

# GRDC Grains Research Update



## **Yield response to fungicide control of barley spot type net blotch**

**Andrea Hills**

# STNB study

- Used results from 24 trials (1998 – 2015) from Yuna to Nungarin to Gairdner and Salmon Gums
- Most located in the high (10) or medium (10) rainfall zones
- Spring (August + Sept) rainfall varied; 14 sites <80mm, 10 sites >80mm
- Disease levels from <5% to 99% of Top 3 leaves
- STNB the only or dominant disease present

# Key messages

- Grain yield gains seen in 58% of trials analysed; range was 0.19 – 2.18 t/ha
- Substantial improvement in screenings
- Spring rainfall, particularly September rainfall and potential yield, determines the likelihood and size of a yield response.
- Propiconazole and Prosaro® performed comparably. But consider what other diseases may be lurking about.

# Likelihood & size of responses to fungicide

Rainfall zone	Likelihood of response (%)	Response range (t/ha)	Av. yield response (t/ha)	
			All sites	Responsive only
Overall	58%	0.19 – 2.18	0.44	0.75

# Likelihood & size of responses to fungicide

Rainfall zone	Likelihood of response (%)	Response range (t/ha)	Av. yield response (t/ha)	
			All sites	Responsive only
High	70%	0.44 – 2.18	0.66	0.94
Medium	50%	0.22 – 1.11	0.35	0.71
Low (n=4)	50%	0.19 – 0.22	0.10	0.20
Overall	58%	0.19 – 2.18	0.44	0.75

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Trials	Spring rainfall	
	Low (<80mm)	Adequate (>80mm)
All sites	0.21 t/ha	0.76 t/ha
Responsive only	0.49 t/ha	0.95 t/ha

# Adapt fungicide strategy to conditions in September

- Sept commonly the time when the second fungicide application is made; if it's dry, rethink whether this is necessary
- Also take potential yield into consideration



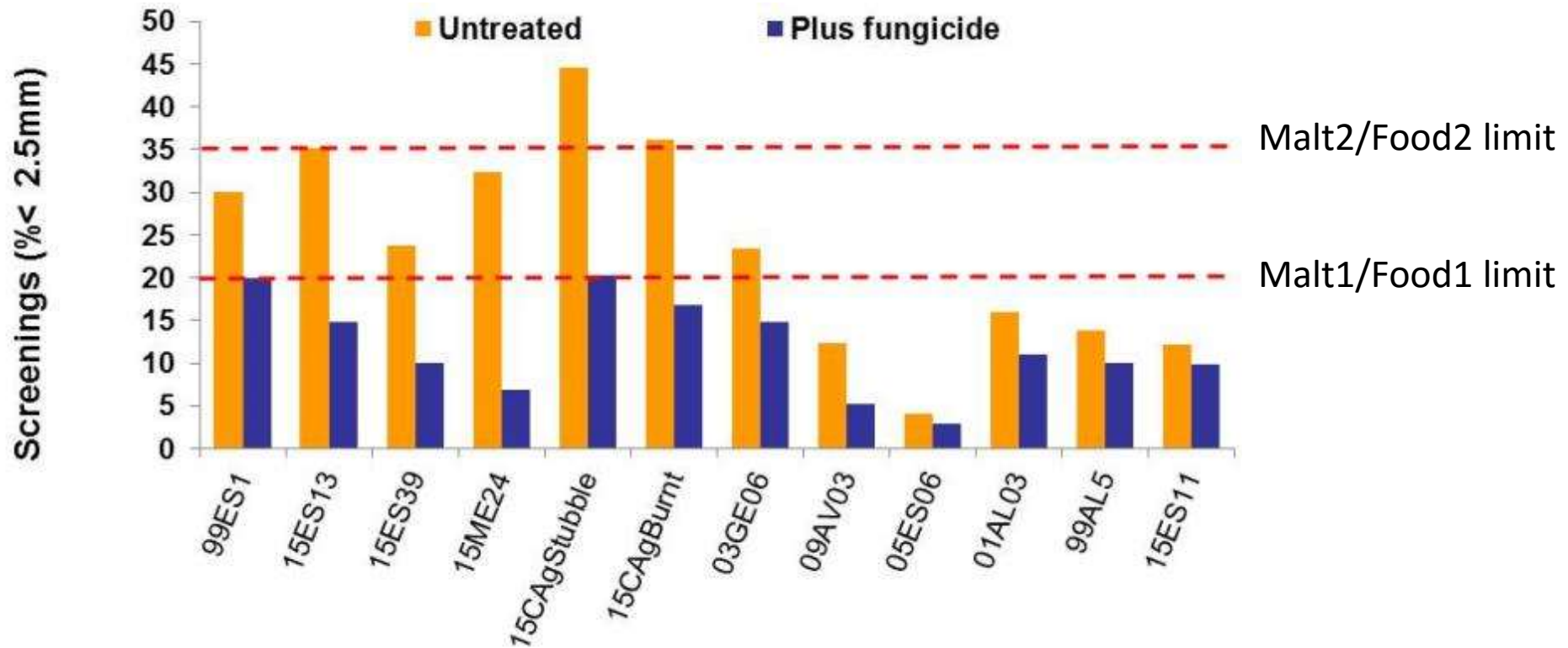
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# Grain quality responses

