Peanut Pointers

May, 2024

UNIVERSITY OF GEORGIA

Peanut Team

Early Season Irrigation Considerations for Peanut Production

Wesley Porter, Extension Precision Ag and Irrigation Specialist, UGA
David Hall, Extension Water Educator, UGA
Jason Mallard, Extension Water Agent, UGA
Phillip Edwards, Extension Water Agent, UGA
Daniel Lyon, Extension Water Educator, UGA

Most if not all peanuts in the state of Georgia should be planted sometime during late April and into early- to mid- May. Once the crop is in the ground it's time to start considering how to manage it, and specifically how to manage irrigation. There are many irrigation scheduling tools available to producers from the UGA Checkbook method to computer models and soil moisture sensors. Depending on your operation and what your irrigation capabilities are, one of these methods may be a better fit than others. The simplest method is the UGA Checkbook method in Figure 1 below. UGA Extension has developed a quick and easy irrigation scheduling guide that is laminated and contains the four major row crops grown in Georgia. The guide can be downloaded at Irrigation Reference Guide for Corn, Cotton, Peanuts, and Soybeans | UGA Cooperative Extension. 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 you may need to apply a few small irrigation applications. It seems like each year farmers do not want to irrigate their peanuts during the first 40 days, but it is critical to watch the weather and irrigate if it turns hot and dry like it has the recently. The yellow box below represents the first five weeks after planting of peanut water requirements. Keep 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.

Currently, according to the U.S. Drought monitor the entire state of Georgia is categorized as none under drought. (https://droughtmonitor.unl.edu/CurrentMap/StateDroughtMonitor.aspx?GA) However, our humidity has dropped and there is no significant rainfall predicted through the long-term forecast. The temperature predictions for the first week of May are getting into the upper 80's and even low 90's, and if the humidity is down and we have windy days we will be drying out our shallow soil moisture. Additionally, if it stays dry and turns hot, irrigation will most likely be needed during the first month after peanut planting. So, don't fall behind early during the season. In addition to early season irrigation, due to the depletion of soil moisture from heat and lack of rainfall, farmers may need to consider pre- and post- irrigating their fields to aid in promoting better seed germination during planting. It is advised not to just irrigate after planting into hot dry soils, as the cooler water may shock the seeds. If irrigation is needed for

germination irrigate prior to and after planting! 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. For more information about either of these contact your local county Extension Agent.

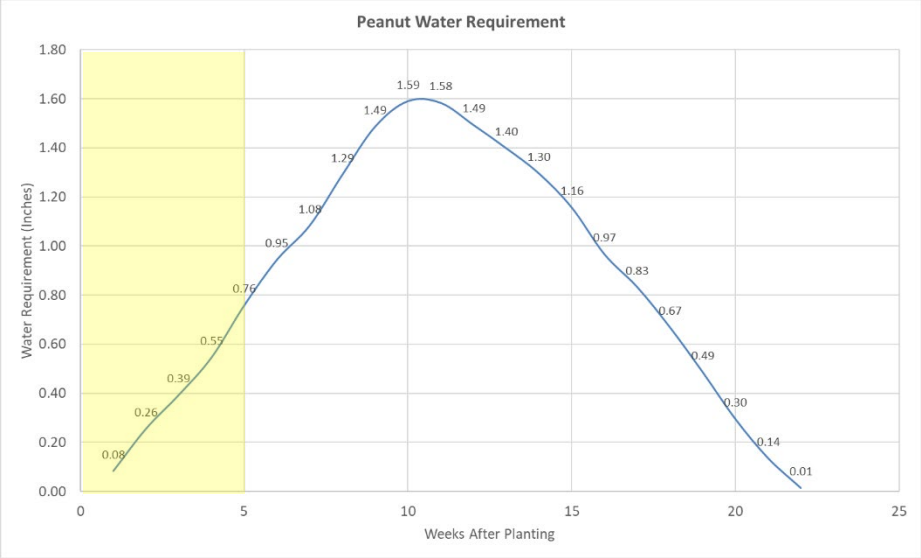

Figure 1. Seasonal Peanut Water Requirement.

