UNIVERSITY OF GEORGIA EXTENSION

UGA Cotton Team Newsletter
August 2022

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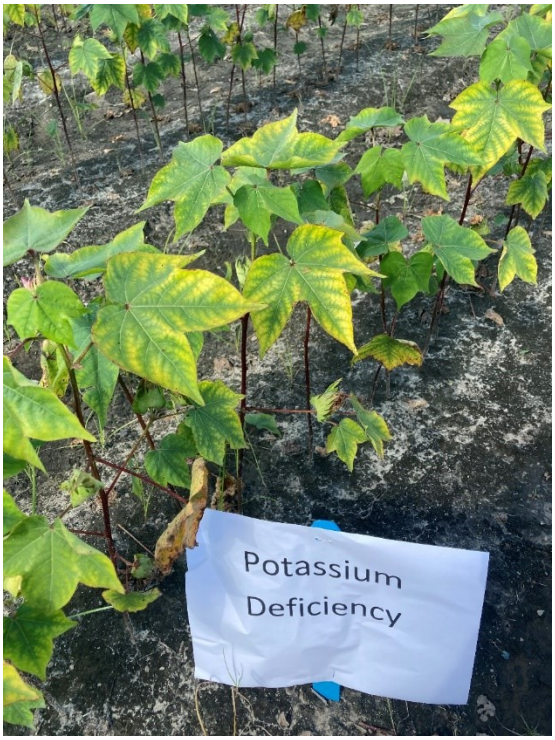
Post-bloom Nutrient Deficiencies, Waterlogging, and Foliar Feeding (*Glen Harris*): Most Georgia cotton has been blooming for a while now and is starting to show some classic post-bloom nutrient deficiencies. Some areas of the state have gotten significant rainfall also and are showing symptoms of waterlogging or "wet feet". Sometimes these symptoms, usually involving yellowing or bronzing of leaves, can be confusing and hard to diagnose. Knowing which problem you are dealing with is critical to knowing how or even if you can remedy the problem. Taking soil and tissue samples from "good" and "bad" areas of a field can go a long way toward deciding which nutrient problem you have if any. Petiole sampling is a good way to determine N and K status and needs post-bloom but will not pick up problems such as sulfur and magnesium deficiency (have to take tissue or "leaf blade" samples), Also, once cotton has been blooming for a full 3 weeks, it is not recommended to soil-apply nitrogen (and definitely not K) with ground rigs or through center pivots since root systems are declining and uptake from the soil will be very inefficient. It is at this point (after 3 weeks of bloom) that foliar feeding things like N and K should be considered.

Here is a quick look at symptoms of some of the post-bloom problems occurring in Georgia cotton right now:



Nitrogen - A pale yellowish leaf color should start on older leaves toward the bottom of the plant since nitrogen is mobile and can move to the younger leaves at the top of the plant. Early on plants can also be stunted and younger leaves may be reduced in size. Post-bloom and if nitrogen deficiency gets severe enough the bottom leaves will turn bright yellow or red. This is a sure sign of nitrogen deficiency.

Potassium – The early signs of potassium deficiency are interveinal chlorosis or yellowing between the veins, more in a "window paning" pattern than the whole area between the vein (like in peanuts). This symptom can progress to the point where it is often confused with nematode damage. Severe potassium deficiency in cotton are very distinct with sever yellowing and also chlorosis or browning around the margins of the leaves. Leafspots, particularly Stemphylium are also often present on sever potassium deficient cotton leaves.

Waterlogging – while not a nutrient deficiency, this symptom is often confused with potassium deficiency. Waterlogging usually results in a bronzing and drooping of the upper leaves giving the cotton "rust" color. While potassium deficiency can show bronzing sometimes, if the yellowing of the leaves between the veins is not also present then waterlogging is likely your only issue.

Sulfur – Sulfur deficiency is becoming more prevalent. It also causes a yellowing of the leaves, more on the whole leaf not just between the veins (like K) and will be on the whole plant including in the top or older leaves (unlike N). Sometimes the leaves on the lower part of the plant will remain green while leaves on the upper part of the plant are yellow.

Foliar Feeding – Once cotton starts blooming foliar feeding of things like N and K should be the focus. Unfortunately, once you get well into the bloom period it is too late to easily fix deficiencies such as sulfur and magnesium, that should be caught pre-bloom with tissue sampling. Petiole sampling can be very useful to help determine N and K needs and maybe boron too, to help move some nitrogen from leaves into bolls, once the cotton starts blooming. General foliar feeding guidelines can be found in the fertilization section of the UGA Cotton Production Guide. There are a lot of foliar feeding products available so it is important to look at how much N and K you are getting at the recommended rate…and how much it costs!

