Peanut Pointers

April, 2025

UNIVERSITY OF GEORGIA

Peanut Team

Irrigation System Prep and Early Season Water Requirements for Peanut Production

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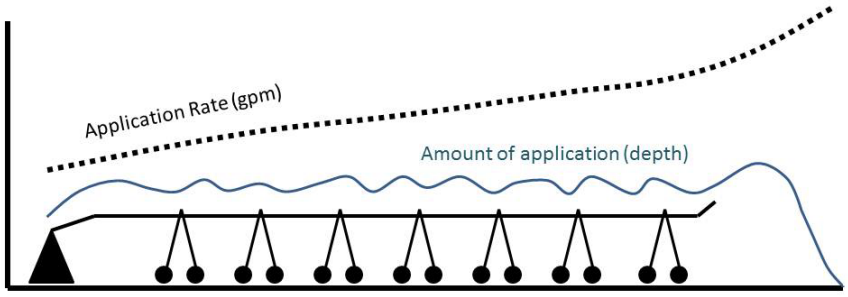
Corn is being planted and lots of equipment is moving through the fields. It's go time, and hopefully, we have spent or will find some time in the next few weeks to ensure that our equipment is ready for the season. Depending on conditions, peanut planting will start here at the end of April, by that point countless hours and many dollars will have been spent on tillage, spraying and planting equipment to be prepared for another year. However, ensure that you do not overlook one of your largest investments and one that is just as important as any other, your irrigation systems. If you have not already done so, now is an optimal time to do routine and preventative maintenance on your irrigation systems to ensure they are in top shape. Remember that we had a very cold winter, and multiple days with temperatures in the upper teens and lower twenties. Due to this, if an irrigation system was not properly prepared for the winter there is a high chance there are going to be leaks and places that polymer parts are broken due to freezing water in the system. Thus, 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 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. The first time you start this system for 2025 should not be for a stand establishment, herbicide activation, nor the first time you need irrigation!!! Start it now and avoid costly 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. Based on water quality and source it is recommended that you change sprinkler packages anywhere from 6 to 10 years. If you have not updated sprinklers in this time frame, we strongly suggest doing a uniformity and considering a new sprinkler package. 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 is 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 much 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. Currently, I have heard that this is supposed to be a warmer and drier season based on Enso cycle, but that could change, again track you local and current conditions. For a more in-depth irrigation recommendation it is suggested that you consider 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. For more information about either of these contact your local county Extension Agent.

