UNIVERSITY OF GEORGIA
EXTENSION

January 2021

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.edu/pecan/

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

Inside this issue:

Asian Ambrosia Beetle Research and Mngt Update	1
Pruning Old Trees	2
Comparing Terra-Sorb to UGA Fertility Program	3
Storing Pecans and Maintaining Quality	4

ASIAN AMBROSIA BEETLE RESEARCH AND MANAGEMENT UPDATE

By Andrew Sawyer, Southeast Georgia Area Pecan Agent

I was county agent in Thomas County when ambrosia beetles became a real concern for pecan growers. We were doing everything possible to fight them. Growers began painting newly planted trees with white latex paint. In an effort to better control ambrosia beetles, Cook County Agent Tucker Price and I set out traps in each respected county. Our results were inconclusive with no significant difference; however, the beetles preferred the logs (or traps) NOT painted over logs that were painted.

Fast-forward to December 2019. Entomologist Dr. Angel Acebes-Doria and I discussed the possibility of a more comprehensive ambrosia beetle study. By this time we found out growers mixed insecticide in the paint. This along with three other treatments were standardized then randomized and set out at two different locations in 2020. Results helped us see what can be useful to a grower.

We tested four treatments against a non-treated control: 1) painted log, 2) pyrethroid mixed with paint, 3) pyrethroid sprayed every 7 days and 4) trunk protectors. We placed 20 (four replications) total pecan logs along the woods edge of newly planted pecan trees in Cook County and Dodge County. The logs were baited with 100 mL of denatured alcohol each week and total beetle hits were counted weekly for four weeks. The mean attacks per log are separated below:

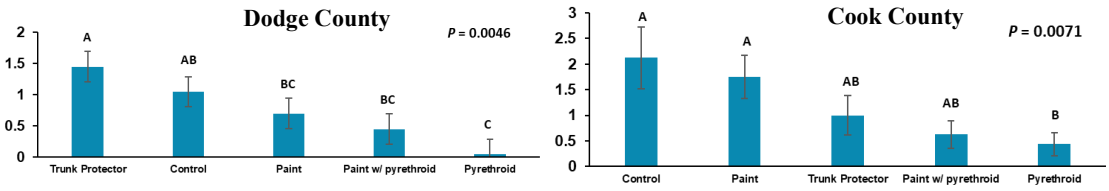

Figure 1. Y axis represents the mean attacks per log in both Dodge and Cook County.

As you read the graph, each treatment (or bar) that has a different letter is statistically different from the other treatments. If two treatments share the same letter, there is no difference between them.

The results were clear. The pyrethroid-sprayed logs, either mixed with paint or sprayed every 7 days, *had the least attacks*. Logs covered in tree protectors were attacked at the same rate as the non-treated control. Painted logs had low or moderate efficacy in preventing attacks compared to other treatments. Over 95% of the attacks observed were holes, no beetles or frass. What does this mean?

Dr. Angel Acebes concludes that among the common grower practices, spraying **pyrethroid at an interval of 7 days is the best management strategy against ambrosia beetles in the pecan system.** Since beetle attacks were observed inside the tree protector, growers should remove the protector when scouting trees for ambrosia beetle attacks. Painting tree trunks with white latex paint, in and itself, did not provide adequate protection against ambrosia beetle attacks. When scouting for beetles, look for holes as well as toothpicks. The toothpicks are easily dislodged from the trees by wind and rain. Dr. Acebes says these findings indicate variable effectiveness of these current options for growers. We will continue this study in 2021 to validate these results.

PRUNING OLD TREES

By Andrew Sawyer, Southeast Georgia Area Pecan Agent

When pruning pecan trees, it is said that with each grower there will be a different opinion. If you have pruned trees with other growers, you will find this to be true. In Southeast Georgia, we look at many small acre plantings. Sometimes a new landowner may purchase property where pecans were planted but not pruned young as they should.

These trees DO NOT have a definite central leader and may grow many tight branches. Tree structure becomes an issue in these situations. Lots of branches have splits which contain 'included bark.' Included bark is bark that sort of grows together between two branches with a close fork, usually less than 30 degrees. These branches are the first to break during wind storms. In some cases, the bark splits down the base of the tree injuring the trunk.