The Next Big Thing (*Bob Kemerait*): Rainfall and high humidity during the month of July across much of the cotton growing region in Georgia have increased the threat to growers from losses associated with target spot (*Corynespora cassiicola*) and areolate mildew (*Ramularia*). Both diseases have been found in cotton growing in our state over the past month and conditions remain quite favorable to spread of both diseases. Judicious and timely use of fungicides (where disease threatens and before disease is established in a field) can protect yields by as much as 150-300 lb/lint per acre, based upon results of field trials conducted by UGA Extension.

The fungicides most effective for management of target spot and areolate mildew include Priaxor and Miravis Top. Headline (pyraclostrobin) has also been quite effective. Azoxystrobin can also be used for management of these diseases but seems more effective against areolate mildew than against target spot. Profitable management of these diseases requires a) careful scouting of fields and b) timely fungicide applications when appropriate. I consider cotton at risk to target spot over the period between the first and sixth week of bloom; the most appropriate timing of a fungicide application seems to be at the third week of bloom. I believe cotton growers should consider protecting their crop against areolate mildew in the disease appears and they are more than a month away from initiating defoliation. Both diseases can cause significant premature defoliation which can hurt yields.

Though I believe cotton growers should be MOST vigilant against target spot and areolate mildew in the coming month of August, attention by many right now is focused on the relatively sudden and widespread observations of bronzed, “drooping”, new-growth foliage. Because of efforts to better understand the Cotton leafroll dwarf virus (CLRDV) since 2017, cotton growers generally recognize that bronzed, wilted leaves are symptoms associated with this newly recognized viral disease. Below I provide my thoughts and recommendations on the current situation.

1. It is true that bronzed and wilted leaves can be symptoms of disease caused by CLRDV, but these are GENERAL symptoms that could be caused by other things as well. For example, in conversations with Dr. Glen Harris and Dr. Camp Hand, it is very possible that the bronzed, new-growth leaves are associated with cotton growing in wet soils after abundant rains. If this is the case, the cotton should recover quickly with drying conditions and sunlight.

2. In my experience as a plant pathologist, it would be highly unusual for viral symptoms to occur quite suddenly across varieties and geographical space. While not impossible, for example if the symptoms are best expressed under some environmental stress, it would still be something I have not witnessed.

3. There is NO DOUBT that some of the bronzed and wilted plants found in Georgia's cotton fields are affected by CLRDV, but to believe that ALL of these plants are infected, or at least symptomatic because of infection, is a stretch.

4. CONSIDERABLE research has been conducted at UGA and elsewhere in the Southeast to better understand CLRDV. While infection seems to be relatively common in fields across Georgia, losses to this disease, at least significant losses are very rare.

5. Growers must remember that there is NOTHING to be done to manage CLRDV during the season and perhaps nothing that NEEDS to be done. My recommendation is to note where symptoms of bronzed and drooping leaves occur and to follow the crop through the season to determine if they become more severe.

6. MOST IMPORTANT: cotton growers should continue to grow their crop to the best of their ability and to focus on the things that they CAN control, for example target spot and areolate mildew. Judicious use of fungicides and timeliness CAN protect yield and increase profitability where these diseases occur.

August Weather and Climate Outlook (*Pam Knox*): The temperature in July has been generally slightly cooler than normal, with daytime temperatures below normal (from clouds) and overnight temperatures warmer than normal due to the abundant humidity we have experienced this month. This is also reflected in the wetter than normal rainfall for most of Georgia in July, as several fronts have dropped into the state from the north, serving as a focus of developing thunderstorms that have produced spotty rain across the region. Some areas have seen a lot while other areas nearby have been mostly missed by the showers. Because of the rain, drought conditions in most of the state have seen significant improvements, and these are likely to continue.

In August, the pattern looks similar to July, especially in the first two weeks. We will continue to see periods of showery weather broken by occasional dry periods. Temperatures are expected to be hotter than normal early in the month but should move back towards more seasonal conditions later in August. Precipitation in the first two weeks is expected to be near normal but is expected to increase again near the end of August, especially if the tropical season starts to ramp up. It will be scattered as we expect in summer thunderstorms, and some areas will see more rainfall than others.

So far this year, the Atlantic tropics have been relatively quiet, with just three named storms and no hurricanes so far. This has been due in large part to large plumes of Saharan dust that affect the vertical temperature structure of the atmosphere and reduce thunderstorm development while cooling the sea surface a little. Once these subside, we should start to see the tropical waves coming off of Africa grow more quickly and turn into tropical storms and hurricanes as the peak part of the tropical season approaches in mid-September. Of course, we don't know where they will go, but the Southeast usually gets the effects of several of them.

