UNIVERSITY OF GEORGIA
EXTENSION

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SOUTHEAST GEORGIA PECAN UPDATE

Southeast Georgia Area Pecan Agent

Andrew Sawyer

agsawyer@uga.edu

Mobile: (912) 512-3030

UGA Extension Pecan Specialist

Dr. Lenny Wells

UGA Pecan Blog
https://site.extension.

UGA Extension Pecan Team

Southwest District
Doug Collins
collinsd@uga.edu
Michasia Dowdy
michasia@uga.edu
Ben Reeves
blreeves@uga.edu

Southeast District
Scout Carter
jscart@uga.edu
Shane Curry
dscurry@uga.edu
Derrick Bowen
Derrick.Boewn@uga.edu
Aubrey Shirley
aubreys@uga.edu

Northeast District
Lucy Ray
lray@uga.edu

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PECAN CROP UPDATE

By Andrew Sawyer, Southeast Georgia Pecan Specialist

What does the crop look like this year? It is very simple: It looks like the younger trees have a crop, and the older trees do not. Older trees such as Stuarts, Schleys, etc. have a very light crop if any crop. This low crop was expected due to our very large crop last year. With depressed prices, our input become more significant. What type of crop do you need to justify protecting it? There is no cut and dry answer but I hope to provide some type of instruction here.

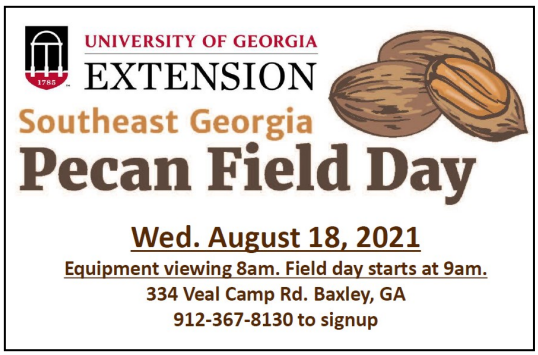
Pecans are a perennial crop, which means this season's inputs may influence flower induction for next season. Male flowers are determined two years in advance whereas female flowers are determined around August the prior season. Stresses that occur during this period negatively affect the next season's crop set. Of all cultural practices, water has the most significant impact on yield. A pecan tree needs about 2,400 gallons of water per acre to support its own growth. Once you include nut production, the water requirement nearly doubles.

For orchards bearing a crop, Dr. Wells says we should be at 45-50% of your irrigation system's full capacity through July for nut sizing. (If you irrigate at full capacity now, the nuts grow too large which makes them difficult to fill.) **If you have less than 20% of terminals bearing nuts, irrigate at the 45% rate right now but only increase to about 75-80% full capacity once kernel filling arrives (August) as opposed to 100% in August for trees bearing a commercial crop.**

We just received a few inches of rain from Tropical Storm Elsa. Talking to growers across Southeast Georgia, the storm thankfully did not cause any direct damage to our pecan orchards. Where I live, this is the sixth week in a row where we received a rain event. Rain is a very significant factor for pecan scab pressure.

Last week, growers made me aware of an increase in scab pressure on particular medium input varieties. The common denominator I hear is stretching to four weeks without a fungicide. A cooler April and drier May allowed us to increase our leaf scab spray intervals; however, once we progress into nut sizing stage, heat and humidity do not allow us to increase these intervals.

Our fungicides for treating nut scab are great, but you must keep this in mind. As effective as Miravis Top has been on controlling nut scab, it must be on the leaf before the scab infects. The 'period of leaf wetness' is very important. Rain extends the period of leaf wetness which increases scab infection. At this time, we cannot afford to increase our intervals of fungicide applications past two weeks.



HERBICIDE OPTIONS IN PECANS

By Shane Curry, Appling County ANR Agent / Dr. Tim Grey, UGA Weed Scientist

Figure 1. Common pink puslane (Portulaca Pilosa).

I recently read a meme that said, "A weed is plant that has mastered every survival skill except learning how to grow in a straight row." Isn't that the truth! Every crop has weeds that must be controlled, and pecans are no different.

Pecan herbicide selection in an established orchard (3 yrs. +) is an important decision every grower must make. Glyphosate (Roundup) and Paraquat (Gramoxone) tend to get the most use for post emergent non-selective weed control. Many growers are also applying pre-emergent herbicides such as indazaflam (Alion), or Pendimethalin (Prowl). The use of preemergent herbicides eliminates the need for multiple applications of Gramoxone or Roundup since it can control many weeds as they germinate then die prior to or just after emergence. This reduces the number of sprays needed in the herbicide strip.

