

Cotton Field Check

Field Conditions and Comments: Early-July, 2007

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Cotton fields are quite variable in developmental stage and size across the SJV, so comments about crop management must be discussed in light of individual field conditions. This year so far we have what I would characterize as variable plant growth conditions, light to only moderate insect pest and mite populations in many areas, and water limitations ranging from moderate to more severe. In discussions of management options, you might talk to agronomists and PCA's and get a broad range of suggestions regarding optimal crop management under these conditions. Past experience over many years still suggests that these critical weeks of early bloom through at least peak bloom are critical to developing good yield potential and the most useful time of year to utilize plant growth measurements (height:node ratios, internode distances, bottom and top 5 first position fruit retention) to assess relative vigor and fruit retention problems. Insect scouting and plant evaluations at this time can really pay off in helping avoid unchecked fruit losses that could be insect-related or PGR decision mistakes (missing necessary ones or avoiding unnecessary applications).

Suggestions For Fields Fitting These Descriptions?

Weak or slow-growing plants (like fields A and E in Table 1). Low vigor plants like the data shown for fields A and E (Table 1) don't call for PGR applications, so Mepiquat chloride applications should only be made if plant vigor shows a change later in fruit development (such as after irrigation, fertilizer applications or if fruit losses occur). Some of these fields are coming into early bloom with only 5 to 6 nodes above first fruiting position white/yellow flowers (NAWF). Near early bloom, that low a NAWF suggests a risk of plants going into early cutout and reduced potential for continued fruiting and higher yields. If you can risk extra irrigation water and want to consider foliar fertilization in the first 3 weeks of bloom, these low vigor plants are candidates for a "push" to spur additional growth, prolong the effective fruiting cycle, and avoid early cutout. However, if these fields are ones where you have limited additional irrigation water, an earlier termination and restricted fruiting period might be ok as long as you can accept lower yield potentials.

Moderate Vigor Cotton Plants – April plantings (like fields B, D and F in Table 1). Moderate growth rates combined with good fruit retention indicate fairly well-balanced growth so far in example fields shown as fields B, D and F in Table 1). Watch fields like this over the next 1-2 weeks to identify any developing problems. Check plants for changes in vigor or retention in the next 7-10 days to decide if an additional PGR application might be warranted. A tool such as the maximum internode distance method (Figure 1) or PIX STIK can be used to help assess mid- or peak-bloom PGR decisions.

Moderate to High Vigor Cotton Plants – early plantings (like fields C and G in Table 1). Some of the most advanced fields in terms of development that I have recently visited are March-planted fields in Kern or Kings Counties. Some early plantings are near peak bloom and may be ready for a final PGR application if delayed irrigations are not keeping growth in check. Growth in the example plants shown for early plantings (fields C, G in table 1) is still generally moderate in terms of vigor measurements (4th-5th internode distance, height:node ratio, NAWF). In these fields, top-5 fruit retention still looks good to very good, so it might be best to use moderation in both irrigation delays (not too much stress) and PGR applications (avoid excessive rates) unless growth rates or fruit retention show big changes in the next week or so. If plants in more vigorous growing fields are having fruit retention problems, higher PGR applications and/or delayed irrigations may be warranted to help get plants in check.

Problems related to Hot Weather. Current hot weather in early July is generally not as bad in terms of timing as last year's very hot weather in late July/early August. Hot weather of shorter duration and when there is less of a fruit load (fewer full-sized bolls) on the plants should cause less damage to expansive growth and less fruit loss than what would occur with longer duration, later-occurring high temperatures, such as a few weeks from now (let's hope that doesn't happen).

