

PAAG sampling guide

Plant tissue

Principles of sampling

Samples of plant tissue might be taken for advisory or diagnostic purposes. Either way, the sample must be small enough for the laboratory but representative of the field or area sampled. A sample of a few grammes must be as representative as possible of several tens of tonnes of crop. Care taken in sampling is never wasted and is essential if laboratory results are to be useful.

Plant tissue sampling

Why sample?

Plant tissue samples are taken to check the concentration of nutrients, especially micronutrients or to help diagnose growth problems that appear in the crop. Nutrient concentrations can differ between plant parts (stem, leaves etc) and change as the crop develops so the part sampled and growth stage at the time of sampling should be recorded to help in interpreting results.

When should samples be taken?

Samples can be taken whenever there is sufficient plant material. The best time depends on the reason for taking samples. If this is to predict micronutrient requirement, samples are best taken in spring close to the time when treatments would be applied but allowing time for sample transport to the laboratory and for analysis.

How should samples be taken?

Samples of plant material should be taken from 20-25 positions in a 'W' pattern across the field and placed in a clean plastic bag to form the bulked sample for analysis. Samples should not be taken from areas that are unrepresentative of the field, for example gateways and headlands. **It is essential that the plant material is not contaminated by soil.** Roots must not be included in the sample. For micronutrient analysis, it is best to sample the youngest fully expanded leaves. In any event, the sampled part of the plant should be noted. If samples are taken for micronutrient analysis, plants or leaves affected by disease or pests should be avoided. Severely stunted or dying plants should be avoided as interpretation of results will be unreliable. The bulked sample sent to the laboratory should weigh 25-50g.

For diagnostic purposes, samples of plant tissue should be taken from good and, separately, from poor areas of crop growth. Each area should be sampled as indicated above for full fields. The comparison of laboratory results from good and poor areas can be much more useful for diagnosis than the results for the poor area only.

How should samples be submitted?

Most laboratories supply kits of packaging and labels for submitting samples for analysis. These should be used wherever possible to ensure the laboratory receives all necessary information and the sample is packaged securely. Whatever packaging is used, the sample must be clearly identified and securely labelled. Fresh plant tissue samples will decompose quickly when packaged so avoid posting samples that will remain in transit over a weekend. Provided they can be kept clean, samples can be air dried before posting to the laboratory.

Further information

PAAG laboratories can provide detailed information on soil and plant tissue sampling and many show instructions at their web sites. The following might also be useful:

SAC. *Plant tissue sampling.* <http://www.sac.ac.uk/mainrep/pdfs/plantsample.pdf>

