UNIVERSITY OF GEORGIA EXTENSION

UGA Cotton Team Newsletter
April 2021

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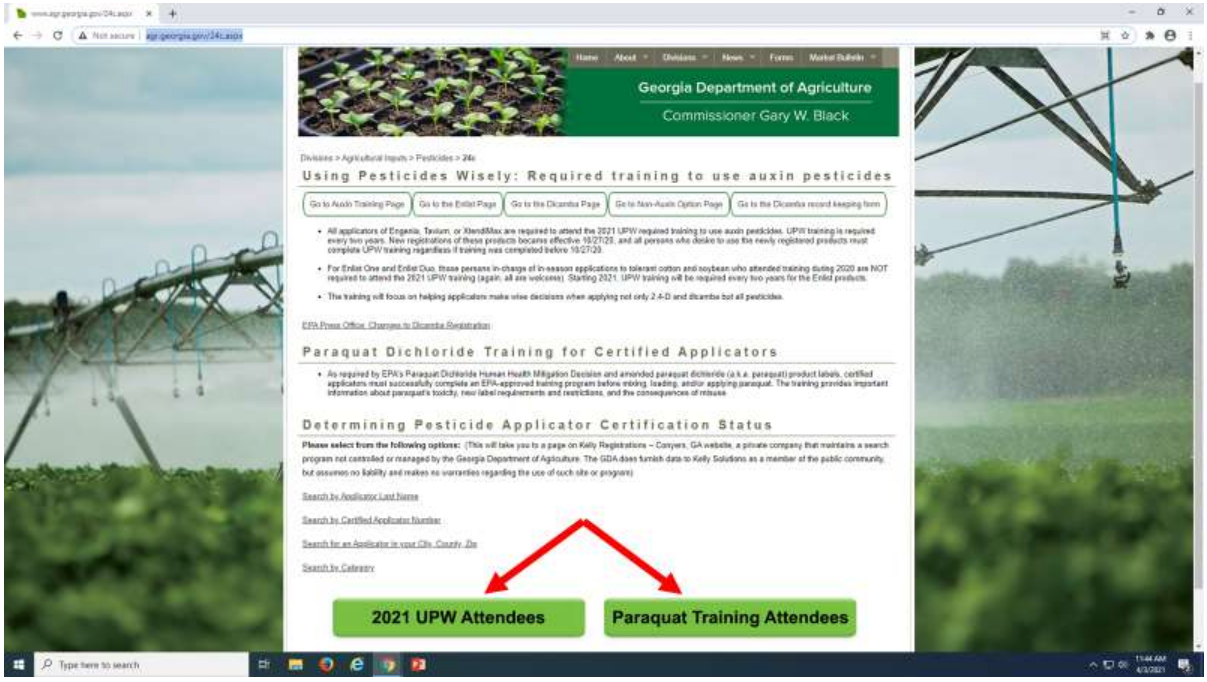
Using Pesticides Wisely 2021 and Paraquat Training Update *(Stanley Culpepper, UGA and Jesse Kelly and Jennifer Wren, GDA)*: Using Pesticides Wisely (UPW) 2021 virtual trainings are nearly completed with only two more opportunities available (table below). This training must be completed to be able to make labeled **dicamba or 2,4-D** in-crop cotton or soybean applications.

April 8, 9 AM	https://zoom.us/webinar/register/WN_Nry9IN0HQSu7YgP5TOiC3g
April 12, 5:30 PM	https://zoom.us/webinar/register/WN_ox4YobtHSwW7N9OfjgnkBA

For those who have already attended UPW training, your attendance information will be posted at http://www.agr.georgia.gov/24c.aspx and available through the link highlighted in the picture below. Remember, it may take a few weeks after training competition before names will appear.
Before mixing, loading, and/or applying **paraquat,** new labels require the completion of on-line training https://www.epa.gov/pesticide-worker-safety/paraquat-dichloride-training-certified-applicators approved by the U.S. EPA. Thanks to the National Pesticide Safety Education Center, GDA has posted a list of those applicators completing training prior to 3/21/2021 at http://www.agr.georgia.gov/24c.aspx, link highlighted in slide below. Periodic updates to the list will occur over time. When you complete your paraquat training you will receive a certificate. Regardless of the date in which you were trained, send your certificate to AgPest@agr.georgia.gov for 1 CEU of pesticide credit.