Longer-term, NOAA and others are continuing to predict the continuation of a triple-dip La Nina, which is keeping the Eastern Pacific Ocean one of the few areas in the globe cooler than the long-term average. This is expected to last through winter, which could mean another warmer and drier than normal winter for at least parts of Georgia. Last year when this happened, it meant that some parts of the state did not see frost until well into January, allowing some pests and diseases to overwinter well into the year. This makes early treatment of potential problems, including in-furrow treatment, something of special importance in 2023. However, that is a long way off yet, and ENSO predictions in mid-summer are not always accurate for next winter, so you will need to keep an eye on this when it comes closer to planning for the next growing season.

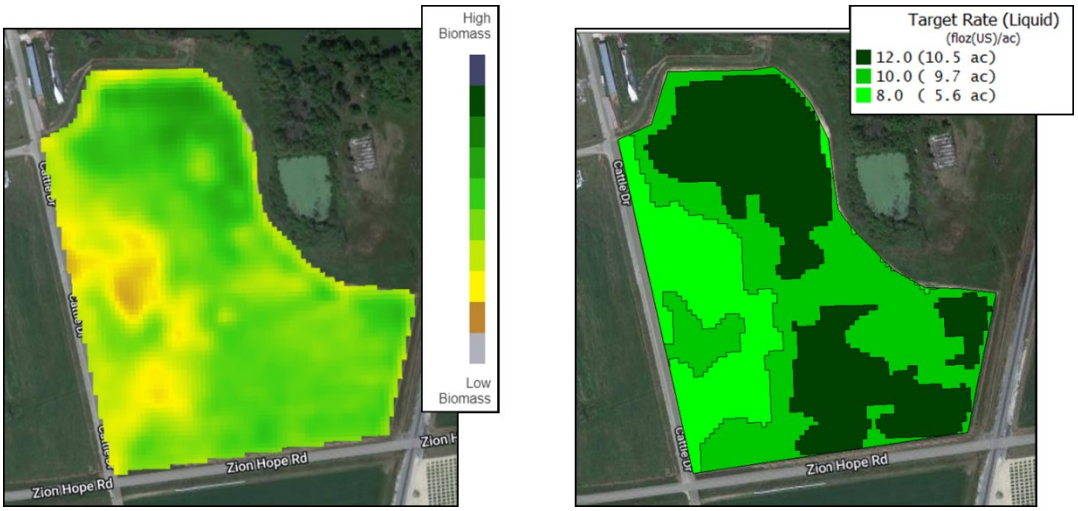
Variable-Rate PGR Application Considerations (*Simer Virk*): In order to better manage plant growth variability across the whole field, there is an increasing interest among consultants and growers in variable-rate (VR) application of PGRs in cotton. In fact, there are several growers across the state who have been utilizing this practice with some success from last few years. Recent conversations with industry partners, consultants, and growers indicated that the VR PGR practice definitely has its benefits over the conventional single-rate applications but the process in itself requires some learning, patience, and consideration to some key points in order to successfully implement variable-rate PGR applications in cotton. For consultants and growers thinking about starting out or already doing some sort of VR PGR applications, few of these main considerations are listed below. Please note that this is not a comprehensive list but some best management practices related to VR PGR applications in cotton.

1. **Ground Truthing Imagery** - Currently, most of the VR PGR applications are based on in-season satellite imagery which is available through common ag data management platforms (such as John Deere Ops Center, Climate FieldView or Granular AgStudio/Insights) throughout the season which provides a crop health/biomass variability within a field – an important data layer for VR application (example map shown in Figure 1a). The frequency and resolution of the imagery can vary depending on the provider and the subscription. Some consultants may also be using in-season drone imagery but

satellite imagery is more common and readily available these days. Regardless of the imagery source and resolution, one of the most important aspects when generating prescription (Rx) maps for PGR applications is ground truthing the imagery for each field to verify the actual plant growth within the field as well as the transition areas so that the Rx map can accurately depict these areas and the appropriate PGR rates can be assigned to each area/zone based on visual observations and not just solely based on the values in the imagery.

2. **Number of Zones/PGR rates:** Another important consideration when creating Rx maps for VR PGR applications is towards the number of zones as it also determines how many different PGR rates will applied across the field (Example map with three zones shown in Figure 2b). Keeping the number of zones between 2 and 4 is generally a good strategy as it helps keep the math (converting from oz/ac to gallons/ac) and the logistics of VR application simple and easier to implement. While most data management software's will let users assign 5 or more rates, that doesn't mean we should always go with the most rates possible in the field. That not only makes the process overwhelming and complex but also impractical most of the time, especially when we consider nozzle selection and spray equipment capabilities in achieving the assigned rates in the field.