Quality parameter	Responsive sites (%)	Average response (%)	Average change	n
Screenings	74%	-49	-14%	17
Grain weight	46%	3.4	2.7mg	13
Hectolitre weight	35%	1	2.1kg/hL	17
Brightness	42%	0.8	0.9L*	12
Protein	36%	-3.1	-0.1%	14

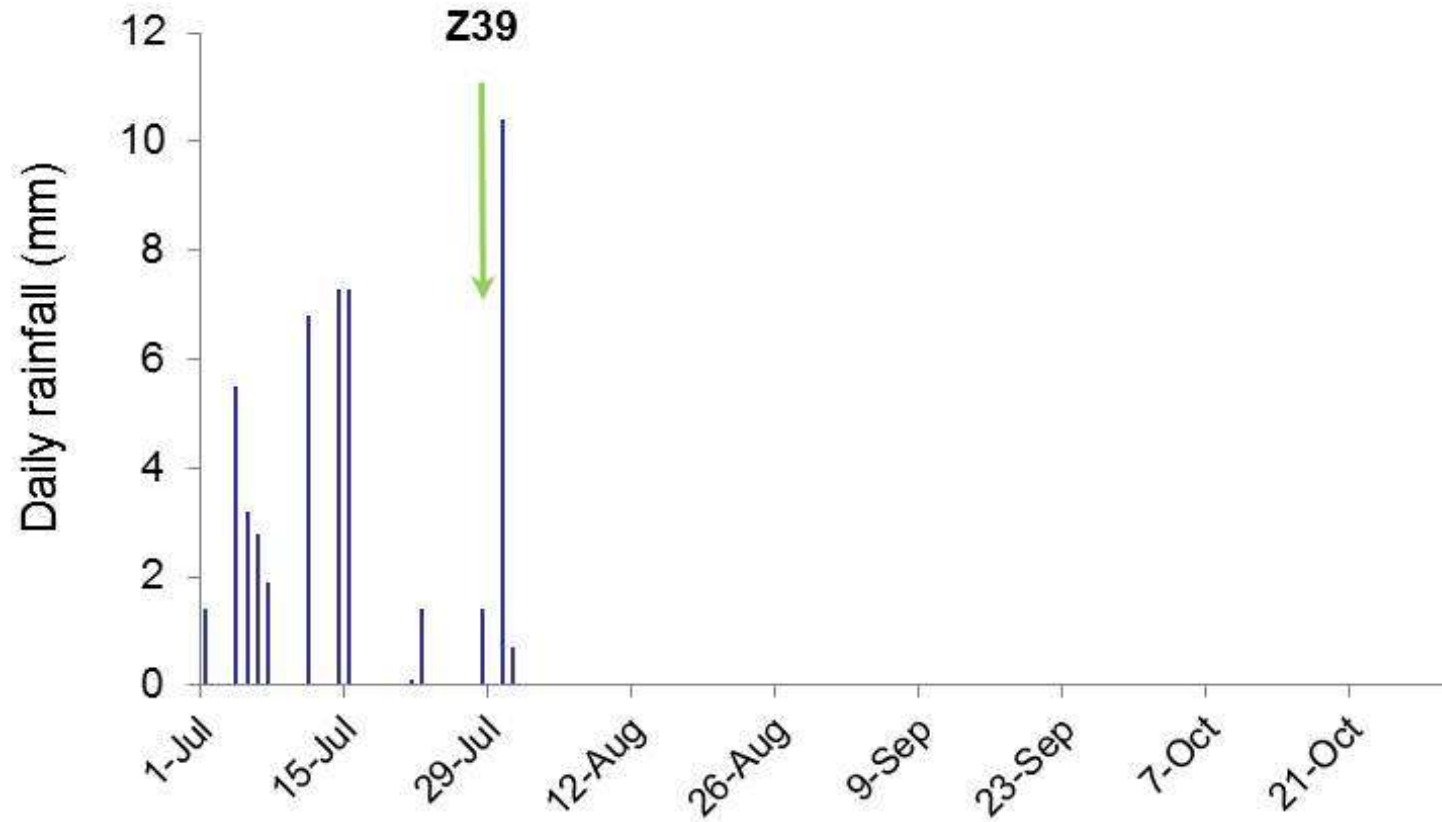
# Fungicide use

- Double applications in medium & high rainfall ...where spring is average or better
- Play the season in medium to low rainfall areas
- Single in low rainfall areas?

