The effect of two harvesting schedules on the yield of lucerne varieties with a range of winter dormancy ratings

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Since 1977 more than 100 varieties of lucerne with a range of winter dormancy ratings, have been grown in trials in Victoria to measure their relative productivity. Generally all the varieties in a trial have been harvested at the same time. A comparison of the yield from 20 lucerne varieties, using two harvesting schedules, was made to determine whether the normal harvesting program used in experiments favoured the varieties in any dormancy group.

Methods

The experiment was sown in spring 1977 on a dryland site at Ascot (near Ballarat); 20 varieties were sown at 10 kg/ha with four replicates. All varieties were harvested together five times during 1977/78, the last harvest on 23rd January 1978. Each plot was then divided in half, (Section A & B, each 1.25 x 8 m), for subsequent harvests. Section A was harvested in the normal manner - all varieties cut at the end of autumn, end of winter and two or three times in spring and summer, depending on growth. In Section B each variety was harvested when the new shoots at the base of the plant were 1 cm long. The two sections were harvested in this manner until 23rd March 1981.

Results and Discussion

Throughout this two year period 11 harvests were made on Section A. On Section B, each variety was cut fewer times than in Section A. The total dry matter yields of 9 of the 20 varieties are set out below.

VARIETIES		SECTION A DM YIELD	N°OF HARV	SECTION B DM YIELD	N°OF HARV	DIFFERENCE (Sect.B-Sect.A)
Winter Dormant	- Pioneer 545	17.55	(11)	18.85	(8)	+1.30
	- Lahontan	17.24	(11)	16.97	(8)	-0.27
	- WL 318	19.16	(11)	20.12	(9)	+0.96
Semi-Dormant	- Condura 73	17.16	(11)	17.11	(9)	-0.05
	- Falkiner	18.79	(11)	21.15	(9)	+2.36
	- Pioneer 581	18.75	(11)	18.24	(9)	-0.51
Winter Active	- WL 451	17.04	(11)	18.29	(10)	+1.25
	- Matador	16.63	(11)	17.78	(10)	+1.15
	- CUF 101	18.33	(11)	19.01	(10)	+0.68
Average Yield		17.85	t/ha	18.61	t/ha	+0.76 t/ha

These results indicate that DM yields of lucerne from trial plots can be increased by harvesting each variety when it is "ready", using the 1 cm shoot stage as a guide.

Considering the fact that there were 22 separate harvests during the two year period on Section B compared to only 11 on Section A, it is unlikely that the potential gain in yield and the refinement of results because of the extra harvests, warrants the extra time and cost involved with double the number of harvests on dryland lucerne variety trials. The standard method of harvesting all varieties provides an accurate comparison of the relative performance of different varieties under dryland conditions. Under irrigation, where potential yields are higher and less variable, the harvesting of varieties according to their stage of growth may be warranted, but this possibility needs to be checked.