



Grazing Systems Demonstration to Optimise Pasture Utilisation and Stocking Rate in Mediterranean Environments of Southern Australia

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The 21st International Grassland Congress / 8th International Rangeland Congress took place in Hohhot, China from June 29 through July 5, 2008.

Proceedings edited by Organizing Committee of 2008 IGC/IRC Conference

Published by Guangdong People's Publishing House

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Presenter Information

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Key words : pasture utilisation, annual perennial pastures

Introduction In southern Australia, the reliance of livestock production systems on annual pastures has resulted in increased salinisation, soil acidification and waterlogging. While the incorporation of deeper-rooted perennial pastures is recognised as a key factor in reducing this environmental degradation, the adoption of perennial species is dependent on their profitability and productivity. This paper reports on a demonstration designed to highlight the value of perennial pastures on the productivity, profitability and sustainability of a grazing system.

Materials and methods A grazing systems demonstration comparing lamb production from annual *vs* annual+perennial pastures was established in 2005 at the Mount Barker Research Station in Western Australia (34°38'S, 117°32'E). The demonstration comprised two adjacent paddocks fenced internally to represent mini farms or "farmlets". One farmlet comprised annual species only (subterranean clover, annual grasses, and capeweed). The other farmlet contained these annuals plus perennial species (kikuyu, lucerne and tall fescue) sown to 12.4 ha (51% of the total area) in 2005. Each farmlet was treated as a closed system. Breeding ewes were rotationally grazed to maximise intake from pasture, but supplements were fed when necessary to ensure ewes reached key condition score (CS) targets to optimise survival of the ewe and lamb (Curnow 2006). Stocking rates (SR) were calculated using estimates of metabolisable energy intake (MEI) from measured short-term changes in CS.

Results Since establishment, consistently dry summers have reduced the potential production from the perennial species, which may explain the similarity in production results for 2007 (Table 1). The annual farmlet conserved pasture as silage from 49% of the area compared with only 18% in the perennial farmlet, resulting in slightly greater utilisation. The target and measured CS profile for ewes from the Annual+Perennial farmlet is illustrated in Figure 1. CS targets were generally met for ewes from both farmlets, requiring similar ME inputs from supplements in 2007. Stocking rates for 2007 are currently being calculated, but for 2006, the Annual farmlet had a higher SR than its counterpart, due in part to the failure of the perennials to supply summer feed. At the time of writing, summer rains had occurred, which may allow perennials to exhibit their true value.

Table 1 Dry matter production, pasture utilisation, total ME supplied to ewes (MJ), and lamb production per winter-grazed hectare for annual and annual/perennial farmlets.

| | Perennial+ Annual farmlet | Annual farmlet |
|---|------------------------------|-------------------|
| Total DM production (t DM/ha) | 8.7 | 8.4 |
| Pasture Utilisation (%) | 60 | 69 |
| Total ME supplied (MJ) | 1115 | 1177 |
| Lamb [carcase] production (kg/ha) | 144 | 143 |
| Stocking rate 2006 (dry sheep equivalents per winter grazed ha) | 18.5 | 22.1 |

Conclusion This project will be a useful tool and complement existing extension programmes in demonstrating to producers the value of perennial pastures on the profitability of grazing production systems.

Reference

Curnow, M. (2006). Lifetime Wool: National guidelines for breeding ewes. Australian Society of Animal Production. 26th Biennial Conference, Perth WA 2006

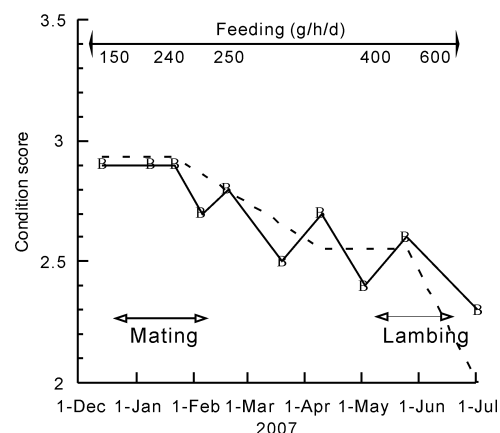


Figure 1 The average condition score profile for pregnant ewes from the perennial/annual pasture farmlet during 2007. The dotted line indicates the target condition score. Rates of supplement fed (g/h/d) are indicated at top of graph.