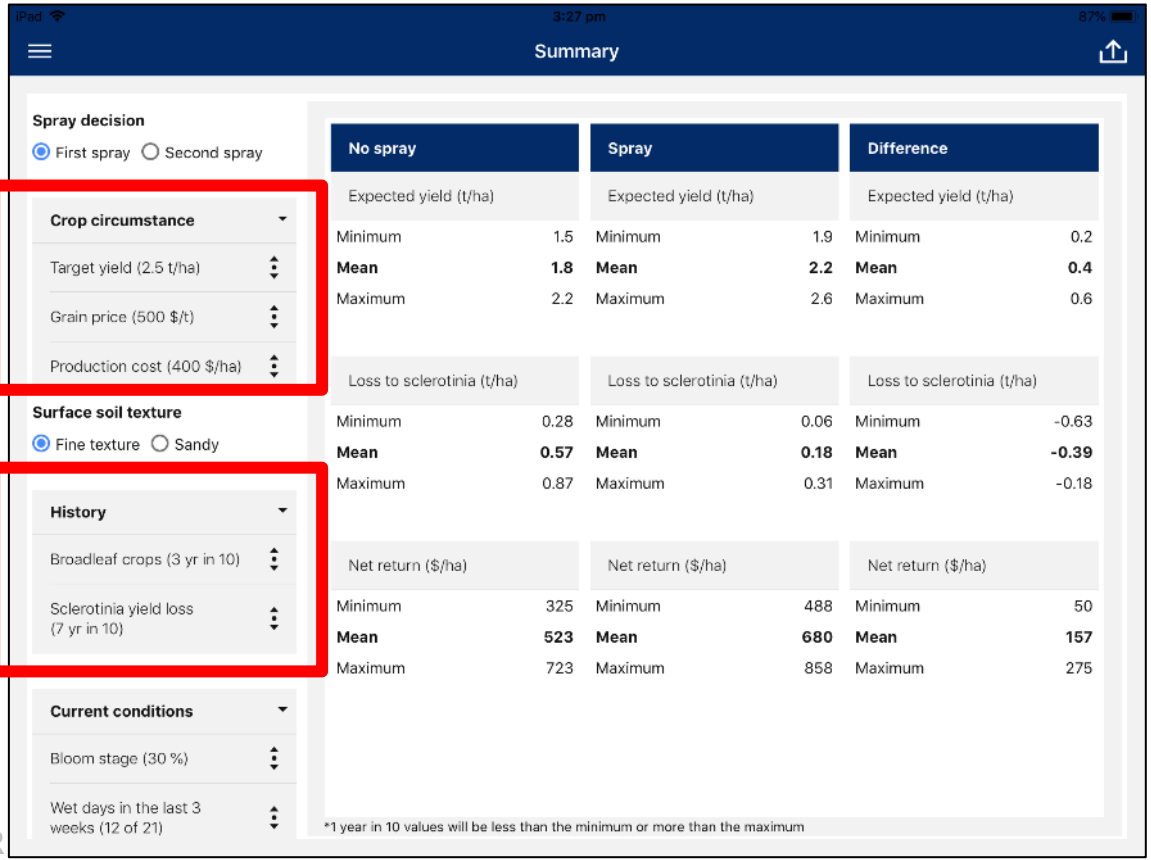
All the stars must align

Key triggers for disease outbreak are known – but only for regions that regularly have infection

