Peanut Pointers

April, 2023

UNIVERSITY OF GEORGIA

Peanut Team

Irrigation System Prep and Early Season Water Requirements for Peanut Production

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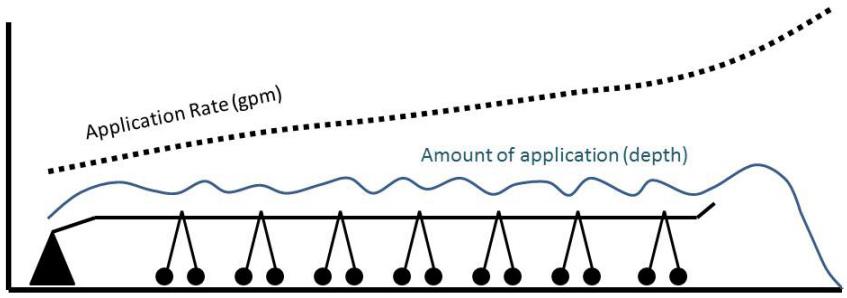
We are moving into the time when peanut planting is beginning, countless hours and many dollars have been spent on tillage, spraying and planting equipment to be prepared for another year. However, make sure that you do not overlook one of your largest investments and one that is just as important as 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 peanuts. 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.

While it is easy to see major leaks, missing or clogged sprinklers 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, in conjunction with the extended forecast. Peanuts typically do not require a lot of water in the first month after planting as exhibited by the yellow box and water use curve below. However, if it gets hot and dry again you may need to apply a few small irrigation applications. The yellow box below represents the first five weeks after planting of peanut 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. Thus, 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. An additional option is the utilization of USDA-ARS's Irrigator Pro, recent research (Table 1) has shown that the utilization of either sensors or Irrigator Pro maximize Irrigation Water Use Efficiency and yield when compared to other irrigation scheduling methods. For more information about either of these contact your local county Extension Agent.

