Grazing cereals, Woomelang VIC

A BCG and Mallee CMA initiative

Key messages

- Barley produced more feed than wheat at the time of grazing.
- Hindmarsh yielded the highest, even when grazed. However Hindmarsh did suffer a grain yield penalty when grazed, as did Young and Axe wheat.
- Derrimut and Wyalkatchem wheat both yielded well and did not suffer a grain yield or screenings penalty when grazed. These were the best-bet dual purpose wheat varieties in the Mallee in 2009.

The success of dual purpose crops in higher rainfall zones has driven interest in assessing the suitability of grazing cereals in lower rainfall areas such as the Victorian Wimmera Mallee.

The challenge of adopting this practice is to ensure correct grazing techniques are applied to the most suitable varieties to avoid compromising grain production. Grain crops intended for grazing ideally need to be sown early as grazing delays crop maturity by about one week, depending on timing and intensity. Stock can be introduced to cereal crops intended for grazing at around the 3-leaf (GS13) stage or when plants cannot be tugged from the ground. If a grain yield penalty is to be avoided, stock should be removed before the end of tillering (GS30).

Woomelang trial

A trial was established at Woomelang to assess the suitability of different wheat and barley cultivars for dual purpose – grain and grazing production – in low rainfall environments.

On 7 May 2009 the plots were sown to Yitpi, Correll, Axe, Wyalkatchem, Young, Derrimut and CLF_STL wheat, and Buloke and Hindmarsh barley on 30cm row spacing using knife points and press wheels.

In 2009 the trial site received 208.5mm during the growing season, an early break and reasonably good distribution of rainfall throughout the season.

Grazing results

Dry matter production was measured at GS13 just prior to grazing. The results indicated varying amounts of feed available between varieties. Feed tests were taken to determine the metabolisable energy (ME) values for stock prior to grazing. Consequently, grazing days were calculated assuming one dry sheep equivalent (DSE) consumes 8MJ/day of dry matter.

Hindmarsh and Buloke were the standout barley varieties, with Hindmarsh having the greatest ME of 2018MJ/ha (Table 1). This equated to 252 DSE grazing days. The less vigorous variety Young had 700MJ/ha of ME, providing 88 DSE grazing days.

On 23 June 2009, half of the four replicates were fenced and 10 lambs grazed the area (equivalent to 67 lambs/ha). Four days later the lambs were removed.

Grain yield

Significant yield penalties occurred for three varieties, Hindmarsh, Young and Axe (Table 1). Due to their shorter growing season, these early maturing varieties did not have enough time to recover from grazing to reach full yield potential. Hindmarsh suffered the greatest yield penalty (0.32t/ha). However even when grazed Hindmarsh still yielded higher than all other ungrazed varieties.

Farmers inspect the grazing cereals trial at the BCG Main Field Day at Woomelang in 2009.

Table 1. Average ME values and corresponding number of grazing days calculated prior to grazing at GS13 (assuming 1 DSE consumes 8MJ/day) and grain yield for ungrazed and grazed treatments.

Variety	Maturity	Average of ME (MJ/ha)	Average of DSE grazing days	Grain yield (t/ha) Ungrazed	Grain yield (t/ha) Grazed	Yield penalty (t/ha)
Hindmarsh	Very early	2018	252	2.29	1.97	0.32
Young	Early	700	87	1.88	1.59	0.29
Axe	Early	1295	162	1.70	1.55	0.16
Wyalkatchem	Early – Mid	1125	141	1.88	1.74	0.14
Correll	Early – Mid	1281	160	1.80	1.69	0.11
Yitpi	Mid	1318	165	1.58	1.48	0.10
Derrimut	Mid	875	109	1.83	1.76	0.07
Buloke	Mid – Early	1874	234	1.73	1.75	-
CLF_STL	Mid	909	114	1.40	1.48	-
	Sig. diff LSD (P<0.05) CV%	P=<0.001 443.5 24%	P=<0.001 55.44 24%	P=0.027 0.16 6.7%		

Grain quality

Grazing did not affect protein, however it did increased screenings in Buloke, Correll, Young and CLF_STL (Table 2). Correll was particularly bad with a 77% increase in screenings when grazed.

Table 2. Grain analysis for ungrazed and grazed treatments.

Variety	Protein (%) Ungrazed	Protein (%) Grazed	Screenings (%) Ungrazed	Screenings (%) Grazed
Hindmarsh	13.6	14.5	1.9	2.5
Derrimut	12.5	12.5	5.5	5.8
Buloke	14.0	14.4	2.5	5.8
Wyalkatchem	13.1	13.0	1.8	2.1
Correll	13.5	12.8	5.3	9.4
Young	12.7	12.6	3.6	5.6
Axe	13.2	12.6	3.5	4.2
Yitpi	13.6	14.1	4.7	5.2
CLF_STL	14.9	14.4	1.0	4.2
Sig. diff	not significant		P<0.001	
LSD (P<0.05)			1.3	
CV%			21.4%	

Summary

Based on 2009 results, Wyalkatchem and Derrimut are the best-bet dual purpose wheat varieties evaluated at Woomelang. They did not suffer a grain yield or screenings penalty and were among the highest yielding varieties in this trial.

The barley varieties produced more feed than wheat at grazing. There was no difference in feed value between Buloke and Hindmarsh. Hindmarsh yielded the highest, however it suffered a grain yield penalty while Buloke did not. Screenings increased for both varieties.

For more information see:

- *Grazing cereals, Rainbow VIC* factsheet also available at www.bcg.org.au
- *BCG 2009 Season Research Results* book
- BCG's searchable database at www.bcg.org.au
- GRDC's *Cereal Growth Stages* publication.

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