Indaziflam (Alion) was registered for the pecan market in 2011. The long window of residual weed control that it provides makes it extremely popular to growers. Indaziflam has various products registered for blueberries, blackberries, citrus, grapes, stone fruit, pome fruit, turf, hay fields, and in pastures. With the chemical being used in so many areas, avoiding weed resistance is extremely important. While weeds are not as likely to develop resistance to preemergent as they are post emergent herbicides, resistance is possible. Growers must use herbicides wisely and select different modes of action. Herbicide resistant Palmer amaranth should serve as a reminder of what can happen once weeds develop resistance to a popular herbicide. Glyphosate-resistant Palmer amaranth has already cost Georgia's cotton industry more than $1.2 billion since it was first discovered in 2004. We certainly do not want to create a similar issue with another herbicide.

A few years ago, Dr. Timothy Grey, UGA Weed Scientist, and I began research looking at multiple combinations of herbicides in pecan orchards. We showcased our research plots in 2018 and 2019 at the Southeast Georgia Pecan Field Day. What initially sparked my interest in conducting research was avoiding herbicide resistance. However, the increase in grower complaints regarding pink purslane *(Portulaca Pilosa)* (Fig. 1) control drove us to find other feasible herbicide options. In some orchards, pink purslane was so thick in the herbicide strip harvesting pecans became difficult.

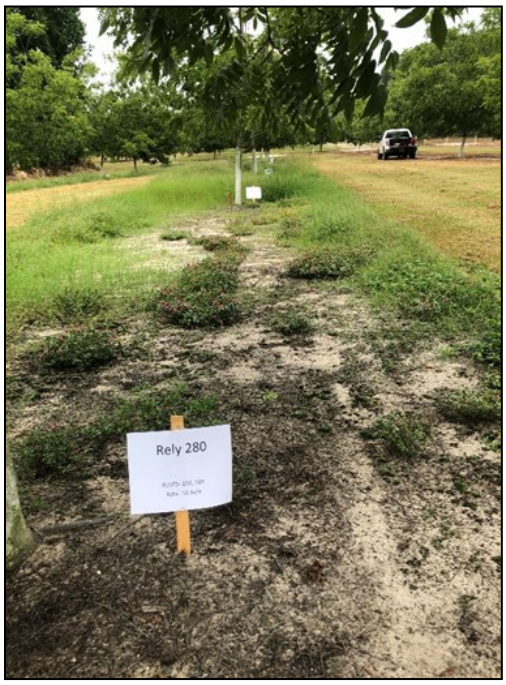


Figure 2. Rely 280 applied in row middle.

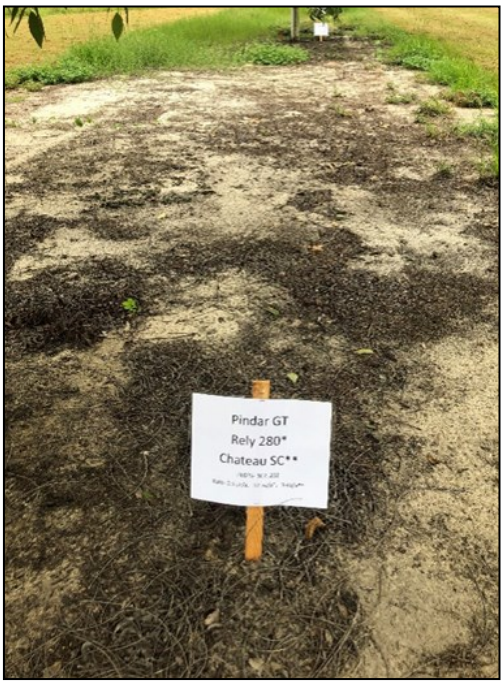


Figure 3. Pindar GT, Rely 280 and Chateau SC applied in row middle.

Glyphosate (Roundup) will control purslane, but as the plant gets larger control is difficult. Paraquat (Gramoxone) is another option, but some growers were using extremely high rates to achieve desired results. Since neither of these products provide residual control, multiple applications are needed. Indaziflam provides residual control of common purslane (*Portulaca oleracea* L), but pink purslane (*Portulaca Pilosa)* is not listed on the label.

SULFUR AND PECANS

By Andrew Sawyer, Southeast Georgia Area Pecan Agent

We do not talk a lot about sulfur (S), and there is a reason for this. Sulfur in your leaf samples may sometimes be low. Our leaf tissue sulfur ranges are 0.21—0.5%. Our Southeastern U.S. soils are inherently low in sulfur. Unlike zinc, sulfur leaches in sandy type soils. Also, most soil S is tied up in organic matter and has to be converted to inorganic S for plant use. A 2008 soil survey conducted by Dr. Wells showed an average carbon: sulfur (C:S) ratio of 504. We know that when the C:S ratio is greater than 400, sulfur is less available.

