

Grazing dual-purpose cereals during winter can boost pasture production and profitability

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Introduction

- Strategic grazing of dual-purpose cereals during winter can produce high livestock weight gains with minimal impacts on grain yield (Dove *et al.* 2007).
- Grazing a cereal crop over winter also allows grazing pressure on the pasture to be reduced.
- We used the GrassGro decision support tool to examine the question: **to what extent does removing animals onto dual-purpose cereals affect pasture production and profitability?**



Figure 2: Sheep flock grazing a winter cereal crop at Inverleigh, Victoria (annual precipitation: 545 mm). (Photo: David Watson)



What is GrassGro?

GrassGro is a flexible computer based decision support tool which allows grazing management questions to be answered quickly and easily. Users can apply different management options to a grazing system and compare the predicted outcomes in one easily-generated report.

Methods: Applying GrassGro

- Two grazing enterprises were simulated for Inverleigh (southern Vic.) using GrassGro:
 - #1 - self-replacing Merino flock (at 12 ewes/ha)
 - #2 - cross-bred ewe flock (at 9 ewes/ha)
- For both enterprises, continuous grazing of the pasture was compared with two week deferment of grazing onto a dual-purpose cereal crop, for five different times over winter (15 May to 31 July).
- We also examined whether effects of deferring grazing were different for pastures with high soil fertility.

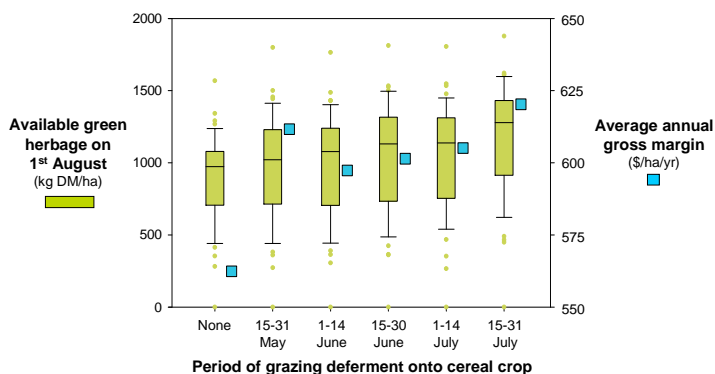


Figure 1: Boxplots of available green herbage on 1st August for all years of the simulation (1960-2007), and average annual gross margin over the entire simulation, for each of the periods of grazing deferment examined for the self-replacing Merino flock at moderate soil fertility. For the Merino's, lambing date was 11th August, surplus lambs sold on 20th December, ewes were fed whole wheat to maintain condition when the thinnest ewe fell below score 2.

GrassGro Simulation Results

- Deferment for 2 weeks in late July resulted in the greatest accumulation of pasture and highest gross margins (Fig. 1), for both enterprises.
- The cross-bred ewe enterprise did not benefit from grazing deferral as much as the Merino flock, due largely to its lower stocking rate (Table 1).
- Deferment was relatively more effective at increasing pasture availability for moderately than for highly-fertile pasture at the same stocking rate (Table 1).

Table 1: Average increase in green available herbage relative to continuous grazing on 1st August for the Merino enterprise at both moderate and high soil fertility, and the cross-bred ewe enterprise at moderate soil fertility, for each of the five deferment periods.

Average additional pasture available on 1 st August relative to continuous grazing			
Grazing deferment	Merino flock moderate fertility (%)	Merino flock high fertility (%)	Cross-bred ewes* moderate fertility (%)
none	0	0	0
15-31 May	14	13	3
1-14 June	15	15	2
15-30 June	23	19	4
1-14 July	28	19	4
15-31 July	37	25	7

* For cross-bred ewe enterprise, 1st cross ewes were mated to Dorset rams with lambing on 1st August, all lambs were sold (at 45 kg or by 15th March), replacement ewes (18 months old) were purchased and CFA ewes sold at 7 years, and ewes were fed whole wheat to maintain condition when the thinnest ewe fell below score 2.5.

Conclusion

- The timing of the 2-week cereal grazing period was critical in influencing pasture production and gross margins.
- Grazing cereals can have indirect benefits through increased pasture production, but such benefits are greatest when overall pasture utilization is high.



References

Dove, H., McMullen, G. and Kelman, W.M. (2007). Growth rate responses to magnesium or sodium supplements in young sheep grazing dual-purpose wheats. *Journal of Animal and Feed Science* 16, 465-470.

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