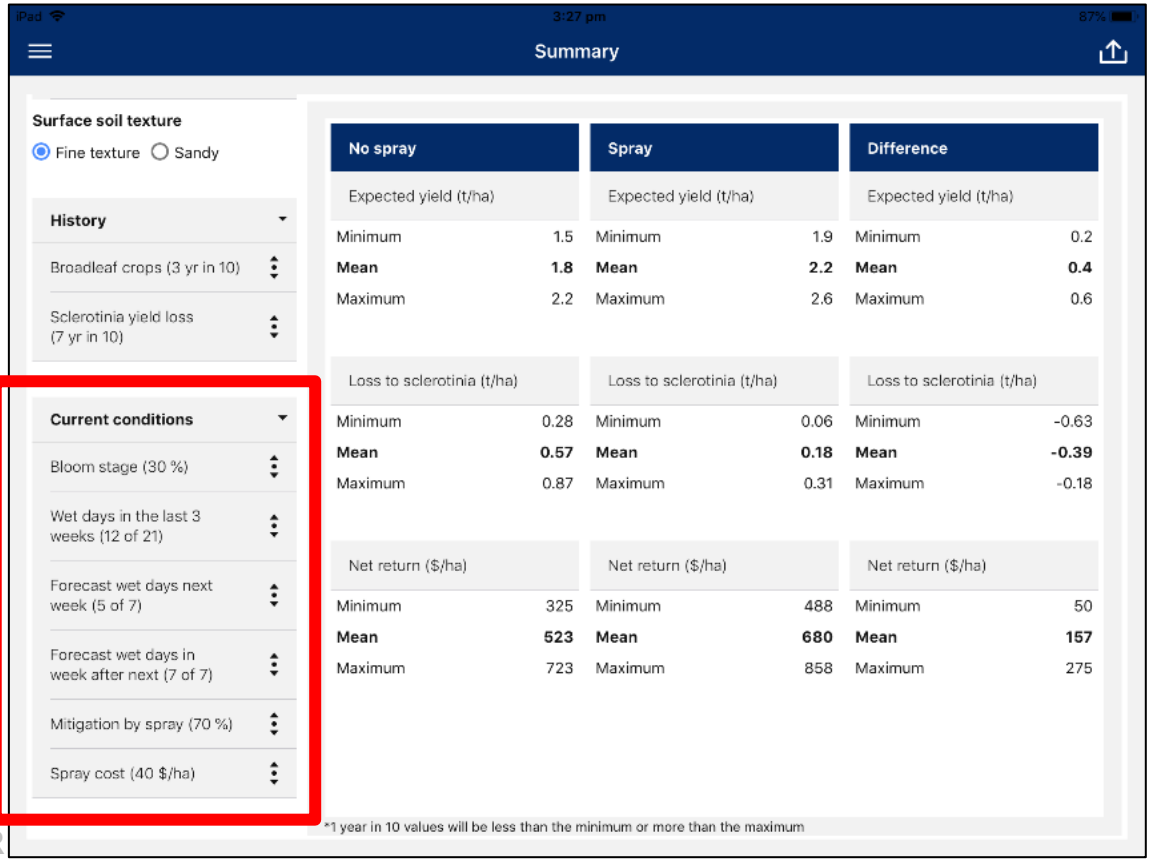
Infection of the main raceme = yield loss

Fungicide application is protective and must be applied prior to symptoms

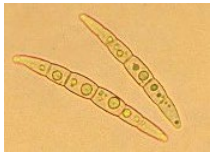
Sclerotinia fungicide app



Sclerotinia fungicide app



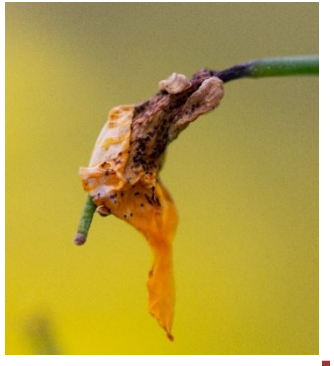




Crown canker:
Infection during seedling stage




Upper canopy infection:
Infection during flowering




Pod infection:
Infection during pod fill

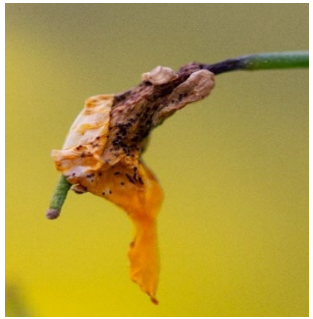


Spore release

April	May	June	July	August	September	October

Sowing window

Early sowing =
Early flowering

Late sowing =
Late flowering




Blackleg - where are we at?

