UNIVERSITY OF GEORGIA EXTENSION

UGA Cotton Team Newsletter
April 7, 2020

Articles in this month's issue include:

1. Cotton Prices May Suffer During Coronavirus Pandemic (Yangxuan Liu)
2. Planter Considerations for Peak Performance (Simerjeet Virk and Wesley Porter)
3. Irrigation System Prep and Early Season Water Requirements for Cotton Production (Wesley Porter, Cale Cloud, David Hall, and Simer Virk)
4. The SmartIrrigation Cotton App Update (George Vellidis)
5. Early Season Disease and Nematode Issues for Cotton Farmers, You Get One Chance (Bob Kemerait)
6. Thrips Management Thoughts for 2020 (Phillip Roberts)
7. Silverleaf Whitefly Management Begins NOW! (Phillip Roberts)
8. Be smart now or figure out how to kill Palmer amaranth without herbicides soon (Stanley Culpepper and Larry Steckel)

Cotton Prices May Suffer During Coronavirus Pandemic (Yangxuan Liu): Cotton growers need to be aware of the rising volatility and uncertainties in the cotton market. Since the disease outbreak of COVID-19, the cotton supply chain has been severely interrupted. Countries worldwide are implementing social distancing or lockdown, hoping to slow the spread of the virus. The cotton industry is suffering from the temporary closure of factories to control the virus. May cotton futures for old crops closed at 51.33 cents per pound, and new crop December futures closed at 53.49 cents per pound on March 29.

The long-term impact of the pandemic is also expected. The aftermath of the coronavirus pandemic is highly likely to result in a global economic slowdown or recession. Cotton products are discretionary items. Thus, the consumption of cotton goes up or down with the economy. Cotton demands are likely to continue decreasing due to the slowing of the global economy. World cotton demand is currently forecasted at 118 million bales, down 5 million bales from the last peak in 2017.

In addition, the U.S. dollar appreciates during the time of crisis as investors seek a safe harbor. This appreciation of the U.S. dollar further hinders export opportunities for cotton. In 2019, 83 percent (16.5 million bales) of cotton produced in the U.S. were exported and traded in the global market. U.S. cotton relies on the global market and international trade to consume excess supply and support domestic

prices. The decline in oil prices is likely to increase the competition of synthetic fiber down the road, similar to what we observed after the drop in oil prices during the 2008 financial crisis.

The U.S. Department of Agriculture Farm Service Agency announces the weekly average adjusted world price (AWP) and loan deficiency payment (LDP) rate every Thursday in the Upland Cotton Announcement. The low cotton prices recently have triggered the LDP for cotton. Producers are highly recommended to follow closely to the Upland Cotton Announcement for the updated value of LDP. If taking the LDP, the producer should be aware that there is no further protection from prices going even lower. If a producer is willing to take the risk and feels that cotton prices are going to improve, then the producer could take the LDP and market the cotton later.

Looking ahead, producers need to be aware of the continuous risk of downside price weakness and volatile cotton prices. It might take a while before we see a recovery of cotton prices. Strategies to improve productivity or cutting costs are highly recommended during a time of low cotton prices.

For more information related to the commodity loan programs for cotton, please refer to: Liu, Y., Bhattarai, A. & Robinson, J. R. C. (2020). **Marketing Assistance Loan and Loan Deficiency Payment Program for Upland Cotton**. *University of Georgia Extension.* Publication No. Circular 1194. March 2020. https://extension.uga.edu/publications/detail.html?number=C1194

Planter Considerations for Peak Performance (Simerjeet Virk and Wesley Porter): For growers who are planning to plant soon or in next few weeks, if they have not already done so for corn planting, this is the perfect time to check your planter and perform maintenance on different components to ensure peak performance during planting. Planting mistakes due to improper setup and maintenance can lead to costly emergence penalties that impact yield potential. While doing planter checks, growers should pay special attention to the following three major systems on their equipment:

A **Furrow opening system** consists of double-disc openers, gauge-wheels, seed depth and downforce control. Remember that the main objective of these components is to create a well-defined seed trench at the desired seeding depth with no side-wall compaction or caving side walls during planting. Opening-discs should be checked for any wear, and if the discs form a true V-shape furrow during planting. Gauge-wheels should be checked for any wobble and adjusted so they run tight against the opening-discs. Seed depth and downforce should be adjusted carefully to achieve the desired planting depth. Direct measurements on the planter as well as field checks should be done to verify seeding depth. It is highly suggested that you check every row, not just a few.

The function of a **seed metering and delivery system** is to meter the seeds at the desired seeding rate and deliver metered seeds to the furrow. Poor seed metering can lead to lower or higher populations

and uneven seed spacing both of which can impact yield. Seed meters should be tested for singulation and any skips or multiples on a test stand to check meter performance. A well-tuned seed meter should provide 99-100% singulation with no skips or multiples. Seed meters should be examined for any worn parts, rubber seals, and other components such as extractor, brushes and doubles eliminator. Seed tubes should be replaced if they have worn or cracked edges. Check and clean any obstructions from the seed tubes before planting.

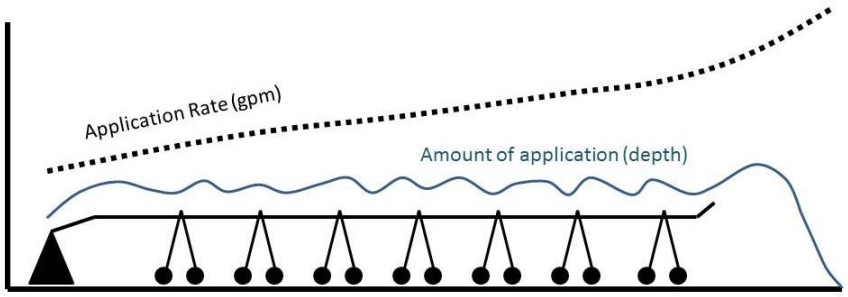
A **furrow closing system** consists of a solid single press wheel or a pair of wheels to close the opened furrow in a manner that promotes adequate soil-to-seed contact for rapid germination and timely emergence. Closing wheel(s) should be perfectly aligned behind the double-disc openers and adjusted to apply adequate pressure on the furrow. Selection of closing wheel(s) can vary depending on soil type, texture and field tillage conditions.

When doing planter checks listed above, growers should follow the recommended settings for different planter components (such as vacuum based crop and seed size) as outlined in the operator's manual. For growers using any technology (GPS, seed monitor, etc.) during planting, check all connectors and wiring harnesses for any damage or loose connections. Make sure that GPS and seed monitoring display have the latest firmware installed before heading out to the field.

It is highly suggested that you monitor soil temperature and moisture conditions prior to planting. These conditions can have a drastic effect on planter performance. If a soil is drier or of a heavier texture typically more downforce is required, and planter depth may need to be adjusted. Conversely, a soil that is of lighter texture or has a higher soil moisture will require a lower downforce and potentially a depth adjustment on the planter. As you transition from field to field, and planting condition it is highly recommended that you check seed depth and spacing when first beginning in a field. This will help to ensure that planter is at the correct setting for those particular conditions. As a single planter setting is not a one size fits all. If you need assistance with planter settings and maintenance consult your owner's manual, contact your local UGA County Extension Agent or Equipment Dealer.