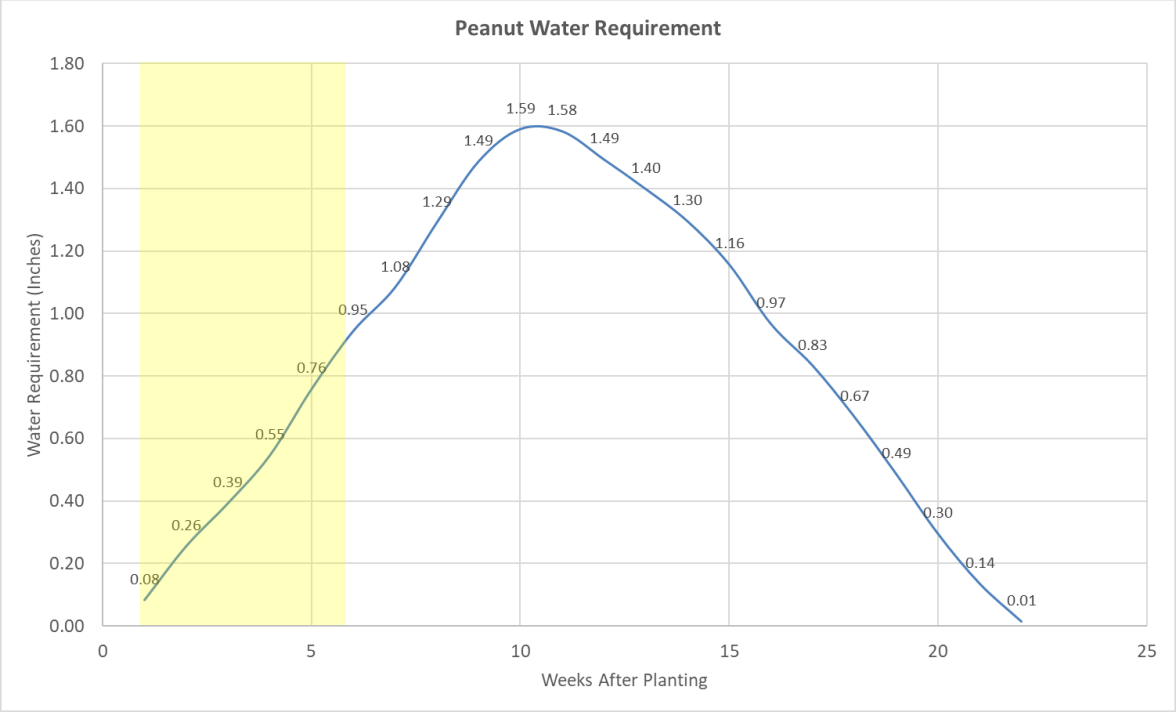


Figure 2. Seasonal Peanut Water Requirement.

UGA Extension's peanut irrigation checkbook, like for most crops, recommends very little water once the stand is established. Once the planters start rolling, farmers continue to plant as fast as possible while sufficient moisture is present to ensure 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 after an irrigation event 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. If a rain event is not expected within 4-5 days of planting, another irrigation application will be necessary to incorporate and activate pre-emergent applied herbicides. Most labeled herbicides recommend around 0.5 inches of rainfall or irrigation. During extremely hot and dry weather, this post planting irrigation application can provide benefits in establishing a good start to peanut production; assisting with germination, activation of pre-emergent herbicides, keeping soil surface temperatures cooler and if soil surfaces have crusted, making it easier for peanut plants to break through for less vigorous seed. Having good soil moisture will help tremendously with keeping soil temperatures cooler and ultimately reducing the chances of aspergillus crown rot disease losses and other diseases in peanut plants.

UGA Extension has developed a quick and easy irrigation scheduling guide that is laminated and contains the four major row crops grown in Georgia. 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

Table 1. Results from Peanut Irrigation Scheduling Studies during 2017 and 2018.

Irrigation Scheduling Method	Irrigation Amount (in)	Total Water (in)	Yield (lb/ac)
2017 Rainfall: 24.30			
Dryland	1.00	25.30	**5875**
WaterMark (45 kPa)	2.85	27.15	**6396**
PeanutFARM	5.50	29.80	**5936**
Irrigator Pro	4.00	28.30	**6260**
50% Checkbook	6.75	31.05	**6262**
Checkbook	10.50	34.80	**5749**
EasyPan	4.75	29.05	**5979**
2018 Rainfall: 32.43			
Dryland	2.50	34.93	**5591**
WaterMark (45 kPa)	2.50	34.93	**5849**
Old Checkbook	7.80	40.18	**6204**
New Checkbook	6.70	39.13	**6147**
50% New Checkbook	4.00	36.45	**6231**
Irrigator Pro (Soil Temp)	6.30	38.68	**5996**
Irrigator Pro (Sensor)	3.30	35.68	**6433**
PeanutFARM	4.80	37.18	**5984**

Planter Preparation

- Simer Virk
- Wes Porter

While we are still few weeks out from planting peanuts, this is a perfect time for growers to check their planters and perform any required maintenance to ensure they are field-ready and dialed in for peak performance. While some of the planters are currently being or may have already been used to plant corn, it's important to note that some planter settings will need significant changes for peanut to ensure accurate metering and seed placement. Negligence towards proper planter setup can quickly become costly by resulting in inadequate stand establishment. A checklist is available here (Planter Checklist) to perform a thorough planter inspection. Here are few other considerations related to planter setup and in-field checks when getting the planter ready for planting peanuts:

1. **Seed depth** – Recommended seed depth for planting peanuts is 2.0 to 2.5 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 take the time to check planted seed depth for each row unit and make necessary adjustments. This is important as even small deviations in the depth settings across the planter can result in large, actual planted seed depth variations in the field.

2. **Downforce** – Proper planter downforce is important to achieve target seeding depth so make sure the downforce system (whether utilizing mechanical or an active system) is set to apply adequate downforce on each row unit. A downforce of 100 to 200 lbs is generally considered adequate for planting peanuts in most of Georgia soil conditions. Remember these downforce requirements can vary with soil type, texture and moisture so adjust downforce settings as needed when moving from one field to another or within the same field if needed.