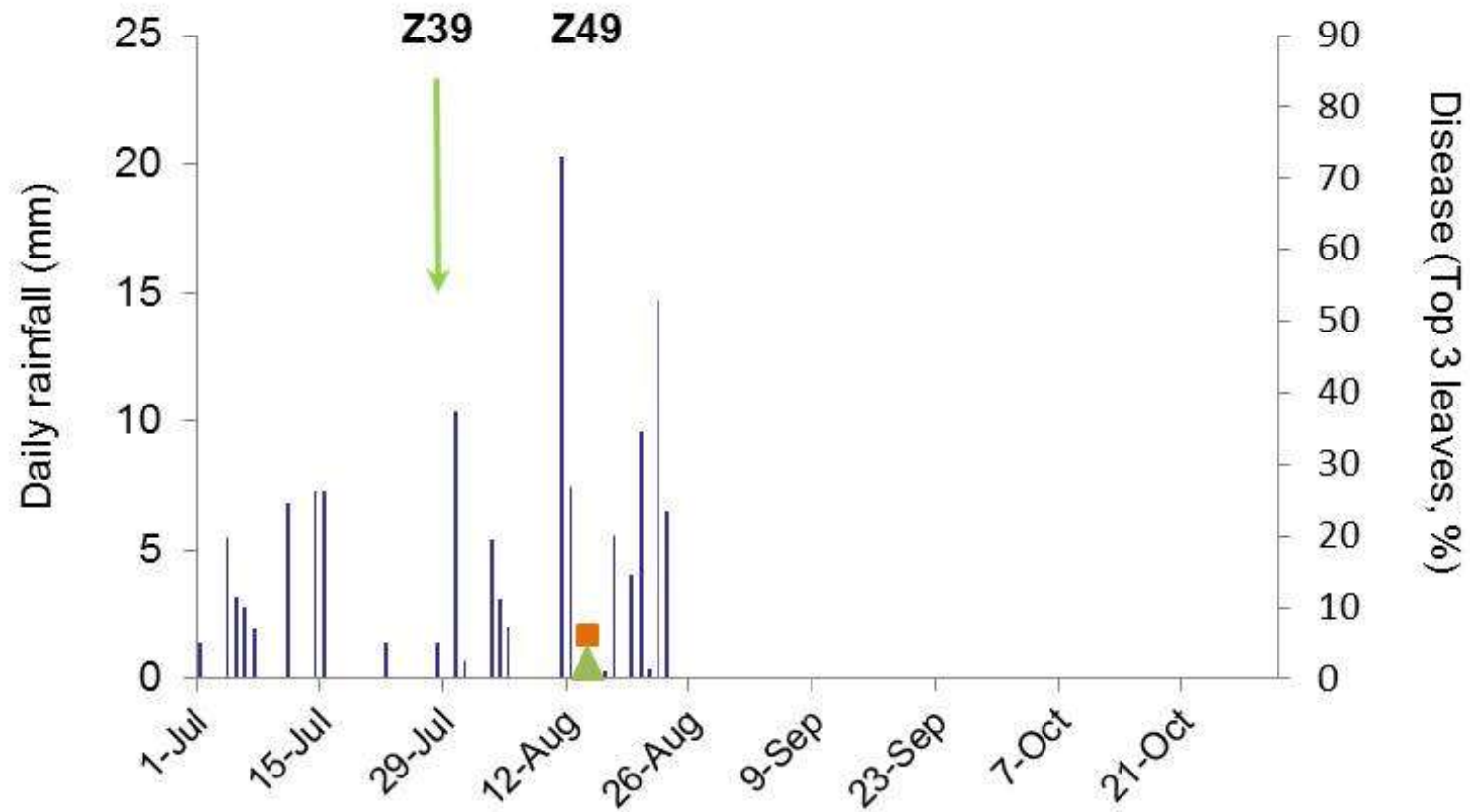
# Single vs double fungicide:

- 2003 Yuna, Stirling barley
- Propiconazole 500 ml/ha (125 g a.i.)
- Z39 or Z39 + Z61

