Here is this week’s *MiteFax*, sponsored by the California Cotton Team of Syngenta Crop Protection, maker of Gramoxone Inteon.

**OVERVIEW**

Our Harvest Survey reports begin this week. Thanks to everyone who responded to this week’s survey request. Our next one will be sent next Wednesday. If you are on next week’s request list, please take a minute to respond to our very short survey.

We include a defoliation advisory prepared by Bob Hutmacher, Extension Cotton Specialist, and Steve Wright, Cotton Farm Advisor.

**HARVEST REPORTS**

Tulare County, PCA: “We have started defoliation on about 10% of our acreage.”

Firebaugh Area, Grower: “We have not started defoliating yet. The crop is finishing very well, with a nice top crop. I had to clean up one field for aphids.”

Huron, Grower: “We have not started defoliating yet. There is worm pressure in spots. We have not sprayed yet.”

Merced County, Los Banos, Grower: “We have just started prepping our fields and will begin defoliation in about one week. We will start picking between October 10 and 15.”

West of Tulare, Grower: “We have not started defoliating cotton yet.”

Huron Area, Grower: “We have not started defoliating cotton yet. A lot of Pima is lying down, indicating a good top-crop – if we can mature it in time. Most folks will apply defoliants on October 1, mature or not, due to any potential for weather risks that might follow.”

Eastern Kern and Western Tulare Counties, Grower: “We will start defoliation in about 2 days. I think, overall, this crop will be off 15% to 20% from last year’s.”

Mid Kern County, from Rosedale to Shafter, PCA: “We have started defoliating and will begin picking in about 21 days. Pima took the heat better than the Acala did. This still should be a good crop if we can get the last of the top crop. With the Acalas and Uplands we have 2 problems. First, there’s about a quarter-bale missing on the bottom, since that part of the crop didn’t start fruiting until node 6 to 8 (depending on the variety). Second, the heat messed up pollination. Most bolls affected by this seem to have only 6 seed per lock instead of the usual 8. So, if you’re missing 2

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out of 8 seeds, that means you’ve only got 75% of what the boll count indicates. If you take into account all these factors – small bolls, missing bottom bolls, a light middle crop and a late top crop – it would be difficult to say what kind of average yield is out there."

Central Fresno County, Grower: “We will start our defoliation program in about 10 days.”

West Side, Fresno County, Grower and PCA: “We expect to start defoliation in about 7 days.”

West Side, Fresno County, Firebaugh Area, Grower: “We have started defoliation and will begin picking in about 14 days.”

MiteFax: SJV Cotton is distributed at no charge to individuals who grow cotton in California or who work in related occupations. It is published by Looking South Communications, Owen Taylor, Editor, 142 Westlake Drive, Brandon, MS 39047. Telephone: 601-992-9488. Fax: 601-992-3503. By email: owen@agfax.com. Subscriptions can be requested at: http://agfax.com/subs. ©2006 Looking South Communications.
Defoliation is necessary to prevent leaf stain and trash from contaminating cotton lint. A well timed and effective defoliation can be pay in many ways. This earliness will be advantageous not only for defoliation but advancing the start of harvest and reducing the potential of late season whitefly and aphid infestation. Other advantages of an earlier harvest are: Defoliants are much more effective when temperatures are warm ->80 F.

Harvest in October with longer, warmer days is much more effective and time efficient than during shorter, cooler, and possibly wet days of November. Fiber quality is preserved. An earlier finish results in the completion of more groundwork before winter rain. The threat of the rain and emphasize the importance of beginning as soon as possible.

The effectiveness of defoliation varies from season to season and often from field to field depending on nitrogen status of the crop, boll load, irrigation termination, temperatures, and soil types. Some rough guidelines were developed to manage 2 basic scenarios 1. A crop with a high boll load and early termination (like 2004). When irrigation termination and nitrogen depletion are synchronized with boll maturity high yielding fields become easy to defoliate.

Factors to consider when selecting a defoliation strategy.

**Condition 1.** Fields with heavy boll load, abrupt cutout, and warm temp >80 F. at application. Fields at 4 nodes of above cracked boll or > 55 to 60 % open boll.

- Lower rates (4-6) oz of Ginstar should be effective. Def/Folex plus a boll opener should also be effective. Tank mixing ethephon treatments for boll opening (Prep, Finish, Cotton Quick) will be useful for faster and more complete leaf drop. This is especially important in areas with whiteflies or aphids. Def or Folex also help to drive out whiteflies.

- On Upland varieties standard rates of chlorate plus paraquat, ET, or Shark or as split applications should be effective but less so than Ginstar combinations or Def/Folex plus ethephon.