Considerations for Peak Planter Performance (*Simer Virk and Wesley Porter*): For cotton growers, this is a perfect time to start inspecting planters and perform any required maintenance on components to ensure peak planter performance during field operation. Planting mistakes due to improper setup and maintenance can lead to costly emergence penalties that impact yield potential. Growers can access and utilize a planter checklist available here PlanterChecklist_C1231.pdf (uga.edu), and make sure to go through each planter component carefully to ensure its proper setup and functioning. Please remember that this checklist provides some general guidelines for inspection and setup of different planter components but the exact setup for each planter component will depend on your planter type, crop being planted (cotton in this case), and the current field conditions. Therefore, make sure to spend some time and verify the in-field planter performance by consistently performing checks in the field during planting, and also make any required adjustments as soil or field conditions change among or within the fields. Here are few key points to remember related to planter setup and checking in-field performance when planting cotton, and ensure that each planter component is optimized for the soil type and field conditions at planting:

1. **Seed depth** – Recommended seed depth for planting cotton is 0.5 to 1.0 inches. Verify seed depth before planting both on a hard surface and in the field. Mechanical seed depth settings can vary among the row-units on the same planter so make sure to check planted seed depth for each row-unit and make necessary adjustments as needed. This is very important especially when planting at shallower planting depths (0.5 inch) as even a small deviation from required depth setting on some row-units can result in seeds sitting on the ground instead of in the soil with proper seed-to-soil contact.

2. **Downforce** – Planter downforce is important to achieve target seeding depth so make sure the downforce system (mechanical or active) is set to apply enough downforce on each row-unit. For planting cotton, the required downforce could range anywhere from none (just the row-unit weight itself) up to 200 lbf depending on soil type, moisture and field conditions. Lighter sandy soils and conventional tillage systems will require considerably less downforce than heavy loamy soils and conservation systems. Remember it is common to have variable soil and field conditions within a same field, so make sure to make those adjustments as field conditions change or within the same field or from one field to another

3. **Seeding Rate** – Recommended seeding rate for cotton is at least 2 seeds per row-foot to attain a plant population of 1.5 to 1.75 plants per row-foot. For growers planting closer to 2 seeds per row-foot, it is critical to avoid any seed metering issues as it may lower the planted population below the minimum recommended seeding rate. For growers without a seed monitor, it is highly recommended to check seed singulation on a test stand for seed meters before planting at your preferred seeding rate and planting speed. Unnecessary skips or multiples will result in poor or uneven stand establishment which can further impact yield if stand is reduced significantly. Cotton seed being smaller than corn and peanut seeds is also very sensitive to vacuum pressure, so make sure to adjust the vacuum appropriately to avoid skips and multiples.

4. **Seed Placement and Seed-to-Soil Contact** – Proper setup and functioning of row-cleaners (when planting in conservation systems), double-disc openers, gauge-wheels, and closing wheels for prevalent field conditions is critical to attain adequate seed placement and proper seed-to-soil contact. Make sure that the double-disc openers are creating a true V-shape furrow, gauge-wheels are running tightly (but not excessive) against the opening-discs, and closing wheels are aligned perfectly behind the planter and set to apply adequate pressure on the furrow.

5. **Planting Technology** – Issues with planting technology in middle of the planting season can cost significant time and money. Make sure to perform a thorough and timely (at least a week or more) inspection before planting to check status and functioning of all technology components including GPS, seed monitor, wiring harnesses, seed tube sensors, rate control module, electric seed meters, and active downforce system as well as for any subscription or latest firmware updates for the GPS and seed monitoring display.

Lastly, remember that planter settings can vary from one planter to another so make sure to check and follow the settings recommended in the operator's manual while using the planter checklist and points outlined above to set up your planter for peak performance.

Early Season Disease and Nematode Management *(Bob Kemerait)*: For a few, planting cotton has already begun. For most, it is imminent and rapidly approaching; planting cotton across the state of Georgia will be in "full-swing" in only a matter of weeks.

Given that the vast majority of Georgia's cotton crop is "still in the bag"; I want to reiterate some critically important decisions that can ONLY be done before the seed-furrow is closed. Once the seed is covered, there will be many more decisions to be made; however short of replanting, growers must live with some early choices.

My niche in the world of cotton production is "disease and nematode management". I think about these things every day and every night. I dream about nematodes and diseases sometimes. "What's wrong with you?" my children often ask me. Below are points I ask you to consider as we enter the 2021 cotton season, decisions that are made, one way or another, when the furrow closes.

1. **Nematodes and variety selection**. I know, there is "yield potential" and there is everything else. But, for a moment, consider "everything else". Think about the damage caused by nematodes in Georgia's cotton crop, damage from southern root-knot, reniform, sting, and Columbia lance nematodes. From surveys, we know that a significant number of fields planted to cotton in Georgia each year are infested with one or more of these types of nematodes. For many, if steps are not taken to manage the nematodes, yield loss is likely to occur. For fields infested with root-knot nematodes, and now those infested with reniform nematodes, growers have the opportunity to plant root-knot and reniform resistant varieties. Nematode resistant varieties do NOT need a nematicide for protection in the 2021 season. Planting nematode-resistant varieties also helps to reduce nematode populations heading into the 2022 season as well.

