

Lucerne

Sampling Notes

Lucerne has a very deep rooting system that renders normal soil sampling of limited usefulness. Because of this, greater emphasis should be placed on the results of plant analysis when assessing the nutrient status of this crop.

Leaf - Vegetative

Sampling Time: At a vegetative growth stage.

Plant Part Plant tops.

Collect From: The top 15 cm of the plant.

Quantity per Sample: 20-30 plant tops.

Recommended Tests: Basic Plant (BP), Molybdenum (Mo).

Comments: If samples are taken as part of an on-going monitoring programme, then collect samples over the entire area, in a random manner. If a nutritional deficiency is suspected, then selectively sample the worst affected plants. The problem should be more pronounced in such a sample compared to samples collected in a random manner.



Soil

Sampling Time: Prior to crop establishment and annually at any time of the year, although autumn to early winter is recommended.

Core Depth 15cm.

Collect From: Randomly selected areas of the field.

Quantity per Sample: 12 - 20 cores.

Recommended Tests: Basic Soil (BS), Sulphur profile (S).

Comments: There is no recommended time of the year for soil sampling. However, it is advisable to always collect samples at the same time every year, in the same manner. This will then provide data that shows whether nutrient levels are declining or increasing over the time (i.e. crop logging).

When sampling prior to crop establishment, there is an opportunity to correct sub-soil pH by incorporating lime. Take 15 - 30 cm deep samples to check the sub-soil pH.

Comments

The following nutrient deficiencies have been observed in New Zealand lucerne crops: Phosphorus, sulphur, potassium, boron, copper and magnesium.

Boron toxicity can be suspected if leaf levels exceed 100 ug/g.

Samples taken prior to flowering will show higher levels of nitrogen, phosphorus, potassium and sulphur. Post bloom samples will have lower levels for most nutrients.

Lucerne is a natrophobe, i.e. it does not accumulate sodium in the above ground portion of the plant. Sodium supplementation may therefore be required for livestock with lucerne as a major component of their diet.

Lucerne, being a legume, will support rhizobia and can fix nitrogen.

If the crop is regularly cut for hay, there will be a significant nutrient removal from the area, and the fertiliser programme should reflect this.

Lucerne is very sensitive to soil acidity. The soil pH should be greater than 5.9 for successful nodulation to occur. Root growth is restricted by soil pH levels below 5.6. This factor may mean that acid sub-soils will prevent deep root activity and therefore limit the plants ability to absorb water from greater depths when topsoils are under drought stress.

References

Martin, W.D. and Matocha, J.E. 1973. Soil testing and plant analysis.

Cornforth, I.S. and Sinclair, A.G. 1984. Fertiliser recommendations for pastures and crops in New Zealand. MAF Publication, Wellington.

Blackmore, L.C; Searle, P.L and Daly, B.K. 1987. Methods for chemical analysis of soils. NZ Soil Bureau Scientific Report 80. NZ Soil Bureau, DSIR.

Disclaimer

Normal Range levels shown as histograms in test reports relate specifically to the sampling procedure provided in this crop guide. The Normal Range levels in test reports and Comments provided in this Crop Guide are the most up to date available, but may be altered without notification. Such alterations are implemented immediately in the laboratory histogram reports. It is recommended that a consultant or crop specialist be involved with interpretations and recommendations.