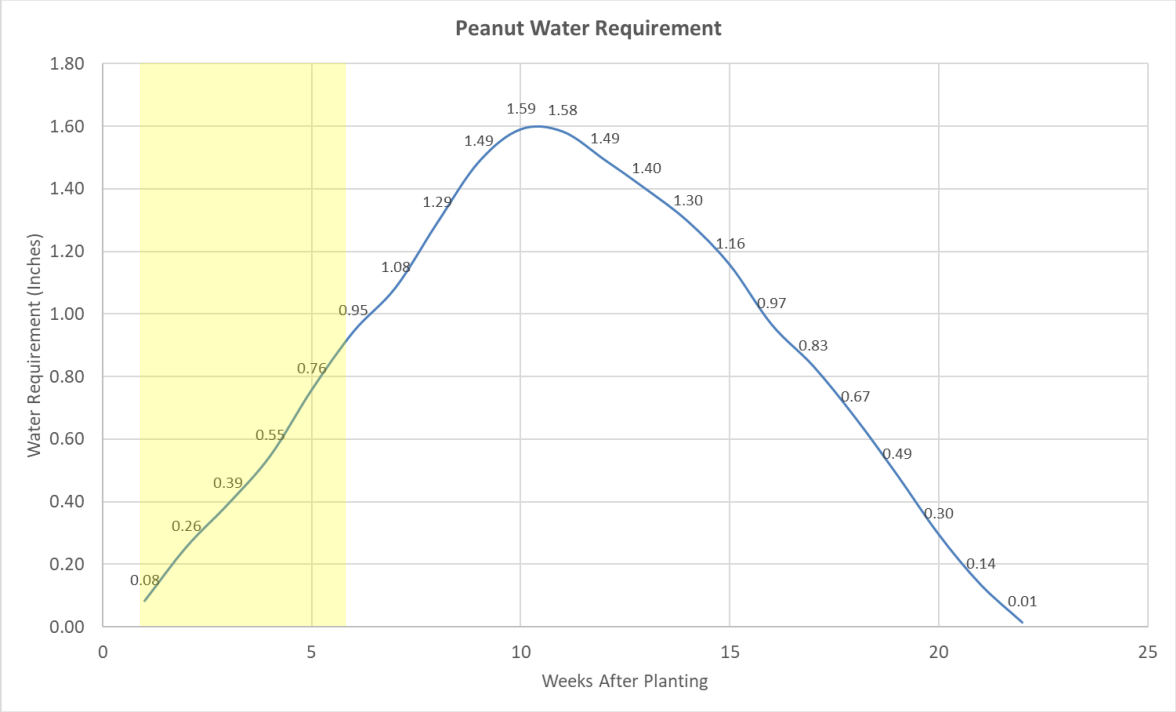


Figure 2. Seasonal Peanut Water Requirement.

UGA Extension's peanut irrigation checkbook, like most crops, shows that peanut water requirements are low once the stand is established for the first 40 days. Even though there is some past information out there stating that we do not need to irrigate peanuts in the first 40 days, we need to track rainfall and estimated soil moisture and irrigate accordingly so we do not cause moisture stress on the peanuts. If it is getting dry, apply irrigation as appropriate.

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. When irrigating prior to planting take available soil moisture, soil type and projected weather into account when deciding how much to apply. 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 which 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

April Peanut Pointers

Scott Monfort

When planting peanuts early in Georgia, it's crucial to monitor soil temperature and moisture levels. The University of Georgia (UGA) recommends maintaining average soil temperatures of at least 68°F for three days to encourage effective germination and emergence. Keeping an eye on weather forecasts and being prepared to protect peanut seeds from unexpected cold snaps can help ensure a successful early peanut crop. Soil temperatures have decreased since early April, with conditions not expected to improve until April 21st or later. Growers should watch the weather closely before planting and avoid planting too early. The 15-day forecast indicates little rain, and while many areas currently have good moisture, warming temperatures could lead to moisture deficits. Growers should avoid chasing moisture below 3 inches or planting in dry soil in non-irrigated fields, as this can lead to poor stands and potentially higher incidences of Tomato Spotted Wilt Virus (TSWV).

I have been getting several calls on fertility and making the best decisions on the fertility products on peanut plant. Below are a few things to keep in mind.

Fertility Considerations for Peanut Plants

Ensuring optimal soil fertility is essential for a successful peanut crop. Here are some key points to consider:

1. **Soil Testing/Pegging Zone Sampling**: Conduct a soil test to determine pH levels and nutrient content. The ideal pH for peanuts is between 6.0 and 6.5. Soil tests will also reveal levels of phosphorus (P), potassium (K), calcium (Ca), and other critical nutrients.
2. **Lime Application**: If soil pH is below 6.0, apply lime to raise it to the optimal range. Lime should be applied well before planting to allow time for it to react with the soil.
3. **Calcium Management**: Calcium is crucial for peanut development, particularly in the pegging zone (top 3 inches of soil). Gypsum is commonly used to supply calcium and should be applied around early bloom. Ensure a calcium to potassium ratio of at least 3:1 to avoid deficiencies.
4. **Boron and Manganese**: Apply boron at 0.5 lb/acre, typically through foliar feeding during the first two fungicide sprays. Address manganese deficiencies through tissue sampling and foliar feeding if needed.
5. **Inoculation**: Use Rhizobium inoculants if peanuts have not been grown in the field for more than four years. This helps in nitrogen fixation, which is vital for peanut growth.