   There are several things growers must remember when choosing an appropriate variety where nematodes are a problem. First, you should know what type of nematode is present in order to determine if a resistant variety is appropriate. Second, recognize that there are agronomic differences among nematode-resistant varieties, and the BEST variety will combine nematode-resistance AND agronomic traits. Third, where nematode populations are low, or moderate, protecting a favorite nematode-susceptible variety with an appropriate nematicide may be as profitable as planting a resistant variety, even with the cost of the nematicide.

2. **Disease and variety selection**. Although bacterial blight has not been a significant problem for most cotton growers over the past several years, the potential for outbreaks of this disease are possible. There is one BEST management practice for protecting a cotton crop against loss to bacterial blight and this is to plant a disease-resistant variety. Again, as bacterial blight has not been a serious problem in recent years, most growers aren't too worried about it. Still, given the potential for disease outbreaks, coupled with the fact that there is almost nothing further to be done once the furrow is closed, it is prudent to at least consider planting a variety that has bacterial blight resistance.

3. **Using nematicides**. Plant-parasitic nematodes are a constant threat to cotton production in Georgia. When planting varieties that are susceptible to nematodes (and ALL varieties are susceptible to sting and Columbia lance nematodes), it is important to consider the judicious use of a nematicide. The fumigant Telone II offers the best protection, followed by in-furrow products such as Velum (remember **Velum Total** is soon to be a "thing of the past" and that an insecticide for thrips control MUST be mixed with **Velum**) and AgLogic 15G. Seed-treatment nematicides are very convenient to use; however they will not have the "power" of Telone II, AgLogic 15G, or Velum to battle nematodes at higher populations. After the cotton emerges, typically between the 5th and 7th true leaf stages, growers have the potential to EXTEND the nematode protection from earlier treatments with foliar applications of Vydate CLV or Return XL.

   Fusarium wilt on cotton in Georgia results from the interaction of the Fusarium fungus and damage to the cotton roots from nematodes. The only chance to protect a cotton crop from Fusarium wilt occurs by protecting the plants from nematodes prior to furrow closure. In addition to other nematicides already mentioned (especially Telone II), use of Propulse (fluopyram + prothioconazole) has been moderately effective in the control of Fusarium wilt.

4. **Protecting against seedling disease**. While there are several pathogens that cause loss of seeds and young cotton seedlings (to include *Pythium* and *Fusarium*) in Georgia, the most common "bad guy" is *Rhizoctonia solani*. Commercial cottonseed comes pre-treated with several effective fungicides that generally protect the seed and seedlings from disease and stand loss. If growers want to invest in added protection, either for "insurance" or because of increased risk to disease, additional seed treatments can be purchased and/or fungicides (typically azoxystrobin) can be applied in-furrow, at planting. Again, once the furrow is closed, there are no further options to protect from seedling diseases.

5. **Selecting a planting date**. Planting date plays a role in disease management in at least a couple of ways. To minimize risk to stand-loss from seedling diseases, growers should wait to plant cotton

until soil temperatures at the 4 inch depth are consistently at 65°F and above. Warmer soils promote rapid germination of the seed and rapid growth of the seedling. Growers should delay planting if colder and wetter weather is imminent. Colder and wetter weather slows germination and growth and greatly increases risk to diseases and stand losses.

While there is still much to learn about Cotton leafroll dwarf disease, it appears that fields where this disease is most severe have often been later-planted. As a measure to reduce risk to Cotton leafroll dwarf disease, growers should do their best to avoid planting later in the season than is necessary.

Nematodes and diseases will always be a threat to our cotton crop in Georgia. Some of our best management options can ONLY be made prior to covering the seed with soil. I encourage you to make these decisions carefully; few things will be more frustrating than to look back 100 days into the 2021 season and realize that problems now could only have been fixed 100 days ago.

Germination and Stand Establishment in Cotton (*John Snider, Gurpreet Virk, and Camp Hand*):
This brief newsletter article discusses some of the normal physiological processes occurring between planting and stand establishment, along with some of the factors affecting germination and emergence in cotton. When seed is placed in moist, well-aerated soil, it takes up water. This is referred to as imbibition and is the first step in germination. This phase takes about 4 to 6 hours (higher temperatures speed up the process, lower temperatures slow it down). During the next phase of germination, the seedling rapidly takes up oxygen as respiration increases to drive growth. Within one or two days after planting, the radicle protrudes from the seed coat, and roughly coinciding with this event, the seed's storage reserves (mainly lipids and proteins) are converted into soluble metabolites and are mobilized to growing seedling tissues. Protrusion of the radicle marks the end of the germination phase and the start of the seedling phase. The radicle (Image 1A) will eventually develop into the taproot.