Sulfur has a role in plants including its contribution to amino acids which play a role in protein and enzyme structure. But its role with nitrogen may be just as important. Uptake and assimilation of N and S by plants strongly depends upon one another. At high N levels, S deficiency symptoms become more pronounced.

Sulfur deficiency impairs the way plants use nitrogen. Greenhouse studies have shown S deficiency symptoms occurred when pecan leaf S was less than 0.16% (Hu et al. 1991). A N:S ratio of 9:1 has been shown to be optimum for maximum growth of pecan (Hu and Sparks, 1992).

To understand how sulfur deficiency could be mitigated in an orchard, Dr. Wells conducted an experiment looking at 1) Sulfur at 1 quart / acre 2) Urea at 4 lbs / acre 3) Sulfur + Urea compared to a control. Here is what he found:

•While foliar S did not increase leaf S or leaf N, foliar Urea sprays alone REDUCED leaf S and leaf N. **This indicates that foliar S should probably be used where foliar Urea is used and/or where leaf N is maintained at a high level (>2.8%)**
•Foliar S increased leaf chlorophyll index.
•Foliar S increased nut weight and size.

Why do we not talk a lot about sulfur? Though sulfur is an important secondary element, being just under its tissue range is not a serious issue for us. Yes, there is an increase in nut weight and size, *but it is difficult to increase our leaf sulfur content*. Zinc, for instance, provides a direct benefit to pecan relating to leaf expansion, nut size, and yield. Sulfur's benefits are more secondary. Sulfur must be very low for you to apply additional sulfur. Generally, we get enough (S) through our zinc sulfate sprays.

Dr. Tim Brenneman is working with sulfur additions to fungicides for disease control properties. So far, he does not observe increased scab control is observed in peanuts with sulfur added.

When should sulfur be applied to trees? If you add sulfur, doing a few sprays during June and July is the best time frame.

SOIL MOISTURE SENSORS

By Andrew Sawyer, Southeast Georgia Area Pecan Agent

I've been asked about soil moisture sensors in mature orchards. Recent research provides answers to how we should use sensors. The reason we do not discuss this often is because most growers typically ask for a basic watering schedule. The principles behind the sensors are easy to understand, though the equipment itself can be technical.

In a paper titled "Irrigation Water Management for Pecans in Humid Climates", Dr. Wells shows how shoot length, nut yield and nut quality were evaluated following 1) current recommended irrigation schedule 2) a reduced early schedule and 3) non-irrigated control. Based on when water stress occurred, **the research suggested irrigation was needed when volumetric water content reached 10% on a sandy lam soil. This work also showed that water stress in pecan is correlated with soil moisture from budbreak through the end of nut sizing. Once trees entered kernel filling, water stress did not correlate with soil moisture.** At this point, water stress is purely driven by crop load.

If you use moisture meters, this is what you need to know:
1. Use sensors that measure volumetric soil moisture.
2. Place them at approximately 8" in the soil.
3. If soil type is uniform, place 3—5 sensors per orchard.
4. Do not let moisture go below 10% in sandy loam soils.
5. After shell hardening, irrigate full capacity, regardless of soil moisture numbers.

The current irrigation schedule for pecan is based on these numbers. Keep in mind this work is only done in sandy loam soils. This year, a project sponsored by the Pecan Commodity Commission will work with the Department of Engineering to place soil moisture sensors in three different soil types. One will be in Oconee County (Figure 4.), two will be in Hancock County and two at the Vidalia Onion Research pecan orchard. At the farm, we split irrigation into drip and micro-jet as demonstration. We will use this to look at best placement of moisture sensors as well.

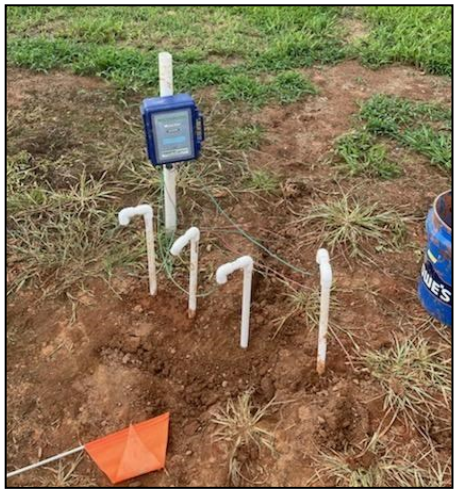


Figure 4. Moisture sensors placed Crowe family orchard in Oconee County, GA.