3. **Sprayer and Technology Capabilities:** A rate controller is a must-have technology for VR PGR applications as it helps in regulating the flow and target different application volumes i.e. PGR product rates based on the Rx map. Most row-crop sprayers also have some sort of section or nozzle control capabilities on the boom. For accurate VR applications, proper consideration to the number and length of boom sections is equally important as point# 2 above when creating Rx maps to avoid creating multiple small and/or irregular zones that will possibly result in misapplications in the field. Given the nominal sprayer application speeds (anywhere from 10 to 16 mph), it is also important to consider response time of the rate controller for rate transitions and the boom sections to turn on/off when determining the number and size of the zones in the prescription maps. It is always a good practice to merge smaller zones with adjacent larger zones to avoid application errors due to equipment/technology limitations. Just creating a VR map doesn't necessarily guarantee that it will be implemented correctly in the field. Proper consideration to both spray equipment and technology capabilities is highly important.



(a) (b)

Figure 1. Example of an in-season map (satellite imagery) depicting crop biomass variability within a field, and (b) a corresponding variable-rate Rx map (only product rates in oz/ac shown) with different PGR rates assigned to three zones.

Cotton Irrigation Considerations for August (*David Hall, Jason Mallard, Wesley Porter*): In many areas of the state in 2022, it has seemed like a roller coaster ride with soil moisture and environmental conditions. June was very dry and hot while July has had some areas with totally saturated soils, almost to the point of being drowned, and then back to hot and dry the last week of July. The crop that was planted during May should have reached peak water use during late July and start actually reducing water requirements moving through August. It should have reached peak bloom sometime around 2-6 weeks of bloom. Data have consistently shown that keeping soil moisture in the desired range can be very beneficial to cotton yields. A good soil water balance model or soil moisture sensors can really aid in building confidence on when to irrigate to prevent yield loss, and when not to irrigate for the same reason.

As mentioned in last month's newsletter, we have been ramping up water demand to this year's peak demand in cotton. Even though perhaps peak water demand may be past if the crop was planted during late April or early May, it is critical not to fall behind on irrigation during bloom. As mentioned above, we are in peak water usage, thus, it is critical that we continue to monitor the weather and make smart irrigation decisions. Even though water requirements are starting to drop, don't get too comfortable, it's always difficult to catch up with just irrigation. Over the next month, keeping up with the water requirements is very important. The water demand will be lowering as we move on into the season, but it is still critical to have adequate soil moisture during the entire period of bloom. Based on planting date, the weekly water requirement of the crop can range between about 1.0 to 1.5 inches per week based on the UGA Extension checkbook method for cotton. Please keep in mind the weather conditions and how much of an impact they can have on water requirements. In other words, the checkbook method is there to give you a reference as a guide, but should not be used for the final decision. We are entering the tropical storm season and have opportunities for large rain events and even some hit or miss showers as we have already seen through late

June and into July. Some days can be of intense heat with low humidity, leading to high evapotranspiration rates and cause the need for more water than recommended for that week. Conversely, we can receive hot days with very high humidity and overcast conditions which will mean the plant is still using water but the evapotranspiration rate is very low. Plus, with a good canopy closure the ground is well shaded. It's really amazing to see crop water use through moisture sensors. The graphical representations of plant water demand and environmental conditions can be an eye-opening experience to witness throughout a growing season. If you don't have access to moisture sensors, walking your fields with a shovel or soil probe to investigate available moisture is highly recommended. Again, the checkbook method is just one tool of many tools that can be used to assist in scheduling irrigation.