Generally, between 5 and 10 days after planting, the cotyledons (embryonic leaves) are pulled above the soil surface as a result of the elongation of the hypocotyl (Image 1B), and emergence is complete (Image 1C). Because the cotton crop originates from tropical climates, seeds and seedlings do not tolerate low temperature conditions at planting. The optimum temperature for cottonseed germination and emergence is 86 °F and the lower threshold is 60 °F. As a general rule, growers considering planting in the early spring (mid-April to early May) should plant when soil temperatures are 65 °F or higher with 50 DD60s projected to accumulate within the first five days after planting. The Cotton Planting Conditions Calculator developed by North Carolina State University (http://climate.ncsu.edu/cotton_planting)

simplifies the five day temperature forecast (DD60 forecast) information into 6 categories ranging from Poor to Excellent and is a user-friendly resource for cotton growers anywhere in the US.

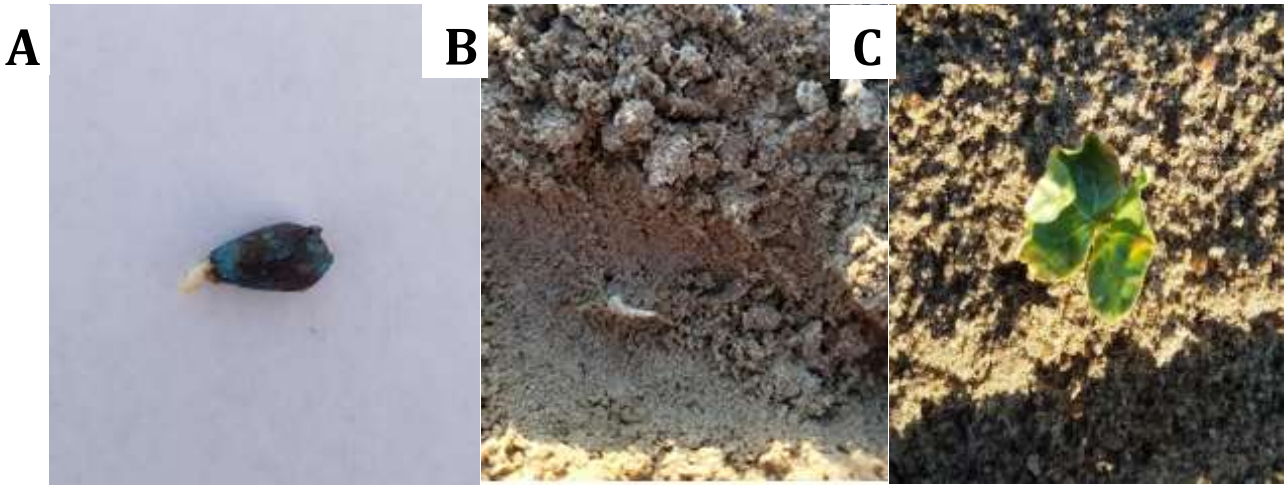


Image 1: The first visible structure out of seed (Radicle; A) and the expanding hypocotyl just below the soil surface (B).

Other factors such as waterlogging, soil crusting, soil compaction, seedling depth and seeding rate also affect stand establishment. Lack of water can negatively affect seed germination and seedling growth, and planting seed in moist soil conditions reduces the chances of uneven and delayed emergence. The next process after imbibition is cell expansion which requires sufficient turgor pressure and is influenced by water availability to growing tissues. On the other hand, waterlogging conditions can deprive the growing embryo of oxygen, resulting in death of the young seedling, preventing stand establishment. Soil crusting mechanically impedes emergence, and in some instances, the hypocotyl will snap as it attempts to pull the cotyledons through the crust. Where soil crusting is a problem, it may be necessary to run a rotary hoe over the field to facilitate emergence. At the opposite extreme, poor seed-to-soil contact and a lack of mechanical pressure against the seed and developing seedling may not provide enough resistance to remove the seed coat as the seedling moves through the soil profile This prevents the cotyledons from expanding, and could affect stand establishment as well. Growers should aim for a final plant stand of at least 1.5 plants per row ft., and will need to adjust seeding rates for percent germination/temperature at planting to reach this goal. Seed depth should be anywhere from 0.5 to 1 inch with good moisture at planting. Deeper plantings are sometimes used by growers to ensure access to adequate soil moisture, but in these instances, seedling vigor becomes an even more important consideration than usual. In the next newsletter, we will discuss seedling vigor and early season crop growth.

