UNIVERSITY OF GEORGIA EXTENSION

UGA Cotton Team Newsletter
June 2026

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Cotton Jassid Update (*Phillip Roberts*): As of June 1st, no jassids have been detected in the state of Georgia since a single capture on a yellow sticky card on January 26, 2026. We have aggressively sampled for jassids all winter. This includes sampling winter weeds and cover crops and more recently cotton, okra, and sunflowers. We also placed container grown cotton on pivot points in March where jassids were present in high numbers last fall; our thought was these plants would serve as a sentinel plant or basically a trap plant which would attract any jassids in the area. In 2025, the initial detection of jassids was found on July 9th on okra. I would encourage everyone to monitor all cotton, okra, and sunflower plantings.

Plant Bug Management (*Phillip Roberts*): Tarnished plant bugs and clouded plant bugs have become a more consistent pest of cotton in parts of Georgia. A few bullet points below to consider when planning your plant bug management program:

- Early planted cotton appears to be at greater risk for plant bugs during squaring.
- Later planted cotton appears to be at greater risk for late season plant bugs.
- Primary damage during squaring is feeding on small squares; these small, damaged squares will be shed by the plant.
- The best sampling tool for adult plant bugs migrating into squaring cotton is a sweep net.
- Square retention should be monitored from the onset of squaring until early bloom; our goal is to maintain at least 80 percent of fruit as we enter bloom.

- Plant bugs may feed on larger squares; this often occurs when we have plant bugs reproducing in the field. Large squares will often remain on the plant and result in dirty blooms.
- If you see dirty blooms, the field should be scouted for immature plant bugs. The best sampling tool for immature plant bugs is a drop cloth.
- Plant bugs may also feed on small bolls resulting in internal boll damage.
- Clouded plant bugs should be counted 1.5 times (i.e. 2 clouded should be counted as 3 tarnished) and added to your plant bug count.
- Scout and use thresholds.
- Consider aphid infestations when making plant bug sprays.
- On farms where plant bugs are consistent and problematic, consider using ThryvOn or Diamond.
- Optimal timing for Diamond insecticide, which is an insect growth regulator and is only active on immature plant bugs, is just prior to plant bugs hatching. This often occurs near first bloom.
- Consider adding Diamond if you are making a second plant bug spray for migrating adults. Diamond needs to be added to a "knock down" insecticide which has activity on adults.
- ThryvOn cotton needs to be scouted and treated if thresholds are exceeded.

June Cotton Irrigation Update (*Wes Porter*): It's hard to predict what the weather is going to be and how you want to manage your irrigation. The best thing you can do is have a plan to follow a sound and scientific irrigation management method that fits well into your operation and allows you to be both proactive and reactive as much as possible. Even though we have been receiving rainfall recently the state as a whole is still under a drought, we have significant portions under the D3 (56%) and D4 (22%) Categories. While we have recently received some rainfall that has brought a much needed reprieve from the drought we still need to prepare like we are under drought conditions. I strongly urge growers to track rainfall and irrigation and make decisions based on weather conditions and put as much trust as you can in forecasts when determining on when to turn pivots on. The more scientific the irrigation scheduling strategy you employ the more confidence you can have in making the correct decision. We have had hot weather, but have not had extremely hot conditions yet. We are approximately at 60% planted at the time this article was written, but the consistent rainfall lately has made it difficult to finish planting. The first week of June is predicted to be relatively dry, so I am assuming a lot of planting will occur over the next week. Thus, depending on when the cotton crop was planted, you'll either be in the first month (late-May/early-June planting) and have lower water requirements, or moving into squaring (late-April/May planting) in which water requirements will increase rapidly throughout the month of June and into July.

While we do not want to maintain field capacity level soil moisture we do want to keep adequate moisture to maintain the crop without stress. Since we are receiving sporadic rainfall, we should make appropriate decisions as when to trigger the next irrigation application. As we have seen in the past once we fall behind on moisture, it's hard to catch on irrigation alone, unless an adequate amount of rainfall is received. I have watched this happen on cotton year

after year during the month of July when it's in peak bloom and really requiring water, time to be proactive now. This can of course change, but as of now, we are predicted to have a wetter than average June, but then a drier than average July. Thus, while you do not want to overwater cotton, do not fall behind as we move into bloom. I will also state, that based on long term weather predictions for this year, we are expected to have a wetter than average June, but then back to a drier than average July. So keep that in mind as you manage you irrigation moving into the season.

When crops are utilizing moisture as fast as we apply it, it's hard, if not impossible, to bring soil moisture levels back to an adequate level. For example, allowing an 8" depth soil moisture sensor to fully deplete and then irrigating will sometimes (according to application rate), provide very little increase in moisture at the sensor's 8" level, as shallower depths are refilled first, but will have little to no effect on deeper soil moisture. Since it is near impossible effect deeper soil moisture and sensor response with irrigation alone in our region, once deep moisture is lost it may not be possible to replenish it with irrigation alone.

