

Make the most of the season with testing



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It has been a promising start to the 2017/18 cotton season, with a number of rain events helping to get crop growth off to a good start.

It's now time to monitor nitrogen levels, manage in-crop fertiliser inputs and maintain crop yield potential.

One of the best ways to do this is with a consistent leaf and petiole testing program.

Thanks to those good rain events, the pressure is off irrigation this season.

But where there are fewer irrigations, there are also limited fertiliser application opportunities for those who prefer water running nitrogen.

The early information you get from leaf and petiole test results may be invaluable when it comes to advising growers about their best strategy for applying nitrogen, whether that's a sidedress, topdress or water run application.

Why tissue test?

Leaf and petiole tests are a highly efficient and accurate guide to nutrient uptake.

They show if the plant has a 'hidden hunger' for any nutrients before visual symptoms appear or if the existing nutrition is adequate for crop requirements.

Petiole testing is used for potassium and nitrogen only. If you're looking for information on a wider range of nutrients, choose leaf tests or leaf and petiole tests.

It is important to conduct the testing over several weeks covering three sampling times approximately 10 days apart, so that the results can be plotted to show the changes over time.

This allows you to keep track of increases in nutrient uptake and ensure the curve is consistent with recognised nutrient uptake curves for the crop stage.



When to test

The peak requirement for nitrogen and potassium occurs at approximately peak boll load (1300-1500 day degrees).

To ensure adequate nitrate nitrogen availability for this period, petiole testing should be undertaken during early squaring to early boll fill (500-900 day degrees).

Leaf testing provides an early warning to highlight any macro or micro nutrients that may be lower than optimum without any apparent visual symptoms.

Testing can start as early as five true leaves.

Tips for sampling

Consistency of sample collection is essential to get the best out of both these tests.

Select well defined and identifiable sampling locations. GPS locate for accuracy.

For petiole sampling, the sample sites must be representative of the area to be fertilised. Sample head ditch and tail drain areas separately.

Collect the samples between dawn and 10 am (sampling in the heat of the day means heat stress may affect the results). Put them straight into a paper bag.

Samples should be collected at similar soil moisture levels each time.

Wear a pair of clean plastic disposable gloves to take the samples.

Take petioles from the youngest fully expanded leaves on the plant, usually the third or fourth from the apex. Collect 200 petioles for analysis.

Leaves should be collected from the third or fourth leaf down the plant from the terminal. Remove the petioles from the leaf.

Place them straight into a paper bag (using a plastic bag will cause the sample to sweat and hasten its decomposition).

If sampling for both leaf and petiole, it is a good idea to separate the petiole from the leaf immediately, then bag the two parts separately as soon as possible. Nutrient and sap movement can occur very soon after removal from the plant.

Wash samples while fresh with distilled water to remove dust or foliar sprays, where necessary.

Keep samples cool following collection and send them to the laboratory ASAP.

If samples cannot be sent immediately, dry them in the paper bag at temperatures between 40°C and 80°C. Check that they are not cooking. The samples should not be burnt or discoloured. Do not use a microwave oven.

Where to send samples

[Nutrient Advantage® Laboratory Services](#) welcomes your petiole testing and leaf testing business.

The laboratory is NATA accredited and ASPAC certified and offers industry-leading rapid turnaround times. Plant tissue test results are completed within three business days of sample receipt.

The LabSTREAM app is currently being rolled out to customers. The app can be used for logging samples tissue and soil samples in the paddock, for more efficient sample submission.

For interpretation of results, advisers can either use Nutrient Advantage Advice software or cotton industry developed programs like NutriLOGIC (available from www.cottassist.com.au).

For more information and guidance, [Cotton Info has a fact sheet on nutrient sampling](#). NUTRIpak [also covers leaf and petiole analyses](#).

If plant sampling bags are required, kits are available by contacting Nutrient Advantage Laboratory Services on 1800 803 453.

As always, feel free to call me on 0417 896 377 or email bede.omara@incitecpivot.com.au



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nutrientadvantage.com.au

References:

CottonInfo's 'Nutrient Sampling Guidelines for Cotton' fact sheet, Dec 2014 - <https://www.cottoninfo.com.au/sites/default/files/documents/Soil%20nutrient%20sampling%20guidelines%20for%20cotton.pdf>

NUTRIpak A practical guide to cotton nutrition, by the Australian Cotton Cooperative Research Centre - <https://www.cottoninfo.com.au/sites/default/files/documents/NUTRIpak.pdf>