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It's go time *(Camp Hand)*: It is that time of year again – the planting conditions calculator says "excellent", meaning that cotton planting is imminent. I know many people are excited to officially put 2020 in the rear-view mirror, but in the words of Lee Corso (college football analyst), "Not so fast my friend!" Last Friday (4/2) we finished ginning the on-farm variety trial samples from 2020. Our new ginner, Chandler Rowe, is a champ and worked hard to make sure we got those samples ginned last week. With that being said, the finalized lint yields for the 2020 on-farm variety trial is now posted on the UGA Cotton Team website, and can be found here: http://www.ugacotton.com/2021/04/finalized-2020-on-farm-variety-trial-lint-yields/. Although variety decisions are probably already made for many growers, there will inevitably be changes and some people may even have a change of heart and decide to plant cotton this year. If that is the case, I would urge you to refer to the 2020 results prior to settling on a variety. These provide a good guideline and can help you discern which variety has the best fit on your farm.

If you have your variety picked out and are "sitting on go", I would encourage you to check out the planting conditions calculator from our friends at NC State. It can be found at this link: https://products.climate.ncsu.edu/ag/cotton-planting/. You can select your location, and the calculator then utilizes the National Weather Service 7-day forecast to calculate DD-60's and can determine what planting conditions look like for any given location. It's a great resource and can assist in planting decisions.

As always, your amazing county extension agents, along with myself and the other specialists, are here to help. If you ever need anything don't hesitate to ask. Be safe out there, and happy planting!

Thrips Management *(Phillip Roberts)*: Thrips are consistent pests of cotton, infesting nearly all cotton acres planted in Georgia each year. Thrips are the only insect pest of cotton that a preventive insecticide is recommended. We consistently observe a positive yield response to at-plant insecticides used for thrips control. A reactive approach based on scouting and use of thresholds is recommended for less consistent insect pests such as stink bugs, corn earworms, whiteflies and others 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. Thrips will infest near 100 percent of cotton planted in Georgia. We consistently observe positive yield responses in UGA research and on the farm when an at-plant insecticide is used for thrips control. It is not feasible to control thrips with foliar sprays alone; multiple foliar sprays applied in a very timely manner would be required.

2. At-plant insecticide options include infurrow granule applications of aldicarb, infurrow liquid applications of imidacloprid or acephate, and commercial seed treatments of imidacloprid, thiamethoxam, and acephate. Infurrow applications of aldicarb, imidacloprid, and acephate tend to provide greater control and longer residual control compared to seed treatments.

3. Thrips infestations are generally higher on early planted cotton compared with later planted cotton. High risk planting dates for thrips injury is a moving target from year to year. The **Thrips Infestation Predictor for Cotton** (http://climate.ncsu.edu/CottonTIP) is a web-based tool which predicts thrips risk by location and planting date. This tool was developed by researchers at North Carolina State University and has been verified using thrips data from Georgia. The website has information about the tool and also includes a link to a presentation describing the tool and how it can be used in the "About" tab. If the risk is high for thrips on a given planting date, consider using a more active at-plant insecticide or be prepared to scout and potentially make a timely foliar spray if a seed treatment is used.

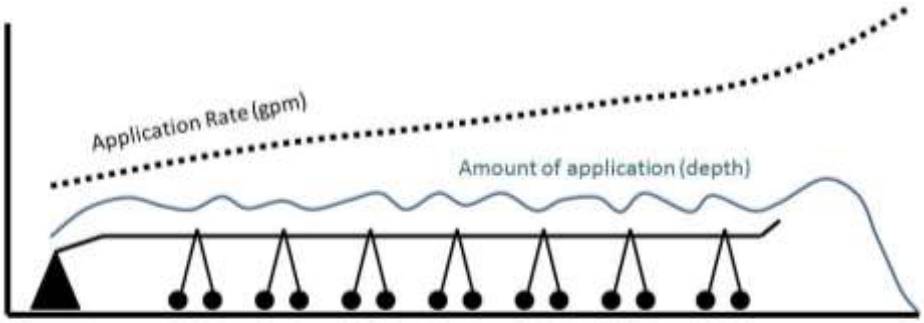
4. Thrips infestations are significantly lower in reduced tillage production systems compared with conventional tillage. In general, the more cover or residue on the soil surface the greater the reduction in thrips.