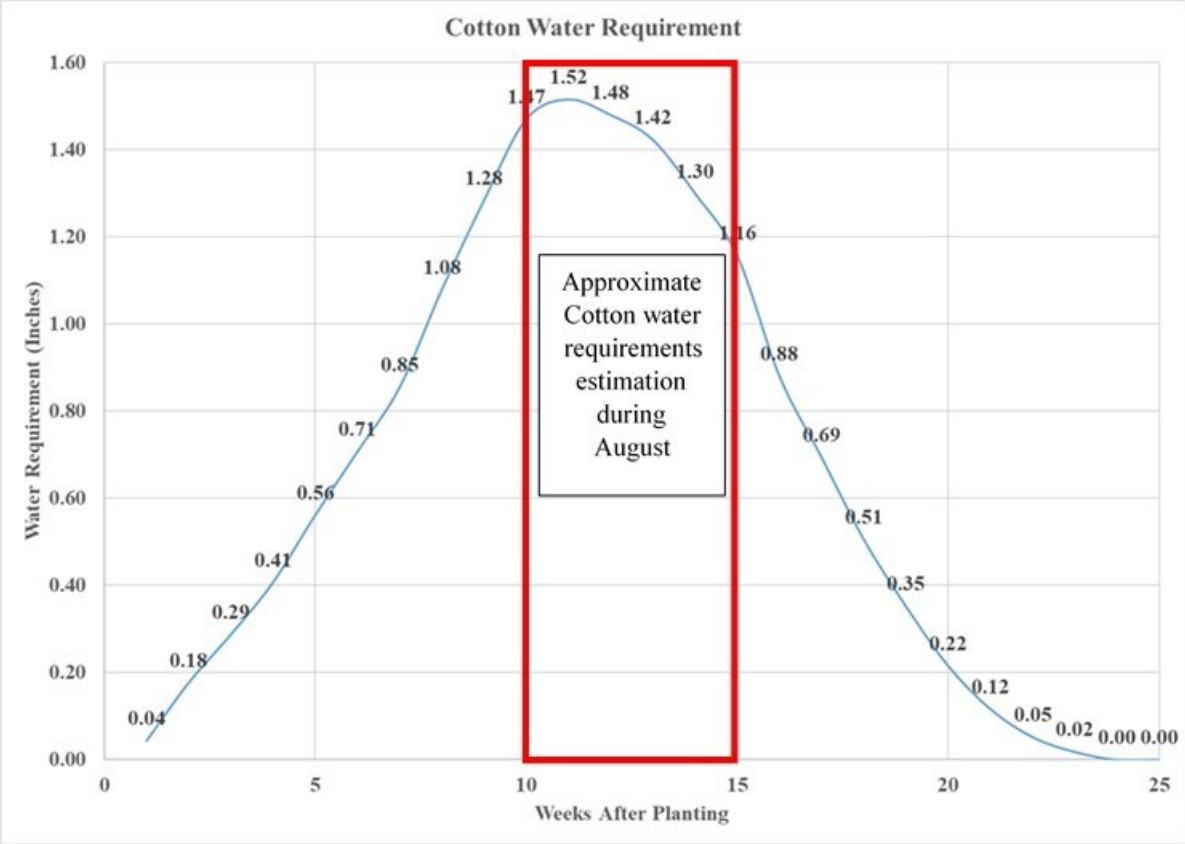


Figure 1. UGA Cotton Checkbook, with the estimated water use period highlighted.

Additionally, with the high amounts of rainfall in some areas during July it may have been very difficult to get sprayers into the fields, thus, many growers may be considering chemigation. Chemigation through pivots may not be for everyone but with possible disease and insect pressure and many acres to cover, this practice may prove timesaving and effective. Remember, read the label to ensure the pesticide is approved for chemigation. Also, run the pivot at 100 percent to apply the least amount of water while chemigating. If your system can not apply 0.1" or less per revolution, chemigation is not recommended. Remember the goal of chemigation is to apply chemical to the foliage of the plant, not the soil. This also means that a

chemigation event cannot accurately and validly be counted as an irrigation application. It is also very important to know that your pivot is applying uniformly before considering injecting anything through it for application. So, if you have not had a recent uniformity test performed on the system we strongly discourage the usage of chemigation or fertigation.

If you are considering fertigation using the pivot, that is perfectly fine. However, keep in mind that the goal in fertigation is to get the fertilizer to the soil and into the top few inches of the soil. Ensure that you are applying the water at a rate to accomplish this, not to leave water and fertilizer on the crop canopy, and not to cause runoff or leaching of the nutrients.

If you have further questions about irrigation requirements, chemigation or fertigation reach out to your local UGA County Extension Agent.

Factors Responsible for Boll Retention/Shed in Cotton (*John Snider, Gurpreet Virk, Ved Parkash, Joshua Lee*): In the last newsletter, I discussed the effects of environmental stress on physiological processes in cotton. I did so because of the high temperature and low rainfall conditions we had experienced up to that point in the season. Consequently, I was convinced we would start to see significant increases in fruit abscission once the crop got into the peak bloom phase of development. We are now in the peak bloom to cutout phase of development for well-managed cotton planted back in May, and to my surprise, the crop seems to have fairly high fruit retention this season, which I'm sure Dr. Hand will mention at some point in this newsletter. Nonetheless, fruit abscission/shed (even at low rates) is observed in every cotton field in the state at one point or another during the season. Various environmental conditions such as extreme heat, drought, excessive rains, cloudy days, and certain management practices conducive to rank growth will promote fruit shed. However, fruit shed may also occur as a consequence of normal intra-plant competition for resources during crop development. The abscission zone is a layer of cells present at the base of the petiole (leaves) or peduncle (fruit stalk) as shown in Figure 1 below. Abscission takes place due to softening and weakening of the cells in this zone because of two main digestive enzymes: pectinase and cellulase. The plant hormone IAA present in high concentrations in a square or boll will inhibit the production of these enzymes. A reduction in IAA levels or a decrease in the ratio of IAA to ABA in the fruit will stimulate ethylene production, which increases the production of these degradative enzymes and promotes the abscission process.

