

The Northern Tablelands Feed-Year

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The northern tablelands is characterised by high rainfall (750-1,000 mm AAR) with 36% summer incidence and is suited to pasture improvement and intensive livestock production on the better soils (Hartridge and Parker, 1979). However, pasture growth is limited in summer by high evaporation and in winter by low temperature. Phalaris and cocksfoot produce

little growth in winter and late summer/early autumn. Tall fescue is productive in summer but current cultivars lack winter activity. White clover is inactive in winter and periodic moisture stress in summer limits productivity.

With the advent of new intensive grazing enter-

prises (Feeder steers, Elite lamb) there is a need to improve the pasture feed base through new pasture cultivars and improved management systems. This paper describes the northern tablelands feed-year for introduced species and quantifies pasture growth and quality feed-gaps.

Methods

The feed-year for sown perennial pasture was constructed from pasture growth rate (GR), pasture dry matter availability (DMA), and pasture quality data. Seasonal relationships of GR for white clover/phalaris pasture were developed from a 7 year grazing experiment (Curl, unpublished data). A smooth cubic spline was fitted to the data and GR values generated at 10 day intervals. Seasonal DMA data were predicted using the SheepO decision support system. A profile of seasonal pasture quality data (Ayres, unpublished data) was compared with published animal requirements.

Results and Discussion

The growth season commences in September and active growth (GR over 20 kg DM/ha/day) extends for about 160 days over summer. Growth activity is low (10-20 kg DM/ha/day) for about 130 days in autumn and early spring and inactive (below 10 kg DM/ha/day) for about 70 days in winter. Phenological

development is strongly deterministic in the first growth cycle with full flowering of fescue and white clover occurring in November and seed set in December; phalaris is one month later. With moist summer conditions, active growth continues into a second cycle.

This pattern of pasture growth indicates that DMA is limiting during July/August and marginal in June and September. SheepO, which was developed for winter rainfall conditions, provided poor prediction of seasonal DMA; the development of a summer rainfall version is in progress. For the grass component, apparent dietary deficiency occurs in conjunction with onset of phenological maturity in December/January. The digestibility of aerial tops declines below 50%, N concentration declines to 6-8 g N/kg DM, and P concentration declines to 14-20 g P/kg DM.

In summary, the northern tablelands feed-year for introduced temperate perennial species comprises a long pasture growth season, a pronounced DMA feed-gap in winter, and a quality feed-gap in early summer.

Reference

Hartridge, F. and R. Parker (1979). Pastoral Research on the Northern Tablelands, New South Wales, NSW Agriculture monograph.