5. Cotton seedlings are most sensitive to yield loss from thrips feeding during early stages of development. Excessive thrips feeding and plant injury on 1-2 leaf cotton has a greater yield penalty than cotton infested at the 3-4 leaf stage. Once cotton reaches the 4-leaf stage and is growing rapidly, thrips are rarely an economic pest.

6. Slow growing seedlings are more susceptible to thrips than rapidly growing seedlings. If cotton is slow growing due to herbicide injury, cool temperatures, or other stresses, be sure to scout for thrips and thrips injury. Thrips feed in the terminal bud on unfurled leaves so more feeding occurs on each unfurled leaf if the plant is growing slowly.

7. Scout for thrips and injury early. The threshold for thrips is 2-3 thrips per plant with immatures present. The presence of immature thrips suggests the at-plant insecticide is not providing control (i.e. thrips eggs were laid on the plant, eggs hatched, and immature thrips are surviving). Immature thrips are crème colored and lack wings whereas adults will typically be brown with wings.

Irrigation System Prep and Early Season Water Requirements for Cotton Production *(Wesley Porter and David Hall)*: We are moving into the time when cotton planting is beginning, countless hours and many dollars have been spent on tillage, spraying and planting equipment to be prepared for another year. However, make sure that you do not overlook one of your largest investments and one that is just as important as any other, your irrigation systems. Now is an optimal time, if you have not already done so, to do routine and preventative maintenance on your irrigation systems to ensure they are in top shape. There are two important actions that need to be performed before you begin planting your cotton. The first one is an overall irrigation system check and the second is specifically focusing on water application uniformity of your system. First look up the Spring Center Pivot and Lateral Irrigation System Preparation | UGA Cooperative Extension (B1452) and go through the checklist that includes all main components on your irrigation system to ensure that they are working properly. Some of these components can include but are not limited to the power unit, pumping system, pipes and drains, electrical systems (which includes cellular connections for remote monitoring and GPS), safeties, tires, gear box oil level and leaks, and the switches on the auto stop feature. Once you have checked all of these components, start the irrigation system and finish checking components by documenting any clogged or partially clogged nozzles along with any visible leaks. Also, check the line pressure, flow, sprinklers, end gun arc travel and booster pump operation. A reduction in pressure and GPM from last year or brass and excessive sand in the trap may be a good indication of potential well issues. 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 | UGA Cooperative Extension (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. 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 (Figure 2) in the first month after planting and in some cases if adequate rainfall is received cotton can go 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 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. As cotton responds negatively to over-irrigation during critical growth periods usually causing yield reductions and increases in water applied. Even if the yield is not reduced methods such as the Checkbook have shown to have much higher irrigation application amounts

with lower irrigation water use efficiency (IWUE) amounts, meaning profit is lost. An example of this is seen from the 2020 growing season in Table 1 below. For more information about either of these contact your local county Extension Agent.

