

Lotus Research in Victoria, Australia

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Background

In central Victoria there is a growing interest in developing perennial pastures where annual pastures dominate the landscape.

A trial was set up in 1990 comparing 56 perennial pasture legumes including 13 species, cultivars and lines of Lotus. In Autumn 1991 a second planting of 42 perennial legumes was put in adjacent to the earlier site and this included 24 Lotus species, cultivars and Lines. The trial has plots of 6 or 12 spaced plants replicated 3 times and they are scored and cut for dry weight measurements at the end of each season.

In Spring 1991 another site was planted with 80 L. corniculatus lines replicated 3 times and 200 Lines in short single rows. This site will be managed as a rotationally grazed pasture and ultimately selections from it may form the basis of a Lotus cultivar suited to central Victorian hill conditions.

All sites are on the mid-slope of a hill with stoney acid (pH 1:5, Soil: Water 5.0-5.5) soils of sedimentary origins. The latitude is approximately 37°C with a Mediterranean climate of cool moist winters and hot dry summers. The average annual rainfall is 500-700 mm (20"-28") with an annual pasture growing season of 6-8 months.

Dry summers and continuous grazing by sheep will be limiting factors to the use of Lotus, but it may find a niche in the harsher add-soil environments where lucerne fails to persist. (Chapman *et al.* 1990)

Research Emphasis

- (1) Selection of a Line adapted to central Victorian Hill country grazing land.
- (2) Selection of a Line tolerant of low pH, high Al central Victorian sedimentary hill soil.
- (3) Selection of an early flowering Line.
- (4) Study of Lotus' potential water-use characteristics relative to lucerne, phalaris and cocksfoot.

List of Lotus Species, Cultivars and Lines for Evaluation in Central Victorian Hill Country

Lotus Corniculatus

Dryland

G32

Au Dewey

San Gabriel

Cascade

Vega

Fergus

Maitland

Maykopsky

Pharsovsky

10 lines from a range of geographic locations

267 lines from a New Zealand plant selection programme

Lotus tenuis

Tresur chaja

1 other line from Argentina

Lotus grandiflorus

Lotus maroccanus

1 locally naturalised selection

3 lines originating from Morocco and the Canary Islands

Lotus purshianus

Lotus edulis

Lotus creticus

3 lines originating from Israel

References

Chapman, H.M., K.G. Dodds and J.M. Kooghan (1990). Evaluation of the agronomic potential of pasture legume introductions on droughty outwash soils. *New Zealand J. Agric. Res.* 33: 21-27.