Influence of maturity on the nutritive value of red clover grown under irrigation in Northern Victoria

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Red clover, *Trifolium pratense,* grows well under irrigation in northern Victoria. However, time of harvest in relation to maturity may greatly influence its usefulness for highly productive dairy cows. Therefore, the changes in quality of red clover were examined to find the most appropriate grazing management for best animal production.

Methods

Red clover (cv. Redquin) herbage was harvested at weekly intervals for eight to ten weeks after an initial defoliation in spring and autumn. Samples were sorted into components and analysed for *in vitro* digestibility, crude protein and lignin. Data were grouped as shown in Table 1 because variation was minimal.

Table 1. Proportion (%), digestibility (D), crude protein (CP) and lignin (Lig) of leaf, stem and flowers of red clover in spring and autumn in northern Victoria (all as % of total dry matter). The balance was dead material.

Weeks after defoliation	Leaf				Stem				Flowers			
	%	D	CP	Lig	%	D	CP	Lig	%	D	CP	Lig
Spring												
2	64	79	36	2.1	31	73	17	3.5	0	-	-	-
3/4	58	78	30	2.0	39	73	14	3.8	0	-	-	-
5/6	46	76	33	2.5	49	70	14	4.5	0	-	-	-
7/8/9/10	27	72	29	3.5	60	62	10	7.7	2	69	19	6.2
Autumn												
2	35	75	31	2.6	48	70	11	4.9	0	-	-	-
3/4	44	75	26	2.7	40	73	11	4.6	0	-	-	-
5/6	41	70	22	4.1	49	70	9	5.0	0	-	-	-
7/8	35	72	24	3.3	50	66	9	5.7	<1	-	-	-

Results and discussion

There were major variations in the morphology of red clover, and the way it changed with time, in spring compared with autumn (Table 1). In particular, flowering was almost non-existent in autumn. Changes in quality of the plant components were only small until flowering, at which time a marked reduction occurred. With the exception of the leaves, the quality of the other components is likely to be detrimental to dairy cow production once flowering has commenced. Therefore, if red clover is to be seriously considered as a feed for dairy cows, it must be utilised before flowering; in spring, this means defoliation at least every six weeks. However, agronomic theory suggests that this is an ideal way to severely reduce dry matter production and longevity of a red clover sward.