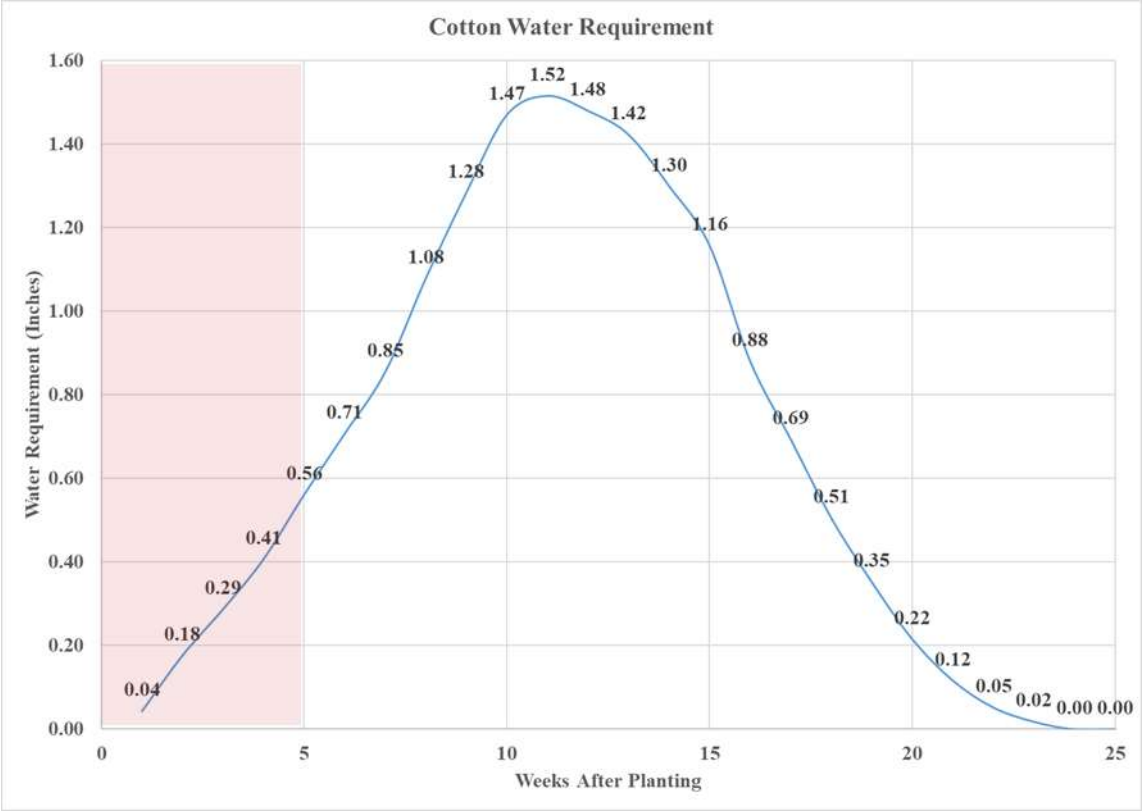


Figure 2. Seasonal Cotton Water Requirement.

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 Irrigation Reference Guide for Corn, Cotton, Peanuts, and Soybeans | UGA Cooperative Extension

Treatment	Irrigation (in)	Total Water (in)	Lint Yield (lb/ac)
Dryland	1.0	22.36	795
45 kPa Sensor	5.5	26.86	1304
20 kPa Sensor	7.75	29.11	1293
75 kPa Sensor	3.25	24.61	1129
Irrigator Pro	5.5	26.86	1245
CropX	4.0	25.36	1113
Valley Scheduler	8.5	29.86	1240
App	6.25	27.61	1270
Checkbook	11.0	32.36	1196

Table 1. 2020 Cotton irrigation scheduling data, showing that more advanced methods provide higher yields and IWUE.

Silverleaf Whitefly Update *(Phillip Roberts)*: Silverleaf whitefly (SLWF) is a sporadic and often localized insect pest of cotton in Georgia. Infestations are most common in areas where both cotton and vegetable production occur. More detailed information on SLWF biology and ecology in Georgia and area-wide 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 are rarely 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 slow development of SLWF. We can calculate SLWF degree days in a similar fashion as we calculate DD60s to estimate cotton growth and development. For SLWF we use a minimum

temperature of 11.1°C or 52°F. SLWF complete a generation in 312 11.1°C DDs. SLWF populations grow exponentially with each generation, in general the more generations the more SLWF. I have received several questions regarding SLWF for the 2021 cotton crop. Many factors between now and harvest can influence SLWF infestations. For example, hot and dry conditions favor SLWF reproduction and survival. But where are we today in terms of weather compared with previous years?

Table 1. Cumulative 11.1°C degree days and days below 32°F in Tifton Georgia from November 1 thru March 31 for crop years 2004-2020 and percent SLWF infested and treated acres in Georgia cotton.

Crop Year	Cumulative 11.1°C DDs (Nov 1-Mar 31)	Days<32°F (Nov 1-Mar 31)	% SLWF Infested Acres	% SLWF Treated Acres
2004-2020 mean	*472*	*17*	*16*	*8*
2004	421	20	1	0
2005	469	17	2	0
2006	453	24	2	0
2007	509	13	10	4
2008	430	14	5	1
2009	446	22	5	1
2010	251	26	4	0
2011	403	32	2	1
2012	630	11	20	10
2013	377	13	12	7
2014	380	21	10	1
2015	352	14	0	0
2016	616	16	20	9
2017	676	6	85	70
2018	526	20	20	2
2019	496	8	30	6
2020	589	6	40	22
2021	546	16	?	?

SLWF and Weather: Since November 1, 2020, we have accumulated 546 SLWF DDs which is above the 2004-2020 average of 472 SLWF DDs (Table 1). It should be noted that the four crop years with the highest accumulated SLWF DDs are the same four years with the highest percent of SLWF treated acres. Number of days below freezing since November 1, 2020 is 16 which is near average. This is just weather

data but it does indicate that this was a normal to above normal winter. A disturbing trend of higher SLWF infested and treated acres during the last five years.

SLWF Traps: We have been monitoring sticky traps for SLWF since January 1, 2021. To date SLWF captures have been low, and lower than captures during this same time during 2018 and 2019 (In 2020 we did not begin monitoring sticky traps for SLWF until April 1). We will continue to monitor traps each week and post periodically on ugacotton.com.

