The estimation of biomass by a rod-point method

J.A Paul, E.C Wolfe and P.D Cregan

Charles Sturt University, Wagga Wagga, NSW, 2678

For pasture monitoring to be accepted by pasture managers, simple procedures are needed. Little and Frensham (1993) described the rod-point technique for estimating the botanical composition of pastures. The technique is a simplified point method whereby a rod, sharpened at both ends, is thrown repeatedly onto the pasture and a record made of the pasture component falling directly under each point.

In addition to its usefulness as a means of monitoring cover (*e.g.* green plant cover as a proportion of total area) or botanical composition (*e.g.* green legume cover, as a proportion of total green herbage cover), the rod-point method may be useful for the estimation of biomass (yield) on short grazed pastures, particularly when each estimate of cover is supplemented by an estimate of pasture height.

Method

In 1995 a growth house experiment was conducted to test the relationship between cover, height and biomass of subterranean clover sown at a range of plant densities (100, 300, 900, 2700 plants/m^2) in defoliated and undefoliated mini swards. On four occasions (49, 77, 105, and 133 days after sowing on June 23) the mini swards were measured for cover and height, and one quarter of the mini swards harvested. There were four replicates of the treatments (four densities x two defoliation regimes x four harvests).

Results and discussion

A promising correlation was achieved between legume cover, height and biomass. While the relationship varied over the four harvests, a combined analysis of the results from all four harvests accounted for over 90% of the variance (Figure 1). However the accuracy of the prediction diminished once the level of biomass increased beyond 200 g/m^2 (2000 kg/ha). Further studies are underway in the field and in the glasshouse to explore relationships between pasture cover and biomass.

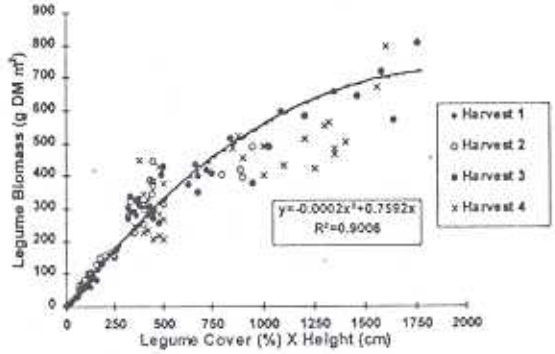

Figure 1. Correlation of cover and height against available dry matter.

Acknowledgments

Funds for a studentship (John Paul) and operating expenses were provided by GRDC (UCS11).

Reference

Little D.L and Frensham A.B (1993). A rod - point technique for estimating the botanical composition of pastures. *Australian Journal of Experimental Agriculture*. **33.** 871-875.