

California Cotton: Planning Those First Plant Growth Regulator Applications

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We have quite a range of planting dates for cotton fields out there this year, ranging from late March all the way into the first week of May, so we are at different decision points for PGRs across these fields. We are coming up on the timing for first growth regulator applications in many fields, and quite a few growers have already made early, lower-dose (lower application rate) PGR applications in some cotton fields, such as drip-irrigated fields and cotton fields in high N-fertility situations.

- For really late-planted fields, some of which might have 6 to 9 nodes at this time, PGR's are generally not yet called for even if you are planning on trying to manage plants for reduced total water applications this year ... give it a week or so and check again to see how rapidly the plants are growing after first irrigations, as the weather warms up and gets hot.
- For fields where plants are at about 10-12 total nodes or more and you have relatively high soil fertility, take a look at the specific fields where in the past you have had problems with excessive vegetative growth and see how plants are progressing this year. Those fields could be good candidates for earlier (pre-first bloom) PGR applications, particularly since most of the commonly-grown commercial varieties of Pima and Acala we now grow tend to be more vigorously-growing varieties.

For all fields and PGR decisions, one of the most important things to do is check plants over the coming weeks as you make PGR decisions to see if early squares and blooms are holding, since good, strong early square and fruit set greatly assist with regulating vegetative growth.

Conversely, poor fruit retention can lead to excessive vegetative growth unless PGR's and delayed irrigations produce enough water stress to help regulate growth.

We have a range of planting dates and variable plant conditions across regions of the valley and between even adjacent fields, with plants ranging from quite low vigor to fairly high vigor growth. In some fields more PGR use will be likely, but in others, a plan to monitor plants and then decide is a much better approach in my opinion.

As plants enter a period of more rapid leaf growth, earliest fruiting branches develop, and squares become bigger and easier to evaluate during coming weeks, think about how to best monitor to see if any of these field descriptions apply:

- **Moderate to high vegetative vigor / normal or early first fruiting branch set / good early retention** – *if vigor is still high in plants with these characteristics,*

- typical first-flower PGR timing will likely be called for and effective if fruit retention remains good*
- **Moderate to high vegetative vigor / delayed (higher) first fruiting branch development / lower than normal early retention** - *higher vigor in plants with these characteristics will make them a very likely candidate for higher rates or more PGR applications*
 - **Lower than normal vegetative vigor / any range of fruit retention** - *early root or plant damage might mean that some reduced vigor may persist for a while – these fields will need more careful monitoring to decide if PGR's will be detrimental or helpful*

The bottom line still remains that it is generally not a good idea to make blanket recommendations regarding PGR timing and rates as with irrigation and fertilizer decisions, there are benefits to making field-specific decisions based on how plant growth progresses and how fruit retention shapes up.

Keep in mind fields with seedling disease issues.

In addition to fields impacted by Fusarium losses, other seedling disease losses (mostly Rhizoctonia, some Thielaviopsis) and thrips-related injury have generally seemed a little worse than in recent years in a fair number of fields. There are a number of plantings that show one or more of the following:

- Weakened root systems due to seedling disease.
- What appears to be thrips damage to leaves and even terminals.
- Leaf damage associated with persistent high winds.

As weather warms, plants with decent root systems within these fields have shown decent recovery from early insect or disease damage. Where leaf and especially where terminal damage was extensive, growers will have to watch for signs of abnormal growth due to increased vegetative branching associated with damage to the main growing points on the developing stem.

Plants with extensive early damage like this are likely to be delayed in setting first fruit, with a 1 or 2 node higher position for the first fruiting branch and some potential for additional PGR applications to manage vegetative branches. In the past we have seen fields with what looks like severe thrips injury in which the first position squares are gone on the first one or two fruiting branches, even when no lygus appear to be present.

In the worst affected fields where terminal damage was evident, there is the possibility that squares were damaged early in development. Don't conclude that the losses are necessarily from a current lygus population unless your sweep counts find them.