Irrigation System Prep and Early Season Water Requirements for Cotton Production (Wesley Porter, Cale Cloud, David Hall, and Simer Virk): We have less than a month before everyone begins to get serious about getting their cotton planted. Thus, now is an optimal time, if you have not already done so, to do routine and preventative maintenance on equipment, specifically irrigation systems to ensure they are in top shape at beginning of the season. Once the crop is planted, the irrigation systems will be

needed with most of them needed to be run near continuously during times of no rainfall. There are two important factors that need to be considered before you get your peanuts planted. The first one is an overall irrigation system check and the second is specifically focusing on uniformity and distribution of your system. First look up the *UGA Spring Center Pivot and Lateral Irrigation System Preparation Bulletin* (B1452) and go through this checklist that includes all main components on your irrigation system to ensure that they are working properly. Some of these components can include but do not have to be limited to the power units, pumping system, intake line, pipes and drains, electrical system, system alignment, safeties, tires, gear boxes and drive shafts and lines, and the switches on the auto stop feature. Once you have checked all of these components, start the irrigation system and finish checking components. Start up the pump and check the line pressure, flow, sprinklers, end gun and booster pump, regulators, drain valves, check for visible leaks, and test the auto stop and reverse features. An example of the system flowrate and application rate for a center-pivot irrigation system is represented in Figure 1. It is important to remember that due to increasing travel speed as we move towards the end of the pivot, the system flow rate (represented as dashed black line) will go up, but the application depth (represented as solid blue line) should remain consistent. This is achieved with properly sized sprinkler packages.



Application Rate and Depth

Figure 1. Application rate and depth across a pivot tower.

It is important to note that it can be very difficult to detect differences between individual sprinklers and banks of sprinklers on a pivot visually so it is strongly recommended that an application uniformity test be performed on the center pivot to detect any discrepancies along the tower length. A UGA Factsheet titled *Evaluating and Interpreting Application Uniformity of Center Pivot Irrigation Systems* (C911) is a very good step by step guide to accomplish this process. If you need any further guidance on either of these, or have interest in having an on-farm uniformity test performed, contact your UGA County Extension Agent and they can help get the process started. By following these suggestions, you should have a properly operating pivot ready to go for the upcoming production season.

Once you have the pivot up and running and are confident that it is adequately applying water uniformly with no problems, it is time to start thinking about water requirements for your crops. We had a very

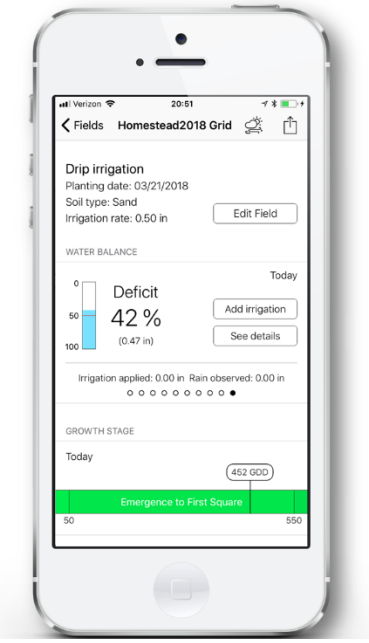
wet late winter into early spring, but recently it has turn warm and dry. We have had some unusually hot weather during late March, with a slight cool down during early April. It's important that you keep an eye on the current weather and soil moisture conditions as you begin planting crops. Cotton typically does not require a lot of water in the first month after planting and in some cases if adequate rainfall is received cotton can to up to squaring and even bloom without additional irrigation applications as exhibited by the red box and water use curve below. However, if it gets hot and dry again like it did during late March you may need to apply a few small irrigation applications. The red box below represents the first five weeks after planting of cotton water requirements. Keep a track of rainfall and temperature, your irrigation efficiency (typically around 65-70% for high pressure systems and 80-90% for low pressure systems), and make irrigation applications accordingly. Keep in mind that the water requirement below is irrigation plus rainfall, and the weekly water requirement recommendation was developed based on a historical average of evapotranspiration. So your actual water/irrigation requirement may vary slightly based on weather conditions and rainfall during the growing season. For a more in-depth irrigation recommendation it is suggested that you look into implementing either a computer scheduling model either online or via a Smartphone App, or soil moisture sensors. For more information about either of these contact your local county Extension Agent.