Gypsum Sources for Peanut Farming in Georgia

Gypsum, or calcium sulfate, is a crucial amendment for peanut farming in Georgia, particularly for ensuring adequate calcium levels in the pegging zone. Here are some key sources and considerations for gypsum application:

1. **Naturally Mined Gypsum (USG 500)**: A reliable source, especially available in East Georgia.

2. **Phosphogypsum**: A byproduct of phosphate fertilizer production, sourced from Florida. Availability may vary.
3. **Flue Stack Gypsum (FGD Gypsum)**: A byproduct of reducing sulfur dioxide emissions from coal-fired power plants. Availability has decreased with the reduction in coal-fired plants.
4. **Recycled Wallboard**: A cost-effective alternative, though it requires proper processing to ensure safety and effectiveness.
5. **Lime**: Can be used instead of gypsum but must be applied before planting since its calcium is less soluble. Lime is beneficial for adjusting soil pH and providing calcium.

Alternative Calcium Sources

1. **Liquid Lime (Topflow)**: Surface-applied at planting at 10-15 gal/A. Provides less calcium than gypsum but can be useful if gypsum is unavailable. **10 Gals/A = 25 pounds of Ca/A**
2. **Calcium Chloride and Calcium Thiosulfate**: Applied through irrigation systems during peak pod fill (around 60 days after planting) at 20-30 gal/A. These offer a soluble form of calcium for emergency or insurance applications.
    1. Calcium chloride solutions typically contain **10% calcium by weight**. Given that the density of calcium chloride is around **11 lbs/gallon**, each gallon contains approximately **1.1 lbs of calcium**. Therefore, when applied at a rate of **20 gallons per acre**, it delivers about **22 lbs of calcium per acre.**
    2. Calcium thiosulfate solutions contain **6% calcium by weight**. With a density of **10.4 lbs/gallon**, each gallon contains approximately **0.63 lbs of calcium**. Thus, when applied at a rate of **30 gallons per acre**, it provides about **18.9 lbs of calcium per acre**.

Application Timing and Considerations

- **Early Bloom Application**: Apply gypsum at early bloom (30-45 days after planting) to ensure calcium availability during pod development.
- **Peak Pod Fill**: If gypsum application is delayed, apply calcium chloride or calcium thiosulfate through the pivot at peak pod fill (~60 days after planting).
- **Water and Irrigation**: Adequate water is essential for dissolving gypsum and allowing calcium to penetrate the soil and reach developing kernels.

Polysulfate

Polysulfate is a multi-nutrient fertilizer providing calcium, sulfur, magnesium, and potassium. For peanut production, calcium is particularly important for pod development. Polysulfate is coarse and may take longer to break down than gypsum. Apply pre-plant, similar to lime. Here are some general guidelines for using polysulfate:

- **Application Rate**: Polysulfate is typically applied at a rate of **200 to 400 lbs per acre**.
- **Calcium Content**: Polysulfate contains about **14% calcium**. At the recommended application rate, this would supply approximately **28 to 56 lbs of calcium per acre**.

Reducing the rate of gypsum to 750 lbs/A is likely a better option than most alternatives.

<u>An example of a low-use-rate calcium/foliar or calcium products that are Not recommended!!!!</u>

Biochar

Biochar provides calcium but takes a long time to become available. This needs more research to be conducted. **Currently, it not recommended as a calcium source.**

Low-Use-Rate Calcium/Foliar Products

Products like **Full Measure CAL**, containing 12% calcium, are not recommended due to their low calcium content relative to cost.

There are several other low use calcium products being sold so be cautious.

If you have any specific questions or need further assistance, feel free to ask!

The Early Situation Going Into the 2025 Peanut Season

R. Scott Tubbs

It is expected that Georgia will plant more peanuts in 2025 than any time in the last 75 years. Surveys at grower meetings this winter also indicate that a larger than normal proportion of these acres will be planted in short rotation (field had peanut planted within the last two growing seasons). To plant such a large acreage, it usually means that growers tend to start planting earlier than usual in order to get it all in the ground in a reasonable timeframe. In addition, a substantially large percentage of growers indicate they will not be deep turning their land. When land is not turned, soil temperatures do not increase as rapidly, especially if they have a cover crop on the surface absorbing the sunlight before it can touch the ground.