# Yuna 2003; Rainfall & disease levels

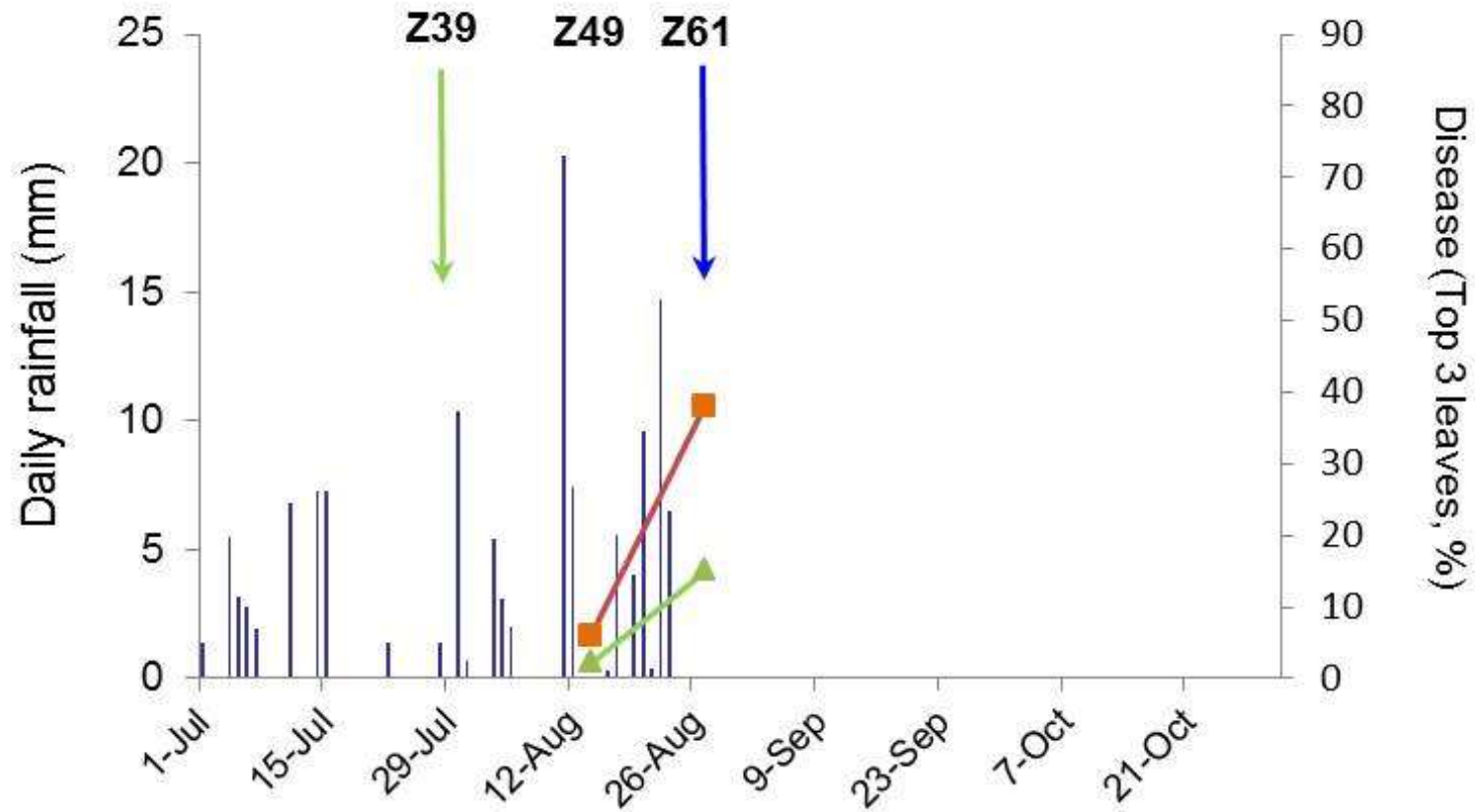


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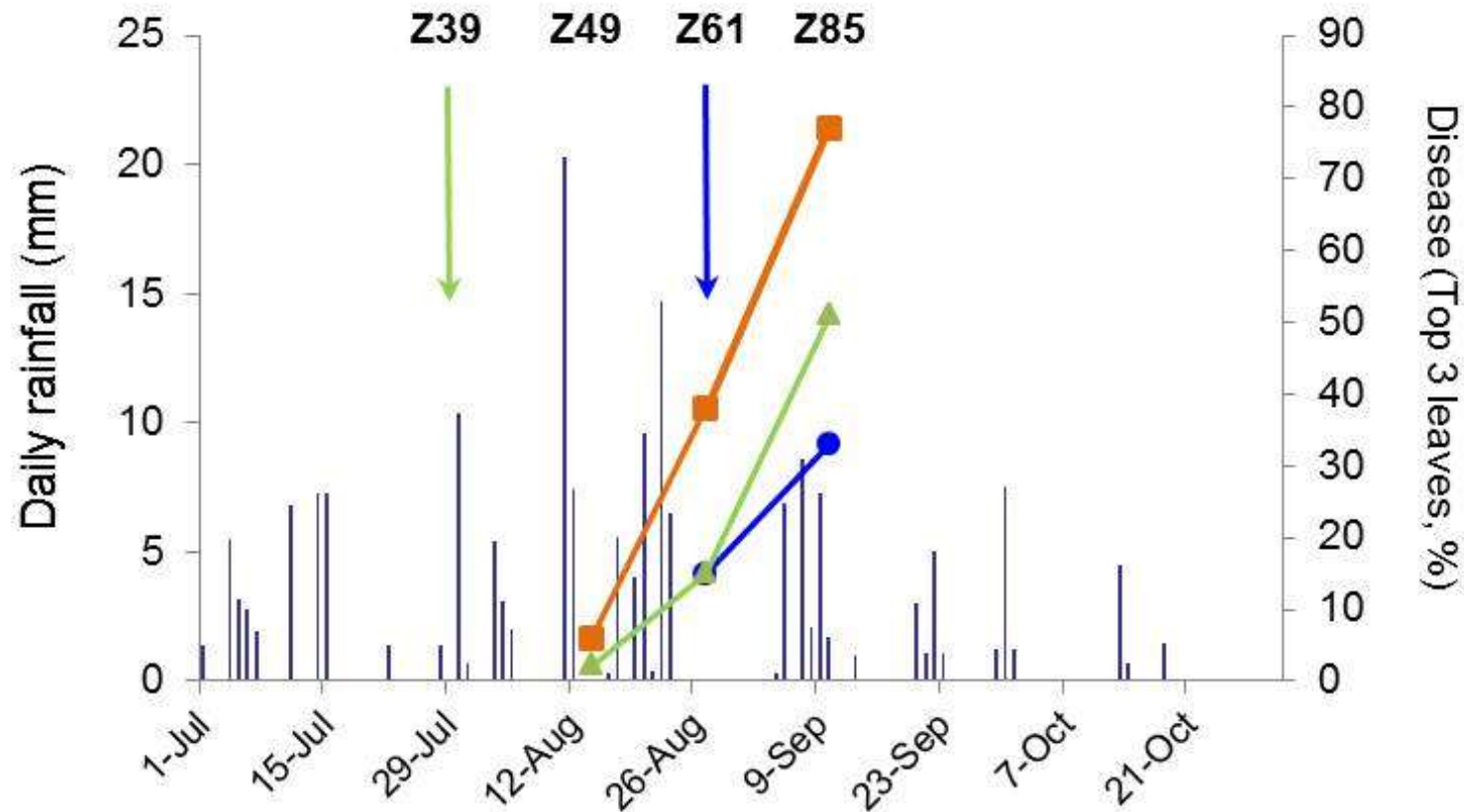




