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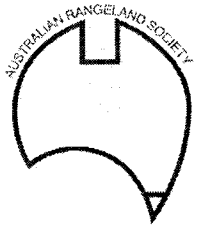

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DOES A HIGH PROPORTION OF WIREGRASS REDUCE A PASTURE'S VALUE?

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ABSTRACT

We quantified the effect of high levels of wiregrass in buffel grass pasture on sheep growth over 2 years at Roma. Despite using very high stocking rates compared to district norms, animal performance was only significantly affected during the dry winter period. Sheep appeared to be able to find enough digestible forage in small patches of better plant species without needing to eat much wiregrass.

INTRODUCTION

We intuitively believe, and tell producers, that having lots of wiregrass (*Aristida* spp.) in rangeland pastures is undesirable. Wiregrass has lower palatability than most other grasses, is very stalky and produces sharp seeds. Excessive amounts of wiregrass seed in wool reduces the value of the fleece. Degraded pastures show up worst in dry times (Holm *et al.* 1994), but do grass dominated ones fall away as badly as chenopod shrublands? A grazing trial was set up near Roma on adjacent established pasture that had vastly different proportions of wiregrass and buffel grass (*Cenchrus ciliaris*), to determine how big an effect the composition difference had on sheep production.

METHODS

The trial sites were fenced in March 1993 during a severe drought. The pastures were each fenced into four paddocks in a wagon wheel design, with a central yard and watering complex. Two paddocks were 1.3 ha and two were 2.4 ha, giving an experimental design of 2 pastures × 2 stocking rates × 2 reps. An electric fence outrigger was erected to exclude kangaroos and the paddocks remained unstocked. Good rains in December 1993 and January 1994 then allowed the trial to proceed in early February 1994.

Each paddock was stocked with four newly shorn 2-tooth wethers. These animals remained on the trial until shorn in December 1994. At that time good early summer rains and lack of treatment effects convinced us to double the stocking rate on all paddocks. So the four original sheep in each paddock were joined in December 1994 by four more recently shorn 2-tooth wethers. The 1995 winter was another very dry one and by August 1995 the palatable grasses in the paddocks were well eaten down. The original four sheep were then removed from each paddock and shorn. The remaining four sheep continued in the trial until shorn in December 1995 as the trial ended. Throughout the trial, animals were weighed and wool was sampled approximately every 2 months. At shearing, fleeces were weighed and samples sent away for detailed AWTA analysis.

RESULTS AND DISCUSSION

The botanical composition at the start of the trial is shown in Table 1.

Table 1. Forage available during the experiment.

	Dry weight proportion (%)				Total standing feed (kg/ha)	Basal area (%)
	Buffel	Wiregrass	Other grass	Non-grasses		
Jan 1994						
Poor composition	47.0	37.0	8.2	7.8	1465	6.7
Good composition	95.5	0.4	1.3	2.8	1505	6.1
May 1995						
Poor composition	40.5	41.5	12.7	5.3	2250	2.6
Good composition	95.7	0.5	2.1	1.7	3165	2.8

Total standing feed was high for the area. The pasture was completely dominated by grasses and had a high proportion of wiregrasses (mostly *Aristida jerichoensis* var. *subspinulifera*) in the poor pasture. Rainfall was excellent in mid-summer in both years and extremely low in winter compared to Roma's long-term average (Table 2). Such conditions produced very grassy pastures with few annual grasses or forbs and negligible winter herbage. The composition did not alter significantly during the trial.

Table 2. Seasonal rainfall received during the trial compared to Roma's long-term mean.

	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Annual
1993-94	83	274	242	21	620
1994-95	0	214	197	74	485
1995-96	44	248	-	-	-
Long-term mean	95	175	220	105	595

Sheep Liveweight

Figure 1 traces the animal liveweight (plus accumulating wool) of both drafts throughout the trial. Differences associated with pasture composition were greatest in winter. Frosted buffel grass in abundance (30% green stem) in August 1994 was no better than old wiregrass (46% green stem). Patch grazing became very evident because the sheep preferred the coarse, green buffel stalks (<30% IVDMD) to dry leaf (37% IVDMD). There was no apparent grazing of most of the wiregrasses in the poor composition pastures, even in the 1995 winter when the stocking rate was 0.16 or 0.3 ha/sheep. Local consensus data sets 0.8 ha/sheep as the long-term carrying capacity of this country.

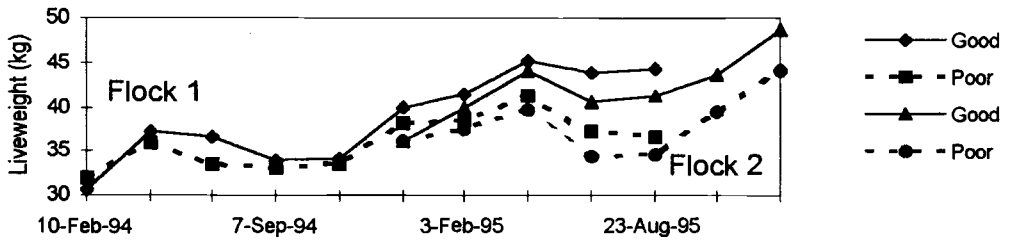

Figure 1. Liveweight changes for two drafts of weaner wethers on different quality pastures.

Good early summer rain in late 1995 quickly picked up the sheep liveweights before shearing. Hence even treble the average long-term stocking rate seemed unable to reduce standing forage yields to normal quantities in this wet early summer. Moreover, the sheep on pastures dominated by apparently uneaten wiregrass did not perform much worse than those on good Gayndah buffel grass. Though pasture composition had minimal effect on liveweights, fleece weights (3-4 kg) were well below what wethers would normally cut (5 kg) in this region. Presumably both paddocks were inferior to those normally used for wool production in the Roma area at the stocking rates chosen.

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REFERENCES

Holm A., Watson, I., Tongway, D., Greene, R. and Loneragan, W. (1994). Boolathana grazing study, Carnarvon WA. Final report 1983-1993. WA Dept Agric. 21 pp.