**Condition 2.** Late plantings, low retention, rank growth in Acala or Pima, vigorous, late-maturing fields with smaller boll loads (like 2006, 2005, 2003, 1998, 1995), or cool temperature <80 F. at application. Fields at 4 nodes of above cracked boll (3-4 NACB) on Pima, or > 55 to 60 % open boll.

With these more vigorous plants with a high proportion of later-maturing bolls, it may be desirable to consider some different practices to improve chances for acceptable defoliation, desiccation, control regrowth, and to improve chances of getting later-maturing bolls to open. Continued higher than normal temperatures will help in maturing these bolls, but as usual, there is no “magic bullet” that will make all those late bolls mature and open. Growers will need to look at the calendar, judge the likelihood that good weather will continue, and decide which bolls they really can afford to wait for.

- Ginstar rates should increase (7 to 10 oz. on Acala and 10-13 oz. on Pima) tank mixed with a boll opener. The addition of Shark or ET at low label rates may help in some cases.

- Sequential applications required. The first application aims to open canopy. A second application of chlorate plus paraquat, ET, or Shark is needed to defoliate or desiccate remaining leaves.
• Another approach is a 2 step approach starting with a low rate 3-6 oz of Ginstar plus 1 pt. of ethephon followed by Ginstar at a higher rate (6 to 13 oz.) plus 1-2 pts. of ethephon.

**Beginning at 6 NACB Strategy One:** In some fields it is necessary to start defoliation early due to late season insects or it is getting late. Several UCCE field studies conducted during the 1990’s demonstrated a benefit in defoliation and boll opening by applying a pre-treatment of 4-6 oz of Ginstar at 6 nodes above cracked boll (NACB) followed by later treatments (at 4 NACB) of: (1) Ginstar at 8 oz. in combination with a boll opener material (such as Prep, Cotton Quick, Finish or others); or (3) Def/Folex plus a boll opener. Ginstar rates should be adjusted if major changes in air temperatures occur at application or are anticipated in the days following application. In many cases in both Acala and Pima, a final application of sodium chlorate and Gramoxone or Shark or ET will also be useful in desiccating remaining leaves and improving opening of last-remaining bolls. UC studies showed that applying ethephon at 6 NACB reduced yields and quality compared to 4 NACB. This season because of the missing bolls in the middle the NACB technique may not be useful. 6 NACB = 30 to 40% open boll and 4 NACB = 55 to 65% open boll.

**Strategy Two beginning at 8 NACB:** An approach for vigorous, late-maturing cotton fields, particularly when there are concerns that fields are not making progress in opening up bolls, involves use of glyphosate as a pre-treatment in non RR varieties. UCCE studies done on Acala varieties during the 1990’s looked at several timings for these pre-treatment glyphosate applications. The treatment combinations in these studies consisted of glyphosate pre-treatments at 1 qt/acre rates tested at timings of 8, 9 or 10 nodes above cracked boll, followed 7-10 days later by standard defoliation treatments involving Def/Folex or Ginstar with or without boll openers. Results showed some advantages in earlier opening of later-developing bolls with the glyphosate pre-treatments. However, care should be exercised to make sure of the average NACB status of the field and relative percentages of the total field at various stages of maturity. Glyphosate should not be applied before about 8 NACB for these pre-treatments in Acala varieties, since the research showed yield losses of 5 to 12% with earlier applications at 10 NACB. Field studies that followed the 8 NACB with a Ginstar application at 6 NACB as mentioned above and then a 3rd application with the full rate of Ginstar plus ethephon was very effective on late, rank fields in 2005. Some PCA’s experienced better results though in 2005 by skipping the glyphosate and starting on the 6 node application of Ginstar instead.

**Strategy Three:** Another approach is to closely pay attention to the calendar, the weather, and consider how much risk you want to take in choosing a final harvest date. Consider these steps:

1. Keep an eye on predicted trends in the weather.
2. Consider your own experience with how many days of harvest will likely be needed from harvest of your first field to the last field.
3. Decide what you think is the last harvest date you consider to be an acceptable risk.
4. Count back about 21 days from those desired harvest dates, and start with your defoliation program on those dates no matter what maturity stage (what NACB) the crop is in.

University Acala and Upland cotton defoliation trials in the 1980’s and 1990’s demonstrated that, on the average, defoliations initiated at 8 NACB resulted in yield losses of about 5% when compared with initiation at 4 NACB, while those initiated at 6 NACB reduced yields 2 to 3%. However, those same studies acknowledged that when a very large percentage of the total crop consists of bolls on the upper 6 to 9 fruiting branches, losses from early defoliant applications can be substantially more (over 10%). Particularly under circumstances of mostly a mid-canopy and top-crop, the closer you can get to 4 to 6 NACB prior to first defoliant application, the lower the yield loss.