

THE EFFECT OF IRRIGATION FREQUENCY ON WHITE CLOVER  
AND LUCERNE PRODUCTION ON A GREY CRACKING CLAY

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The success of new suckling lamb and sheep milk cheese industries in southern N.S.W. is dependent upon a continuous, high quality pasture supply. Highly productive legumes such as white clover cv. Haifa and winter active lucernes have shown promise in overcoming shortfalls in both quality and quantity of traditional pasture varieties. However little information is available on the irrigation management requirements of these cultivars. A large scale field experiment was undertaken at Yanco to study the effect of irrigation frequency on dry matter production of these pasture legumes.

The experiment included two lucerne (Medicago sativa L.) and two white clover (Trifolium repens L.) cultivars sown on a grey cracking clay (Ug 5.2). Four irrigation treatments were applied to one year old stands with intervals of 75, 100, 125 and 150 mm of potential evapotranspiration (ET<sub>o</sub>). Results for two growth periods during the first and third irrigation seasons are shown in Table 1.

Table 1. The effect of irrigation frequency on dry matter yields of lucerne and white clover (tonnes/ha) on a grey cracking clay.

	Irrigation Interval (mm accumulated ET)	White Clover		Lucerne		
		Haifa	Irri-gation	Maxidor II	P581	
YEAR 1 Growth period						
5.3.86 to 7.5.86	75	3.61	3.38	3.41	3.37	
	100	3.47	3.01	3.22	2.99	
	125	3.32	2.93	3.19	3.15	
	150	3.26	2.43	3.32	3.41	
YEAR 3 Growth period						
white clover -	75	2.23	3.70	3.40	3.65	
5.11.87 to 21.1.88	100	1.59	2.84	3.63	3.39	
lucerne -	150	1.25	1.38	2.73	2.55	
15.12.87 to 21.1.88	200	1.44	1.54	2.75	3.54	

Haifa was more productive and withstood moisture stress slightly better than cv. Irrigation during the first season. However, by the third season cv. Haifa had thinned out considerably and had been invaded by grasses, while cv. Irrigation persisted well at 75 and 100 mm intervals. Both cultivars produced poorly at longer intervals. Lucerne on the other hand, showed little effect of irrigation frequency during the first two years. In the third summer, lucerne yields were substantially reduced at 150 and 200 mm intervals.