

Genetic diversity within Persian clover (*trifolium resupinatum*)

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Annual sowings of the annual, Persian clover (*Trifolium resupinatum* var. *majus* cv. Maral) at Hamilton demonstrated its considerable feeding value as a fodder crop (1) and as hay (2). Maral contains a low proportion of hard seeds and is a vigorous erect plant. Thirty introductions of *T. resupinatum* were obtained from CSIRO and examined for characteristics which may improve long-term persistence under grazing.

Methods

Seeds were soaked on filter paper, transferred to seed boxes and then transplanted,5 to a pot, on 1 August 1980. One to five pots were planted to each line depending on seed viability. Pots were kept in a glasshouse until 25 November. Rots were separated by insect-proof cages to prevent cross-pollination. After seed-ripening, herbage and seed were harvested. Seeds which would not imbibe water after soaking for 7 days were counted as hard.

Results

Fifteen lines contained no viable seed. Remaining lines indicated considerable diversity for the characters observed (Table 1). Our results extend westwards the region previously identified as a source of hard-seed (3). Hard-seededness can be increased by selection (4), or by breeding from hard-seeded genotypes with suitable agronomic features. Development of cultivars, superior to Maral in terms of regeneration under grazing, may therefore be possible.

Table 1. Plant and seed characteristics of some introductions of *T. Resupinatum*

C.P.I. ¹	Origin	Growth habit ²	Days until flowering ³	Herbage yield, DM (g/plant)	Seed yield (n./plant)	No. seeds tested	Initial hard seed %
21970	Iran	P	128	3.8	8	50	0
38884	Portugal	E	134	4.0	1	10	0
40725	Portugal	E	135	4.0	2	50	6
40978 ⁴	Portugal	E	123	4.7	6	75	8
43107 ⁵	U.S.A.	E	134	3.3	29	400	44
46076 ⁶	U.S.A.	E	105	3.0	44	400	9
50211 ⁶	Spain	P	134	3.3	136	400	54
86544 ⁶	Israel	P	127	3.6	86	400	65
86549	Turkey	S	128	3.5	33	400	79
86550	Greece	P	127	3.8	33	400	75
86551 ⁷	Greece	P	140	3.5	35	40	82
86552 ⁷	Greece	S	119	3.5	28	400	76
86553	Greece	S	134	4.7	56	400	65

¹ Commonwealth Plant Introduction No. ⁴ Cultivar Maral ⁵ Cultivar Abon

² P = prostrate; E = erect; S = semi-erect ⁶ Non-indigenous material

³ Days after August 1 ⁷ Collection site, "heavily grazed"

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