

## A RISING PLATE METER FOR ASSESSING PASTURE YIELD

A.A. MCGOWAN\* and D.F. EARLE\*\*

The assessment of the amount of pasture present is important in establishing the relationships between pasture intake and animal performance and for the application of these relationships on the farm.

At Ellinbank a rising plate pasture meter, originally described by Holmes (1974) has been automated so that a large number of assessments can be made quickly with a minimum of effort. The meter consists of a horizontal plate 300 x 300 mm<sup>2</sup>, through which a vertical shaft about one meter long freely passes. As the shaft and plate are lowered into the pasture, the plate rises relative to the shaft and this distance which depends on the amount of pasture present, is recorded on a ratchet counter mounted adjacent to the shaft. Any number of measurements can be made and the cumulative reading recorded at the end of a series. Under normal conditions, 20 measurements can be made per minute. The weight of the plate has been standardized to exert a pressure of 5 kg m<sup>-2</sup>. The meter is calibrated by relating the meter readings of a number of quadrats (usually 316 x 632 mm<sup>2</sup>) to the dry matter yield of these quadrats cut to ground level.

No significant divergence from linearity has been observed in calibration so that the simple linear relationship :

$y$  (dry matter yield, kg/ha) =  $a + b H$  (mean meter height, cm)  
has always been used. In 1975 and 1976 a total of 59 calibrations were made on similar rye grass-white clover pastures previously grazed by dairy cattle yielding an equation :  $y = 688 (+ 47) + 209 (+ 5) H$   
The 'mean values of the  $a$  and  $b$  coefficients were very similar in both years; there was only a small seasonal trend within years. Standard errors of mean values of  $a$  and  $b$  are shown in parenthesis. Within the same pasture, repeated meter readings have been quite consistent over a 30 day period - after allowing for linear growth during the period - residual standard deviation 0.09 cm. This confirms that frequent calibrations on the same pasture are unnecessary in winter. Type of grazing management and botanical composition do affect the relationship between meter height and the amount of pasture present so that separate calibrations are necessary for contrasting pasture types.

The sensitivity of the calibrations in absolute terms tends to decline with increasing yield-, but the residual standard deviation of regression averaged 11 % of mean pasture yield over all calibrations. Since the meter is so quick and easy to use, large numbers of measurements can be made on variable pastures to ensure that a representative estimate of pasture height is achieved.

Experience over three years has shown that the Ellinbank pasture meter is a cheap and convenient means of assessing pasture, it requires a minimum of skill and is sufficiently accurate to be useful at both the experimental and farm levels.

HOLMES, C.W. (1974) Dairyfarming Annual. Massey University p.27.

---

\* Ellinbank Dairy Research Station, Depart. of 'Agric., Warragul Vic.3820

\*\* Department of Agriculture, Shepparton, Vic. 3630