Figure 2. Seasonal Cotton Water Requirement.

As mentioned earlier, UGA Extension's cotton irrigation guide recommends very little water once the stand is established. Once the planters start rolling, farmers will be focused specifically on planting to try to finish while sufficient moisture is present to ensure a good germination and stand. Once moisture begins to leave the optimum planting level, plan your planting schedule around an irrigation event the day before planting, if available. Keep in mind, you will want to be planting the next day to optimize the moisture. In doing this, careful consideration to the amount of water applied must be considered using such factors as available moisture, soil type and projected weather. There is a fine line between not being able to reap the benefits of irrigation by not applying enough water or having to wait an extra day to dry out, costing time and money.

UGA Extension has developed a quick and easy irrigation scheduling guide that is laminated and contains the four major row crops grown in Georgia. Attempts to distribute throughout the State are being made at the present. Please check with you local Extension Agent for availability. The guide can also be downloaded at https://extension.uga.edu/publications/detail.html?number=C1189.

The SmartIrrigation Cotton App Update (George Vellidis): A new version of the SmartIrrigation Cotton App will be available in the Apple and Google Play stores by April 15th. The App uses weather data to estimate daily crop water use. It maintains a soil water balance by subtracting today's daily water use from yesterday's balance and adding any rain or irrigation received over the past 24 hours. The App pulls weather data from the Georgia Weather Station Network or national gridded data sets. However, it performs best when rain amounts are updated from a rain gage that is installed at or near the field. The App sends the user notifications when plant available soil water reaches a predetermined threshold.



The new version includes several improvements recommended by users. The improvements are:

- The App can now pull rain data from Metos or Trellis automated rain gages installed in the field. In Georgia, Holder Ag Consulting is a dealer for Metos products. Trellis product dealers are listed on their website.
- Users can modify the notification thresholds. If they are not modified, default thresholds are used.
- The App allows the user to enter the soil water holding capacity of a field's soil if that is known. If soil water holding capacity isn't known, there are seven default soil types form which to select.
- A new field can now be registered several days after planting. The App will retrieve past weather data but any irrigation events must still be added manually.

The SmartIrrigation Cotton App can be downloaded at no cost here. For any questions, please contact George Vellidis at yiorgos@uga.edu or (229) 402-1278.

Early Season Disease and Nematode Issues for Cotton Farmers, You Get One Chance (Bob Kemerait): Plant parasitic nematodes, to include the southern root-knot, the reniform, the sting, and the Columbia lance nematodes, are important pests that reduce yields in our cotton fields across Georgia every year. Seedling disease, especially when caused by *Rhizoctonia solani*, and, to a lesser degree, *Pythium* and other fungal pathogens, is a potential problem in every field every year. To combat nematodes and protect seed and seedlings against disease, essential decisions must be made very early in the season, prior to or at the time of planting. Prior to closing the furrow, growers have opportunities to protect their seed and plant-stands in ways that have impact on the yield potential for the remainder of the season. The following is a "laundry list" of actions that a grower MUST consider in order to protect the seeds and cotton seedlings.