With all that stated, remember that young cotton plants do not require a lot of moisture for the first few weeks, but it is important not to stress the crop. Earlier planted cotton will be moving into first flower by the end of June. Thus, staying on top of water requirements will become critical throughout the month of June and into July for the entirety of the crop regardless of planting date. Additionally, even later planted cotton may need some irrigation to ensure there is enough soil moisture available for the crop. Remember, that if there is no rainfall, the water requirements need to come from somewhere, in this case irrigation. Our Irrigation Reference Guide: https://fieldreport.caes.uga.edu/publications/C1189/irrigation-reference-guide-for-corn-cotton-peanuts-and-soybeans/ shows estimated water requirements in both days after planting and estimated growth stage, based on the physiological progression of the crop it may be better to look at the growth stage and not the DAP. Now is a good time to review the cotton irrigation schedule, determine where you currently are and decide what your water requirements are.

Cotton Irrigation Schedule				
Growth Stage	**DAP**	**Weeks after Planting**	**Inches/Week**	**Inches/Day**
Emergence	1 - 7	1	0.04	0.01
Emergence to First Square	8 - 14	2	0.18	0.03
	15 - 21	3	0.29	0.04
	22 - 28	4	0.41	0.06
	29 - 35	5	0.56	0.08
First Square to First Flower	36 - 42	6	0.71	0.10
	43 - 49	7	0.85	0.12
	50 - 56	8	1.08	0.15

First Flower to First Open Boll	57 - 63	9	1.28	0.18
	64 - 70	10	1.47	0.21
	71 - 77	11	1.52	0.22
	78 - 84	12	1.48	0.21
	85 - 91	13	1.42	0.20
	92 - 98	14	1.30	0.19
	99 - 105	15	1.16	0.17
	106 - 112	16	0.88	0.13
	113 - 119	17	0.69	0.10
First open boll to >60% Open Bolls	120 - 126	18	0.51	0.07
	127 - 133	19	0.35	0.05
	134 - 140	20	0.22	0.03
	141 - 147	21	0.12	0.02
	148 - 154	22	0.05	0.01
	155 - 161	23	0.02	0.00
Harvest	162 - 168	24	0.00	0.00
	169 - 175	25	0.00	0.00

Based on planting observations (~60% complete) and where most of the crop is, most farmers should fall within the first square to first flower stage (or the yellow highlighted area) throughout the month of June. If you did not plant your cotton until later May or early June (~40%) then you will fall into the emergence to first square stage (highlighted in red). Crop water requirements increase dramatically from squaring and flowering. From 30 days to 50 days after planting, water consumption almost doubles. Keep this in mind as we move into middle and late June, and into early-July. Don't fall behind on your irrigation once the crop reaches squaring and into flowering. As a reminder don't forget that typically as water use increases in late-June through July, usually so does very hot and dry weather, so keep this in mind and stay on top of your irrigation applications. Conversely, don't over-irrigate the crop as there are yield penalties for doing so. Remember that if you have been using soil moisture sensors, be sure you are irrigating based on the crops actual root zone and not the entire length of the sensor. Root growth and water usage will dramatically increase at deeper depths as the cotton moves through squaring and into bloom during mid to late June and early July. As we move through the season, we will need to be more balanced as the season progresses and root growth increases. One last consideration, top dressing all cotton and our first dose of growth regulator on irrigated aggressive growing cotton will soon or has already occurred. Don't go into this stage with the mindset of "I'm going to hold back on the water now because I don't want it to take off". If

proper growth regulator is applied, it will prevent vegetative growth as it should. If rain chances are low, irrigation will be required to get the fertilizer in the plant by irrigating it in and allowing the plant to uptake the nutrients. For further questions about mid-season cotton irrigation management contact your local county Extension Agent.

Sulfur Considerations for Georgia Cotton Production (*Doug Amaral*): Sulfur (S) has quietly become one of the most important secondary nutrients in Georgia cotton production. Twenty or thirty years ago, sulfur deficiencies in cotton were relatively uncommon because growers received a steady supply of sulfur from atmospheric deposition through rainfall. Today, that is no longer the case. Improvements in air quality and reductions in industrial sulfur emissions have significantly decreased sulfur deposition across the southeastern United States. While this has been a major environmental success, it has also removed a nutrient source many cropping systems once relied upon. Combined with higher yielding cotton varieties and the predominance of sandy Coastal Plain soils, sulfur deficiency has become increasingly common in Georgia cotton production.

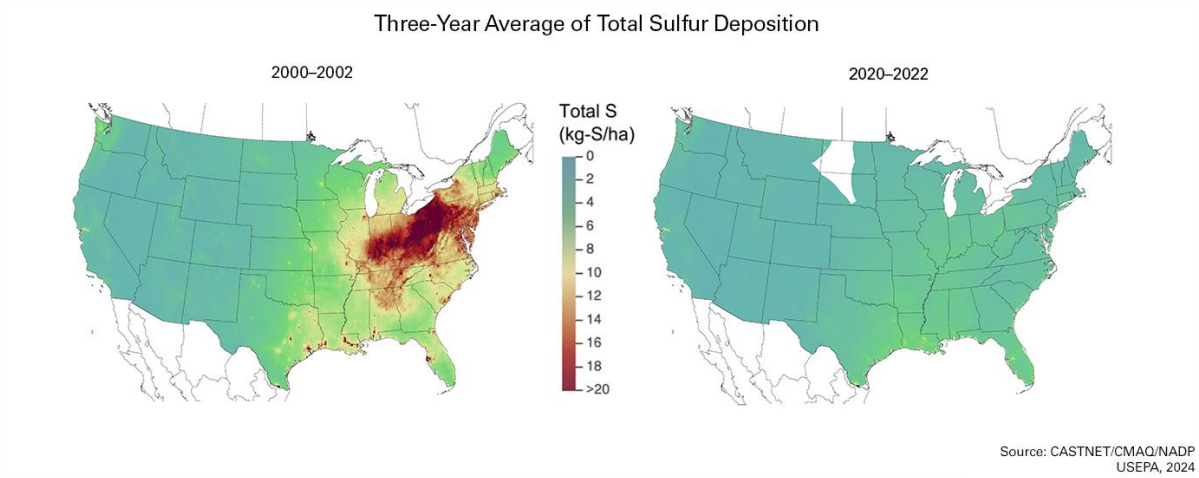

***Figure 1**. Between 2000–2002 and 2020–2022, many states experienced a 78% reduction in wet sulfate deposition. Source: Progress Report - Atmospheric Deposition, EPA 2024.*

