



Protocol 7. Disease management for irrigated crops

Trial 1. Products, rates and timing interaction trial

Protocol Objective:

To examine the influence of fungicide timing and rate for the prevention of disease and green leaf retention in grain maize

Hopefield, NSW

Sown: 2 December 2019

Harvested: 27 May 2020

Soil Type: Red loam over clay

Previous crop: Wheaten Hay

Hybrid: Pioneer Hybrid 1756

FAR code: FAR IRR M19-04

Irrigation Type: Overhead pivot

Key Messages:

- There were no significant yield effects of fungicide application at either V8 (8 leaf) or VT.
- No disease was observed in the trial and there was little evidence to suggest that fungicides improved green leaf retention when assessed at V14, V15 and V16.

Grain Yields

Table 1. SAGI analysis for grain yield (t/ha) and test weight (kg/hl).

Treatment		Yield		Test Weight	
Timing	Product	Predicted value	Standard error	Predicted value	Standard error
V8	Propiconazole	18.22	+/- 0.67	76.31	+/- 0.59
V8	Prothioconazole	19.29	+/- 0.68	77.8	+/- 0.59
V8	Prothio+Pyraclostrobin	19.11	+/- 0.67	76.74	+/- 0.59
V8	Pyraclostrobin	18.55	+/- 0.67	77.5	+/- 0.59
V8	UTC	18.6	+/- 0.68	76.1	+/- 0.59
VT	Propiconazole	18.33	+/- 0.67	76.84	+/- 0.58
VT	Prothioconazole	18.41	+/- 0.66	77.71	+/- 0.59
VT	Prothio+Pyraclostrobin	19.11	+/- 0.68	77.36	+/- 0.59
VT	Pyraclostrobin	18.95	+/- 0.67	76.62	+/- 0.59
VT	UTC	19.71	+/- 0.68	77.23	+/- 0.59
Mean		18.8		81	
Timing P val		0.656		0.851	
Product P val		0.698		0.829	
Interaction P val		0.717		0.928	
LSD		1.99		1.033	
CV		7.4		0.864	

Yields taken from hand harvest quadrats as opposed to machine harvest based 2x 2m row opposite one another.

Hand harvested quadrats tend to give higher yields than machine yields

* The use of fungicides in this trial does not constitute a recommendation and have been used for experimental purposes

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Disease and Green Leaf Retention

No disease was recorded in the trial. There were few significant differences recorded in green leaf retention as a result of fungicide application. The use of the both DMI triazoles and QoI (strobilurins) was ineffective when assessed between the middle of February and the end of March (Table 2 – 4).

Table 2. Green Leaf Retention (% GLR) assessed on 17 February 2020 at R3.

Treatment mL/ha	Green Leaf Retention		
	V14 % GLR	V15 % GLR	V16 % GLR
Timing - V8			
Untreated	96.2 -	97.2 -	97.9 -
DMI – Prothioconazole (Proline) (100g/ha)	95.4 -	96.9 -	97.9 -
DMI – Propiconazole (Tilt) (125g/ha)	95.9 -	97.1 -	98.3 -
QoI – Pyraclostrobin (Cabrio) (200g/ha)	95.8 -	97.3 -	98.5 -
DMI/QoI – Prothioconazole + Pyraclostrobin	96.2 -	97.3 -	98.3 -
Timing – VT			
Untreated	96.1 -	97.2 -	98.2 -
DMI – Prothioconazole (Proline) (100g/ha)	95.9 -	97.4 -	98.2 -
DMI – Propiconazole (Tilt) (125g/ha)	96.4 -	97.0 -	98.4 -
QoI – Pyraclostrobin (Cabrio) (200g/ha)	96.3 -	97.1 -	98.1 -
DMI/QoI – Prothioconazole + Pyraclostrobin	95.6 -	97.2 -	98.0 -
Mean	95.97	97.14	98.17
LSD (Fung x Timing)	NS	NS	NS
P Val (Fung x Timing)	0.538	0.771	0.502

Table 3. Green Leaf Retention (% GLR) assessed on 9 March 2020 at R4.

Treatment mL/ha	Green Leaf Retention		
	V14 % GLR	V15 % GLR	V16 % GLR
Timing - V8			
Untreated	96.3 -	97.5 ab	98.2 -
DMI – Prothioconazole (Proline) (100g/ha)	96.3 -	97.3 abc	98.1 -
DMI – Propiconazole (Tilt) (125g/ha)	96.6 -	97.4 abc	97.9 -
QoI – Pyraclostrobin (Cabrio) (200g/ha)	96.1 -	97.2 abc	98.0 -
DMI/QoI – Prothioconazole + Pyraclostrobin	95.8 -	97.0 bc	97.9 -
Timing – VT			
Untreated	96.0 -	96.9 c	97.6 -
DMI – Prothioconazole (Proline) (100g/ha)	96.7 -	97.7 a	98.2 -
DMI – Propiconazole (Tilt) (125g/ha)	96.5 -	97.4 abc	98.4 -
QoI – Pyraclostrobin (Cabrio) (200g/ha)	96.5 -	97.5 ab	98.1 -
DMI/QoI – Prothioconazole + Pyraclostrobin	96.5 -	97.4 ab	98.3 -
Mean	96.3	97.3	98.1
LSD (Fung x Timing)	NS	0.50	NS
P Val (Fung x Timing)	0.424	0.029	0.075

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Table 4. Green Leaf Retention (% GLR) assessed on 30 March 2020 at R5/6.

Treatment mL/ha	Green Leaf Retention		
	V14 % GLR	V15 % GLR	V16 % GLR
Timing - V8			
Untreated	88.5 -	93.6 -	93.4 -
DMI – Prothioconazole (Proline) (100g/ha)	88.0 -	94.0 -	92.3 -
DMI – Propiconazole (Tilt) (125g/ha)	88.9 -	93.5 -	93.1 -
QoI – Pyraclostrobin (Cabrio) (200g/ha)	88.4 -	93.5 -	92.5 -
DMI/QoI – Prothioconazole + Pyraclostrobin	87.0 -	94.1 -	93.4 -
Timing – V14			
Untreated	88.6 -	93.9 -	92.8 -
DMI – Prothioconazole (Proline) (100g/ha)	86.7 -	94.0 -	93.7 -
DMI – Propiconazole (Tilt) (125g/ha)	90.0 -	94.2 -	93.6 -
QoI – Pyraclostrobin (Cabrio) (200g/ha)	88.6 -	94.0 -	92.5 -
DMI/QoI – Prothioconazole + Pyraclostrobin	86.6 -	94.5 -	92.8 -
Mean	88.1	93.9	93.0
LSD (Fung x Timing)	NS	NS	NS
P Val (Fung x Timing)	0.771	0.873	0.308

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