- Good understanding of the pathogen
- Good and improving plant genetics
- Good fungicide options
- Sowing / flowering time

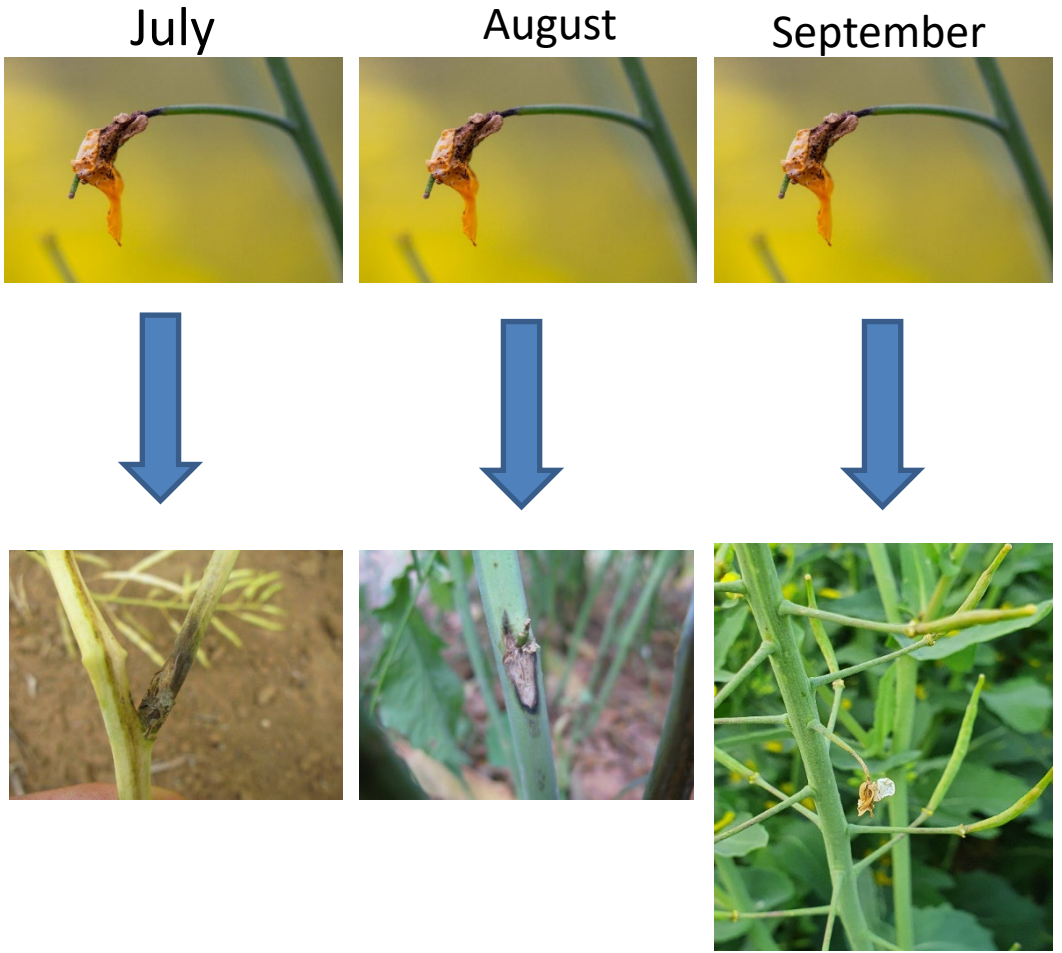
We have been able to significantly increase canola production without significant yield losses and despite increased disease pressure due to tighter rotations and reduced distance to last year's canola stubble.

