

Performance of grasslands Hamua x Moroccan red clover crosses in a marginal environment

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Red and white clovers have been the most productive perennial clovers at Hamilton (700 mm average rainfall p.a.) (1). As this is a marginal environment for these species, interest has focused on Mediterranean genotypes.

Methods

On 22 May 1981, a small plot experiment (no. 1) was established at Hamilton to compare the DSIR Grasslands (G) Hamua x Moroccan crosses (G.21 and G.22) with Australasian cultivars. Three replicates were used and viable seed was drilled at 9 kg/ha. Yields were low due probably to unusually dry springs in 1981 and 1982. Subsequently, experiment 2 was established on 13 October 1983 with five seed mixtures drill sown with and without Italian Ryegrass in a split-plot design with three replicates. The seeding rates were 270 germinable clover seeds/m and 7 kg/ha of ryegrass. The fertilizer at sowing was 200 kg/ha super-lime + Mo (0.015%).

Results and Discussion

The tetraploid G. 22 was the most persistent line in Experiment 1 and the Moroccan lines were the most persistent in Experiment 2 (Table 1).

Table 1 Main effect of cultivar on the density of clover plots (no./m²)

Cultivar/line	Experiment 1 Year 2 13 Jan. 1983	Experiment 2	
		Establishment 13 Dec. 1983	Year 3 27 March 1986
Redquin	9.5 b*	60 bc	6.9 b
G. Hamua	7.7 bc	33 e	7.7 b
G. Pawera#	3.9 bc	70 ab	9.6 ab
G. 21	7.9 bc	82 a	14.7 a
G. 22#	15.1 a	77 a	13.9 a

*Letters refer to Duncan's Multiple Range Test (P=0.05) #Tetraploid

Total yields of hay over the two years averaged 10.77 and 12.54 t/ha for clover and clover + ryegrass respectively. The yield of the sown clovers per se is show in Table 2.

Table 2 Dry matter yield (t/ha)

Cultivar	Clover sown alone				Clover + Italian Ryegrass			
	6/84	Hay 84	Hay 85	Total	6/84	Hay 84	Hay 85	Total
Redquin	0.96 b*	1.51	1.99	4.46 a	0.32 bc	0.84	1.66	2.82 a
G. Hamua	0.82 b	1.03	2.31	4.16 a	0.11 c	0.69	1.79	2.59 a
G. Pawera	0.75 b	1.49	2.72	4.96 a	0.13 bc	0.80	1.48	2.41 a
G. 21	1.45 a	1.24	2.82	5.51 a	0.39 b	0.74	2.00	3.13 a
G. 22	1.69 a	1.44	2.62	5.75 a	0.69 a	0.95	1.91	3.55 a

Letters refer to Duncan's Multiple Range test (P=0.05)

As observed in experiment 1, G. 22 was the most productive line in autumn/ winter although total yields were not different (P>0.05). As with the other Grasslands material, G. 22 is oestrogenic.

1. Flinn, P.C., Reed, K.F.M., Saul, G.R., Ward, G.N. and Graham, J.G. 1985. Proc. XV Int. Grassld. Congr., Kyoto, Japan. pp 961-2.