3. **Seeding Rate** – Recommended seeding rate for peanuts is 6 to 7 seed/ft, which is higher than the nominal seeding rates for corn and cotton (2 to 3 seed/ft), and requires the seed meter to meter seeds at a considerably higher speed (rpm) even at normal planting speeds (3.0 to 3.5 mph). Therefore, it is important to ensure that the seed meter is setup and functioning correctly to attain the desired seeding rate during planting. Unnecessary skips or multiples will result in poor or uneven stand establishment, which can further impact yield if stand is reduced significantly. Also, since peanut seeds are larger than corn and cotton seeds, they require a higher vacuum, thus adjust the vacuum appropriately for proper seed metering.

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 field conditions is critical for attaining adequate seed placement and proper seed-to-soil contact. Ensure that the double-disc openers are creating a true V-shape furrow, gauge wheels are running tightly (but not rubbing excessively) against the double-disc openers, and closing wheels are aligned perfectly behind the planter and set to apply adequate pressure on the furrow. Check for any misalignment of closing wheels and improper furrow formation when doing field checks and make necessary adjustments.

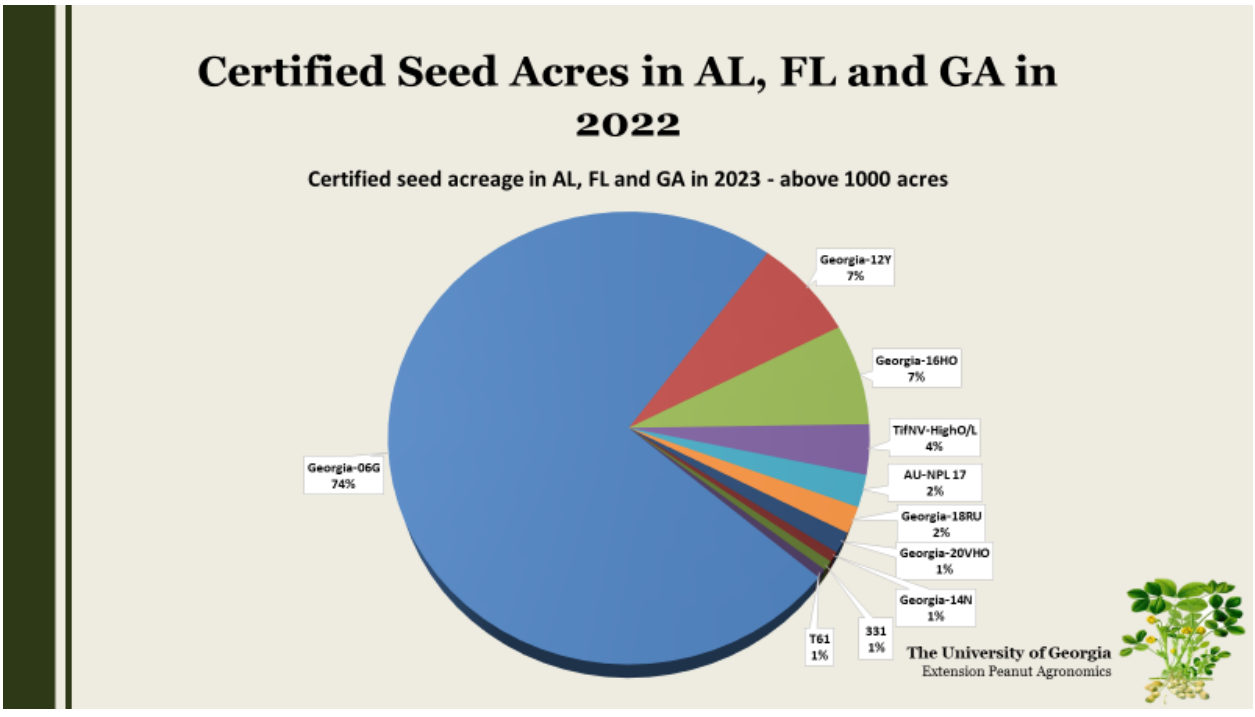
5. **Planting Technology** – Issues with planting technology during the planting season are common and can cost both significant time and money. Perform a thorough and timely inspection before planting to check the status and functioning of all technology components including GPS, seed monitor, wiring harnesses, seed tube sensors, rate control module, electric seed meters, and active downforce system (if available) as well as for any subscription or latest firmware updates for the GPS and the in-cab display.