For peanut farmers who utilize tools such as soil moisture sensors for irrigation scheduling, there are a few quick reminders to keep in mind. We tend to visualize the above ground plant biomass and forget what is growing below the surface. We can sometimes be guilty of placing a sensor in the row of the peanuts and let it start logging data, making decisions from that data and assuming everything is good to go. Unfortunately, we need ensure we know what is going on in the field before we blindly start following the sensor. Based on when you planted certain fields peanuts may be spread in age by several weeks while some are still in the bag, this is a good time to think about “weighting sensor depths” according to rooting depths.

Figure 2. Visual development of root development as the peanut plant progresses in age.

Adding rooting depths and plant needs in the equation creates the need for a formula for weighting sensor depths in your irrigation scheduling decision, an important factor throughout

the growing season. Most sensors come with two or three depths that measure available moisture. Early in the season, we generally have cool nights and afternoon temps are "normally" around the low to mid 80s. The evaporation rate is low in comparison to the dry hot summer days and nights. The root profile for the first month develops shallow in the soil. These combinations of events reflect the plant water needs, as shown in our UGA Checkbook method. Moisture sensors generally default to an average of using sensors available on the probe for an irrigation trigger decision. This can provide false water needs for young peanut plants. For example, if a 16" depth is showing a dry reading and the 8" sensor is reading adequate moisture, the average will possibly trigger an irrigation event. If a peanut plant has just fully emerged and your root profile is in the 8"-10" range in this scenario, you do not need to irrigate. Now, considering the rooting depth let's weight the 8" sensor by an 80% value and the 16" sensor by 20%. Now since the average is weighted higher on the shallow sensor irrigation may not be needed. You should not begin to fully use deeper sensors for irrigation scheduling decisions until you see water use occurring at those depths. Weighting moisture sensors can be very beneficial but can be harmful if adjustments are not made during the growing season. If you are interested in weighting sensors, below are UGA Extension suggestions to consider for weighting sensors during the growing season:

D1 = shallow sensor D2 = middle sensor D3 = deepest sensor

- Early Season: 80% * D1, 20% * D2, 0% * D3
- Early-Mid Season: 60% * D1, 30% * D2, 10% * D3
- Mid-Season: 50% * D1, 25% * D2, 25% * D3
- Late Season: 40% * D1, 30% * D2, 30% * D3

Soil moisture sensors provide the most accurate means of monitoring available soil moisture. Monitoring the root zone and available moisture present is a great tool in irrigation scheduling. If you have further questions about irrigation requirements and scheduling on your peanuts reach out to your local UGA County Extension Agent.

May 2024 Weather and Climate Outlook

Pam Knox, Agricultural Climatologist

Here's a brief look at the weather and climate I am expecting in May in Georgia. The first ten days of the month are expected to be mainly warmer than normal with a lot of sunshine. There will likely be at least one rain event around the weekend of the 4th-5th before returning to warm and dry conditions. By May 9-11 the weather will start becoming more interesting with a cold front moving into the region. It could be quite hot in the warm air ahead of the front but as the front gets closer it will increase in cloudiness and another round of rain will occur as the front moves through the area. Temperatures are likely to cool off for the third week of May before returning to warmer than normal conditions for the rest of the month.

Precipitation in the first half of the month is expected to be at least 2 inches for most of the state, with the northwest corner receiving over 3 inches. The driest part of the region will be the southeast counties, with total amounts of 1-2 inches by May 15. The last two weeks of the month are expected to be drier than normal but it is too far out to predict amounts.

The tropics this time of year are quiet, although there was one brief center of activity in the Central Atlantic that disappeared quickly. However, sea surface temperatures are at July levels, so once we start to see some activity, it could develop quickly. We have seen storms in May before, so it would not surprise me if a named storm developed this year before the end of the month. So far, so good, and any storm that does develop so early would probably not make landfall.

Planter Considerations

Simer Virk and Wes Porter

As peanut planting ramps up across the state, it is important to emphasize the value of proper planter setup and operation to attain a timely and uniform stand establishment. If you haven't already, make sure to **perform a thorough planter inspection** using the checklist available here Planter Checklist (UGA) and take care of any major issues or parts that needs to be replaced before getting out in the field and start planting. While the pre-plant inspection provides a good opportunity to prepare the planter for planting, an important aspect of ensuring good planter performance is regular in-field checks and adjustments to different planter components as needed for the prevalent field conditions. Below are few additional points to consider while planting peanuts to minimize or prevent any potential planter related issues in the field:

- **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.