1. There are several important fungal pathogens that can cause both pre-emergent and post-emergent stand loss in a cotton field. In Georgia, *Pythium* species are can be commonly associated with "pre-emergent damping-off" where the seedling dies before cracking the soil surface. The most common seedling disease of cotton in Georgia is "soreshin" caused by Rhizoctonia solani. "Soreshin" is a post-emergent seedling disease and is easily recognized by seedlings that wilt and die within a week or two. Protecting the young plants from seedling diseases is a three-step process. The first step, where possible, is to plant high-quality seed with a strong, documented, germination rate. It is difficult, if not impossible to recover when poor-quality seed is planted. The second step is to plant under conditions that result in rapid, uniform germination and vigorous growth. Cool, and wet soils, or planting just ahead of a cold rain, can slow germination and plant growth. Such gives the fungal pathogens, "the bad guys", the chances to play catch-up with the peanut seeds and seedlings, infect and then damage them. The third step is to ensure that the seeds are well-protected with a fungicide seed treatment. All commercial seed will come pre-treated with a "base" fungicide package. The base package varies among different seed companies, but is always composed of a mix of three-to-four fungicides that have proven efficacy against common pathogens like *Rhizoctonia*, *Pythium*, and *Fusarium*. From my studies in about four-out-of-five years, use of the "base" fungicide treatment alone results in stands and yields similar to where additional fungicide seed-treatments or in-furrow fungicides are applied. However, investment in extra "insurance" with additional seed-treatments or in-furrow fungicides may be beneficial. Growers are most likely to observe a benefit from "extra" treatments where risk to seeding disease is elevated, such as when planting

into cool and wet soils or conservation tillage. Additional seed protection may also be beneficial when planting at reduced seeding rates or where seed-quality is thought to be an issue.

2. Protecting seeds and seedlings from death and loss of vigor is an important task for growers. In addition to the steps outlined above, growers can use additional seed-treatments or in-furrow applications to compliment the performance of base seed-treatments and to further protect against seedling diseases. "Extra" fungicide seed-treatments are more convenient to use; in-furrow fungicides may be more effective as they can be used to treat the seed and the soil surrounding the seed as well.
3. Nematodes can be devastating to a cotton crop. Southern root-knot and sting nematodes are especially problematic in sandier areas of a field. Reniform nematodes tend to be more problematic in "heavier" soils which have higher levels of silts and clays. The best way to determine if nematodes are a problem in a field is by taking soil samples at harvest, or, in some cases, by examining roots of affected plants. Areas in a field, especially sandier areas of a field, where plants remain small and stunted despite adequate moisture and soil fertility, may be affected by nematodes. Growers can minimize damage from southern root-knot nematodes by a) planting a root-knot nematode variety, b) by fumigating with Telone II, c) by using Velum Total (14-18 fl oz/A) or AgLogic 15G (6-7 lb/A) in-furrow at planting, or by using one of several seed-treatment nematicides. Growers can apply Vydate C-LV or Return XL at the 5^{th}-to-7^{th} true-leaf stage to compliment the earlier nematicide treatments. As there are currently no commercial varieties with resistance to the reniform, Columbia lance, or sting nematodes, growers must use nematicides to protect their crop.
4. Fusarium wilt, caused by *Fusarium oxysporum* fsp. *vasinfectum*, is a significant problem in some fields in Georgia. Here in the southeastern United States, Fusarium wilt occurs as a complex of the fungus and nematodes, especially the root-knot and sting nematodes. Effective management of Fusarium wilt requires that growers protect their cotton with effective nematicides, such as those noted above.
5. Bacterial blight has not been a significant problem since 2017; however the problem can still occur in some fields under favorable conditions. The only tactic to fight bacterial blight is to plant a bacterial-blight resistant variety.

Growers have the opportunity prior to, and at planting time to manage important problems that include seedling diseases and seed rots, nematodes, Fusarium wilt, CBR, and bacterial blight. Growers are encouraged to carefully consider their options and to make informed decisions to best protect their cotton crop at this critical part of the season.

Thrips Management Thoughts for 2020 (Phillip Roberts): Thrips are consistent pests of cotton, infesting near 100 percent of Georgia cotton each year. Thrips are the only insect pest of cotton that a preventive

insecticide is recommended. A preventive insecticide should be used at planting for thrips control. UGA recommends a reactive approach based on scouting and the use of thresholds for other insect pests in cotton. Pests such as stink bugs, corn earworms, whiteflies, and others are less consistent and demand this reactive approach to maximize profitability. With most insect pests there are agronomic and management practices which influence the risk and severity of infestations. Below are a few thoughts to consider as you make decisions for your at-plant thrips management program.

