

PREDICTED AND OBSERVED DIET SELECTION AND GRAZING BEHAVIOUR BY SHEEP

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Diet selection by sheep is influenced by many factors. Colebrook et al. (1985) developed a technique to predict preference for one feed over another by comparing each feed separately with a standard hay cut to different lengths. The method has been used to predict satisfactorily the preference ranking of six subterranean clover cultivars when freeze dried and fed to sheep in pens (Colebrook et al. 1990). Techniques to study grazing behaviour of sheep using video camera recordings also have been developed (Lynch unpublished). The aim of the experiment reported was to determine whether preference by grazing sheep observed with a video camera could be predicted using the method of Colebrook et al. (1985) with freeze dried samples of the pasture components fed to sheep in pens.

Phalaris (*Phalaris aquatica*) and white clover (*Trifolium repens*) were harvested from a pasture at Armidale, NSW and freeze dried. Preference for each species, when offered in a two-way choice, was observed first with four sheep using the technique of Bell (1959). Preference for each was subsequently predicted from a comparison with the standard hay (Colebrook et al. 1985).

The rate of dry matter (DM) consumption by sheep of fresh grass is about 6 g/min and fresh white clover about 20 g/min in pastures offering 1-2 t/ha DM (Kenney and Black 1986). Sheep consuming 100 g DM of the phalaris-clover pasture at the predicted mid-value preference of 32% and 68% respectively, were calculated to spend 60% of time eating phalaris ($32/6 = 5.3$ min.) and 40% eating white clover ($68/20 = 3.4$ min). (See Table). The time spent grazing each of these plant species by eight sheep at pasture was calculated from video camera recordings to be 53% and 47% for phalaris and white clover, respectively. This time was determined from the video recordings of each sheep for six, half-hour periods.

	% Preference			% Grazing Time	
	Observed ± s.e.	Predicted Prediction† Interval	Mid Value	Observed	Predicted
Phalaris	28 ± 3	22 - 42	32	53	60 [100 x 5.3/(5.3+3.4)]
White Clover	72 ± 3	58 - 78	68	47	40 [100 x 3.4/(5.3+3.4)]

† 95% Confidence Limit.

The results confirm that the preference for one forage over another can be predicted by comparing each with a standard forage cut to different lengths. The experiments also show that the preference of grazing sheep can be determined by the technique of Colebrook et al. (1985) when an allowance is made for the intake rate of fresh pasture components.

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