Lucerne growing in Tasmania

Suitability factors for assisting in site selection

Lucerne (*Medicago sativa*) is a perennial legume that produces high nutritive value forage. A recent survey of Tasmanian pastures identified lucerne as an under utilised fodder with potential for expansion of the growing area. Lucerne is best suited to a strategic rotational grazing system.

**Climate**

The minimum annual rainfall requirement for lucerne is 300mm, however significant production gains can be made from applying irrigation. Lucerne is one of the most drought tolerant perennial forage legumes available.

**Growth & Winter Activity**

The level of winter dormancy in lucerne is dependent on cultivar. It is important to choose the cultivar best adapted for your purpose and climate. There is a ‘winter activity’ rating scale for lucerne from 1-11:

- Winter dormant cultivars 1-3
- Semi-winter dormant cultivars 4-5
- Winter active 6-7
- Highly winter active 8-9
- Very highly winter active 10-11

Choosing the cultivar that best matches the purpose is critical. Recent studies in Tasmania have shown that highly winter active cultivars are best for irrigated hay production. Winter dormant cultivars are more suited for dryland grazing production and are less susceptible to stresses such as drought and grazing. All lucerne cultivars are susceptible to damage by frosts.

**Irrigation**

Lucerne is a highly valuable fodder crop as it can be either grazed or made into high nutritive value hay. Lucerne’s summer growth makes it well suited to irrigation.

**Soil & Site**

Lucerne performs well in fertile soils with a pH of 5.7 or higher. It grows best in deep soils with rooting depths >500mm. A long deep tap root can access water from deep in the soil profile and as such requires well drained soils. Sites that are prone to waterlogging should be avoided as lucerne lacks the physiological adaptation to flooding stress. The long tap root provides moisture for growth well into summer and conveys good drought tolerance.

Lucerne is particularly sensitive to high levels of exchangeable aluminium in the soil. High aluminium is often associated with low soil pH (<5.5), but not always. Site preparation should focus on removing weeds during the previous crop rotation, as weed competition can reduce the productivity and persistence of lucerne.

**Caution**

Metabolic diseases such as bloat, red gut and nitrate poisoning can develop by grazing lucerne in an immature or lush state. Supplementing with dry roughage such as hay can help to prevent these diseases. Bloat oils and anti bloat capsules are other prevention options. Manganese toxicity can also occur when lucerne is grown on soils with low pH, particularly on some sandy soils.
Developing rules to guide enterprise suitability mapping

Many plants require particular climatic and land characteristics for best performance. Frost, winter chilling, summer heat, drainage, slope and salinity are some of these characteristics. For each enterprise mapped by the Department of Primary Industries, Parks, Water and Environment (DPIPWE), the Tasmanian Institute of Agriculture (TIA) consulted industry experts and reference material to define land and climate “rules” that distinguish suitable from less suitable areas. These rules define the boundaries between the different classes of the enterprise suitability maps.

Suitability classes used are well suited, suitable, marginally suitable and unsuitable. Any limiting factors are also identified to guide the management practices that could help to overcome the limitations.

Landowners and potential investors are able to access comprehensive soil, climate, crop and enterprise information plus complementary farm business planning tools at:


Photos by Keith Pembleton and Rowan Smith (TIA).

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