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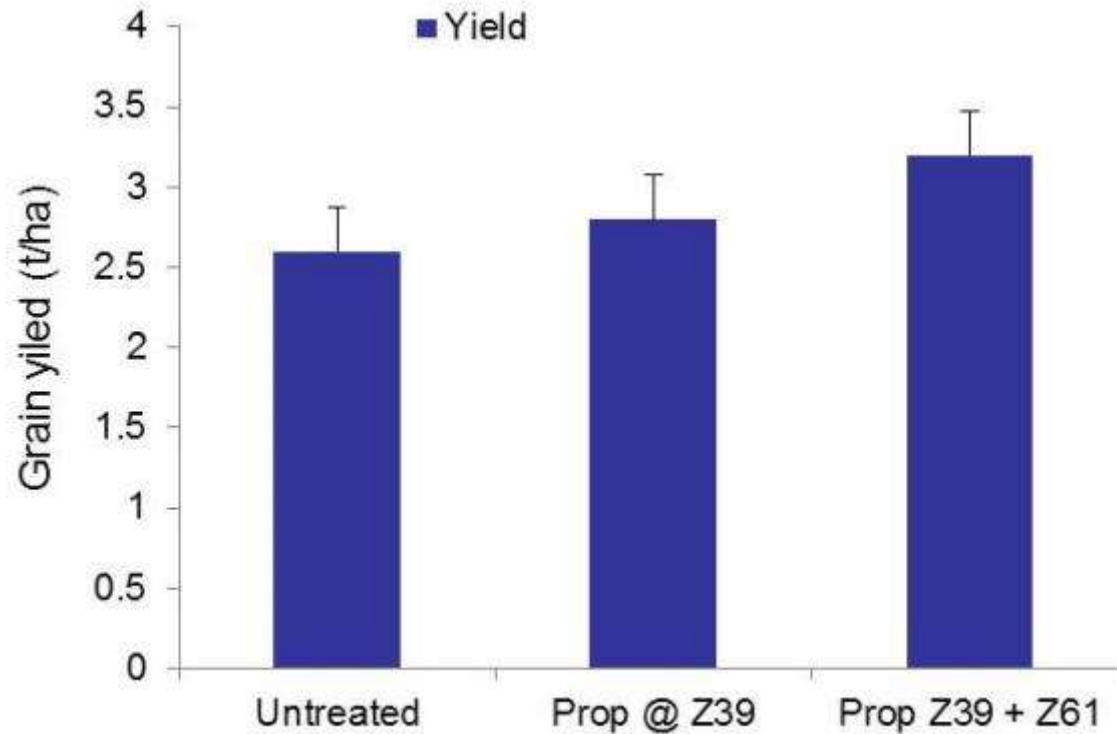