LOW-INPUT VARIETY TRIAL IN VIDALIA

By Andrew Sawyer, Southeast Georgia Area Pecan Agent

Last year we received a grant from the Pecan Commodity Commission to plant a low-input pecan variety trial for long-term evaluation of scab in Southeast Georgia (Figure 5). I'm excited to say that we are finished with our initial planting and irrigation set up. Thanks to pecan growers, pecan industry, and UGA county agents for assisting in preparing land, marking trees, planting trees, installing irrigation and planting demonstration plots. This orchard is a great support to the addition of many pecan acres in Southeast Georgia.

The trial is planted at the UGA Vidalia Onion Research Center in lower Toombs County. We started planting on February 2nd and completed the 140 trees on five acres by the next day. Instead of planting trees together, all varieties are mixed in the orchard. This allows us the long-term evaluation for many years to come. The varieties planted are: *Avalon*, *Eclipse*, *Excel*, *Kanza*, *McMillan*, *Lakota*, and *Sumner*. Seedlings were planted for any future variety. The pollinators are *Cape Fear* and *Gafford*.

Rows are in tighter spacing to incorporate demonstration plots. We have one row planted with Terra-Sorb, fertilizer cubes and sticks compared to our standard program. Another row was drenched with insecticide at planting. The third row was used for data in a recent budmoth efficacy trial. These are demonstrations for trials out in the state. We will also set up a block study for a test on a nickel and zinc product.

This is also a good site for insect observation and research. This is one of the many sites for the flat-headed apple borer trapping across the state (Figure 6). The location also gave us a site for ambrosia beetle observation this spring. We hope to have a field day soon to showcase the new location. A special thanks to these people who directly helped in planting:

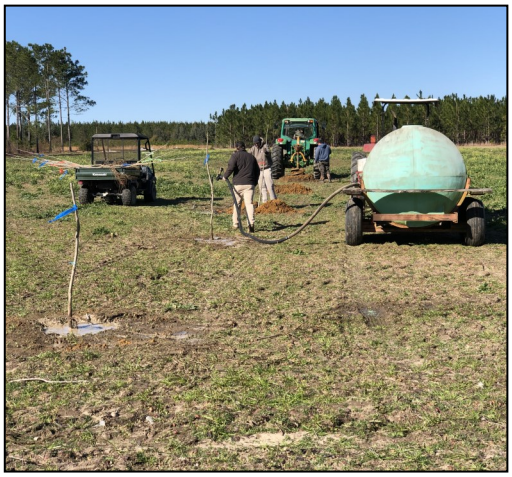


Figure 5. County agents plant trees of different varieties.

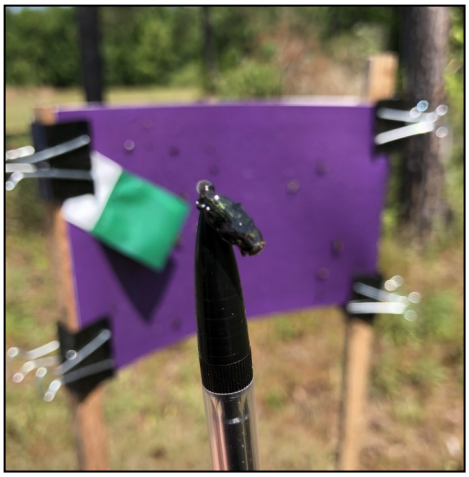


Figure 6. Flat-Headed Apple Borer traps.

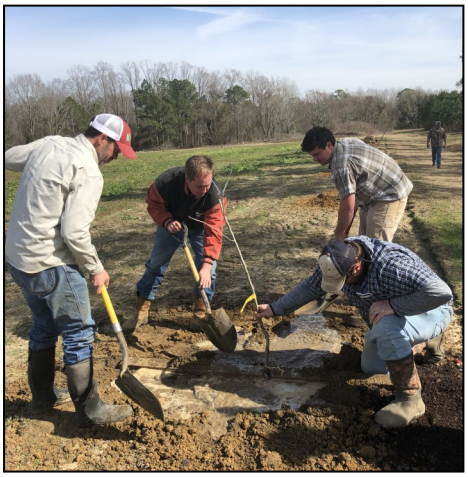


Figure 7. Plantng 'Kanza' variety into tera-sorb trial.

UGA EXTENSION AGENTS

Derrick Bowen
Scout Carter
Shane Curry
Jason Edenfield
Ross Greene
Jennifer Miller
Steven Powell
Aubrey Shirley
Colby Royal
Savannah Tanner
Zack Williams

GROWERS AND INDUSTRY

Chris Clough
Arren Moses
Sammy Martin
Kyle Durrence
Stevie Durrence
Ben Sanders
Jim Waters

VIDALIA ONION RESEARCH CENTER STAFF

Chris Tyson
Denny Thigpen
Danny Clark

Georgia Pecans