Sulfur plays a critical role in cotton growth and development. Without adequate sulfur, cotton cannot fully utilize applied nitrogen, regardless of how much nitrogen fertilizer is supplied. In many cases, growers may think they are dealing with a nitrogen problem when sulfur is actually the limiting factor.

Research across the Southeast, including work from University of Georgia and neighboring land-grant universities, consistently shows that cotton generally requires between 15 and 25 pounds of sulfur per acre to maximize lint production. On coarse-textured sandy soils, particularly under irrigation or in seasons with frequent rainfall, sulfur losses through leaching can become significant. In these situations, sulfur applications become even more important because sulfate-sulfur, the plant-available form, behaves similarly to nitrate in the soil and moves readily with water.

This issue is especially relevant in Georgia because many cotton acres are grown on soils with low organic matter and limited nutrient-holding capacity. Organic matter serves as a reservoir for sulfur and slowly releases sulfate as it decomposes. However, many Georgia Coastal Plain soils contain less than 1% organic matter, limiting their ability to supply sulfur naturally throughout the season. Heavy rainfall events, common during Georgia summers, can quickly move sulfate below the root zone, particularly in deep sands.

Sulfur deficiency often appears early in the season, commonly around first square or early bloom. One of the classic symptoms is a uniform yellowing of younger leaves near the top of the canopy. In severe cases, plants may appear pale green to yellow across the upper canopy, with reduced vigor and stunted growth. Reddish stems may also develop under prolonged deficiency. Because sulfur is relatively immobile within the plant, deficiency symptoms first appear in new growth. This is one of the key differences between sulfur and nitrogen deficiency.

Nitrogen deficiency typically shows up in older, lower leaves first because nitrogen can move from older tissue into newer growth when supplies are limited. Distinguishing between the two is important because applying additional nitrogen will not correct a sulfur deficiency and may actually worsen the imbalance between nitrogen and sulfur within the plant.

Figure 2*. 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). Source: Post-bloom Nutrient Deficiencies, Waterlogging, and Foliar Feeding, Glen Harris - UGA Cotton Newsletter, August 2022.*

One of the best tools for diagnosing sulfur issues is tissue testing. Leaf tissue analysis can help confirm hidden deficiencies and evaluate the nitrogen-to-sulfur ratio within the plant. Research suggests that maintaining a nitrogen-to-sulfur ratio between approximately 12:1 and 15:1 supports efficient nitrogen utilization and optimum cotton growth. When the ratio climbs above 18:1 or 20:1, sulfur deficiency becomes increasingly likely. In these situations, additional sulfur applications may improve both nutrient efficiency and yield potential.

From a management standpoint, sulfur should be treated as a routine component of Georgia cotton fertility programs, especially on sandy soils. Preplant applications are generally preferred because they help ensure sulfur is available early in the season during rapid vegetative growth and square development. However, sulfur applied preplant on sandy soils can still be vulnerable to leaching if excessive rainfall occurs.

If sulfur was not applied preplant, including sulfur with sidedress nitrogen applications becomes extremely important. Ammonium sulfate is one of the most effective and commonly used sulfur fertilizers because it provides readily available sulfate-sulfur while also contributing nitrogen. Magnesium sulfate and ammonium thiosulfate can also be effective sulfur sources. Gypsum supplies sulfur as calcium sulfate and may fit well where additional calcium is also desired.

Elemental sulfur is another option, but it behaves differently from sulfate-containing fertilizers. Elemental sulfur must first be converted by soil microorganisms into sulfate before plants can use it. This conversion takes time and depends heavily on soil temperature and moisture conditions. Because of this, elemental sulfur is best suited for preplant applications rather than in-season rescue treatments.

Table 1. Lists of commercially available sulfur sources.

Source	***Formula***	***Sulfur Content (%)***
Elemental sulfur	Elemental S	85-90
Ammonium sulfate	$(NH_4)_2SO_4$	24
Magnesium sulfate (Epsom salt)	$MgSO_4$	27
Calcium sulfate (Gypsum)	$CaSO_4 \cdot 2H_2O$	18-21
Potassium sulfate	K_2SO_4	18
Ammonium thiosulfate	$(NH_4)_2S_2O_3$	24
Poultry Litter*	Organic S	0.45-0.75*

**Litter testing is important for farmers utilizing their own litter as a fertilizer source as well as for farmers buying litter for its fertilizer value.*

While sulfur fertilization is important, growers should also think long term about improving soil health and nutrient retention. Conservation practices such as cover cropping, reduced tillage, and increasing organic matter can help improve sulfur cycling and reduce leaching losses over time. Fields with greater organic matter generally hold sulfur more effectively and provide a more stable nutrient supply throughout the growing season.

