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Nutrient Advantage - Beyond Soil Testing



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Tricky questions are part of daily life for agronomists in the field. When it comes to plant nutrition, there are a range of ways [Nutrient Advantage®](#) can help take the guesswork out of recommendations.

For example, consider Nutrient Advantage's plant tissue testing service next time you're faced with a curve ball like the one below.



Grain, water and compost testing can also give agronomists a more complete understanding of farming systems for better recommendations when they are incorporated into the nutrition planning cycle.

But first, here's a challenge:

Which canola crop is suffering from manganese toxicity and which needs a boost of sulphur? How can we tell? The text books tell us that the symptoms are similar, so how can we be sure?

Tissue testing will provide the answer in a matter of days, helping to determine the correct response.
([GranAm®](#) is needed in the bottom crop, not the top one.)

This is a classic example of the fact that visual nutrient deficiency symptoms are often not clearly defined and can look the same as other nutrient problems or even diseases. Where visual symptoms are used to diagnose a problem, they should always be confirmed by plant tissue testing.

While it is often used for troubleshooting, plant tissue testing can also be used before deficiency symptoms appear to assess any hidden hunger for nutrients. Many crops start losing yield long before deficiency symptoms become apparent. It's also the best way to assess the requirement for trace elements like zinc and copper.

Remember that plant tissue testing shows the nutrient uptake of the plant, as opposed to the nutrients in the soil. Generally, agronomists will need to know both the soil status and plant availability to make the right recommendation.

Some growers use plant tissue testing regularly to closely monitor nutrient uptake throughout the season, so that adjustments can be made to the fertiliser program quickly enough to maintain optimum yields. High value fruit and vegetable growing systems tend to use plant tissue testing this way. Cotton growers also use tissue and petiole testing to ensure nutrient levels are adequate in crucial stages of plant growth.

The guidelines for plant tissue sampling are specific to the crop or pasture being grown. Check the [sampling instructions on the Nutrient Advantage website](#) before collecting the sample, as it may involve specific plant parts.

Grain testing

This test is used for nutrient budgeting purposes at harvest time. It is used to accurately identify the concentrations of nutrients in grain leaving the farm.

By combining this information with yield results, it is possible to calculate the actual nutrient export from the harvest for precise nutrient budgeting. This takes the guesswork out of budgeting and closes the loop on the fertiliser program for the season.



For example, would anyone like to guess the concentration of phosphorus in this grain? It could be 3 kg/t or 6 kg/t of phosphorus. The variability between crops, paddocks and seasons is wide ranging, so if you really want to know, arrange a grain test.

Water testing

When shifting cattle to a new source of drinking water, it can pay to check on properties such as nitrate levels and total dissolved solids. How can you know whether the next dam or bore water source will be safe? Only by water testing.

The Nutrient Advantage laboratory can analyse water for its inorganic chemical properties, such as pH, EC, alkalinity and nutrient concentrations. Customers can also add on tests such as specific gravity, E Coli and faecal coliforms.

Water testing is often used to assess salinity, especially where bore water is being used for irrigation. Another common use is to check for nitrates in water supplied to stock, as high levels can cause animal health issues. High iron levels in water used for fertigation can encourage algal growth in drip lines.

It's always better to know more about the water being used on farm before issues occur. [Water sampling guidelines are available from the Nutrient Advantage website](#).

Compost and manure testing

Each load of compost or manure can be different from the last, with different levels of nutrients. By arranging a test for each batch of compost or manure used, growers can properly adjust their fertiliser rates to better meet the crop's requirements and avoid over supplying nutrients.

Because of the mix of biomass and lack of uniformity with many composts and manures, it is particularly important to take a representative 500 gram sample made up of many sub samples for testing. Once again, [sampling instructions are available on the Nutrient Advantage website](#).

Soil testing

Soil testing should still form the basis of any fertiliser recommendation. It reveals the current nutrient status of the soil and any physical or chemical imbalances that need attention. With soil test results on hand, agronomists can determine whether there are any factors holding back production and identify opportunities to improve results.

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The accuracy of soil test results depends heavily on the sampling procedures. It is essential to follow best practice soil sampling. [Fertcare®](#) has recently released a new guide to soil sampling.

It addresses a number of new topics including selecting areas to sample within the farm, sampling approaches and sampling patterns for areas where fertiliser banding has been used. The guide is available for download [here](#).

All of these testing services are available from Nutrient Advantage today. The Nutrient Advantage laboratory upholds the highest standards in testing and is accredited by the National Association of Testing Authorities (NATA), a quality benchmark for any laboratory involved in soil and tissue testing.

The Nutrient Advantage laboratory also participates in inter-laboratory proficiency testing with the Australasian Soil and Plant Analysis Council (ASPAC) and has an outstanding track record for outstanding results in proficiency tests.

For more information on any Nutrient Advantage testing service, please contact me at Rebecca.hall@incitecpivot.com.au or 0439 736 031.