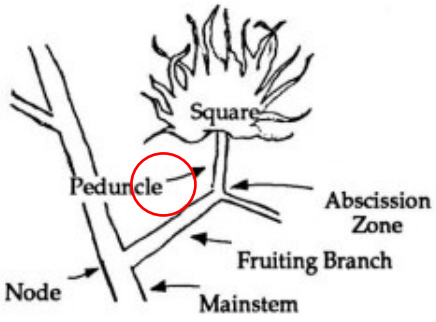


Figure 1: Image showing the Abscission Zone for cotton (Hake et al. 1989).

Insects can cause shedding of squares or smaller bolls of all ages because they cause damage to plant tissues, and this stimulates fruit abscission. However, a certain amount of shedding occurs naturally in the absence of biotic stresses. Under normal conditions, the cotton plant will shed approximately 60% of all squares it produces during a typical growing season. The age of the square or boll also determines the probability it will shed. Larger squares, and medium size bolls have higher resistance to environmental and within-plant factors stimulating fruit shed, resulting in higher retention. Once a boll has made it to two weeks after flowering, it is highly unlikely that it will shed. This is because the plant has already invested significant resources into the development of the fruit and because the vascular system develops very thick, fibrous connections to the plant, preventing fruit shed. Fruit/square retention is also influenced by fruiting site position along a fruiting branch with higher fruit retention for fruit produced closest to the mainstem. The squares farther away from the mainstem have a substantially lower probability of being retained. Crop developmental stage also influences fruit abscission. For example, we have already established that young bolls are more likely to shed than older bolls; therefore, the highest abscission rates are observed in the days following peak bloom. This type of fruit shed will happen even under non-stressed conditions. The following graphs illustrate the sensitivity of square or boll shed based on age of fruit (2 A) and position on the plant (2 B).

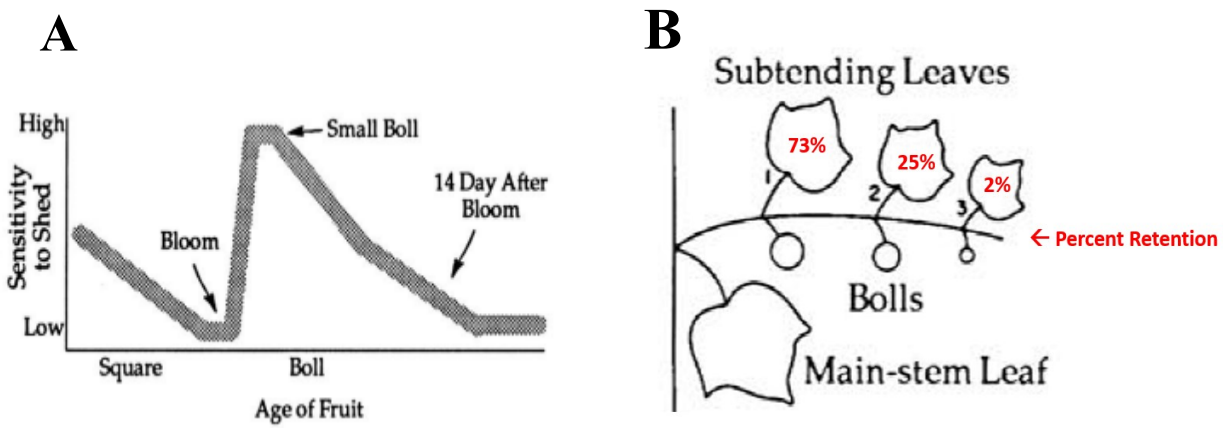


Figure 2: Sensitivity of square or boll shed based on age of fruit (A; Hake et al., 1989) and position on a fruiting branch (B; Oosterhuis, 1990; Guinn, 1982).

Environmental factors causing fruit shed: As mentioned previously, various environmental conditions can influence square or boll shed.