Ultimately, sulfur management in Georgia cotton is becoming less of an optional consideration and more of a foundational fertility practice. Modern cotton production systems demand high nutrient efficiency, and sulfur plays a direct role in supporting that efficiency. On Georgia's sandy Coastal Plain soils, particularly under irrigation or in high rainfall environments, sulfur deficiencies can develop quickly and reduce yield potential before visual symptoms become obvious.

For most Georgia cotton growers, maintaining a consistent sulfur program that includes 15 to 25 pounds of sulfur per acre, combined with tissue testing and sound nitrogen management, will go a long way toward protecting lint yield and improving overall nutrient use efficiency.

Early-season Growth and the Squaring Stage (*John Snider, Comfort Adegbenro, Amit Godara, and Camp Hand*): As I write this newsletter on June 1, 2026 (of course I'm waiting until the last minute), I thought it would be a good idea to review some of the topics that were discussed in the last newsletter. Topics varied widely and ranged from pest, irrigation, and nutrient management to a discussion of the factors affecting cotton prices. With an emphasis on crop development, Wade Parker focused on the importance of the first 40 days of the season, and I primarily focused on germination and emergence. For both of our articles, we stressed the importance of setting the crop up right in the early season to preserve as much of its yield potential as possible. I also went on to discuss the primary physiological drivers of yield: solar radiation captured by the canopy, radiation use efficiency of the canopy (how efficiently the crop converts solar radiation into biomass), and harvest index (the fraction of total biomass allocated to fiber). I made the case that factors causing stand loss or poor early growth of seedlings would be expected to subtract from yield potential primarily by limiting leaf area development and radiation capture by the canopy. Currently, the growth stage of the cotton crop in Georgia varies significantly from place to place. Even within my small research program, I have some acres that are being planted this week; I have others that were planted in mid-April that are at the start of squaring, and the rest are somewhere in between. As a result, my focus in the current article will be early vegetative growth and the squaring stage.

Early Vegetative Growth

Once a variety is selected for the year and planted, early season light interception by the crop canopy depends on plant population and the amount of leaf area produced per plant. In the last newsletter we discussed seed vigor, which is the ability of seed to germinate and emerge across a broad range of conditions. Additionally, we compared two different seed sources, a low vigor and high vigor seed source. Notable differences in emergence trends were observed between the two seed sources when planted under cool temperature conditions (April 8th), but we made the point that planting date has a significant impact on seedling emergence trends. Since the last newsletter was published, we were able to evaluate emergence trends for a cotton crop planted on May 6th for those same two seed lots. First, it is clear that stand establishment trends differ between the two seed sources on both planting dates, where maximum emergence differences between the two seed sources were a little more than 20% on both planting dates (Figure 1). However, there is also an effect of planting date, where May planted cotton accumulated more heat units over the same period of time, leading to increases in emergence of 15 to 18%, when compared with the earlier planting date.

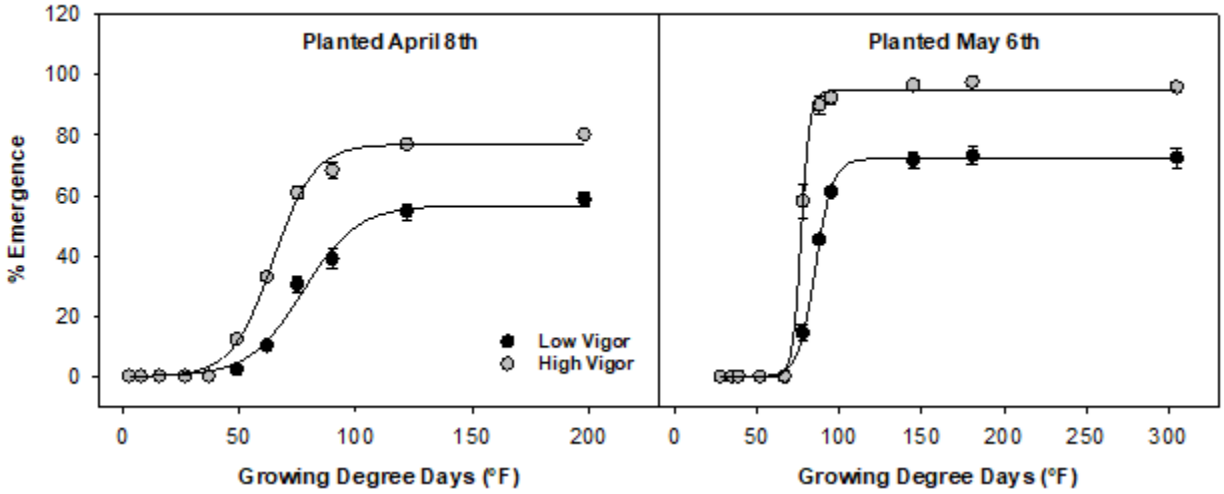

Figure 1: Seedling emergence as a function of DD60 accumulation for two different seed sources with notable differences in seed vigor planted on two different dates.