SLWF Observations: Reports from county agents and consultants are that SLWF populations are low in vegetable crops at this time. As I mentioned earlier, a lot can happen in the coming weeks in terms of SLWF infestations in cotton.

Weather conditions during spring and summer 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.

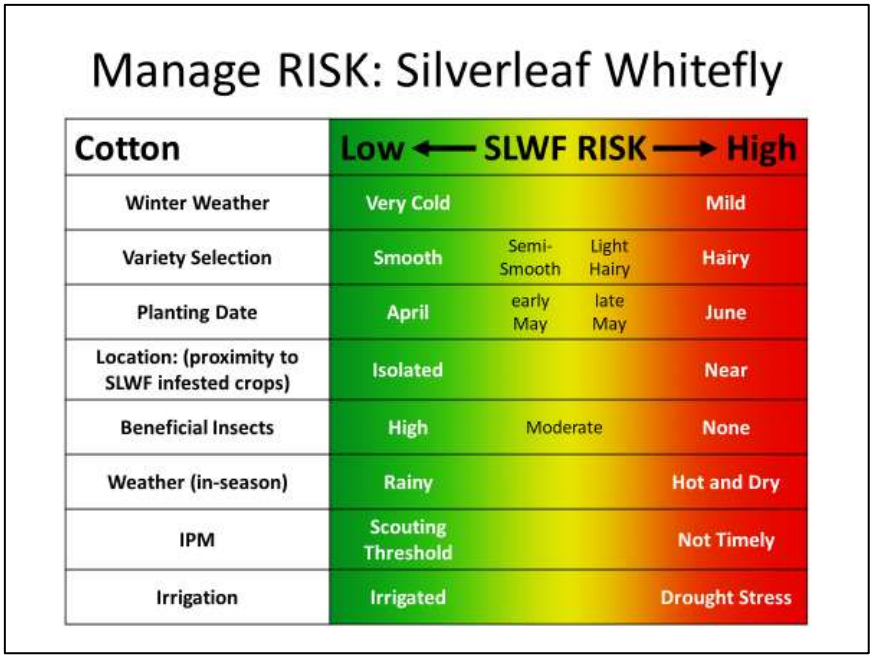


Figure 1. Silverleaf whitefly risk factors.

As we prepare to plant, attempts should be made to minimize overall risk of SLWF. Decisions now could greatly influence SLWF infestations later in the summer.

1. Location: 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. Historically SLWF infestations are greatest in areas which produce both vegetables and cotton. Several vegetable crops and melons may be a potential source of SLWF. In all crops, including cotton, fields should be immediately destroyed to eliminate potential SLWF reproduction.

2. 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. Bottom line is to avoid late planting.

3. Variety Selection: SLWF prefer hairy cotton compared with smooth cottons. There is a direct correlation of SLWF infestations in cotton based on the degree of leaf hairiness. Avoid hairy cottons especially if planting near a source of SLWF or if planting late.

Can you survive without Valor, Reflex, and other PPO herbicides? (*Stanley Culpepper and Taylor Randell*):

Figure 1. Palmer response to topical applications of Cobra, Blazer or Reflex

Research over the past three seasons has confirmed a GA population of Palmer amaranth to be resistant to topical applications of PPO herbicides including Reflex, Cobra, and Blazer (Figure 1). For cotton and peanut farmers, the question on everyone's mind is if the residual activity of Valor and Reflex will still control these resistant pigweeds? The initial study results are concerning Figure 2 shares the comparison of a nontreated control in the left photo, the response of a "normal" pigweed population in the center, and the response of the concerning GA population in the right photo (the population with confirmed resistance to topical PPO applications). Similar results are being

observed with Reflex, although symptomology is quite different. Obviously, this is a very serious threat to farm sustainability and must be taken seriously. If you are concerned that you have a field or two with pigweed escaping through the residual activity of Valor or Reflex, contact your Extension Agent or the manufacture to develop a specific management program that limits development and spread. For others, a sound program following the practices below is suggested:

1. *No weeds emerged at planting (cover crops, tillage, burndown).*
2. *Two residual herbicides at planting.*
3. *Timely POST herbicide tank mix applications.*
4. *Layby directed or hooded application in cotton.*
5. *Remove escapes*

Figure 2. Palmer Response to Valor PRE.

And finally, one must accept that relying on herbicides alone is futile when managing Palmer amaranth (or ryegrass)…..those farmers understanding the value of diversity in their management approach and implementing sound programs will be more sustainable in this battle.

Important Dates:

Georgia Cotton Commission Annual Meeting and UGA Cotton Production Workshop – January 2021