

PROVISIONAL HARVEST RESULTS:

Barley Canopy Management Trial

2022 Esperance Crop Technology Centre

Optimising high rainfall zone cropping for profit in the Western and Southern Regions (DAW1903-008RMX)

A Grains Research & Development Corporation (GRDC) investment

Sown: 16 April 2022

Harvested: 16 November 2022

Rotation position: 1st Cereal after canola, 2020 wheat.

Soil Management: Sand Plain, Sand over Clay.

Key Messages:

- Despite earlier phenology, Rosalind grown with higher inputs of nitrogen (46N extra over 120N), fungicide (three units instead of two) and PGR produced significantly higher yields than other cultivar/management combinations, however higher spot form of net blotch and powdery mildew made it the most input responsive cultivar.
- RGT Planet was significantly lower yielding than Laperouse under lower input management but yielded almost identically when grown under higher input, fungicide input looked to be the most influential input in this result. A result identical to the 2021 season.
- There was a significant interaction between cultivar and management indicating that cultivars responded different to the management strategies applied.
- There was no advantage to growing a short season winter barley (cv Urambie) despite the mid-April sowing date resulting in spring barley cultivars reaching GS31 in mid – late June. (Note this is a generally frost free location, with no frost experienced this year).
- Grain yields resulting from management input correlated strongly to crop canopy dry matter at harvest. For the high input management, the mean harvest index was 48.1% (grain yield based on 0% moisture).

Table 1. Influence of cultivar on grain yield (t/ha) under different canopy management regimes.

Cultivar (Type)	Canopy Management (Grain Yield t/ha)			
	Standard Input	“Grazed” Standard*	High Input	Mean
Laperouse (Spring)	6.73 cde	6.35 efg	7.29 b	6.79
Urambie (Winter)	6.03 gh	5.26 j	6.82 cd	6.03
RGT Planet (Spring)	6.25 fg	5.74 hi	7.28 b	6.42
Maximus CL (Spring)	6.45 def	6.18 fg	7.11 bc	6.58
Rosalind (Spring)	6.05 fgh	5.55 ij	8.05 a	6.55
Mean	6.30	5.81	7.31	6.48
LSD Cultivar p = 0.05		0.23	P Value <0.001	
LSD Management p=0.05		0.35	P Value <0.001	
LSD Cultivar x Management P=0.05		0.40	P Value <0.001	

CV 4.30

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Yield figures followed by the same letter are not considered to be statistically different ($p=0.05$), for example a yield of 7.45bc is considered statistically different to 6.6d but not to a yield of 7.7abc.

Plot yields: To compensate for edge effect a full row width (22.5cm) has been added to either side of the plot area (equal to plot centre to plot centre measurement in this case). All results have been analysed through ARM software.

Grazed management involved mechanical defoliation of the plots at GS30 (pseudo stem erect – start of stem elongation carried out different calendar dates depending on cultivar type).

Table 2. Influence of cultivar on grain protein (%) under different canopy management regimes.

Cultivar (Type)	Canopy Management (% Protein)			
	Standard Input	“Grazed” Standard*	High Input	Mean
Laperouse (Spring)	11.3 e	9.9 g	12.2 b	11.1
Urambie (Winter)	10.0 g	9.2 h	11.4 de	10.2
RGT Planet (Spring)	10.5 f	10.0 g	11.6 cde	10.7
Maximus CL (Spring)	12.0 bc	10.5 f	12.8 a	11.8
Rosalind (Spring)	11.6 cde	10.6 f	11.8 bcd	11.3
Mean	11.1	10.0	12.0	11.0
LSD Cultivar $p = 0.05$		0.26	P Value <0.001	
LSD Management $p=0.05$		0.85	P Value 0.004	
LSD Cultivar x Management $P=0.05$		0.45	P Value 0.001	

CV 2.83

Table 3. Influence of cultivar on Harvest Dry Matter (t/ha) under different canopy management regimes.

Cultivar (Type)	Canopy Management (Harvest dry matter t/ha)			
	Standard Input	“Grazed” Standard*	High Input	Mean
Laperouse (Spring)	11.3 cd	9.8 ef	13.8 a	11.6 -
Urambie (Winter)	11.3 cd	8.3 g	13.2 ab	10.9 -
RGT Planet (Spring)	11.1 d	9.8 ef	12.3 bc	11.1 -
Maximus CL (Spring)	11.3 cd	8.8 fg	13.8 a	11.3 -
Rosalind (Spring)	10.4 de	9.7 ef	13.8 a	11.3 -
Mean	11.1 b	9.3 c	13.4 a	
LSD Cultivar $p = 0.05$		NS.	P Value 0.200	
LSD Management $p=0.05$		1.34	P Value <0.001	
LSD Cultivar x Management $P=0.05$		1.07	P Value 0.009	

CV 6.65

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