Once the cotton crop is out of the ground, and before it begins squaring, it is staged by the number of true leaves it produces (the kidney bean shaped cotyledons are not counted in the number). The point of leaf attachment to the mainstem is referred to as a node, and counting the number of mainstem nodes will become a recurring theme as we progress through the growing season. The first true leaf will typically be heart shaped, and successive mainstem leaves will appear in an alternate pattern up the main stem roughly every 50 DD60s. Cool temperatures slow down the rate at which new leaf nodes appear, and when combined with early season thrips pressure, can significantly limit the amount of leaf area produced per plant. This was certainly the case for our early-planted cotton this year. Although seed source had no significant impact on leaf area per plant, cotton planted under warmer May temperatures produced 56% more leaf area than cotton planted under cooler conditions in April (Figure 2).

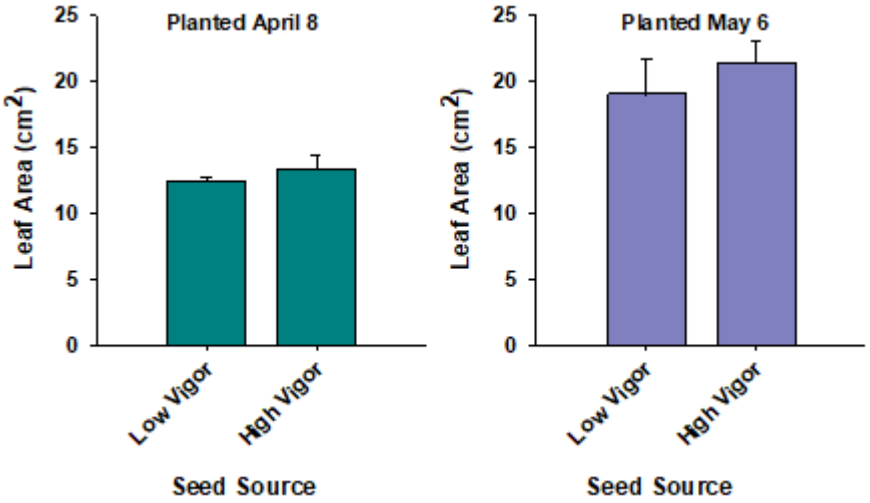

Figure 2. Leaf area per plant for cotton seedlings from two different seed sources at 21 days after planting. Values are means and standard errors.

When discussing light capture necessary to drive yield, it is easy to focus on leaf area development since leaves are the primary photosynthetic organs for most crops. However, the cotton crop also invests a large portion of its photosynthates into the root system during early growth stages and the root system provides the water and nutrients needed to drive photosynthesis and leaf area expansion. For example, by the time the cotyledons have unfolded, the tap root may be up to 10 inches deep, and root growth will continue rapidly until flowering. At the onset of flowering, the plant redirects more of its resources to boll production, drastically slowing or even halting root growth altogether. Similar to germination and emergence, early season growth temperatures impact root growth and early season canopy development. Therefore, it is important to minimize stress in the early season to maximize root growth and promote vigorous canopy development. Figure 3 (A) shows the effect of two different day night temperature regimes, optimal (86/68 °F) and suboptimal (68/59 °F), on root and shoot growth in cotton. Sub-optimal growth conditions can result in reduced root growth along with substantial inhibition of leaf area development. Figure 3 (B) below shows the relationship between average leaf area per plant and total root length per plant at two weeks after planting, where vigorous root growth is positively associated with vigorous shoot growth.

