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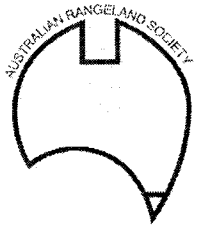

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GRAZING MANAGEMENT AND ANIMAL PRODUCTION ON RANGELANDS ON THE NORTHERN SLOPES AND TABLELANDS OF NEW SOUTH WALES

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INTRODUCTION

The probability of soil water being available is about equal in summer and winter on the Northern Tablelands while on the western part of the Northern Slopes the winter probability is somewhat higher (1). On the other hand, winter temperatures in both regions limit plant growth so that summer pasture production is considerably higher than winter, even with frost tolerant grasses and legumes (1;2). In addition *Aristida ramosa* R.Br. is a widespread dominant grass on the Northern Slopes and parts of the Northern Tablelands and estimates of the cost of fleece contamination by its seeds range from $1.88 per sheep averaged over the years 1982-1984 from 220 properties in the Tamworth-Manilla-Barraba district to $3.60 per sheep from one property near Barraba in 1988/89 (3). In addition, properties with heavy infestations can only carry around 3.5 DSE per ha compared with about 6 per ha on equivalent country that does not have wiregrass.

Dramatic reductions in the abundance of *A. ramosa* and increases in the more valuable *Danthonia linkii* Kunth have been produced in small scale experiments with heavy summer grazing (4). The next step was to apply this approach to commercial paddocks and to examine the effects of heavy summer grazing on natural pastures on the Northern Tablelands.

PASTURE COMPOSITION CHANGES IN A COMMERCIAL PADDOCK

Burning plus heavy summer grazing was applied to a 40 ha paddock in the spring of 1985 and heavy summer grazing continued for the next three years at "Wairuna" near Barraba. The *A. ramosa* was virtually eliminated and replaced by *D. linkii* while there was little change in the adjacent, normally grazed paddock (Fig. 1).

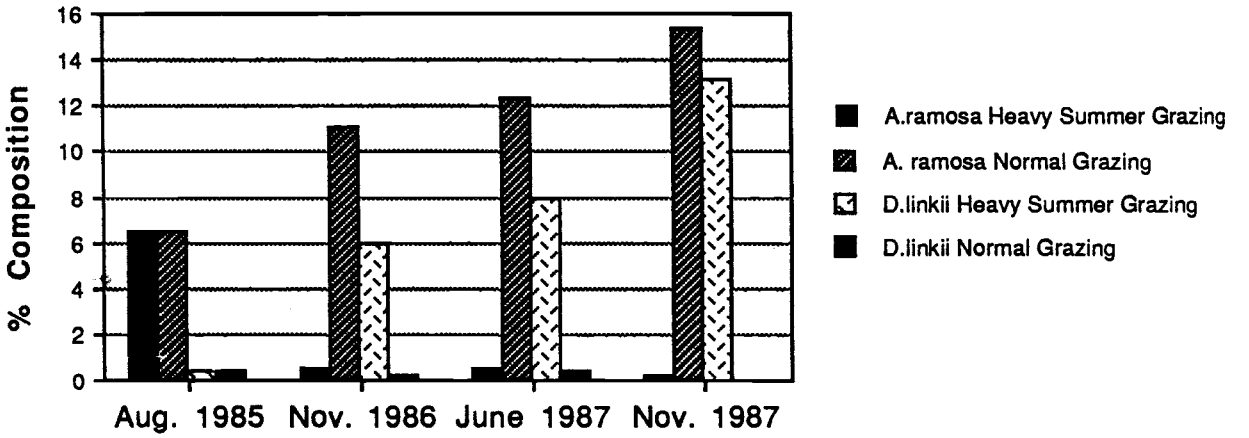

Figure 1. Changes in percentage composition of *Aristida ramosa* and *Danthonia linkii* in response to heavy summer and normal grazing at "Wairuna" (adapted from (3)).

HEAVY SUMMER GRAZING ON THE NORTHERN TABLELANDS OF NSW

"Marinka", Walcha Road, was taken over by the Fleming family in January 1964 consisting of 809 ha of sparse pastures dominated by *Bothriochloa macra* (Steud.) S.T. Blake. After several years, a management strategy was evolved which attempted to match stock numbers with pasture production, that is, heavier summer grazing than winter (Table 1). The aim was maximum production with minimum inputs and, after the first seven years, superphosphate was only applied in four of the next thirteen years.

Total farm production was greatest in the good years 1975-1978 inclusive with over 30 kg of wool, 1.5 lambs and 0.07 calves being produced per hectare each year. Production decreased after 1978 with the onset of dry years and the property was sold in 1984.

Table 1. Rainfall, superphosphate application, summer and winter stocking rates and production from a 809ha property near Walcha, NSW from 1964 to 1983.

	Rainfall (mm)	Super (kg/ha)	Summer stocking DSE/ha	Winter stocking DSE/ha	Wool produced kg/ha	Lambs produced no./ha	Calves produced no./ha	Mohair kg/ha
1964	833	126	-	3.3	-	-	-	-
1965	446	126	3.5	5.1+	14.4	-	0.03	-
1966	799	140	5.2	4.4	18.0	-	0.02	-
1967	574	132	4.6	5.7	20.0	-	0.03	-
1968	757	126	6.8	5.3	29.9	-	0.03	-
1969	874	94	6.6	5.7	27.0	-	0.04	-
1970	795	82	7.0	5.9	32.8	-	0.04	-
1971	816	-	6.9	5.5	25.2	-	0.02	-
1972	631	-	7.7	5.9	31.8	-	0.04	-
1973	846	145	8.4	6.7	24.7	0.57	0.08	-
1974	616	199	8.4	6.2	28.2	0.58	0.05	-
1975	699	-	9.6	6.8	34.9	1.24	0.06	-
1976	831	-	10.2	7.7	34.1	1.24	0.07	-
1977	861	61	10.4	7.4	29.8	1.28	0.07	-
1978	957	-	10.6	6.9	32.4	1.66	0.06	0.01
1979	581	114	10.5	7.0	26.9	1.63	0.07	0.05
1980	566	-	9.7	5.9	26.0	1.71	0.03	0.08
1981	687	-	7.2	3.9+	20.3	1.13	*	0.10
1982	485	-	6.2	4.6	16.9	1.42	-	0.20
1983	943	-	7.4	4.8	24.2	1.43	-	0.42

* Cattle sent away on agistment.
\+ Fed during winter.

Over the 20 year period, the grass component of the pastures became much denser and leafier with a greater proportion of yearlong green grasses such as *Danthonia pilosa* and *Danthonia racemosa*. The sheep camps expanded and became valuable sources of feed in the late winter-early spring period.

CONCLUSIONS

Heavy summer and light winter grazing pressure on natural pastures on the Northern Slopes and Tablelands has substantial benefits. In the extreme it can be used to reduce the abundance of *A. ramosa* and increase the abundance of *D. linkii* and over a whole property, produce the maximum returns from a low input - low return system.

ACKNOWLEDGEMENTS

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