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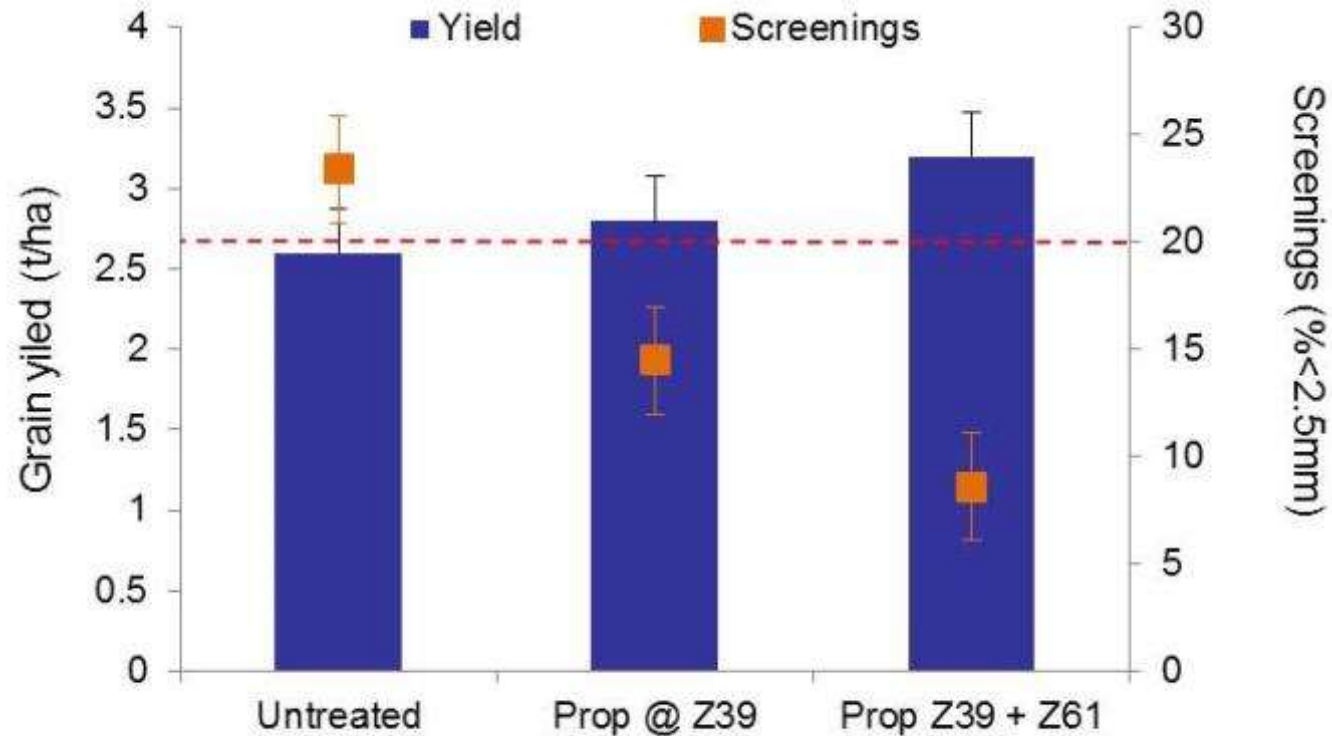