1. Use a preventive insecticide at planting. Positive yield responses are consistently observed in UGA research when an at-plant insecticide is used for thrips control.
2. At-plant insecticide options include in-furrow granule applications of aldicarb, in-furrow liquid applications of imidacloprid or acephate, and commercial seed treatments of imidacloprid, thiamethoxam, and acephate. Imidacloprid seed treatment is the most common at-plant insecticide used. In-furrow applications of aldicarb, imidacloprid, and acephate tend to provide greater residual control of thrips compared with the commercial seed treatments.
3. Historically thrips infestations and plant injury is greatest on early planted cotton (ie planted prior to May 10th). However, this high thrips risk window is a moving target from year to year. Temperature and rainfall during winter and early spring have a significant impact on thrips population development and the severity and timing of infestations moving to cotton. As we near planting you are encouraged to take advantage of the **Thrips Infestation Predictor for Cotton**. This web-based tool will predict thrips risk by planting date by geographic location and can be found at: http://climate.ncsu.edu/CottonTIP.
4. Thrips infestations are significantly lower in reduced tillage systems compared with conventional tillage. In general, the more cover on the soil surface the greater the reduction in thrips.
5. Seedlings are most sensitive to yield loss during early developmental stages. 1-2 leaf cotton is at greater risk to yield loss from excessive thrips injury compared with 3-4 leaf cotton. Once cotton reaches the 4-leaf stage and is growing rapidly, thrips are rarely an economic pest.
6. A rapidly growing seedling can better tolerate thrips feeding. Conversely, seedlings which are growing slowly from cool temperatures or some other stress are more susceptible to thrips.
7. Scout for thrips and thrips injury early. Use thresholds and only make foliar applications when necessary. Optimal timing for supplemental insecticide applications (when needed) is the 1-leaf stage.

Silverleaf Whitefly Management Begins NOW! (Phillip Roberts): Silverleaf whitefly (SLWF) is a sporadic and localized pest of cotton in Georgia. There are reasons for this localized infestation pattern and it is important we understand why this occurs. In Georgia SLWF infestations are most common in areas where both cotton and vegetable production occur. In these areas crops which serve as reproductive hosts are grown 12 months a year. SLWF infests brassica crops in the winter months, move to cucurbits

in the spring, move to cotton in the summer, move to cucurbits in the fall, and back to brassica crops during the winter. This is a simplified view of movement and buildup of SLWF during the year. SLWF actually has many different hosts (both wild hosts and cultivated crops), but the crops mentioned are the drivers in SLWF population dynamics. What we do know is that it is important for all of agriculture to properly manage SLWF. Failure to properly manage SLWF in a crop will have negative consequences on the next crop SLWF infests. More information on SLWF and management can be found in the publication "*Cross-Commodity Management of Silverleaf Whitefly in Georgia*" (https://secure.caes.uga.edu/extension/publications/files/pdf/C%201141_1.PDF).

There are several risk factors influencing SLWF populations during the year. One important factor is winter weather. SLWF survive the winter months on both cultivated and wild host plants. Mild winters favor survival of SLWF. Although temperatures rarely are low enough in South Georgia to kill SLWF outright, freezing temperatures which kill host plants infested with immature SLWF effectively kills immature SLWF on those plants. Cold temperatures also slow development of SLWF. Higher survival and reproduction during winter months leads to higher populations in the spring and the opportunity for populations to rapidly build to damaging levels. To date we have only had 6 days in Tifton when the low temperature was below 32 degrees. When reviewing weather data for the last 15 years, this winter was tied for the fewest days below freezing. What does the lack of cold temperatures mean for cotton?

The mild winter suggest our risk for SLWF in cotton is elevated. This does not mean we will have a SLWF problem in cotton, but we cannot ignore the lack of cold temperatures. Spring and summer weather will be the primary factor affecting SLWF populations from this point forward. Hot and dry conditions will favor SLWF population buildup. If you are in an area prone to have SLWF, NOW is the time to manage risk factors we can control.