Peanut Pointers

- Scott Monfort

I have received several calls over the last few weeks regarding varieties. There a few key things to remember. First, a majority of the acres will still be GA-06G. Other varieties with some acres will be GA-12Y, GA-16HO, GA-18RU, GA-20VHO, TifNV-High OL, AUNPL-17, & FloRun 331 (See figure below). There are seed increase acres out there this year for GA-21GR, TifNV-HG, and GA 22MPR. With this said, remind your growers that if they want to plant in April they need to look over the Peanut RX and do everything they can to minimize TSWV. There are only a couple of varieties with higher levels of resistance to TSWV compared to GA-06G: which includes GA-12Y and TifNV-High OL. We are hopeful the new varieties will provide some better resistance to TSWV. We will know more after this season. At this point all we can do is uses planting date, insecticide, row configuration, plant populations and tillage along with the current variety options available to minimize the impact of TSWV. I understand growers cannot adhere to all of the recommended cultural practices. We just want them to consider the recommendations and modify the practices as needed for their operation.

Along with these practices, growers also need to pay attention to seed quality and environmental conditions as they can affect final stand. The main thing of concern this year regarding seed quality is the potential reduction in seed vigor due to quality issues last year. Low seed vigor alone can cause slower plant emergence and/or skippy stands resulting in an increased risk of TSWV infection. However, if couple lower seed vigor, subpar environmental conditions, and planting in the high-risk window (April-May 10), you will have a prefect storm for having a high level of TSWV Infection and potentially a loss in yield potential.



Variety Information

- **Georgia-12Y**
  - Plant before May 12
  - Manage vines
  - Manage Rhizoctonia Limb Rot
- **Ga-18RU**
  - Higher susceptibility to TSWV compared to GA-06G
  - Do not plant before May 10th
  - Leafspot late in season can be an issue
- **GA-16HO**
  - leafspot late in season can be an issue
- **GA-20VHO**
  - High Risk to shed pods in prolonged periods of excessive moisture late in season, only plant in well-drained fields!
- **TifNV-HG**
  - Root-knot resistant
  - Similar to GA-06G in yield potential
- **Ga-21GR and GA-22MPR**
  - These two varieties are new and we have little information available
  - GA-21GR has potential for higher grades and medium to large seed size
  - GA-22MPR is a high oleic RKN resistant variety and is medium to large seed size

Entomology

- Mark Abney

Georgia peanuts planted in April and prior to 10 May will be at increased risk for thrips infestation and infection by Tomato spotted wilt virus (TSWV). County agents are encouraged to review the Peanut Rx risk assessment tool <https://peanuts.caes.uga.edu/extension/peanut-rx.html> and be familiar with the factors growers can manipulate to reduce the risk of infection. There have been, and will continue to be, a lot of questions about thrips and TSWV management this year because of the high levels of the disease in our peanut crop in 2022. A few quick points:

1. The ONLY chemical that growers can apply to peanut that is proven to reduce the risk of TSWV is phorate (Thimet).
2. As odd as it seems, killing thrips does NOT reduce the risk of TSWV. Aldicarb (AgLogic), acephate (Orthene), and other products will kill thrips, but they do not reduce the risk of TSWV.
3. Killing thrips is a good thing to do, especially on early planted peanuts. Thrips feeding injury will reduce yield even if there is no TSWV.
4. The TSWV risk factors found in Peanut Rx are REAL. The validity of the risk index has been tested and proven again and again for more than two decades. If a grower is looking for a way to reduce the risk of TSWV infection, he or she should look no further than Peanut Rx. If it is not on Peanut Rx, it probably does not matter.
5. When the seed furrow is closed, opportunities for TSWV management are over. Growers should have a plan now for how they will approach thrips and TSWV.