Rainfall total spring and Sept. also lead up to 1<sup>st</sup> spray

# Yield and screenings; Yuna 2003



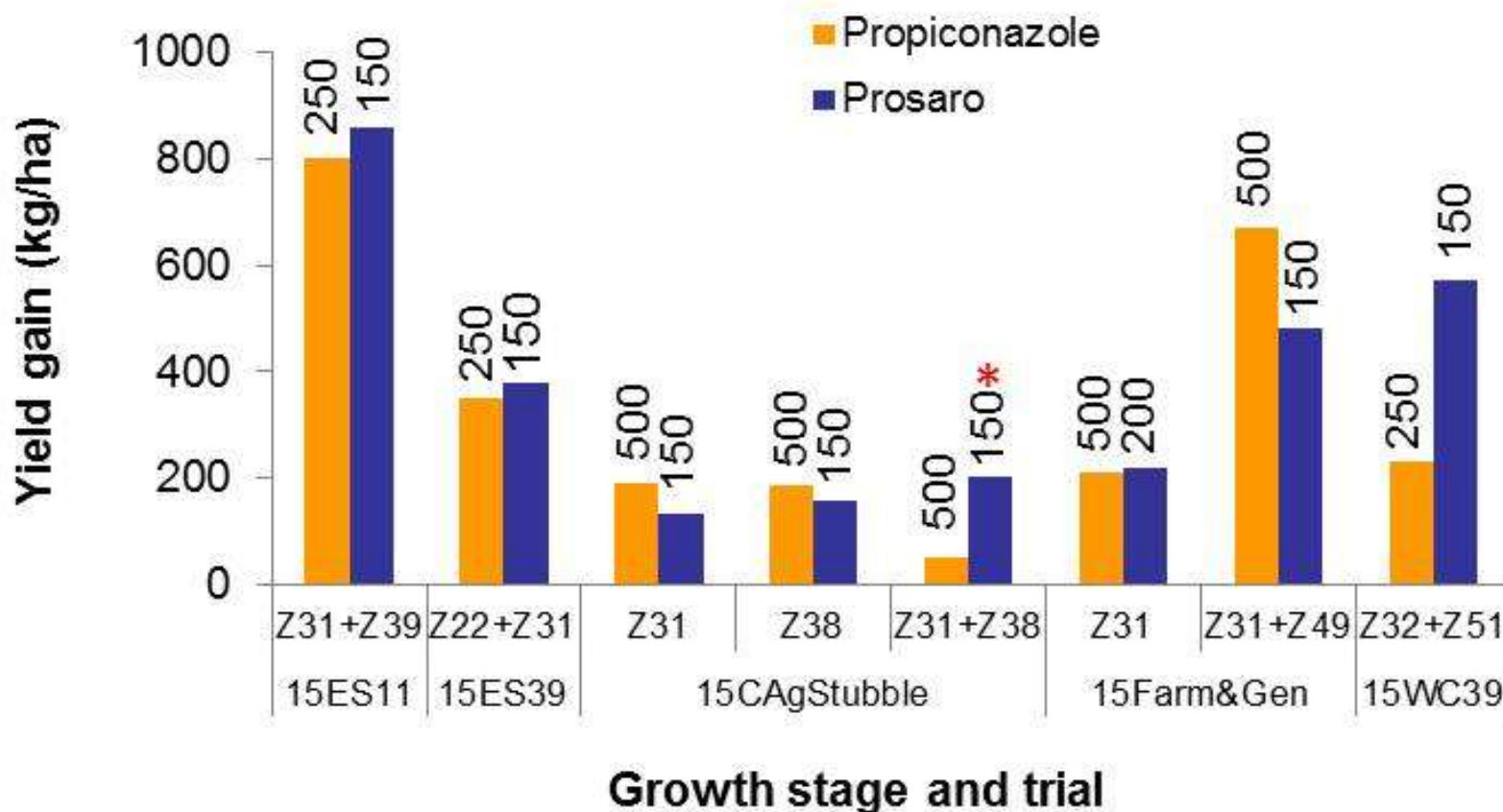
# Yield and screenings; Yuna 2003



# Fungicide selection

- Propiconazole and Prosaro are common choices
- What's registered for STNB
- Yield responses to cover costs

# Prosaro vs propiconazole head to head



- Performance was comparable in seven of eight cases

# Registered fungicide options

Product	Active ingredients	STNB	BLR	NTNB	BPM	Sc
Amistar Xtra®	azoxystrobin + cyproconazole	✓	✓	✓	✓	
Opera®	pyraclostrobin + epoxiconazole	✓	✓	✓	✓	✓
Propiconazole	propiconazole	✓			✓	✓
Prosaro	prothioconazole + tebuconazole	✓	✓	✓	✓	✓
Systiva®	fluxapyroxad	✓	✓	✓	✓	✓

\*125 g a.i.

# Registered fungicide options

Product	Rate mL/ha	Price \$/ha	Active ingredients
Amistar Xtra®	400	15.00	azoxystrobin + cyproconazole
Opera®	500	7.00	pyraclostrobin + epoxiconazole
Propiconazole	500*	6.50	propiconazole
Prosaro	150	10.50	prothioconazole + tebuconazole
Systiva®	105	24.00	fluxapyroxad

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- Quotes by Farm & General Esperance, January 2016

