Height-dry matter relationships in subterranean clover-grass pasture

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In farm, and research, situations it is important to be able to estimate pasture dry matter availability (DMA) in a paddock as quickly and easily as possible. Pasture DMA can be estimated rapidly by measuring its height and applying this value in a regression relationship between height and DMA. However, how frequently must this regression be redetermined'?

Methods

In a field study of grazed subterranean clover dominant pasture conducted at Turretfield in the Lower-north of South Australia pasture production was measured using the 'open' and 'closed' cage technique with DMA being estimated from measurements of pasture height. Calibrations of height with DMA were made for each of two meter types (Ellinbank, square quadrat (1); Falling Plate, circular quadrat (2)), based on harvested and dried quadrats of both meter shapes, and for both the 'open' and 'closed' situations. Measurements were made on six occasions during June to November 1986.

Results and discussion

Within each occasion and meter type, calibrations based on the same or different quadrat shape for both the 'open' and `closed' situations were similar. Accordingly, data for the four calibrations were combined. The linear regression coefficients for each occasion are shown in Table I. The 20, of 60, pair- wise comparisons that were significant are indicated.

Table 1 . Linear regression coefficients between pasture height (cm) and DMA (kg/ha).

Date	Ellinbank meter		Falling Plate meter	
	Intercept	Slope	Intercept	Slope
12.06.86	377 [bpqrz]	104 [a]	311 [abz]	304
17.07.86	751 [aby]	75 [apw]	490 [y]	268 [aw]
18.08.86	865 [rs]	118 [w]	492 [x]	359 [w]
10.09.86	1092 [qw]	106 [P]	954 [bw]	327
10.10.86	1932 [ap]	94	1633 [a]	364
13.11.86	3066 [wxyz]	96	2766 [wxyz]	388 [a]

Values within columns with the same superscript are significantly different; [ab] $P<0.05$. [Pqr] $P<0.01$, [wxYz] $P<0.001$.

For either meter the intercept varied throughout the growing season, while the slope was significantly less in mid-July than on several other occasions. The study indicates that for a subterranean clover dominant pasture recalibration is necessary whenever there is a significant change in the quantity, and probably also stage of maturity, of the pasture. At the start and end of the growing season recalibration is needed monthly, and possibly more frequently, while in mid-season it may be needed only at 4-8 week intervals. Unless observations are frequent it seems advisable to recalibrate each time DMA is estimated.

References

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