Ever Graze-Prime lamb production on perennial based grasslands in southwest Australia

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Introduction Traditional livestock production in south west Australia is based on annual plants that have been shown to result in land degradation through salinization ,soil erosion ,waterlogging and soil acidification .Novel livestock systems including deep-rooted summer active perennial plants can significantly reduce land degradation . However the adoption of these new systems is dependent on improved and more profitable livestock production .This paper reports on the findings of a study investigating prime lamb production on perennial forages .

Materials and methods Computer simulations suggested that a Merino prime lamb production system based on summer-active perennials (future farming system) could substantially increase farm profit while reducing the risk of salinity (Sanford & Young 2005) .To test this system ,in 2005 a 60ha site was chosen in the Albany Hinterland catchment and sown to tall fescue (*Festuca arundinacea*) cv .Quantum Max P (16 ha) ,lucerne (*Medicago sativa*) cv .Sardi 10 (8 ha) ,kikuyu (*Pennisetum clandestinum*) cv .Whittet (18 ha) ,mixture of setaria (*Setaria sphacelata*) cv .Splenda and green panic (*Megathyrsus maximus*) (3 ha) and chicory (*Cichoruim intybus*) cv .Puna (15 ha) in spring .The soil at the site was sand over gravel/clay . Merino ewes were joined to Poll Dorset rams in March 2006 ,lambing commenced in early August ,lambs were weaned in early November and removed from the field site .Rotational grazing was employed except during lambing and periods when feed was low in which case the kikuyu pasture was set stocked .The ewes were in a feedlot from 7th April to 30th May and 24th November to 31st December .Supplement consisted of 88% pellets (68% DMD ,14% CP) and 12% lupins (87% DMD ,34% CP) .

Results and discussion Annual rainfall for the site in 2006 was 290mm well below the long term average of 500mm .As a consequence of the drought conditions 559kg/ha of supplement was fed ,464kg/ha more than predicted for the future farming system (Table 1) .The reproductive efficiency achieved in the field was higher than the all of the simulated farming systems at 7 .8 lambs weaned per ha (Table 1) .However low pasture growth meant lambs were turned off at weaning and therefore achieved only 195 kg lamb per ha compared to the future farming system goal of 260kg lamb per ha (Table 1) .Given normal rainfall and pasture growth the demonstration could potentially produce 354kg of lamb per ha (based on a liveweight of 51kg) .

Table 1 *Livestock production data in* 2006 *compared to a simulated traditional farming system ,current best practice and future farming system .*

	Livestock production from field site 2006	Simulated traditionalfarming system(30% crop , 70% annual pasture)	Simulated currentbest practice (30% crop , 23% annual pasture . 47% perennialpasture)	Simulated futurefarming system(30% crop ,70% perennial pasture)
Stocking rate (dse/ha)	9 .9	8 .5	10 .0	12 .0
Supplementary feed (kg/ha)	559	279	83	95
Lambing %	153	89	92	104
Weaning %	119	89	92	104
No of lambs weaned per ha	7 .8	4 .6	5 .5	7 .3
Weaning liveweight (kg)	25	25	25	25
Total lamb produced (kg/ha)	195	161	193	260

Conclusions Drought conditions substantially reduced the livestock benefits of perennials with low pasture growth resulting in a large increase in supplementary feed .How this system performs in an average or better season ,will determine if it is more profitable in the longer term than current farming systems .

Reference

Sanford P .& J .Young (2005) .Are new farming systems based on perennial pastures in south west Australia more profitable ? *Proceedings of the XX International Grassland Congress ,Dublin ,Ireland* , 847 .