

Cotton Field Check

A Cotton Management Update from UC Cooperative Extension

Mid-August Field Situations & Management Considerations

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Cotton fields are quite variable in development and size across the SJV, so comments about crop management have to be discussed in light of individual field conditions. My observations of some of our research plot fields and grower fields can be grouped into three broad categories:

- (1) plants with good to excellent early/mid season fruit retention and low to moderate vigor
- (2) plants with good to excellent early/mid-season fruit retention, some current reduced retention issues and higher vigor;
- (3) plants with lower early/mid retention largely due to weak early growth related to multiple factors (not many fields with early lygus/pest pressure, more fields with skippy stands or early thrips injury and weaker early growth due to uneven soil moisture conditions). Some of these fields have some recovery in later fruit retention – these fruiting conditions might be matched with very different levels of plant vigor, depending upon your local conditions

Good early retention plants: In many prior years we have been used to describing the August 20-25 period as when the last blooms occur that you can reasonably expect to carry out to maturity and harvest (given average potential for late season fruit set and average heat units available to develop late season bolls). Under this year's conditions of decent to very good early and mid-season retention in many fields, limited availability or expensive water, and rapid progression toward cutout in a lot of fields, I think many growers will not be trying for these late-developing bolls. For fields fitting these descriptions, rather than extending the season to try for a top crop, they are more likely to be ready for early harvest preparation and earlier harvests this year.

Conditions described as (1) or (2) above, in my observations, have been more typical in many areas of the SJV this year, and these plants may have some good to very good yields as long as there are not a lot of major stresses or drops in retention associated with high temperatures combined with water stress. Since yield potentials could be good, some care should be taken to try to hold fruit and continue with acceptable conditions for boll and fiber development through about the first 3 weeks after the last blooms you hope to carry to maturity. Stressing them really hard prior to that time can affect fiber quality, particularly fiber strength. However, since this is not even close to a "normal" water year, if the late blooms/bolls represent a relatively small part of the total yield (due to good earlier fruit set), then trying to provide adequate water to finish out late bolls is less of a concern. If the budgets are getting tight and you either don't have much water available or have higher value uses for late season irrigation water, you may want to instead save part of the budget for late season insect control measures on the chance that whitefly or aphids might be a problem.

Some earlier low retention issues (conditions #3 above): Many early plantings with good early fruit retention (#1 and #2 conditions above) were at peak bloom several weeks ago. Some low early retention plantings (#3) are out there this year that show strong late season vegetative growth and that have uneven and late blooming that makes it harder to use nodes above uppermost white/yellow flower (NAWF or NAYF) counts to judge crop progress toward cutout. You still need to decide how long to keep trying to retain and protect developing squares and small bolls. Under these situations with later maturing plants, the August 20-25 dates for the last blooms to try to carry to maturity is still a good recommendation. If NAWF counts are difficult to use to judge relative plant vigor late season and the plant has not already cut out, look at the upper internode lengths (those about 5 to 6 nodes down from the terminal). The internode is the distance between the points where successive leaf petioles are

attached to the main stem. In the late-season, plants where growth is in check should have more moderate internode lengths (maybe in the 1.5 to 2.25 inch range), while lengths >2.5 to 3 inches may mean “watch out” to be sure some fruit is being held and N and water availability are not excessive (less likely to be an issue this year in most fields). For the few fields that might have these high vigor late season issues, delayed irrigations and water stress is probably the best available tool to bring plants under control and avoid excess late season vegetative growth. .

Field Situations. Some care in avoiding more severe stresses the next couple of weeks could mean that recent developing squares and small bolls could be held instead of lost. Even though it hasn't been ultra hot the past few weeks, the combination of moderately high temperatures and water stress have taken a toll on a lot of the squares and small bolls. Some of the drip irrigated cotton this year is being managed for high yield potentials with week to week adjustment of irrigation and fertilizer amounts to sustain new fruiting site development and high yield potentials. Even though some of these drip-irrigated plants continue to hold squares and small bolls here as we approach late season, we are still approaching the time in late August when you are likely to see declining retention. In many fields the relatively low lygus levels of the early season are giving way to more lygus the past couple of weeks, so it may be even harder to continue high retention rates here in late August.

In some fields with weaker root systems and a big boll load for the size of the plants, these past 2-3 weeks I have been seeing more and more plants showing evidence of potassium deficiency and in some cases, signs of *Verticillium* wilt. There is not much you can do about either of these issues (K deficiency, verticillium) at this point this year, but if the damage started really early (mid-season) or is really extensive and severe, you may want to keep that in mind when you consider targeted potassium fertilizer applications next year or as you plan crop rotations. A one-year rotation to wheat or other small grains still has a pretty good track record in knocking down populations of over-wintering spores of the pathogen causing *Verticillium* wilt, so if you see a lot of *Verticillium* damage late this year that could be an option for the next winter/spring crop in those fields.

For these fields showing late season foliar decline (with evidence of potassium deficiency, nitrogen deficiency, and verticillium in some cases), it is most likely too late to be considering foliar fertilization. For one thing, the plants in late bloom or near cutout are much less responsive to foliar N or K applications, and stressed, older leaves in the late season are less able to absorb applied nutrients. Most prior studies have shown the best responses to foliar N and K during the period of the 2nd to 4th week of flowering (perhaps into the 5th week with some longer bloom period Pima varieties).