- **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.

- **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.

- **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.

- **Dig Behind the Planter**: When you first begin planting and even regularly during planting, make sure to dig behind the planter to ensure that the desired seeding rate (seeds per foot), seed depth, and seed-to-soil contact are attained across every row. Seeding rate and/or depth variability is very common among the row-units on the same planter so checking each row is important to have a uniform stand across the field.
- **Adjust Planter Settings Accordingly**: Variability in planting conditions within the same field or among the fields is again common and will require adjustment to planter settings based on the existing conditions, with special consideration to variability in soil texture and moisture. A change in crop such as from cotton to peanuts or corn to peanuts would require adjustments to vacuum (due to seed size) and seed meter settings to ensure proper seed metering with good singulation.
- **Planting Technology**: When using a seed monitor or any other planting technology such active downforce, pay attention to the planting feedback for each row instead of looking at the overall population and other averaged planting metrics. Planting issues are usually not consistent across the whole planter but more specific to individual row units so they are easy to identify and fix when viewing by-row feedback.

Early-season Disease Management: Seed Treatments, In-furrow Fungicides and Early-emergence Fungicides

Bob Kemerait, Tim Brenneman and Albert Culbreath

For many growers, May is a critical month to "get it right" for management of tomato spotted wilt, nematodes, and, for early-planted peanuts, to get a good start of on full-season fungicide program for management of leaf spot and white mold diseases. However, disease management on peanut begins long before the first seed is planted. Critical components to any disease management plan for the 2024 peanut crop begins with a) the length of time since peanut was last planted in this year's field, b) selection of a more (or less) disease-resistant variety, and c) planting date.

Cooler and wetter weather has a tremendous impact on the potential for seedling disease in peanut. Cooler-wetter soils increase the risk of seedling disease caused by *Rhizoctonia solani* and also infection by the pathogen that causes Cylindrocladium black rot (CBR). Cooler soils slow the germination of seeds and also slow the growth of seedlings. Fungal pathogens, like *Rhizopus stolonifer* that causes seed rot and *Rhizoctonia solani* that causes seedling disease in peanuts, cotton and soybeans, flourish when soil moisture is abundant. Given cooler soil temperatures and abundant rainfall, germination of peanut seed will be slowed, growth of the seedlings could be less vigorous, and fungal pathogens like those mentioned above will have an upper-hand on the young peanut crop.

Hotter and drier conditions at the start of the peanut season force us to anticipate increased risk to two diseases- Aspergillus crown rot and white mold (southern stem rot). Aspergillus crown rot typically affects seedlings and young plants. The disease is easily identified because of rapid death of the plants and prolific, black, sooty sporulation on the upper taproot of the affected plants. Aspergillus crown rot is most severe in non-irrigated fields and is often observed in association with lesser cornstalk borers. The disease also appears to be more common on farmer-saved seed which may be of lower quality than certified and registered seed. Management of Aspergillus crown rot includes use of high-quality seed, a fungicide seed treatment, and irrigation or rainfall.

Management strategies to reduce seedling diseases when conditions include:

1. Plant only high-quality seed.
2. Always plant seed that has been treated with an effective fungicide.
3. Where seedling diseases have been a problem in the past or where seed quality is in question, consider use of an in-furrow product to further protect the crop from seedling disease.
4. Plant seed at an appropriate depth. Seed that is planted too deep will be most affect by and susceptible to seedling disease. DO NOT PLANT SEED ANY DEEPER THAN NECESSARY.
5. If a period of wetter and cooler weather is predicted, growers are advised to delay planting if possible until conditions are better for rapid germination and growth.
6. Where conditions are hotter and drier, irrigation should be used to both support rapid growth and germination AND help cool soils.

