



## **GUIDELINES FOR SAMPLING PLANT TISSUE FOR PASTURES**

### **WHY MEASURE NUTRIENTS IN PLANT TISSUE?**

Of the many factors affecting crop quality and yield, soil fertility is one of the most important. It is fortunate that producers can manage fertility by measuring the plant's nutritional status. Nutrient status is an unseen factor in plant growth, except when imbalances become so severe that visual symptoms appear on the plant.

The only way to know whether a crop is adequately nourished is to have the plant tissue analysed during the growing season.

### **WHAT PLANT TISSUE ANALYSIS SHOWS**

Plant tissue analysis shows the nutrient status of plants at the time of sampling. This, in turn, shows whether soil nutrient supplies are adequate. In addition, plant tissue analysis will detect unseen deficiencies and may confirm visual symptoms of deficiencies. Toxic levels also may be detected. Though usually used as a diagnostic tool for future correction of nutrient problems, plant tissue analysis from young plants will allow a corrective fertiliser application that same season.

A plant tissue analysis can pinpoint the cause, if it is nutritional. A plant analysis is of little value if the plants come from fields that are infested with weeds, insects, and disease organisms; if the plants are stressed for moisture; or if plants have some mechanical injury.

The most important use of plant analysis is as a monitoring tool for determining the adequacy of current fertiliser practices. Sampling a crop periodically during the season or once each year provides a record of its nutrient content that can be used through the growing season or from year to year. With soil test information and a plant analysis report, a producer can closely tailor fertiliser practices to specific soil-plant needs.

## DOES AND DON'TS OF SAMPLING

### DOES

- Sample the correct plant part at the specified time or growth stage.
- Use clean plastic disposable gloves to sample to avoid contamination.
- Sample tissue (e.g. entire leaves) from vigorously growing plants unless otherwise specified in the sampling strategy.
- Take sufficiently large sample quantity (adhere to guidelines for each species provided)
- When trouble shooting, take separate samples from good and poor growth areas.
- Wash samples while fresh where necessary to remove dust and foliar sprays.
- Keep samples cool, after collection.
- Refrigerate or dry if samples can't be despatched to the laboratory immediately, to arrive before the week-end.
- Generally sample in the morning while plants are actively transpiring.

### DON'TS

- Avoid spoiled, damaged, dead or dying plant tissue.
- Don't sample plants stressed by environmental conditions.
- Don't sample plants affected by disease, insects or other organisms.
- Don't sample soon after applying fertiliser to the soil or foliage.
- Avoid sample contamination from dust, fertilisers, chemical sprays as well as perspiration and sunscreen from hands.
- Avoid atypical areas of the paddock, e.g. poorly drained areas.
- Do not sample plants of different vigour, size and age.
- Do not sample from different cultivars (varieties) to make one sample.
- Don't collect samples into plastic bags as this will cause the sample to sweat and hasten its decomposition.
- Don't sample in the heat of the day, i.e. when plants are moisture stressed.
- Don't mix leaves of different ages

*Reference - Standard sampling procedures and interpretation criteria are based on the guidelines provided in "Plant Analysis – An Interpretation Manual" Reuter and Robinson, CSIRO Publishing 1997.*

<b>CROP</b>	<b>GROWTH STAGE TO SAMPLE</b>	<b>PLANT PART</b>	<b>Number/ Amount Required</b>
Clover - Balansa	Prior to flowering	Leaves only (petioles removed)	200 g
Clover - White	Prior to flowering	Leaves and petioles	200 g
Lucerne and Lucerne Dominant Pasture	Prior to flowering	Whole tops Upper 10 – 15 cm of plants	20-30 plant tops
Medics – Annual	Prior to Flowering	Leaves and petioles	200g
Phalaris	3-5 weeks of regrowth	Young mature leaves	200 g
Ryegrass - Perennial	2-5 weeks of growth	Whole stems cut 3-5 cm above ground	200 g
Sub Clover	Prior to Flowering	Leaves only (petioles removed)	200g
Tropical Grass Species	Prior to flowering	Whole tops	200 g