



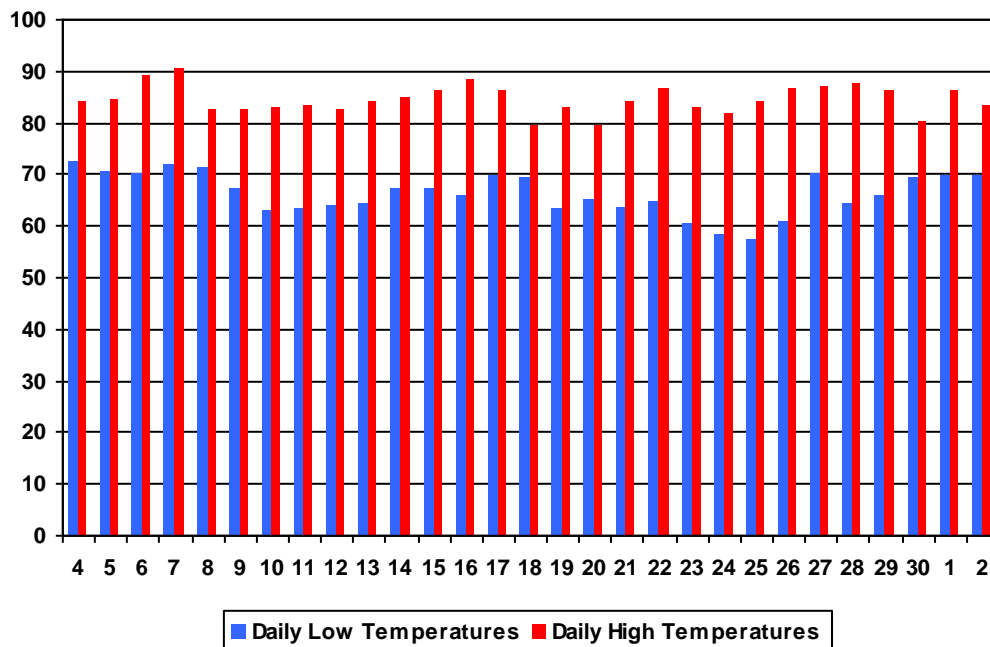
| | |
|----------------------------|---|
| Harvest Aid Considerations | 1 |
| Liberty 2013 | 4 |

Harvest Aid Considerations (*Collins and Whitaker*)

Boll Opening

The progression of boll opening has been slightly slower than normal so far this year, primarily due to prolonged cloudy, cooler/wetter weather with slower heat unit accumulation than we normally experience, with the exception of a week or two. In Southwest Georgia, some of the early set bolls that encountered cloudy and wet conditions when they first cracked open, ultimately rotted or hard-locked and upper bolls opened slower than expected. A couple of weeks in September brought sunny, drier, and warm conditions allowing many bolls to open normally, however most days in September had daytime highs hovering in the mid 80's with nighttime lows in the mid 60's (Figure 1) with many cloudy/foggy days in the mix.

Figure 1. Daily Temperatures for Tifton, GA from September 4, 2012 to October 2, 2012.



It is important to remember that defoliation can generally be initiated when 60-70 percent or more of the harvestable bolls are open, and/or when there are 4 or less nodes above cracked boll. Keep in mind that the number of nodes above cracked boll is determined by counting the number of nodes between the highest first-position cracked boll and the node that holds the highest harvestable boll (there may be several bare nodes above the highest unopened boll...these nodes don't count). The rainy weather may have produced significant regrowth in many fields, forming small bolls that aren't harvestable. It is important to not confuse these bolls with harvestable bolls for early planted cotton with a boll population large enough to produce acceptable yields. Examination of the internal components of bolls will help determine if they are harvestable. Mature bolls will have well-developed seed, with a tan/brown distinguishable seed coat and distinguishable cotyledons inside. Little or no jelly or liquid should be observed in mature bolls with mature seed. The lint inside mature bolls will easily "string out" when the boll is sliced open, and the boll should be very firm and difficult to slice as a result.

In most situations, premature defoliation should be avoided. If defoliation is initiated too soon, some harvestable bolls would require significantly more time to open, or may not open at all. Waiting until the crop is mature is usually less risky than attempting to force the crop to open before it is ready, depending on weather and other factors. Using ethephon-containing products at appropriate rates in harvest aid mixtures and at the proper time, is generally the best strategy to promote boll opening for timely harvest and yields. If significant boll opening activity is needed, ethephon (6 lbs ai/gallon) should be used at no less than 32 oz/A...if little boll opening activity is needed, this rate could be cut back to 21 to 24 oz/A or less depending on the number of bolls that still need to open. The season-long use rate on most of these products is 42.67 oz/A, therefore using this high rate in a single harvest aid mixture application, especially if applied prematurely, will not allow for any amount of ethephon to be used in a follow-up application if additional boll opening is needed after the initial application. In many recent cases, upper bolls are fairly mature but are slow to open due to the cloudy weather this year (Figure 2). Warmer, drier and sunny conditions could likely accelerate boll opening in many of these fields.

Figure 2: Opening of upper bolls slowed due to recent weather.



Leaf Removal

There are several products and combinations that could be used for leaf removal. It is very important to match products and rates to the needs of the plant and prevailing temperatures, versus trying to use a one-size-fits-all approach to remove leaves. The 2010 and 2011 results of the UGA Cotton Defoliant Evaluation Program can be found at www.ugacotton.com and are a helpful resource when deciding on products to use. It's generally wise to observe multi-year data, as harvest aid efficacy is strongly dependent on crop condition and the prevailing environment.