All of the above factors should cause an abundance of caution if a grower wants to plant early. Soil temperatures are a major factor in the amount of time the seed needs to emerge from the ground. Soil moisture is another critical factor. When a cover crop is actively growing, it is also actively drawing moisture out of the soil. Therefore, cover crops need to be terminated far enough in advance to allow soil moisture to replenish if irrigation is not readily available. Even if irrigation is available, cooler temperatures in early April mean the water temperature is also cool and will likely reduce the soil temperature once applied. Cool water applied after seed is planted can further delay germination and cause erratic emergence. Erratic emergence in a time when the risk for thrips feeding is high can lead to significant Tomato Spotted Wilt Virus (TSWV) injury.

The UGA Extension recommendation for soil temperature to initiate planting is when the average daily 4-inch soil temperature has reached 68+ degrees for 3 consecutive days with no cooler weather in the immediate weather forecast. That last caveat is often overlooked. Over the first week of April, the 4-inch soil temperature in South Georgia (using the Tifton station of the Georgia Weather Network) has reached 68+ degrees for an entire week. However, a cold front quickly caused those soil temperatures to plummet 6 degrees in only 2 days, and the soil temps are once again below the 68 degree threshold. A sudden drop in temperature like this is shocking to the seed and the resulting delay in emergence allows greater opportunity for seedling mortality from diseases, lost soil moisture, geotropism, rooting by hogs, or other issues.

The early crop is going to be under serious risk. It needs to be given every chance to succeed. If you consider planting early, please consult the Peanut Rx and growers are encouraged to discuss with their County Agent strategies to mitigate their risk in as many other ways as possible when the planting date aspect is already at its maximum risk. And consider that the “Tillage” component of the Peanut Rx is not taking the soil temperature component into consideration, so reduced TSWV risk from conservation tillage practices is not accounting for potentially lower soil temperatures that could cause a delay or erratic emergence to occur.

April 2025 Peanut Pointers

Mark Abney

If you have kept up with Peanut Pointers over the years, you know that an article from the entomologist in April is almost certainly going to be about thrips and tomato spotted wilt virus. There is nothing new when it comes to thrips/TSWV management in peanut in 2025.

It would be wise for growers and county agents to review the Peanut Rx risk assessment tool before planting begins in earnest in just a few days. As I said in our grower meetings this winter, we need to wring every penny of profit out of the 2025 peanut crop, and I don't want growers to be standing in a field full of TSWV in October kicking themselves over something they did (or didn't do) in April and May. Planting before 10 May puts peanut at increased risk for TSWV. Single row pattern puts peanut at higher risk than twin row pattern. Conventional tillage puts peanut at higher risk than reduced tillage with residue. The only chemical that can be applied to peanut that consistently reduces the risk of TSWV is Thimet…nothing else. We can kill thrips with other insecticides, but we do not reduce the risk of TSWV. If you have a grower who asks why this is, and you are not sure, give me a call, and I will explain it. It can be confusing.

If a grower is not going to use Thimet, it is still worth killing thrips. Heavy thrips pressure will reduce yield. If using something other than Thimet, consider the cost and potential benefit. I am not a fan of applying multiple insecticides in the furrow at-plant for thrips. A well-timed acephate application can be very effective against thrips, but many growers don't treat until after the damage is visible. In my experience, an acephate application is not usually warranted if an insecticide is applied in the furrow at planting. An acephate application is almost always warranted if there is no insecticide applied at-plant. I would always put insecticide in the furrow, at-plant on my peanuts.

There is no way to predict what level of TSWV pressure we will experience in 2025, and management of this disease ends when the furrow closes. If you have any questions about thrips and/or TSWV management, please do not hesitate to contact me.