Issues

- Pathogen continues to degrade cultivar resistance, requires monitoring and management
- Upper canopy blackleg management.
- Fungicide deployment – fungicides always reduce disease severity, but disease doesn't always cause yield loss.
- Changed farming practices

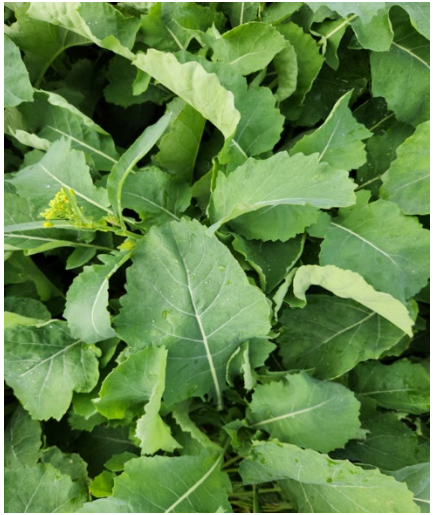
UCI - Date of 1st flower

- Must have early date to 1st flower, to enable blackleg to infect the stems / branches.
- Must have sufficient time between infection and harvest to damage the vascular tissue.



UCI major gene resistance

- Check for leaf lesions at elongation growth stage



- Effective major gene resistance
- Or no disease present
- Will not get UCI

- No effective major gene resistance
- May get UCI (depends on quantitative resistance)

bom rainfall maps - Search | Recent and historical rainfall m | map-transparent.png (PNG Ima | Decision support tools

https://canola.shinyapps.io/UCI-blackleg/

UCI BlacklegCM

20 m

Crop Conditions

- [x] Lesions on leaves
- [ ] Lesions on flowers

Crop growth stage

first flower

Date at first flower

2022-08-01

Fungicide strategy

Crop growth stage at spray

30% bloom

Chemical group of planned spray

(•) DMI Group 3 ( ) SDHI Group 7 ( ) Strobilurin

Spray cost ($/ha spray)

0 — 30 — 150

Mitigation by spray for UCI (%)

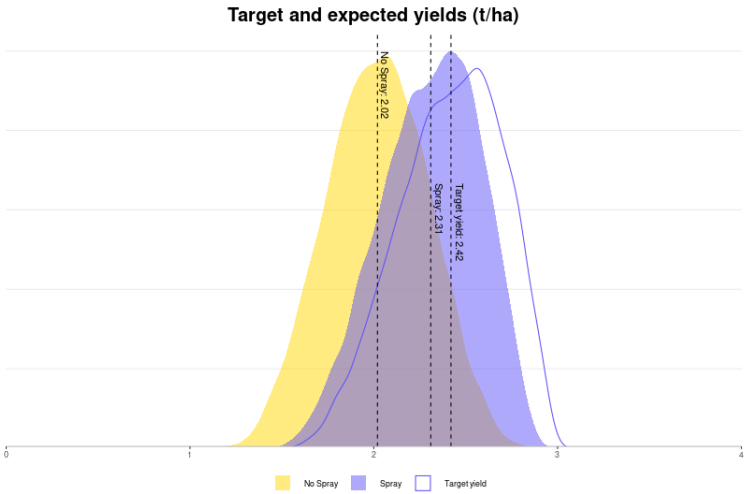
0 — 65 — 100

Other diseases

Expected loss (%)

0 — 100

Summary | Net Return | Yield | Grain Price | Create a report | About



Expected Yield (t/ha)

	No spray	Spray	Difference
Minimum	1.66	1.93	0.08
Mean	2.02	2.31	0.29
Maximum	2.38	2.65	0.50

humidifier - Search | humidifier - Bing images | Buy Medescan Rainbow Mist UI | RAIBOW_MIST_ vapour (New)-570x5 | Decision support tools

https://canola.shinyapps.io/UCI-blackleg/

UCI BlacklegCM

20 m

Distance 2 yo stubble (m)

