

Persistence of Caucasian Clover (*Trifolium ambiguum*) on the Monaro

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Trifolium ambiguum commonly known as Caucasian clover, is a long lived summer growing, winter dormant perennial. It is well adapted to cold winters and dry summers. (Dear and Zorin, 1985) Caucasian clover has potential as a low input legume suitable to native grasslands. It possesses a large rhizomatous under ground root system which allows it to persist under a range of grazing and fertiliser regimes (White, 1995). The persistence of Caucasian clover on the Monaro was demonstrated in a trial sown in September of 1992.

Methods

A trial was sown in September of 1992 on a property at Shannon's Flat via Adaminaby. The trial consisted of 4 replicates of each treatment, and all species were sown with 125 kg/ha of starter 12. Single superphosphate with molybdenum (0.05%) was applied in the first year, followed by annual rates of single superphosphate at a rate of 125 kg/ha. The trial area has been strategically grazed throughout the trial period.

Results

Germination of all species was satisfactory. Initial plant numbers for Caucasian clover were lower than all other species, however by the second and third year, plant frequencies were equal to if not greater than the lotus, white clover and red clover treatments. At the end of the fourth year, all species apart from Caucasian clover were no longer in existence with the exception of lotus Granger. (See Table 1.) After 5 years Caucasian clover has persisted and

increased in plant density at all sowing rates; 1 kg/ha-8 kg/ha. Over time, Caucasian sown at the lowest rate (1 kg/ha) was able to generate the same plant frequency as that of highest sowing rates (Fig. 1.)

After five years, Caucasian clover at all sowing rates counts equal to that of the highest sowing rate.

Discussion

Establishment of Caucasian clover was slower than all other varieties. This is likely to be due to the plant developing its root system at the expense of shoot production in the first three years as discussed by Hill and Mulcahy, 1993. The results of this trial support findings made by Dear and Zorin that Caucasian clover is a valuable summer legume that exhibits great persistence in an environment which is characterised by relatively low winter temperatures

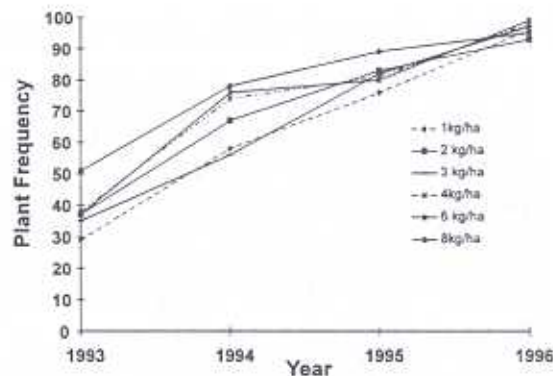


Figure 1: Caucasian clover persistence after five years.

Table 1: Treatment Plant Frequencies

Treatment	Plant Frequency			
	1993	1994	1995	1996
<i>Lotus corniculatus</i> Lotus cv. Granger	93	94	87	68
<i>Trifolium repens</i> white clover cv. Haifa	96	69	85	0
<i>Trifolium repens</i> white clover cv. Tahora	96	35	64	0
<i>Trifolium pratense</i> Red clover cv. Redquin	98	77	54	0
<i>Trifolium ambiguum</i> Caucasian Clover 8kg/ha	51	78	89	95
<i>Trifolium ambiguum</i> Caucasian Clover 1kg/ha	29	58	76	96
<i>Trifolium ambiguum</i> Caucasian Clover 2 kg/ha	37	67	83	93
<i>Trifolium ambiguum</i> Caucasian Clover 3 kg/ha	35	56	82	97
<i>Trifolium ambiguum</i> Caucasian Clover 4kg/ha	38	74	81	98
<i>Trifolium ambiguum</i> Caucasian Clover 6 kg/ha	37	76	80	99
L.S.D	12.69	21.33	12.96	12.54



and is subject to dry summers. These characteristics mean that Caucasian clover has a huge potential on the Monaro and similar tablelands environments of Australia.

References

Dear B.S and Zorin M. (1985) Persistence and productivity of

Trifolium ambiguum (Caucasian clover) in a high altitude region of south-eastern Australia. *Aust. Journ. Exp. Agric.* **25**, 124-32

Hill, M.J and Mulcahy, C.M. (1993) Caucasian clover (*Trifolium ambiguum*): A position paper for Australia and New Zealand in 1993. *Alternative Pasture legumes*, 88-93.

White, J.G.H (1995) A review of legume introduction in grasslands with particular reference to species tolerant of low nutrient inputs. *Proc. Agron. Soc. NZ.* **25**, 79-85.