Most importantly, using appropriate application volumes and nozzle pressure can improve efficacy and acceptable defoliation in a single application, even in fields with large plants, dense canopies, and lodged plants. Although optimal defoliation can be achieved occasionally when using lower application volumes, in many situations poor defoliation can be expected when applying harvest aids in volumes of 8 to 12 GPA. Volumes of 15 to 20 GPA, with appropriate nozzle selection and pressure, can substantially improve efficacy. Figure 3 shows the effects of increasing application volume in a situation where a second "clean-up" application was necessary to remove regrowth, however the same rules apply to general defoliation practices.

Figure 3: Differential removal of regrowth resulting from 10 GPA versus 20 GPA.



(10 GPA)



(20 GPA)

Juvenile Growth / Regrowth

The wetter fall weather has brought about significant terminal and basal regrowth on much of the crop so far this year. This can be expected as long as soil moisture remains high and moderate to warm temperatures continue. Secondary juvenile growth is often difficult to remove from the plant as it is not "ready" to be removed and remains in growth mode. Using products that contain thidiazuron in harvest aid mixtures is usually the best method of removing regrowth, along with proper application volume. As long as daytime temperatures are relatively warm, and nighttime temperatures stay above 65°F, thidiazuron (4 lbs ai/gallon) in harvest aid mixtures can effectively remove/prevent regrowth. If significant juvenile growth is present when defoliating, or if significant regrowth is expected, using 3.2 oz/A of thidiazuron (4 lbs ai/gallon) should generally result in better regrowth control/prevention than lower rates. Rates of 1.6 to 2.5 oz/A may be effective if lesser regrowth is expected, however these rates may be less effective if

conditions following defoliation suddenly promote regrowth or if harvest is delayed longer than intended. Once daytime temperatures begin to cool, and/or nighttime temperature drop and stay below 60-65°F, products containing thidiazuron + diuron are generally more effective at regrowth control/prevention than thidiazuron alone. Products containing thidiazuron + diuron could be effective in warmer temperatures for overall defoliation and regrowth control, depending on other products used in the harvest aid mixture, however thidiazuron + diuron may be the only effective means of regrowth control when cooler temperatures prevail for long periods of time. Thidiazuron alone, applied at appropriate rates, may still be effective in some cases during periods of marginally cool temperatures, or when a very short cool period is followed by warmer temperatures.

Liberty 2013 (Culpepper) Georgia cotton growers, distributors, and dealers are very concerned with both the price and availability of Liberty for the 2013 season. Although it is not possible to predict what will actually happen, here is the latest information available.

1. ***Price of Liberty will increase for the 2013 season.***
2. ***For LibertyLink producers, there will be an increased rebate (LinkUp Offer) on qualifying purchases of LibertyLink seed.***

Growers who purchase a minimum of 150 acres* of qualifying LibertyLink seed from September 1, 2012 to February 1, 2013 will receive a cash equivalent rebate from Bayer CropScience as follows:

| | |
|--|---------------|
| FiberMax and Stoneville LibertyLink cottonseed | \$30 per unit |
| LibertyLink soybean seed | \$5 per unit |

*Based on seeding rates of 1 acre/unit of soybean seed and 5 acres/unit of cottonseed. Please refer to Program Details for full offer requirements.

3. ***If properly directed, the supply of Liberty herbicide available for 2013 should be adequate to treat projected planted acres of LibertyLink crops.*** Obviously, LibertyLink growers must have Liberty or the weed management program would most likely fail.
4. ***Forecast your Liberty herbicide needs.*** Bayer CropScience is encouraging growers to work with Retailers and Seed Sellers to forecast Liberty herbicide requirements when they book LibertyLink seed. The forecast will help provide direction for the channel to align Liberty herbicide with LibertyLink crops. A forecasted need for Liberty herbicide is not a guarantee that supply will be available.
5. ***Cotton producers growing Widestrike cotton WILL NOT be discriminated against.*** After numerous discussions with Bayer CropScience, I do believe this statement to be true. Although Bayer CropScience is working with Distributors to align Liberty supply with LibertyLink needs, the ultimate shipment locations and sales transactions are up to the channel. Sales of Liberty for use on Widestrike acres will occur. However, Phytogen seed is not covered by the LibertyLink rebate.

6. ***Little to no Liberty should be used for burndown.*** This will help ensure supply and proper rates of Liberty for in-crop applications. This is not a huge concern because we have alternatives that are usually better than Liberty for burndown and are much cheaper.
7. ***There will be as much or slightly more Liberty available for Georgia in 2013 as compared to 2012.***

GROWERS HAVE TO MAKE SEVERAL CRITICAL DECISIONS FOR 2013:

1. Determine which technology will be grown during 2013. If the intention is to treat cotton with Liberty, then make certain the Liberty is in hand prior to planting.
2. If growers are not certain if they have enough Liberty, then a Roundup based program is in order.
3. If planting LibertyLink or Widestrike cotton and only one application of Liberty can be afforded then a very aggressive approach using residual herbicides while being EXTREMELY TIMELY is required.
4. Programs with no Liberty or one application of Liberty will be more effective under irrigation.
5. The heavy rye cover crop cotton system will be more effective in controlling pigweed when compared to other production practices if Liberty, or any other herbicide, becomes limited.
6. During winter extension meetings the following programs will be discussed in depth:
 - a. Roundup-based programs without Liberty
 - b. Liberty-based programs with 2 applications of Liberty
 - c. Liberty-based programs with 1 application of Liberty

As long as we know which of these programs will be implemented, I believe timeliness and a sound residual system can be used to overcome the limitations of Liberty.....of course, don't forget a little hand weeding will be needed regardless of the program utilized.

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Your local County Extension Agent is a source of more information on these subjects.

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