

Monitoring important for early season management

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It is imperative in early season crop management to keep accurate, up to date records of current growth and fruiting patterns of the crop. Assessment of three principal early season growth parameters is important and management will need to adapt accordingly:

- Plant stand — effects plant growth and development;
- Plant height and total mainstem nodes — determine current growth rates and stage; and,
- Early season fruit retention — is important, especially in the bottom first five positions.

After stand establishment, monitoring the growth rate of cotton is necessary to determine progress of the field. Early season cot-

ton growth should be monitored from squaring onwards. Delta and Pine Land's Juan Landivar has tailored an Excel spreadsheet, Benchmark, which involves recording measurements of a cotton crop's height and total nodes at various times during the season.

The program automatically plots crop measurements of progress against a target growth curve selected by the user based on the final desired crop height. Benchmark also plots the crop's position against some other key parameters — number of days to accumulate each subsequent node, average internode length and change in height per day — which each assist in tracking crop development through the season.

Benchmark indicates when crop growth requires management considerations.

Monitoring, understanding and interpreting crop growth provides indications for adopting the proper management options as set out in Table 1.

In conjunction with the Benchmark growth monitor, the checklist in Table 1 provides insight on possible management options for growth regulation. Based on assessment, mepiquat chloride (Pix) can be used to restrict vegetative growth of a vigorously growing crop.

MODIFYING VEGETATIVE GROWTH

The timing of irrigations can also be used to modify the rate of vegetative growth in cotton leading up to first flower. A well timed early irrigation can increase the rate of vegetative growth in some circumstances.

Conversely, stretching irrigation intervals up until first flower can also help control excessive vegetative growth in some circumstances. This technique can be used in conjunction with the application of mepiquat chloride.

Juan Landivar's Benchmark spreadsheet calculates the amount of mepiquat chloride required to achieve 10 ppm in the plant. Benchmark eliminates the guesswork from decisions regarding the amount of mepiquat chloride required to control a vigorously growing cotton crop and is a highly effective method of monitoring crop development throughout the season.

Using the Benchmark tool in conjunction with the cotton growth parameters table, growers should have confidence in the application of mepiquat chloride to regulate the growth of Deltapine varieties.

For more information about Benchmark, contact Neil Robertson, phone: 0428 889 157 or Lou Gall on 0428 558 211.

TABLE 1: Cotton growth parameters and influence on decisions to implement growth limiting management options at first flower

Measurement at first flower	Growth control measures indicated	Growth control measures not indicated
Height	greater than 70cm @ 1st flower	less than 60cm @ 1st flower
Growth rate	greater than 2.5cm per day	less than 1.8cm per day
Mainstem node growth rate	less than 3 days per node	greater than 3 days per node
Maximum internode growth rate	greater than 7.5cm per node	less than 5cm per node
Number of vegetative nodes	greater than 8.5	less than 7
Bottom five retention	less than 50%	greater than 80%
Top five retention	less than 70%	—
NAWF @ 1st flower	greater than 8.5	less than 7
Weather	cloudy/rain	sunny/warm
Water availability	excessive	drought