

Effect of grazing management on botanical composition of barley grass pastures in south-west NSW

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Earlier studies indicate that heavy spring grazing delays the onset of flowering and reduces the height at which barley grass (*Hordeum leporinum*) will set seed. This study sought to determine whether grazing management methods suitable for practical application would change the composition of annual grass dominant pastures in a way favourable to livestock production.

Materials and Methods

Experimental design: Four replicated grazing treatments were imposed from 10/2/92 until 3/7/93, consisting of repeated sequences of grazing with 4 sheep (low) for 24 weeks, 12 sheep (intensive) for eight weeks, and a 16 week deferment, to give a 17 month grazing pressure of 4 sheep/paddock or 2.5 sheep/ha.

Botanical composition: A modified step-point procedure was used in July and September 1992 to record 450 observations in each paddock using a 40 cm wheel with a mark on the rim to locate plants along random transects. In July, August and September 1993, 300 observations per paddock were taken at the point of the boot every tenth pace of an observer walking along random transects.

Selective grazing: In September 1992 two enclosures, each 10 x 8 m, were established in a ninth paddock adjacent to the main experiment. Within each, ten 30 x 30 cm quadrats were pegged for visual scoring of the availability of the main species. Four ewes were introduced to each enclosure and over the next four days the 20 quadrats were scored to assess the residual amount of the species.

Results

Botanical composition: In the winter of 1992, paddocks not subjected to intense grazing had the most barley grass, at 75% of all species. The paddocks intensively grazed at the end of summer, and throughout autumn, had lower (ns) but still dominant barley grass at 60 and 64%, respectively. Two months later the proportion of barley grass was lower ($P < 0.05$) in all paddocks, with increases in annual (Wimmera) ryegrass (ns), medics ($P < 0.05$)

and to a lesser (ns) extent silver grass (*Vulpia* spp.). At this time barley grass varied from 61% in the recently intensively grazed paddocks, to 44% in the paddocks intensively grazed in summer and autumn. Again in 1993 barley grass was the most abundant species in the four pairs of paddocks at all sampling times. There was a significant increase in the proportion of barley grass from July to September across all treatments, but at no time was there a significant difference between treatments. Of the other main species, broadleaf weeds contributed most in July, annual ryegrass in August, and these two with medics all contributed in September.

Selective grazing: The observations made in September 1992 indicated that initial grazing pressure was placed on wild oats and medic, with increasing pressure on ryegrass from the second day and barley grass from the third day of intensive grazing. A moderate grazing pressure on wild mustard was noted to involve selective eating of the seed pods and associated leaves, but not much of the rest of the plant.

Discussion

This study was an attempt to change the proportion of barley grass in late spring by simple grazing management treatments at various times of the year. The results confirm earlier observations that barley grass proportion in natural pastures is not easily manipulated and that major shifts in the proportion of barley grass are more closely associated with climate and season than with imposed grazing management. However, grazing pressure may benefit livestock production without changing plant density by altering flowering time and seeding height of barley grass.

References

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