I suspect there are a lot of people itching to put a seed in the ground…I certainly am. Thrips and TSWV management will be one of the most critical things growers do (or don't do) for their early planted peanuts. Hopefully we (re)learned some valuable lessons in 2022: TSWV is not gone, TSWV robs yield and money, and we can reduce the incidence of TSWV infection through good management that starts with using Peanut Rx to understand risk.

Cover Crop Termination and Soil Moisture Retention

- R. Scott Tubbs

It is common to want to maximize spring growth of cover crops to get greater benefit of biomass production. This helps provide more nutrients or extend the amount of time that covers breakdown, and prolong the period of ground cover to get more weed suppression and soil moisture retention in the summer when the ground dries out rapidly. However, keep in mind that cover crops prevent the soil from warming rapidly in the spring. Also, while there are soil moisture retention benefits for the summer crop by having cover crop residue on the surface, an actively growing cover crop in the spring actually does the opposite and removes moisture from the soil profile ahead of planting the summer crop. Drying out the soil in the spring can delay planting, or if planting into dry (and potentially cooler) soil, emergence can be delayed or prevented if planted in a non-irrigated field. Roots from cover crops can also remove soil moisture from deeper in the soil profile, causing impedance to root penetration by the summer crop. Hence, some form of tillage (strip-tillage with a subsoil shank) is recommended in the Coastal Plains soils of South Georgia instead of strict no-till management when a cover crop is grown.

It is recommended to terminate cover crops in non-irrigated fields with ample time for rain events to replenish moisture through the soil profile before planting the summer crop. This is especially true for peanut, which has the largest seed of our four primary agronomic summer crops in the state, and thus has a relatively large water requirement to germinate uniformly. Non-uniform emergence, especially coupled with early planting, is a recipe for increased risk to Tomato spotted wilt virus (TSWV). It is typically recommended that cover crops are terminated at least 3-4 weeks prior to planting the summer crop. If there are cover crops in a field that were not terminated prior to April 1, and the field does not have irrigation to quickly resupply the soil moisture, then it is not recommended to plant peanut earlier than May 1 in that field. This will give ample time to catch some rain events, and move beyond the high-risk window for thrips and TSWV incidence.

Rotational Acreage for Peanut Going into 2023

- R. Scott Tubbs

The UGA Extension recommendation for rotation with peanut is to plant peanut no less than every 3 years in the same field. When planted in shorter rotation, yields decline and pest incidences (especially disease, nematode, weed, and insect) are more problematic and harder to control. Less ability to use pesticide modes of action that are not available in peanut but available in other crops also puts more pressure on the long-term viability of these products since resistance is more likely to occur. Thus, rotation is key to the future of agronomic cropping systems in Georgia for maintaining national production needs through above-average yields and reduced pest risk.

The primary rotation partners for peanut are cotton and corn. Soybean is not a good rotation partner for peanut because of similar pests that affect both crops. Yield decline has been observed when peanut is in short rotation with soybean compared to cotton and/or corn. Therefore, from an acreage availability standpoint, rotational acreage for peanut should be a consideration of the total of cotton + corn acreage compared to the total of peanut + soybean acreage. In 2022, peanut + soybean planted acreage totaled 850,000 acres, while cotton + corn totaled 1,715,000 acres. This would mean a statewide 3-yr rotation would be possible for peanut, if peanut were to follow all acres of cotton and corn. However, some cotton and corn are planted in northern parts of the state where peanut is not grown, meaning a 3-yr rotation is not sustainable in the peanut growing areas of the state based on the 2022 acreage report. In addition, in 2020 and 2021, the combined peanut + soybean planted acreage in Georgia was substantially more than half of the combined cotton + corn acreage, meaning that a 3-yr rotation is not sustainable for peanut in the state, with greater pressure mounting on the entire production system over three consecutive crop seasons.

With the loss of some pesticide chemistries in peanut in recent years due to environmental or efficacy concerns, registrations, and/or other regulations, coupled with very few new ones being registered/approved for use on peanut, rotation and cultural practices will be increasingly important in continuing competitive production. Growers are encouraged to stick to recommended rotations for the viability of the entire production system in the long-term.