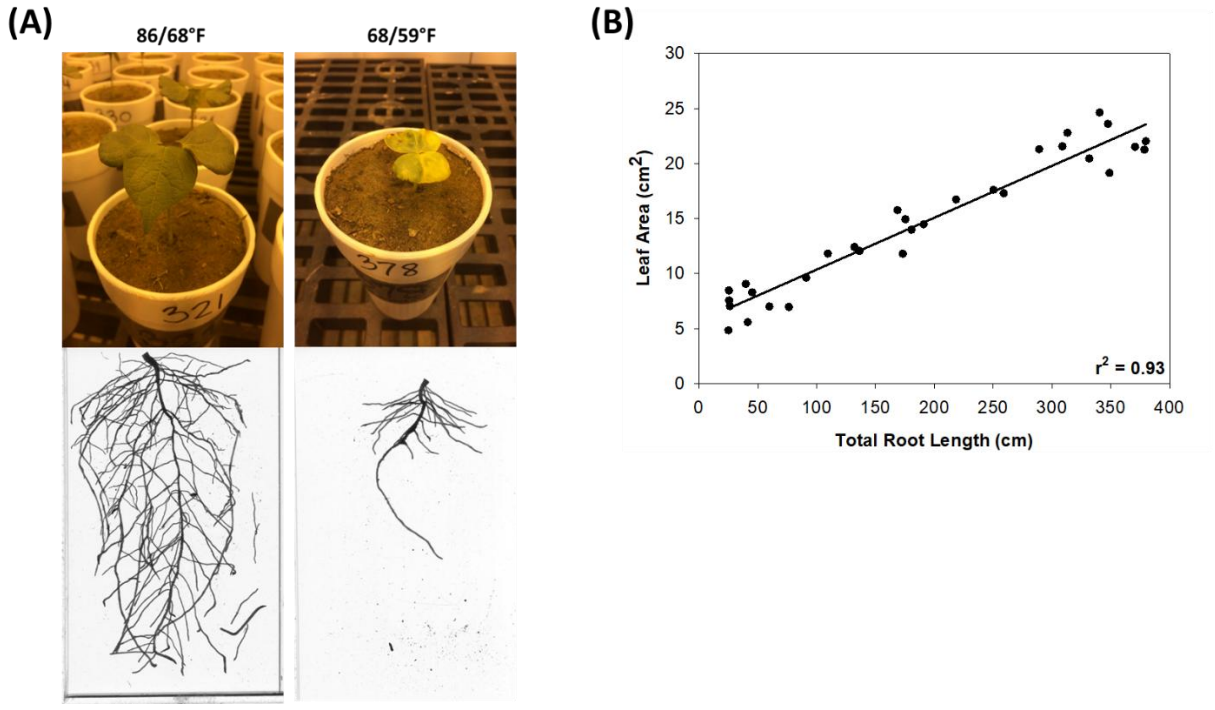

Figure 3. Effect of growth temperature on root and shoot growth in cotton seedlings. (A) provides images showing two-week-old roots and shoots under optimal (86/68 °F) or suboptimal (68/59 °F) temperatures.

Squaring

Although we don't have a lot of cotton that's at the squaring stage currently, our earliest planted field started producing its first squares last week. First, it is important to define squares. Squares are little, green floral buds encased in three large bracts. The three bracts (leaves that surround the floral bud) have jagged edges, and when they come together, they make the square look a little bit more like a green, jagged edged pyramid than a square. If one pulls the bracts back, the floral bud is exposed (Figure 4). In the very early stages of square development, one will need to look near the top of the plant to find them. As a general rule, the first fruiting branch can usually be found on node 6 ± 1, and will not look like much of a branch in the earliest phases of squaring (Figure 5). The first squares will be in the very first position right next to the main stem. When the squares are just visible with the naked eye, the crop is in the pinhead square stage because the floral bud under the bracts is about the size of a pinhead. As the square gets a little bigger (1/3 of its final size), the term "match head stage" will be used because the floral bud is now approximately the size of a match head. Eventually, the square will reach what is called the candle stage, where the floral bud is visible as a light-colored protrusion beyond the bracts that looks something like a lit candle. The next day, the candle will become an open flower. The entire period of floral bud development from the pinhead square stage to the candle stage usually takes three weeks and is called the "squaring stage" of crop development. At the crop level, we typically say the crop has begun squaring when at least half the plants have produced the first visible squares.

Importance of the squaring stage

The squaring stage marks the beginning of reproductive development for the cotton crop, but this stage is also important because each fruiting site on a fruiting branch produces an associated subtending leaf. As a result, the production of new fruiting branches is also important for rapid leaf area development. Just as emergence and early vegetative stages come with a unique set of challenges and management considerations, so does the squaring stage. For example, the start of squaring is an important stage from an insect scouting perspective as young squares can be fed on by multiple pest species. This type of stress may actually promote new vegetative growth, positively affecting light capture by the canopy but reducing the fraction of total biomass going into lint yield (harvest index). Side-dress applications of nitrogen should also occur in the squaring phase of crop development to ensure N availability prior to rapid crop growth and nutrient uptake. In the event that growth thresholds are met, the first PGR applications may also need to go out during this time frame. While there are likely other considerations I'm not thinking of at the moment, management practices are almost always tied to crop development, so knowing what to look for is key.

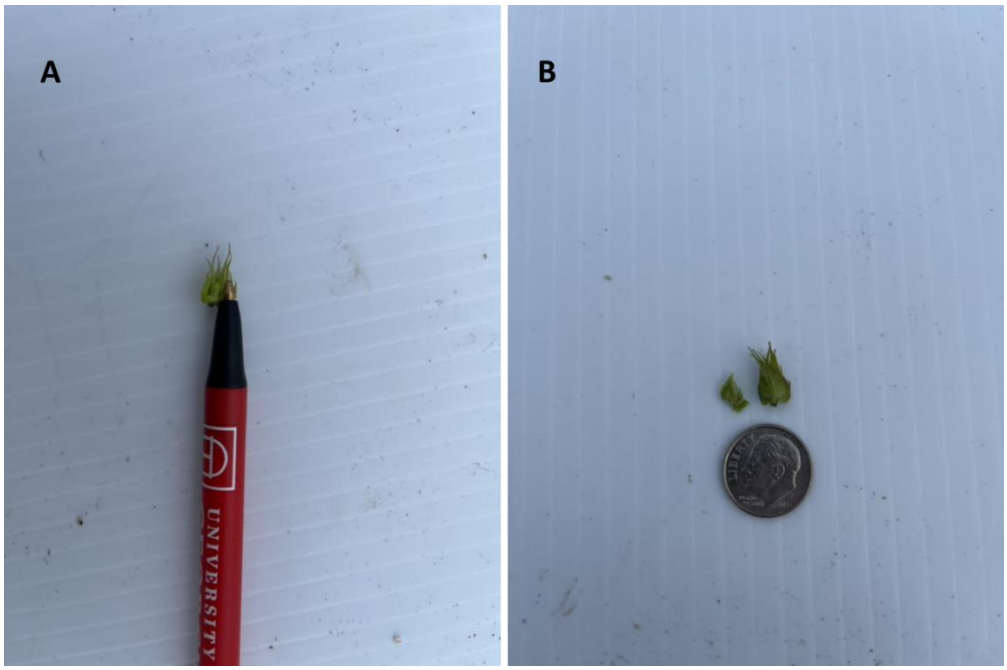

Figure 4. Pinhead square with the bracts removed to show the floral bud (A), and a side-by side image of a pinhead square (left) and a match head square (right) with bracts still covering the floral bud (B).