Sown in

Crop Conditions

- [x] Lesions on leaves
- [ ] Lesions on flowers

Crop growth stage

first flower

Date at first flower

2022-09-01

Fungicide strategy

Crop growth stage at spray

later than 50% bloom

Chemical group of planned spray

( ) DMI Group 3 (•) SDHI Group 7 ( ) Strobilurin

Spray cost ($/ha spray)

0 — 35 — 150

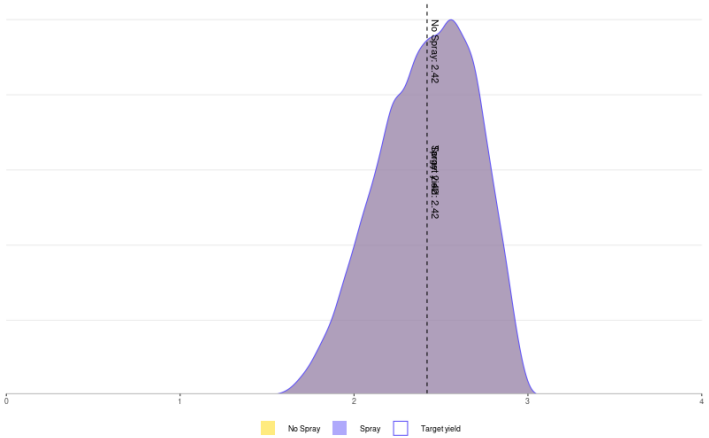
Mitigation by spray for UCI (%)

0 — 85 — 100

Other diseases

Summary | Net Return | Yield | Grain Price | Create a report | About

Target and expected yields (t/ha)



Expected Yield (t/ha)

	No spray	Spray	Difference
Minimum	2.04	2.04	0.00
Mean	2.42	2.42	0.00
Maximum	2.77	2.77	0.00