Light intensity: The impact of high cloud cover (causing low light intensities) on fruit retention has been heavily investigated. Specifically, exposure of young fruit to extremely low light intensity for even a few days can cause nearly all the fruit at that position to shed. Sensitivity to low light decreases significantly with increases in fruit age. For bolls greater than 2 weeks in age, short term low light conditions have no impact on fruit retention.

Temperature: High temperatures impact reproductive growth in cotton more than vegetative growth. One of the most common effects of high temperature (day and night) on reproduction in cotton is an increase in pollen sterility. If this results in poor seed set, the likelihood of fruit set is low. High night temperatures

cause pollen sterility by affecting a sensitive stage of pollen development that occurs during early square development. For example, Hodges et al. (1993) showed that day/night temperatures in excess of 95/81°F (day/night temperature) substantially increased boll abscission and negatively impacting productivity. High temperatures occurring during flowering and soon thereafter have also been shown to limit fertilization, thereby increasing the probability of fruit shed.

Water: Both high and low soil moisture conditions can substantially influence fruit shed or retention. Low moisture conditions such as drought can increase rates of boll abscission by reducing leaf area and photosynthetic efficiency, thereby limiting the number of fruit the crop can support. In contrast, water excess can stimulate rank growth, causing extensive shading of lower branches and high rates of fruit abscission. Additionally, the timing and amount of water received by the crop can affect percent seed set and rate of abscission.

Some observations: The first observation worth repeating is that fruit retention has been high this growing season, so I haven't seen as many young bolls on the ground as I've seen in the past (Figure 3A). Secondly, abscission is an enzymatic process, so it needs to occur in living, hydrated tissues. In some instances, when well-maintained cotton plants are exposed to high air temperatures, drought, or both during flowering, water loss from the young fruit exceeds water supply from the plant, and the fruit will get frozen in place ("mummified"). This occurs because the tissue desiccates rapidly, and this prevents the full degradation of the abscission zone (Figure 3B). I haven't seen this very much during the current growing season, but it does illustrate the need for a properly-formed abscission layer. This will be relevant when we discuss the physiology of defoliation in subsequent newsletters.

Figure 3. Recently-shed young fruit (A) and a "mummified" boll that has been frozen in place (B) due to extreme heat.

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Musings from the Road (*Camp Hand*): No two years are the same. I was visiting with a grower about some of the weather patterns he has observed on and around his place this year and he said, "It normally doesn't happen like that." I've observed some similar things and I said, "This year is definitely abnormal." County Agent extraordinaire Bill Starr asked, "What is a normal year?" Great point.

In my travels across the great state of Georgia in July, I noticed a few abnormal things. Some of those things will impact us for the rest of the season. So here are my musings from the road.

Throughout the month of July, as I would walk a field, I would evaluate fruit retention. To see 100% retention at first bloom isn't all that abnormal for us, but as the season progressed I kept expecting to see fruit on the ground… But I didn't. By peak bloom I would still be hunting for fruit on the ground and they would be sparse. Whereas normally you can see a plethora of fruit on the ground by peak bloom. In the Southwest part of the state fruit began to shed more by the 4th to 5th week of bloom, but the trend repeated itself in Southeast Georgia. I was in Statesboro last Monday and walked a field in peak bloom. Hardly any fruit on the ground. I asked the grower if their whole place looked that good. "Pretty much," he said. In this newsletter, Dr. John Snider wrote about fruit shed on a cotton plant and what causes it. Generally, cloudy days, high humidity, and high nighttime temperatures are major contributors to fruit shed, and there were plenty of all these factors in July… so what gives?? I'm not 100% sure to be quite honest. I'll have to go back and look at the weather data from around the state more closely. But there are a few things that this level of fruit retention will impact:

1. PGR applications are "holding" plants more effectively than normal. This makes perfect sense. One of the most overused sayings in the cotton "bidness" is that "The best growth regulator is a heavy boll load." Although overused, the saying is true. A heavy boll load causes the plant to put

more energy into filling those bolls than growing vegetatively. So, with higher levels of fruit retention noted across the state, fewer PGR applications have been necessary to manage vegetative growth.

2. Crop maturity. This crop will be early, no doubt in my mind. As I see growers and agents in my travels, I tell them, "This crop will be ready before you are ready to get it." Now, most of my colleagues in other parts of the country preach earliness in a cotton crop… and while I would love nothing more than to get our crop off in September/October and be done before Thanksgiving, I understand the reality of the situation. Peanuts need to be dug and combined about the same time and it takes more labor to do that. BUT, if you can spare folks to get this cotton crop off in a timely manner so that it doesn't hang until December (or later), I think it would be wise to do so. The vast majority of the crop looks really good, and I would love nothing more than to get it all to the gin when yield and quality are at their peak. This level of earliness scares me a little bit, but I have no doubt Georgia growers can get it done.

