University of California
Agriculture and Natural Resources
Cooperative Extension

Cotton Field Check

Management Update from UC Cooperative Extension

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It is again that time of year in cotton fields when it is vitally important to keep an eye on square and fruit losses in order to be able to achieve decent yields, especially with the given constraint of limited available water in most situations. As usual, some cautions are still warranted when trying to assess causes of fruit losses and what you might do about them: (1) if you see significant square and early boll loss, make sure to check for continuing, damaging levels of any suspected insect pests; (2) balance current pest situations against considerations such as crop growth stage, time remaining to compensate for losses, severity of fruit loss or plant damage, populations of beneficials, and resistance mgmt. issues; (3) consider and re-consider yield goals as the season develops and you start adding up input costs. Due to the limiting water situations, most growers cannot afford to deal with anything that extends the growing season unless the yield/price compensations are great, since price and availability of irrigation water are major issues this year. Being able to eliminate even one irrigation in your cotton crop this year can be important. Based on past experiences, recommendations are that conditions like all these mean that early attention to plant mapping and pest evaluations will pay off.

Plant evaluations done in some Kings, Tulare and Fresno County sites this past week showed:

- Generally, shorter plants, lower height:node ratios than typical for prevailing cotton varieties for this time of year (quite a few fields, typically related to delayed irrigation and perhaps reduced N fertilizer applications). In many of these moderate sized plants, square retention and even early boll retention looks very good, which will also help keep vegetative growth under control.

- Some fields where the first post planting irrigations have not yet been started or were only recently applied. With the warm weather and limited water, vigor/growth rates in these plants are low and the stress has been significant enough to reduce fruiting branch extension

and the number of fruiting sites. This is an ok strategy for efficient production under limited water situations and will reduce vegetative growth potential, eliminate needs for PGR's and promote earliness as well. However, when water stress is severe enough to cause significant leaf wilting by noon to mid-day close to first bloom to peak bloom timing, the number of fruiting sites and yields can be significantly reduced as well.

- Plants in some cases still growing out of early leaf and terminal damage consistent with ongoing thrips injury in the later plantings. Consistent with past findings, the damage was much worse with the more susceptible Uplands than in any Pimas. Plants for the most part outgrew this early damage and growth is improving.

- Some continuing losses of plants to Fusarium race 4 disease are still occurring (associated with the hot weather now) in patchy areas of fields.

This year we expect to see some significant acreage of plants that could be described in one of the following ways:

WEAK TO MODERATE VEGETATIVE GROWTH, THINNER STANDS, SOME RETENTION PROBLEMS. There are a lot of issues going on in these fields, and some variable plant populations to manage all in the same field. Variable plant populations mean that these fields will be hard to sample (for plant growth and insect counts) season long. At first bloom and early weeks of bloom, be flexible in making plant growth regulator (PGR's such as PIX, Stance) decisions. If retention remains good in some of these weaker stands, PGR applications may be at lower rates or unnecessary. However, if higher growth rates develop (evidenced by upper canopy internode distance extending to 2 to 2.5 inches or more) and fruit retention is highly variable, expect that more intensive sampling will be required to assess both plant growth and insect situations, as a range of things may be going on in the field. Try to go back to the same zones within the field each time to get a handle on how things are going.

WEAKER VEGETATIVE GROWTH AND GOOD RETENTION
It may be a little early to tell about retention possibilities, but we may end up with plants fitting this description. Such plants could become candidates for early cutout if retention is good and growth limited by factors such as limited water, delayed irrigations. These plants could move toward early cutout, which may be a bad thing (reduced yield potential) or a good thing (earlier crop termination with a late-planted crop or where concerns are with running out of water). Particularly if plants have weak root systems and poor/moderate early growth, you could

decide to push plants with water or nutrients (if availability and input costs pencil out) to promote and prolong active growth. Your own past experience with the ground will help tell you if the plants are likely to broadly respond and continue growth with earlier or higher amounts of irrigation and fertilizer used to "push" the plants, or if the response will likely be sporadic across the field. If you're unsure of the response or think yield responses or water/input availability will be limited, keep supplemental fertilizer applications (those made after a first split) moderate in amount (30-40 lbs N/acre, for instance) and see how plants respond. It is still early in the season to make final judgments about yield potential.

A REMINDER - INFORMATION ON FUSARIUM IN COTTON:

In University and industry meetings in recent years, we have reminded PCA's and growers to be on the lookout for signs of the fungal pathogen "*Fusarium oxysporum*" (particularly Race 4) in cotton fields in the San Joaquin Valley. While the foliar damage in some ways resembles that with *Verticillium* wilt, the worst impacts of Fusarium typically do the most damage during the period from seedling stage to first bloom. It becomes very difficult to locate Fusarium problem areas for diagnoses once the diseased plants die off and "disappear" under the canopy of surviving neighbor plants. Pay particular attention if you see plant losses accompanied by wilt symptoms in areas with no prior known history with this disease. Contact your UCCE Farm Advisor for a field evaluation if you have questions about Fusarium race 4.