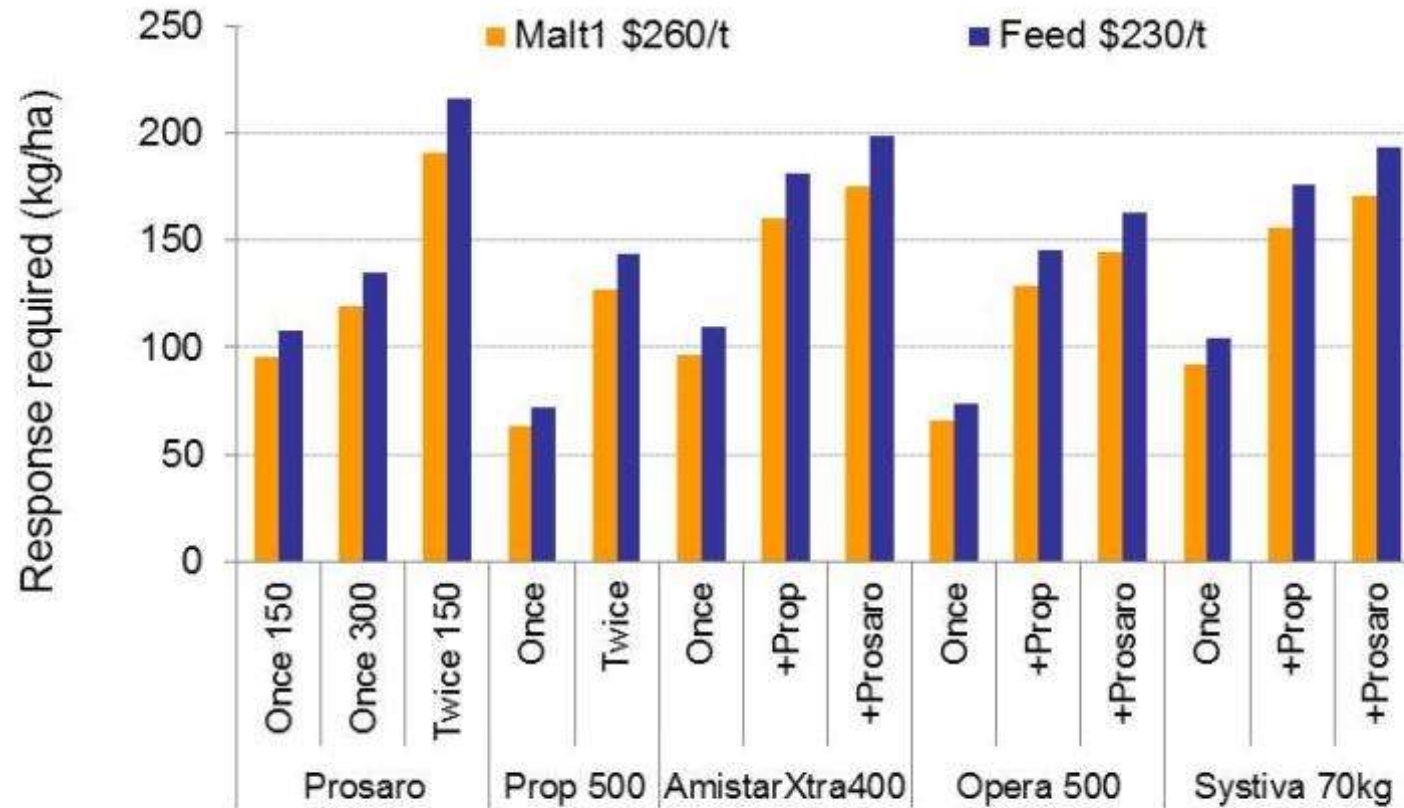


# Yield responses to cover costs

Product	Rate mL/ha	Price \$/ha
Amistar Xtra®	400	15.00
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Propiconazole	500*	6.50
Prosaro	150	10.50
Systiva®	105	24.00

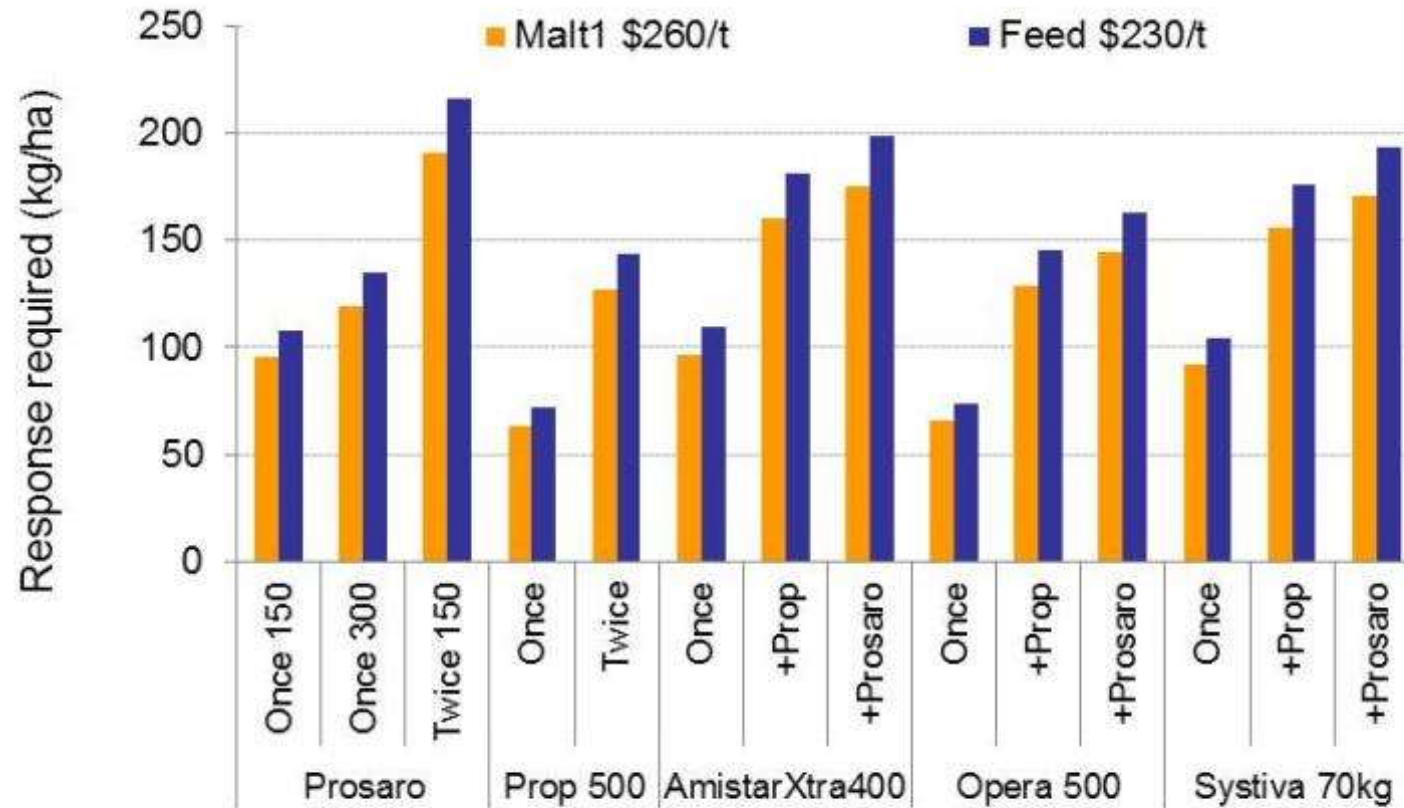
- \$10/ha per application
- Malt1 \$260/t, Feed \$230/t

# Yield responses to cover costs



- \$10/ha per application
- Prosaro 150 ml + 1% Hasten

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Medium	0.22 – 1.11	0.35
Low (n=4)	0.19 – 0.22	0.10
Overall	0.19 – 2.18	0.44

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**Questions?**