Figure 5. Images of cotton fruiting branches at the start of squaring. At this stage, fruiting branches are incredibly small, measuring only centimeters in length.

Evaluating Cotton Stands and Varieties entering June (*Camp Hand*): As we enter June my phone has been ringing about a couple of things. The most frequent call right now is on replanting cotton. For one reason or another, whether it is these frequent rains after planting, seedling disease, or any other reason, some cotton stands are not where you would like them to be. Now I am not the type of person that is going to tell you to go replant cotton "just because". As a matter of fact, if you call me about it, I'm going to try to talk you in to keeping the stand unless it's a fairly easy call. Why is that? My thought process on this is pretty simple: if the cotton absolutely needed to be replanted, you would've done it already. But if I am on the phone with you or your county agent about it, it means you are on the fence. Nine times out of ten, I am going to recommend you keep that because I don't want you spending more money than you have to. But, if you find yourself in a possible replant situation, here is what I'd be thinking about or doing to help me make that decision.

First, I'd get in the field and do some stand counts. If you are on 36" rows, I'd count 14.5' of row. Multiply that number by 1,000 and it'll tell you your population in plants per acre in that particular spot of the field (for 38" rows you count plants in 13.75 feet to get the same thing). Do this in multiple locations throughout the field to get a good picture of what is going on. While you are taking stand counts, it's important to note the uniformity of the stand. If there are a lot of skips that are greater than 3', that is going to create problems at harvest and we need to think about taking some action there. The lowest population you need to maintain maximum yield potential is 15,000 plants/acre **uniformly spaced** (one plant per foot on 36" rows). Of course the easy calls are when you get a packing rain after planting and hardly anything comes up – obvious replant. But what about one row that has 5,000 plants per acre next to a row that has 21,000 plants per acre? You could certainly drop in and supplement that population with the planter, but we have done a lot of work on wide and skip row production since I started here in 2021. If you have two rows with good populations with a row in between that is suboptimal, I would leave that stand. You are going to make good cotton there – maybe not what you would have if that one "iffy" row came up, but it beats driving over the field again with added seed and diesel costs. Before making a replant decision it is also critical to remember what herbicides have been applied in that field – applications of a Group 15 herbicide (*S*-metolachlor (Dual), acetochlor (Warrant/Inversa), or dimethenamid-*P* (Outlook)) will require strip tillage prior to replanting to bring up some clean soil and reduce herbicide injury.

The other thing I have been getting calls about is switching from a mid or full season cotton variety to a short season since we are now entering June. The first thing I want to say is that in Georgia, the one thing we have going for us is the length of our growing season which is a huge plus in this type of situation. But cotton is so different than corn or soybeans in that we can manage for a shorter season as opposed to planting a shorter season variety. The first thing I'll say is we have done a lot of work over the last three years looking at short vs. full season varieties. My token short season variety has been DP 2012 B3XF, and my token full season variety has been DG 3799 B3XF. In these studies, we go out and take percent open boll counts every other week, and using that we can estimate days to maturity with respect to planting. **Over the last three years, maturity differences between DP 2012 B3XF and DG 3799 B3XF have been ten days at most! And when it comes to yield, the two yield similar when planted during the first two weeks of June and if defoliated prior to a frost.** So this is between the two opposite ends of the spectrum – what about switching from a mid-maturing to a short

season? The difference would not be noticeable – and again, there are things we can do during the season to hasten maturity (more aggressive PGR management, reduced N rates) and we can do those things with your variety of choice. So for now, I would not switch to a "short season" variety just because we are in June – but if we start getting past the second week of June I'll change my tune a little bit.

Make sure to listen to the Talkin' Cotton Podcast for updates throughout the season, and as always if you need anything else please don't hesitate to reach out to your local UGA County Extension Agent.

Residual at-plant herbicides pack a punch against weeds (*Stanley Culpepper and Jenna Vance*): As growers continue to navigate the many challenges to finish planting their cotton this year, it is worth highlighting the performance of the preemergence or at-plant herbicides that we have observed so far.

With the recent rainfall, the value of these tools is unprecedented. In one of our studies, when residual herbicides were not applied Palmer amaranth grew from 2 inches to 4 inches in just a two-day period and then it grew from 4 to 8 inches in the next two days, a scenario that is impossible for a farmer to "keep up with" across large acres. In areas treated with residual herbicide mixtures, there remains few to no emerged pigweeds with those few escapes growing much more slowly than in areas without the herbicide allowing growers the opportunity for timelier postemergence treatments.

Palmer Amaranth Grows 6 inches in 4 Days When No Residual Herbicide is Applied at Planting.

No residual herbicide **Residual herbicide tank mix**

Keep in mind that if excessive rainfall has occurred since applying at-plant residual herbicides, postemergence herbicide applications may need to be applied more quickly than normal as the length of residual control can be shortened by excessive rains. At least for 2026, the dicamba program is thankfully back to help, but applicators must ensure these products are stewarded appropriately. As we often share, starting clean and then overlapping residual herbicides is the only economical solution for the control of Palmer amaranth, tropical spiderwort (Benghal dayflower), and goosegrass.

Goosegrass (*Stanley Culpepper and Jenna Vance*): Goosegrass is a warm-season annual with flattened stems (figure below) that is becoming very common in agronomic and horticultural fields across our state. Its spread is often a result to the herbicide programs being employed.

