

Estimating production risk for a grazing lease using GrassGroTM

L. Salmon^A, R. Simpson^A, G. Burbidge^B, J. Donnelly^A and A. Stefanski^A

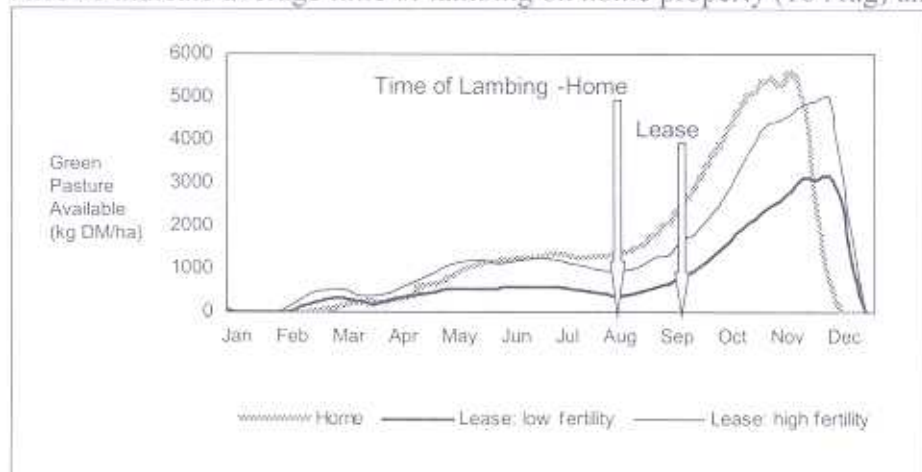
^ACSIRO Plant Industry, Canberra ACT; ^B“Connemara” Tarcutta, NSW

Taking on a grazing lease can be a highly profitable way to expand the scale of a grazing business or an expensive step into the unknown. The viability of a lease will depend on livestock and fertilizer investments and production risk associated with a particular enterprise at the lease location. One way to examine a grazing enterprise is to use the computer-based simulation tool GrassGroTM (Moore et al, 1997). GrassGro requires local weather records, the soil profile, pasture, livestock and management from a site to simulate key aspects of the grazing system.

A fine wool producer was considering a lease on the southern tablelands of NSW. The lease was stocked at about 11 dse/ha on phalaris-sub clover pastures with poor soil fertility and an average rainfall of 740mm. The producer felt that higher stocking rates were necessary to make a profit on the lease. GrassGro was used to test several stocking rates, levels of soil fertility and lambing dates.

GrassGro simulations of the lease from 1984-98 at a stocking rate of 9 ewes/ha suggested that in half the years pasture availability would be below 650kg DM/ha until mid-September (Fig 1). This assessment corresponded with the lease property owner's description of seasonal pasture supply, as “big springs with not much feed between”. Comparisons of simulations at the lease and home property indicated that pasture was likely to grow earlier in spring and remain green for a few weeks longer than at home. To match pasture supply on the lease with stock requirements the producer decided to lamb about 1 month later. This spread labour requirements more evenly between the two properties.

Fig 1. Comparison of GrassGro outputs of green pasture available in 50% of years on the home property and the lease at two levels of soil fertility for the years 1984-98. Stocking rate = 9 ewes/ha. Arrows indicate average time of lambing on home property (16 Aug) and lease (mid-late Sep).



Several other stocking rates were also tested. The analysis with GrassGro indicated that if soil fertility was improved, stocking rates could be increased from about 6-9 ewes/ha to around 9-12 ewes/ha. Such a change would increase the average gross margin from about \$130/ha to \$220/ha. Although increased stocking rates usually increase variability in income, in this case improved fertility reduced the year-to-year variability in gross margin (risk).

The management decisions for the lease were not made using GrassGro alone. GrassGro was used in combination with information from a number of sources: the opinion of local consultants, published trials, the producer's observations and “gut feeling”. Tests run in GrassGro helped the producer understand the

advice he was receiving because it showed the likely pattern of pasture production in relation to stocking rates and lambing dates. As a result he felt confident enough to sign a five-year lease. GrassGro helped identify some of the key management issues that could drive profitability on a grazing lease in an unfamiliar region.

Acknowledgements

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References

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