Table 1. Plant map data – plants in fields all evaluated between June 28 and July 5, 2007

Field ID Name	Type of Cotton	Plant Height (inches)	Total # of nodes on main stem	Height to node ratio	Retention (squares and/or bolls) – first position only (%)		Maximum Internode distance (between 4 th & 5 th nodes from terminal) (inches)	(NAWF) Nodes above first position white (or yellow) flower	Relative Vigor Level
					Bottom 5 Fruiting branches	Top 5 Fruiting branches			
A	Acala	21.5	17	1.26	85	78	1.76	5	Low
B	Acala	34.7	19	1.83	61	56	2.23	7	Moderate
C	Acala	38.3	22	1.74	70	71	2.88	8	Moderate - early planting
D	Pima	38.1	21	1.81	75	66	2.51	8	Moderate
E	Pima	24.7	18	1.37	64	75	1.93	6	Low
F	Pima	36.2	20	1.81	42	78	3.16	9(variable)	Moderate
G	Pima	40.4	22	1.92	67	57	3.02	9+(variable)	Moderate - early planting

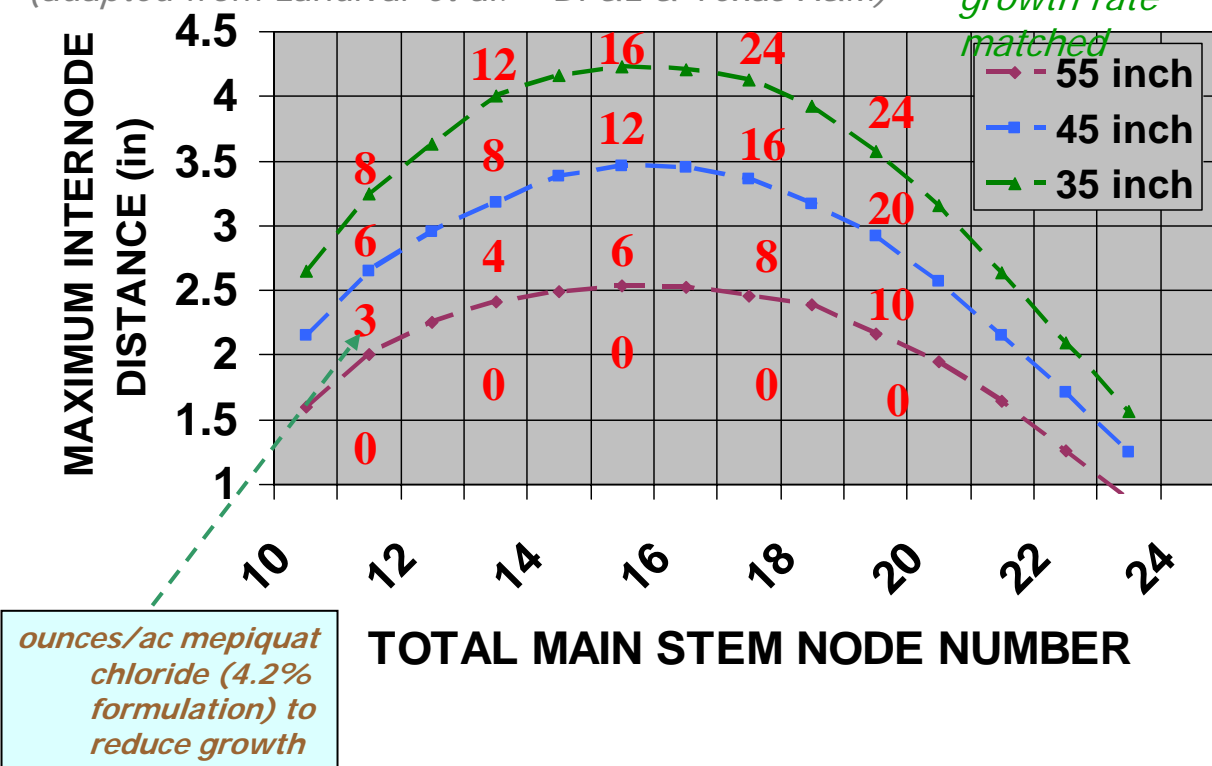
Figure 1. Relationship between internode length between the 4th and 5th node from the main stem terminal and total main stem node number. By counting the # of main stem nodes and measuring the length of this specific internode (4th to 5th), you can identify a point on this graph and use that to get a suggested mepiquat chloride application rate for plants between 10 and about 22 main stem nodes.

Maximum internode distance –

Mepiquat Chloride *decisions approach*

(adapted from Landivar et al. – DP&L & Texas A&M)

Eventual height if growth rate matched



ounces/ac mepiquat chloride (4.2% formulation) to reduce growth