Variety Selection: hairy leaf cottons are preferred by SLWF compared with smooth leaf cottons. There is a direct correlation of SLWF infestations in cotton based on the degree of leaf hairiness. Risk of SLWF is greatest on hairy varieties > light hairy > semi-smooth > smooth varieties. Smooth leaf varieties are the least preferred by SLWF. **Plant Smooth Leaf Varieties**

Planting Date: the risk of SLWF problems increases as planting dates are delayed. SLWF complete a generation in about 2 weeks during summer months and populations can increase rapidly. The impact of SLWF on yield is dependent on the growth stage of cotton when SLWF infest the crop. Potential yield loss is greater when infestations appear during squaring or early bloom compared with late bloom. The duration or time of control required to protect yield and quality from SLWF is also dependent upon planting date. April and early May planted cotton is at lower risk for SLWF problems compared with late May and June planted cotton. **Avoid Late Planting**

Location (proximity of SLWF infested crops): crops produced in a given area can be viewed as sources and sinks for SLWF populations. Spring vegetable and melon crops are a source of SLWF infesting cotton. In the fall cotton is a source of SLWF infesting fall vegetables. The nearness of cotton to a SLWF infested field increases the risk of SLWF. **Minimize Planting Cotton Next to SLWF Infested Crops**. If planting cotton near SLWF infested crops, be sure to avoid late planting and use a smooth leaf variety. Destroy SLWF host crops immediately after harvest; this includes vegetable and melon crops in the spring and cotton (timely defoliation and harvest) and other crops in the fall.

Be smart now or figure out how to kill Palmer amaranth without herbicides soon (Stanley Culpepper and Larry Steckel: For essentially two decades, Georgia farmers have battled glyphosate-resistant Palmer amaranth. Its impact on Georgia agriculture is so high it is simply immeasurable. As many lessons have been learned from our past, weed management decision making has vastly improved at all levels across Georgia. However there are great concerns with overuse of many herbicide chemistries especially dicamba and the PPO herbicides (examples such as Reflex, Cobra, Ultra Blazer, Valor, etc).

With Georgia research, observations of pigweeds responding to dicamba applied by researchers has noted some plants dying while others show few symptoms (all plants of the same size and coverage). There is no question that this is a sign of trouble. Dr. Larry Steckle recently published an article addressing a similar concern with dicamba. The picture to the side shows “Response of Palmer amaranth to 0.5 lbs/A of Dicamba: 2001 collected seed Left and 2019 collected seed Right. 11 days after application”.

What about the PPO herbicides? Although it is complex for a scientist to be able to say a weed is resistant to a specific herbicide, we now have the data required to make that statement. Palmer amaranth resistant to topical applications of PPO herbicides are in Georgia. The photo of ***plants dead (left) are from a known sensitive population treated with Reflex at 24 oz/A*** plus surfactant in the greenhouse. The ***plants surviving (right) were treated at the same time with 240, yes 240, oz/A of Reflex*** plus surfactant; plants were also not controlled with Cobra or Ultra Blazer at enormous rates.

It is important to note, the world of weed control in Georgia is not ending as most growers are making and implementing sound management programs. However, there are a few that need a wakeup call…….hopefully this information will fulfill that need!!! ***Make good decisions, use cover crops or tillage, start clean, two residual at-plant herbicides, make sure your program includes at least 5 different classes of herbicide chemistry AND PULL OUT ESCAPES!*** Also stay in touch with your local extension for the best management programs.

Important Dates:

Cotton, Peanut, and Soybean Scout School (Tifton) – June 8, 2020
Cotton, Peanut, and Soybean Scout School (Midville) – June 16, 2020
Georgia Cotton Commission Annual Meeting and UGA Cotton Production Workshop – January 2021