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Herbage Development Fact Sheet 10 • By Eric Hall and Andrea Hurst

Hairy Canary clover, cv. Canaritas

(*Dorycnium hirsutum* L.)

Origin
Recurrent phenotypic selection: 4 cycles of recurrent phenotypic selection for seedling vigour, plant vigour, uniform flowering and pod holding ability, from accession Tas 1002, received as seed from the Botanical Institute of the University of Genoa, Italy.

Description
Canaritas is a hairy leguminous sub shrub, which grows to about 1m tall and 1m diameter. Flowers are profuse, grouped in globular terminal clusters and are white to pink (Fig. 1).

Major attributes
Canaritas is persistent perennial shrub with a dense leafy growth habit and a very deep taproot. It has a very high level of drought and cold tolerance and once established can tolerate persistent browsing by sheep. It is very drought tolerant a has the potential to a provide valuable feed bank during dry periods (Fig. 2). Potential alternative uses include land reclamation and honey production.

Drought tolerance
Canaritas has a very deep taproot and once established, has a very high level of drought tolerance. At several trial sites in Tasmania Hairy canary clover has shown excellent persistence through years where annual rainfall has been as low as 300mm.

Cold tolerance
High. Survives frosts to –9° C, however will drop its leaves if frosts are severe.

Waterlogging tolerance
Will not tolerate extended periods of waterlogging.

Salt tolerance
Low.

Soil and climate requirements
Best adapted for sowing or planting in low rainfall temperate areas receiving 300mm to 750mm average annual rainfall. Adapted to a range of soil types pH 5.0 to 8.5 and climatic conditions.

Hard seed
High. 75% hard seed.

Seed treatment
Seed must be scarified and inoculated with appropriate rhizobia prior to sowing.

Rhizobium
Group SU343 as for birdsfoot trefoil.

Sowing methods
Drilled, direct drilled, broadcast or transplanted as seedlings.

Sowing depth
Best sown at 5mm.

Sowing rate
3-6 kg/ha, depending on seedbed quality.

Sowing time
Preferably late winter to mid spring. Seedlings are slow to establish when seed is sown in autumn.

Land preparation
Well-cultivated firm seedbed required for best results. For direct drilling or broadcasting there should be as little vegetation as possible and adequate soil moisture prior to sowing.

Seedling vigour
Dorycnium hirsutum can be very slow to establish if sown in the autumn and should not be sown with more vigorous plants eg, perennial ryegrass or bromes.

Grazing management
As with lucerne, Dorycnium hirsutum is best grazed at the onset of flowering. Forage production in the first 2 years will be low and management should be concentrated on maximising the chances of successful establishment. Dorycnium hirsutum is recommended for use in a "fodder bank" mixed with saltbush and grasses and grazed only once or twice a year. Once established it can tolerate heavy browsing by sheep although it is unlikely to persist under a continuous grazing system.

Dry matter production
The main vegetative growth phase occurs in early spring with a secondary phase in autumn and early winter. Dry matter yields of over 5 t DM/ha per year can be expected in the second and subsequent years. Yields of 9.8 t DM/ha per year have been recorded in New Zealand. Dry matter production and the proportion of biomass that consisted of leaf for Dorycnium hirsutum and lucerne during the first two years after sowing at Palmerston North, New Zealand (Douglas and Foote 1994).

Species	*Accumulated shoot biomass (t DM/ha)*		*Leaf biomass (%)*	
	Year 1	Year 2	Year 1	Year 2
D. hirsutum	3.7	5.6	66	54
Lucerne	1.0	14.4	n.a.	36

Feed value
Highest at pre to early flowering, but declining rapidly with maturity.
Crude Protein, neutral detergent fibre, dry matter digestibility and metabolisable energy of Dorycnium hirsutum leaf and stem from three harvest dates in 2001/2002 (Davies 2005)

D. hirsutum	*Sept.*	*Dec.*	*Mar.*	*Mean*
CP (% DM)	12.9	8.3	5.2	8.8
NDF (%DM)	38.9	42.8	57.8	46.5
DMD (%DM)	54.8	56.1	51.4	54.1
ME (MJ/kg DM)	7.7	7.9	7.2	7.6

Anti-quality factors
Condensed tannin levels fluctuate between 3.2 and 18.7% with increases associated with the onset of flowering. Despite the potential health benefits of condensed tannins levels above 8% of DMD are considered to be detrimental to animal performance as they reduce voluntary feed intake and forage digestibility. Peak levels of condensed tannins

Species	*DMD (%)*	*Total N (g N/kg DM)*	*Condensed tannin (% DM)*			
			Extractable	*Protein bound*	*Fibre bound*	*Total*
D. hirsutum	73	26	12.1	6.5	0.1	18.7

in Dorycnium hirsutum coincide with flowering. In vitro dry matter digestibility (DMD), nitrogen concentration and extractable, bound and total condensed tannin concentrations of Dorycnium hirsutum (Values are for leaf and soft stem harvested in late spring at Palmerston North, New Zealand. Adapted from Terrill *et al.* 1992).

Diseases

Dorycnium hirsutum can suffer from root rot diseases in soils that become waterlogged over winter.

Pests

Resistant to pasture grub attack. Resistant to red legged earth mite attack in all but cotyledon stage.

Figure 1. Canaritas flowers and seed pods

Figure 2. Canaritas fodder bank