For effective management, all fields must be free of this pest at planting. Fields should then be treated at-planting with effective residual herbicides such as Warrant or Prowl, for the cotton farmer. Roundup is an effective option to control the weed once it has emerged but only if it is very small (<2 inches), the full Roundup rate is applied, conditions are favorable, and the population has not become resistant to glyphosate.

Mixing Liberty or dicamba with Roundup will likely prevent the Roundup from killing goosegrass. In contrast, one should consider mixing a clethodim (Select Max, etc.) product with Roundup to try and improve control and delay resistance. Postemergence grass herbicides applied alone also can be effective but must be applied very timely. *Goosegrass resistant to both Roundup and postemergence grass herbicides are present in nearby states.*

Residual herbicides such as Dual Magnum, Outlook, and/or Warrant should be applied throughout the season to prevent goosegrass emergence (overlapping residuals). Liberty is not an effective option and will likely facilitate spread of the pest.

Goosegrass identification is critical but can be difficult, reach out to your county agent if help is needed.

What's the best approach if I am willing to apply my early post dicamba tank-mix sequentially? (*Stanley Culpepper and Jenna Vance*): Most growers understand the value of applying a residual herbicide like Dual Magnum, Outlook or Warrant in with their Roundup + in-crop dicamba but are concerned with the potential high level of injury, especially when soils

are saturated. For those wanting to make sequential applications, the question is always what is the best approach?

1. Mixing dicamba with Roundup is almost always antagonistic (reduces grass control by Roundup) on goosegrass at any size and with most other grasses once they reach 6 inches. Thus, if grasses are a concern, Roundup plus the residual herbicide followed 3 days later with dicamba would be beneficial to lessen the potential loss in grass control. If pigweed is present then obviously go with the dicamba first as it will get large quickly; this may not be as effective on the grasses, but pigweed is still king! And make sure the full use rate of Roundup is applied!

2. Mixing in-crop dicamba with Roundup almost always improves the control of broadleaf weeds compared to applying these two herbicides separately as noted with the response of glyphosate-resistant Palmer amaranth in the pictures below. Thus, if grasses are not a concern, then an application of Roundup + in-crop dicamba with the residual herbicide applied sequentially would be an effective option.

Influence of Roundup on Dicamba Controlling Glyphosate-Resistant Palmer Amaranth at 4 days in Macon County, GA.

Roundup + In-Crop Dicamba + VRA + DRA

In-Crop Dicamba + VRA + DRA

Understanding root-knot nematode resistance in cotton varieties and what it means for Georgia growers (*Bob Kemerait*): Southern root-knot nematodes (*Meloidogyne incognita*) are an important and widespread pest affecting cotton in Georgia. Damage from root-knot nematodes is most obvious later in the season as stunted plants and leaves with interveinal chlorosis ("tiger striping"). Yield loss is expected. However, damage can occur very early in the season when the population of nematodes is very high. From the picture below (credit: Jeremy Kichler, UGA Extension Colquitt County), early-season damage from root-knot nematodes also results in the

characteristic root-galling and stunting. Effective water and nutrient uptake are affected by the damaged roots. Judicious use of nematicides (choice of product and rate) can protect the young roots from damage which allows for the development of a robust root system.

In addition to use of nematicides to mitigate losses to the southern root-knot nematode, growers now have the option to plant varieties to protect yield. Some describe such varieties as “resistant” to the root-knot nematodes, while others say the varieties have “tolerance”. Such distinctions are largely academic in the eyes of cotton producers; however, in the strictest sense, “resistance” refers to management by reducing reproduction of the nematodes, while “tolerance” means the cotton is able to overcome the stress caused by the nematodes and protect yield without directly impacting the nematodes.

Resistance genes in upland cotton are found in two locations, one on chromosome 11 and one on chromosome 14. The quantitative trait loci (QTL) on chromosome 11 impedes the establishment of feeding sites by the female. The QTL on chromosome 14 reduces nematode reproduction and eggs formation. Combined, these two traits result in near immunity for the cotton variety.

Whether the cotton variety has a single gene for resistance or the combination of the two, planting these varieties almost certainly will result in fewer root galls, reduced root damage, and lower root-knot nematode populations in the soil at the end of the season. The reduction in root damage and nematode populations, as compared to susceptible varieties, will be more striking where two genes, rather than only one, are deployed in a cotton variety.

Where varieties deploy only the QTL associated with chromosome 11, some rot-galling likely occurs where the plants are exposed to a large nematode population. Where such galling occurs, it is much less than had a susceptible variety been planted, but more than if a variety with both resistance genes has been planted. Whether you say "resistance" or "tolerance", these varieties are an increasingly important tool with which cotton growers can protect their crop from the ravages of the southern root-knot nematode.

Important Dates:

Georgia Cotton Commission Mid-Year Meeting - Statesboro, GA – July 29, 2026
Attapulgus Research and Education Center Field Day – Attapulgus, GA – July 30, 2026
Southwest Research and Education Center Field Day – Plains, GA – August 5, 2026
Southeast Research and Education Center Field Day – Midville, GA – August 12, 2026
Cotton and Peanut Research Field Day – Tifton, GA – September 2, 2026
Georgia Cotton Commission Annual Meeting and UGA Cotton Production Workshop - Tifton, GA – January 27, 2027