The status of pasture legumes in central NSW

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In the central tablelands and slopes of NSW pasture recommendations are based on introduced legumes. However in recent years there has been concern that production from these species is declining. This paper reports on a recent survey, done in spring 1988 during one of the best growing seasons for years, that aimed to determine the composition of improved pastures.

Methods

The survey covered an area of 70 by 50 km, bounded by Molong, Canowindra, Mandurama and Bathurst. The area was subdivided into 35 squares and the 'improved' pasture nearest the centre of each square sampled. Improved pastures varied from those where seed and fertilizer were broadcast to those sown into a seedbed and were grazed by sheep and, or cattle. At each site two 100 m transects were taken, away from fences, stock camps etc., and a point quadrat used to determine species composition every 5 m. Each species hit was identified. Pastures were surveyed during October and November, 1988. The area surveyed included both tableland and slopes where annual rainfall varies from 600-900 mm, altitude from 300-900 m and mean annual temperatures from 11-16?C.

Results and Discussion

Legumes were a variable component in the pastures surveyed. The total proportion of all legumes was greater than 40% of the pasture at only 57% of sites, while only 9% of pastures had more than 60% legume, a level required for high animal production (1). Annual legumes were more common than perennials and were greater than 40% of the species present at 50% of sites. Perennial legumes were less than 10% of the pasture at 80% of sites and only made a significant contribution (>25%) in 3% of pastures. Of the recommended species sub clover was the most common, being greater than 40% of the pasture at 37% of sites, while white clover was only present at 31% of sites and only exceeded 10% of the pasture at 20% of sites. Lucerne never exceeded 5% of the pasture and was only present at 11% of sites surveyed. Overall, recommended legume species comprised less than 40% of the pasture at 60% of the sites.

1988 was an excellent year for pasture growth with a mild winter and rainfall 25-30% above average. Despite the season, this survey suggests that the proportion of legumes, especially perennials, in the average pasture, is clearly less than satisfactory. In drier years the proportion of legumes in pastures is likely to be less. Perennial pasture species are known to be successful in well managed pastures in the region, yet were not important in most of the pastures surveyed. Several reasons may exist for the poor legume performance. Existing cultivars may not be well adapted to the environment and management practices. Continuous grazing in winter, a common practice, is known to favour annual grasses (2), which were a major competitive component, while heavy summer grazing will remove perennial legumes. Soil acidity and fertilizer strategies may also be influencing the inadequate contribution made by legumes. Results of this survey strongly suggest that improved legume performance, and then total pasture production on farms, will require improvement of cultivars and management practices.

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