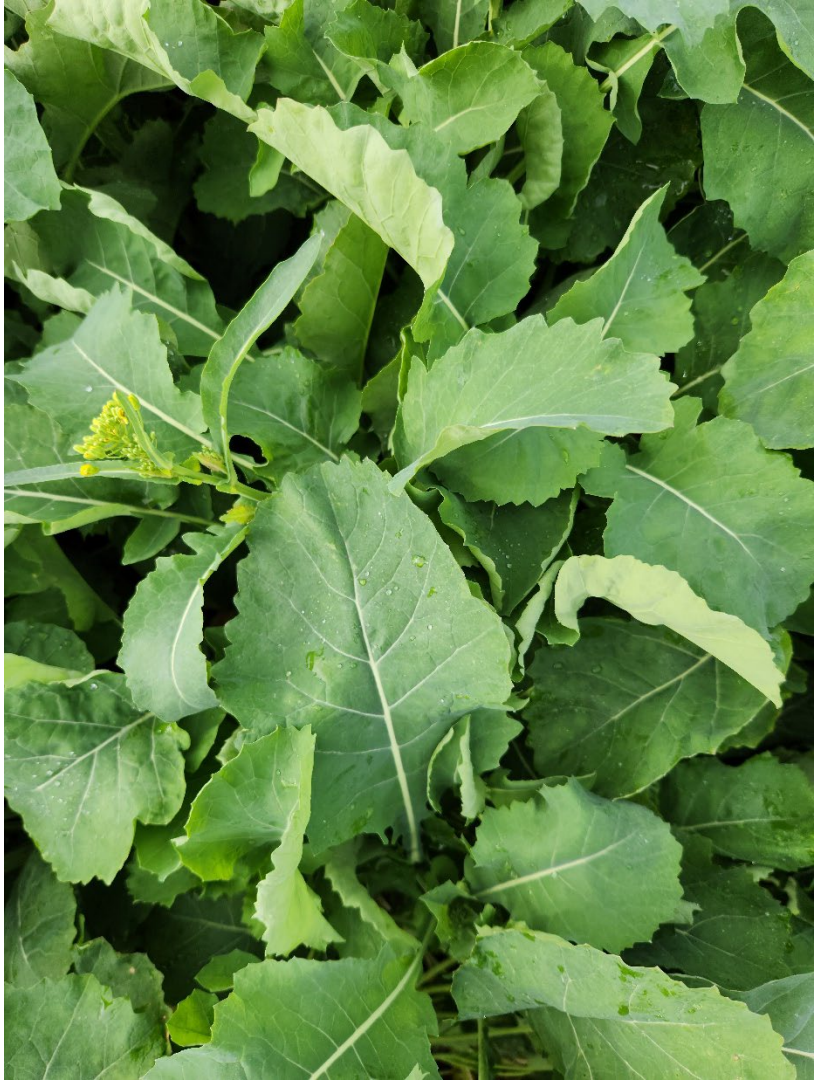
10:56 AM
23/06/2022

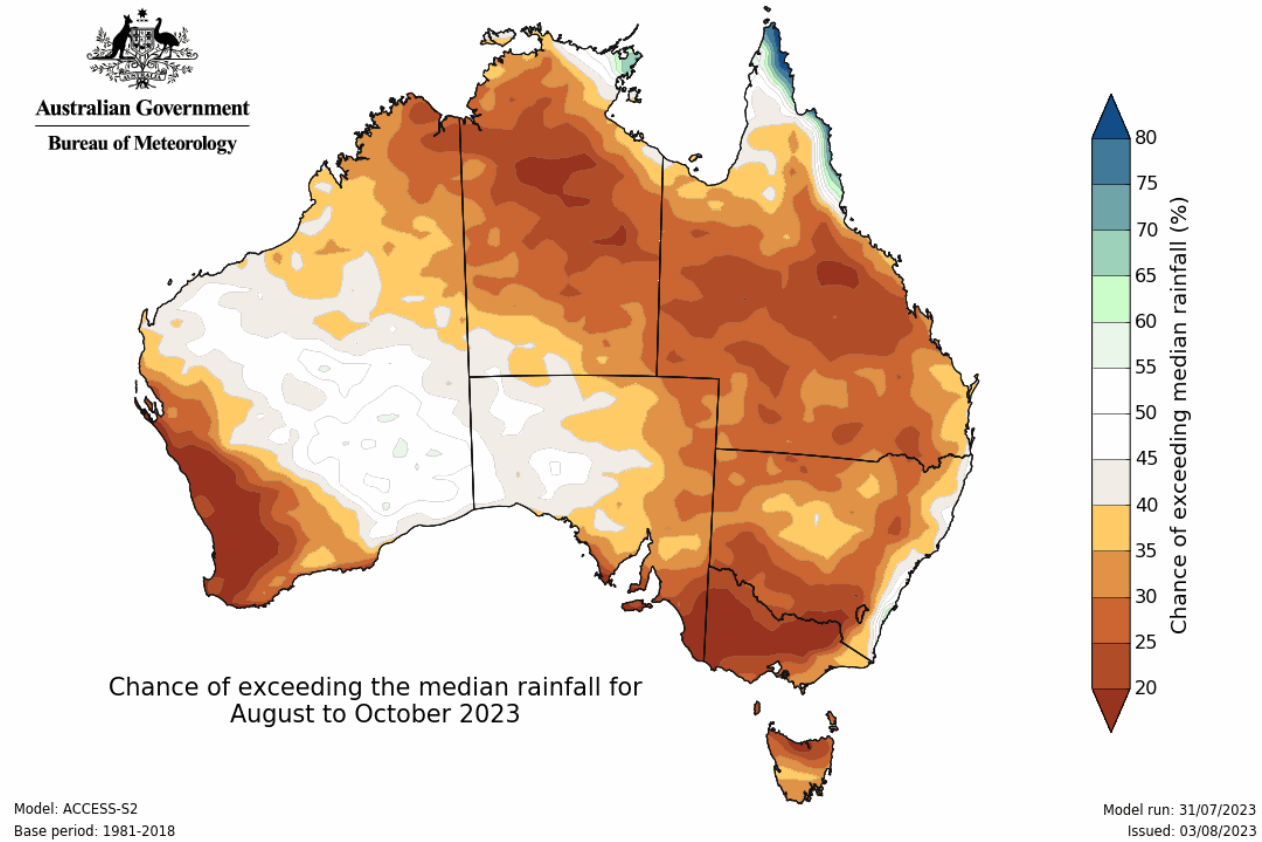
UCI Blackleg ratings

% yield increase with 30% bloom spray

UCI resistance	2021	2022
Low UCI resistance	114	120
Mid UCI resistance	105	107

6 sites each year NSW, Vic, SA, WA




Australian Government
Bureau of Meteorology
Chance of exceeding the median rainfall for
August to October 2023
Chance of exceeding median rainfall (%)
80
75
70
65
60
55
50
45
40
35
30
25
20
Model: ACCESS-S2
Base period: 1981-2018
Model run: 31/07/2023
Issued: 03/08/2023