In-furrow Fungicides. Growers who plant quality seed treated Rancona or Trebuset under favorable conditions (neither too cool and wet or too hot and dry) typically do not need to use an in-furrow fungicide for management of seedling disease; the seed treatment alone is adequate. Growers who plant saved-seed that has been improperly stored, seed where low vigor may be an issue, or in conditions very favorable for disease may want to consider use of an in-furrow fungicide for extra protection. Abound (azoxystrobin) (6.0 fl oz/A) is the fungicide most often recommended for management of Rhizoctonia seedling disease but has little benefit now for management of Aspergillus crown rot. Use of Velum (6.5-6.8 fl oz/A) in-furrow offers protection against nematodes and also Aspergillus crown rot. Use of Velum of also protects against leaf spot diseases early in the season. Growers who use Velum at planting generally do not need to start their leaf spot program until 45 days after planting, so long as they choose an effective leaf-spot management fungicide at that time.

Proline (5.7 fl oz/A) is applied in-furrow for management of CBR and also offers some (limited) activity for early-season management of white mold. Proline likely offers additional protection for seedling diseases as well, but not at the same level as Abound or Velum.

Nematode Management. Peanut root-knot nematodes are a serious problem in some fields in Georgia. Growers can plant root-knot-nematode-resistant varieties, to include Georgia-14N, TifNV-HiOL, and TifNV-HG, and do not need to use nematicides to protect their peanut crop. Growers who plant susceptible varieties in fields infested with peanut root-knot nematodes should consider using a nematicide to reduce damage and improve yields. Telone II is the most effective nematicide and is typically applied at a rate ranging from 4.5 to 9 gal/A. Telone II should be applied when soil conditions are favorable (considering soil moisture and temperature) at least 10-14 days prior to planting. Use of Telone II at planting can provide excellent control of nematodes attacking the developing root-system, but addition of Propulse (13.6 fl oz/A) is necessary should the grower desire a pegging-time application as well.

For growers who do not (or cannot) used Telone II, AgLogic 15G (7 lb/A), Velum (6.5-6.8 fl oz/A), and Vydate-CLV can be applied in-furrow for nematode management on susceptible varieties. These each offer effective management opportunities; however as the intensity of the root-knot nematode problem increases, they may not provide the level of control desired by the grower. Additionally, if the peanuts are grown in a “twin row” pattern, then the amount of AgLogic 15G, Vydate-CLV, and Velum in each of the twin rows will be half of what would be put in a single row. While splitting the application rate between each twin row will likely reduce efficacy as compared to the full-rate appropriate for a single-row pattern, growers should still realize benefit in the fight against plant-parasitic nematodes. As for Telone II, growers can further improve nematode control (to include management of Lesion nematodes) by applying Propulse (13.6 fl oz/A) approximately 45-65 days after planting.

Early-season Fungicide Applications for White Mold. Warm soil temperatures, especially when coupled with rainfall or irrigation, create conditions favorable for an explosion of white mold. Application of fungicides with activity against white mold can be an effective way to protect the crop and to reduce yield loss to disease. Factors where growers should consider a more aggressive white mold program, perhaps with the use of an early-emergence banded application or a broadcast application as early as 30-45 days after planting include:

1. Peanuts are planted on a short rotation.

2. Susceptible varieties are planted.
3. Soil conditions are unusually warm during the early season, thus favoring early development of white mold.
4. The field has a history of losses to white mold.

Proline (5.7 fl oz/A banded over the row) is the most well-known fungicide for early-season white mold control; however others can be used as well. Caution should be taken to check the fungicide label before other fungicides are applied in a concentrated band as this may not be an approved application. For early-season management of white mold, Proline is typically applied 20-30 days after planting. At this time, plants are still small enough to allow a significant amount of fungicide to be placed around the lower stem for maximum protection against white mold. When conditions are very warm early in the season, growers may apply near 20 days after planting. Otherwise, delaying until 30 days after planting may be more advantageous.

Growers who do not make early-season banded fungicide applications can still benefit from applying broadcast applications for management of leaf spot and soilborne diseases approximately 30 and 45 days after planting. Such fungicides could include Tebuconazole + chlorothalonil, Elatus (7.3 fl oz/A, often with Alto for additional leaf spot control), and Excalia (2 fl oz/A with an additional fungicide for leaf spot control).