Cotton Catchment Communities CRC

NSW DEPARTMENT OF PRIMARY INDUSTRIES

# COTTON *TALES*

*Southern New South Wales*

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2007/08
No.5
22/11/07

**Season Progress**

Cotton in the district is developing well. Early planted cotton is at 8 nodes with the first squares visible. The crops at Hillston would now be putting on approximately 1 node every 3.5 days whilst the crops further south are putting on a node every 5 days. At this stage the early crops are on target to have flowers on them by mid December. First irrigation has started on the crops that have missed out on rainfall. The table below shows where we are at in terms of day degrees (DD). DD is a measure of heat units over the growing season. It is a useful tool to compare one season to another. It is calculated by the following formula.
DD = (max temp-12ºC) + (min temp-12ºC) /2. The last column is cold shock days. A cold shock day is any day where the minimum drops below 12ºC.

**Day degree for the period 5th Oct. to 21st Nov. 2007**

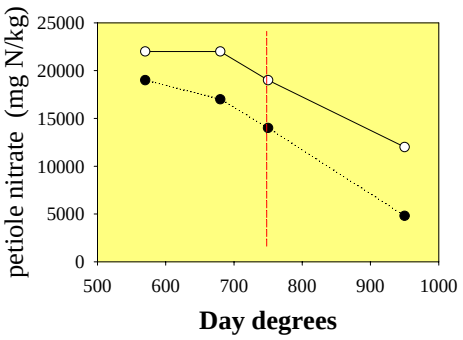
| Met site | 07/08 | 06/07 | Average DD | C/Shock 07/08 |
|---|---|---|---|---|
| Benerembah | 431 | 400 | 331 | 16 (28.2) |
| Hay | 429 | 391 | 352 | 17 (25.7) |
| Hillston | 453 | 419 | 370 | 16 (23.3) |
| Whitton | 428 | 401 | 328 | 16 (28.2) |

**Petiole Analysis**

Plant analyses taken during crop growth can indicate nutrient deficiencies which if, identified early enough, may be rectified by applying the appropriate fertiliser.

Petioles are ideal for monitoring nitrate-N and potassium concentrations up to flowering. While petiole tests are accurate for monitoring nitrate-N and potassium they are not recommended for other nutrients. Of the other nutrients, petioles normally contain about half of the concentrations found in the leaf blade, but this varies, making them less reliable as a sampling tool.

Petiole nitrate-N level declines with time. By flowering, petiole nitrate-N levels are usually declining and it isn't easy to distinguish between crops having sufficient or insufficient N. Beyond flowering leaf tissue tests is a better method of monitoring crop nutrition as it can be used for monitoring all nutrients including micronutrients.




Petioles can be analyzed for sap concentration or for nutrient concentration in dry matter. For petiole sap analysis moisture loss must be closely controlled whereas with dry matter analysis moisture content is not as critical.

**When do I sample?**

For nitrate monitoring, three samplings, approximately 10 days apart, give a good indication of the rate of change in nitrate-N in petioles. Sampling is best done at approximately 600, 750, 900 day degrees from sowing.

**How do I sample?**

Collect approximately 50 petioles (more if they are thin and short) from the 5th topmost leaf. The leaf blade must be removed immediately in the field to prevent transfer of nutrient from the petiole to the leaf blade. Water stress, either drought or water-logging, cold weather, low radiation through cloudy conditions all affect nutrient levels, but particularly in petioles and sampling at these times should be avoided. Samples should be collected from early to mid morning.

Sampling from the same areas that soil analysis has been conducted and soil water is being monitored, there is greater likelihood that results can be interpreted in the knowledge of other soil constraints and soil moisture effects. Where a nutritional problem is suspected, a separate collection of healthy and unhealthy plants may aid diagnosis.

**Sample handling and storage**

Petiole samples should be stored in an absorbent bag and kept cool. To avoid contamination of samples, hands should be thoroughly washed with soap and dried or gloves worn. Common contaminants include salt from sweat and zinc contained in many sunscreen products.

Your plant samples **must** arrive at the laboratory as quickly and in as good a condition as possible. Samples not likely to reach the laboratory the day after collection should be dried prior to transport. This is best done at low temperature (less than 70°C) in a convection oven or quickly air dried. Microwaves are **not** suitable.

**Petiole analyses and NutriLOGIC**

The NutriLOGIC program has recently undergone a major revision; it is now more user-friendly, provides information and analytical support for all major nutrients, provides interpretation of soil, petiole and leaf analyses and is relevant for high and low yielding cotton crops.

http://tools.cotton.crc.org.au/CottonLOGIC/NutriLOGIC/

The new NutriLOGIC can be used to compare petiole tests with the optimum petiole nitrate status according to the stage of crop development. Crop development is determined by day degrees and the nitrogen fertiliser recommendation is then adjusted according to the region and soil type. Growers need only enter the sowing and sampling dates, and the chemical analyses from their laboratory report.

**Looking for more information on nutrition?** NutriLOGIC provides additional information on soil fertility and cotton nutrition through direct links to NUTRIpak and SOILpak. A comprehensive Nutrient Sampling Guidelines for Cotton is also available on the Cotton CRC website.

*Thanks to Dirk Richards, Sandra Deutscher and Ian Rochester, CSIRO and the Cotton CRC for their contribution in developing this information.*

**Coming Dates**

29/11/07 - CGA/CCA meeting @ 2pm Goolgowi Council Chambers.

4/12/07 - Wincot cotton information day "Field to Fabric". All welcome please contact Jo Begbie 0428 311 079

5/12/07 - 8:30am-11:30am Integrated Pest Management (IPM ) Short Course @ Dalbroi's Farm, "Warra West".