Last week I was having a lot of conversations with people about how good the crop looks, and it seems like some has made a southward turn. It's been roughly a week since much of the state has gotten a good rain, and it's starting to show. As you walk your fields, you will probably start to see that the plant is aborting small bolls (less than 14 days old) and holding new squares in the top. Although the cotton plant isn't "thinking", this is its way of conserving energy to support fruit that it has already invested a lot of resources in (bolls that are greater than 14 days old) and hoping that it will be able to support new fruit later down the road. Now, you're going to see those new squares in the top and want to wait for it to mature (I've already had the same thought). Just remember, if that square flowers after the 3rd week of September, it's unlikely that it will result in a harvestable boll unless we have a warm fall.

I think I speak for the entire UGA Cotton Team when I say we are hoping and praying for a favorable August to finish out this crop and perfect harvest conditions. In my conversations with other members of the team, the consensus is there is a good crop out there. Time to finish it out. If anyone has questions or needs anything, your local UGA County Extension Agents and Specialists are here to help! Don't hesitate to reach out.

Silverleaf Whitefly Management (*Phillip Roberts*): Silverleaf whitefly (SLWF) populations have increased significantly in areas we most commonly observe whiteflies. Insecticide applications targeting SLWF began in some fields about 10 days ago and the frequency of fields exceeding threshold has been increasing. Only time will tell how populations will expand from these core areas. Hot and dry conditions favor whitefly population buildup. It is extremely important that we scout all fields for SLWF and do everything we can not to exacerbate populations. Most importantly we need to conserve beneficial insects, do not treat other pests unless thresholds are exceeded and avoid using insecticides which are prone to flare SLWF populations. The presence of SLWF in a field should influence every decision we make. It is also extremely important SLWF insecticides are applied in a very timely manner if SLWF infestations exceed threshold. Being late with the initial insecticide application will make management more difficult and

expensive in the long run. I would encourage everyone to read the two publications below. The first provides detailed instructions on how to scout whiteflies and use thresholds. The second explains the biology of SLWF and describes environments which are at greatest risk of whitefly infestation.

1. Sampling and Managing Whiteflies in Georgia Cotton: https://extension.uga.edu/publications/detail.html?number=C1184

2. Cross-Commodity Management of Silverleaf Whitefly in Georgia: https://extension.uga.edu/publications/detail.html?number=C1141

Insecticides recommended for SLWF include Knack, Courier, Assail, Sivanto, PQZ, Venom, and Oberon.

Knack and Courier are insect growth regulators (IGR) and have good residual activity and minimal impact on beneficial insects. In general, these IGRs are slow acting but perform well when applied in a timely manner. Conservation and the presence of beneficial insects are an important part of the IGR program. Knack is active on large nymphs and eggs (eggs will not hatch) Courier is active on nymphs only. Neither Knack nor Courier will control adults. Knack has a 24(c) Special Local Need label for a split application of whitefly on vegetative cotton. Knack should be applied at 5 ozs followed by an additional application of 5 ozs 14 days later. This split application allows for treatment of new plant growth which occurs after the first application. If cotton is no longer vegetative or "cut out", the rate of knack is 8-10 ozs per acre. Courier is labeled at 9-12.5 ozs per acre. We would expect 2+ weeks of residual activity of the IGRs. If you are late with the initial application an IGR is not the most appropriate insecticide.

Assail and Sivanto are active on all stages, immatures and adults. Sivanto provides more consistent control of adults when compared with Assail. Assail or Sivanto would be a preferred choice over an IGR if you are late with the initial whitefly application. We would expect 2+ weeks of residual activity with Assail and Sivanto. PQZ is a relatively new product which provides good control of adults and is also active on immatures. Residual activity of PQZ is less than that observed with Assail and Sivanto. Venom and Oberon are also labeled for whiteflies but are rarely used.

It is extremely important that we as an industry manage SLWF on all fields. In addition to reducing yield, honeydew accumulation on lint can negatively impact fiber quality and spinning efficiency at mills. Yield loss can be devastating if high populations are not controlled.

Important Dates:

Southeast Research and Education Center Field Day – Midville, GA – August 10, 2022
Southwest Research and Education Center Field Day – Plains, GA – August 24, 2022
Cotton and Peanut Research Field Day – Tifton, GA – September 7, 2022
J Phil Campbell Cotton Field Day – Watkinsville, GA – September 28, 2022
Georgia Cotton Commission Annual Meeting and UGA Cotton Production Workshop – January 25, 2023