Scouting

check for darkened branches / black pith

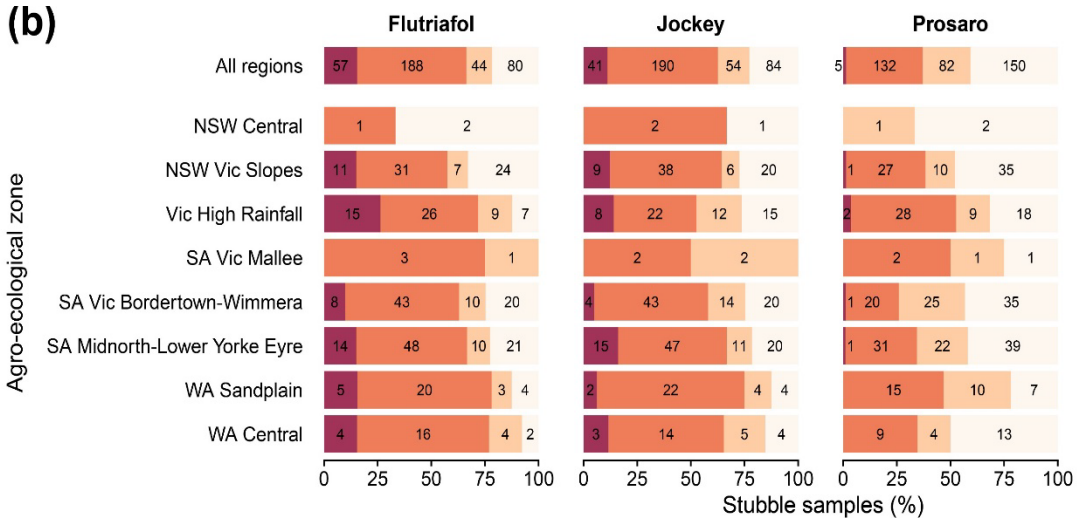
FUNGICIDE RESISTANCE IN AUSTRALIAN POPULATIONS

Australian Government
Australian Research Council

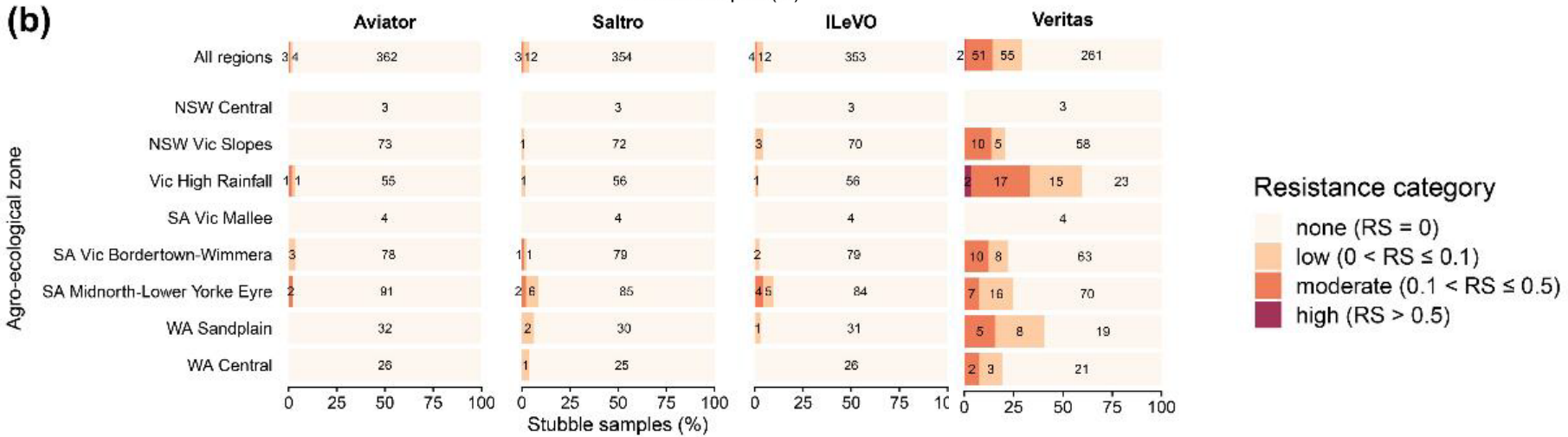
syngenta

Developed in planta screen for detecting fungicide resistance

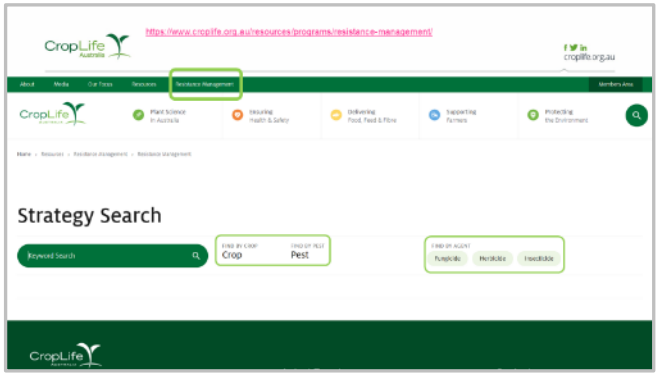
GRU23 Untreated | Miravis (SDHI) | Flutriafol (DMI) | Jockey (DMI)



- Don't know the frequency of resistance within a paddock.
- Screened 12 paddocks. Frequency ranged 0.5% to 32%.
- Don't know what frequency is required for field failure, preliminary data suggest 5% reduced efficacy.



Application stage (Disease being controlled)		Rotation options for different fungicide active groups											
Seed dressing & in-furrow (Blackleg)		None	None	None	None	3	3	3	3	7	7	7+3	7+3
Seedling foliar (Blackleg)		None	3	7	7+3	None	3	7	7+3	None	3	None	3
20-50% flowering (Sclerotinia) Choose only one option from this section	1	None	None	None	None	None	None	None	None	None	None	None	None
	2	2	2	2	2	2	2	2	2	2	2	2	2
	3	3	3	3	3	3		3		3	3	3	
	4	7+3	7+3	7+3	7+3	7+3		7+3		7+3	7+3	7+3	
	5	11+3	11+3	11+3	11+3	11+3		11+3		11+3	11+3	11+3	



If a second application at 50% flowering required:

	Application at 20% flowering			
	2	**3**	**7+3**	**11+3**
Rotation options for 50% flowering second application	3	2	2	2
	7+3			
	11+3			

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- Fungicide resistance management guide
- Workshops, info sessions & webinars
- Factsheets, updates & email alerts

If you suspect fungicide resistance, let us know what's happening & send us a sample!