Figure 2. Sumner trees tend to grow with multiple central leaders even when pruned early. Figure 3. County Agent Rocky Tanner cuts a splitting branch on an old, un-pruned Sumner tree in Washington County. Figure 4. Grower Tim Lott pruning 10-year-old Desirables. These trees were pruned correctly since they were planted and have good structure. Using a 'tree squirrel,' central leaders, crossing branches and splitting branches can be touched up.

When an un-pruned tree reaches about six years old, it is very difficult to re-train them. The first tree pictured had many branches break due to the heavy crop load this year. As you can see, it is difficult to select branches to cut. The tree on the right was pruned correctly since it was planted. It is now 10 years old. The same pruning method applies to trees not originally pruned and trees that were originally pruned.

These are limbs to be pruned:

1. **Select a central leader**—If you can reach the top, continue selecting a central leader. Many of the 10-year Desirables had 'crow's feet' at the top.
2. **Crossing branches**—Especially lower crossing branches in the interior of the tree receive limited sunlight and use more resources than they return.
3. **Splitting branches**—Some varieties such as Pawnee are notorious for this. When removing a splitting branch, *cut the branch on the top or growing upwards*. The lower branch, which has a wider angle, receives more sunlight.
4. **Low branches**—The more obvious low branches get in the way of equipment. These are the easy to select!
5. **Tight branch angles**—When branches grow close together, often less than 30 degree angles, 'included bark' grows between the branches (Figure 5). Bark is not as strong as wood (inside the tree) and easily splits during storms. The larger the branch, the more likely it breaks during storms. These situations are usually found in neglected trees. When you prune young trees properly, we generally eliminate these branches before they get large.

Figure 5. Included bark forms when branches grow close together. Bark is not as strong as wood; therefore, this becomes weak point.

COMPARING TERRA-SORB TO UGA FERTILIZER PROGRAM

By Scout Carter, Ware County Extension Agent

Fertilizer is a must for newly planted pecan trees. However, growers often think about top growth rather than root growth. Bareroot trees endure significant stress as they are dug from a nursery, transported to your farm and then transplanted back into the soil. Due to this stress, we need to think more about root growth and less about top growth.

Figure 6. Putting out 1 lb of 10-10-10 on UGA fertilizer program treatments.

The first few years of a tree's growth are actually spent growing roots. This is one reason why the standard UGA fertilization program for non-bearing trees calls for the application of 10-10-10. This complete fertilizer does not provide excess nitrogen which contributes to top growth. The trees receive more potassium and phosphorus which aid in root development.

On the market, there are options that may provide benefit to newly planted trees. This past year, I worked with Andrew on a new product that some growers have used called Terra-Sorb. This product is sold to the landscape industry as a superabsorbent hydrogel material and claims to hold up to 150 times its weight in water. This could be very useful to the pecans as we generally plant in more sandy soils.

Working with grower Chris Clough, we set out a single tree trial on non-irrigated, first-year planted Excel trees to observe the difference between Terra-Sorb, the UGA fertilizer program (1lb in June), Terra-Sorb + UGA fertilizer program and a control. The tree roots are dipped in a mixture of Terra-Sorb mixed at one pound per tree before planting. We measured and calculated the difference in tree height and caliper during the season. We also took leaf analysis in August.

Following one season of growth, we found no significant differences in tree height and caliper growth among trees (Figure 7). Interestingly, the trees in the control grew more than trees in treatment, though the difference was numerical and not significant. What did we find with our leaf tissue samples? Nitrogen (N), phosphorus (P) and potassium (K) were compared in leaf tissue samples and *found no difference among treatments*. Zinc was left out of the graph, but it too had no difference (Figure 8).

With this study being conducted on non-irrigated crop, it should accentuate the difference in a product that helps retain water in the soil. With newly planted trees, a few years of data provides a better confirmation that just one year. We will continue to follow these plots over the next few years. Southeast District Area Agent Andrew Sawyer plans on replicating this trial on the Vidalia Onion Research Farm and will likely include other fertilizer products on the pecan market.

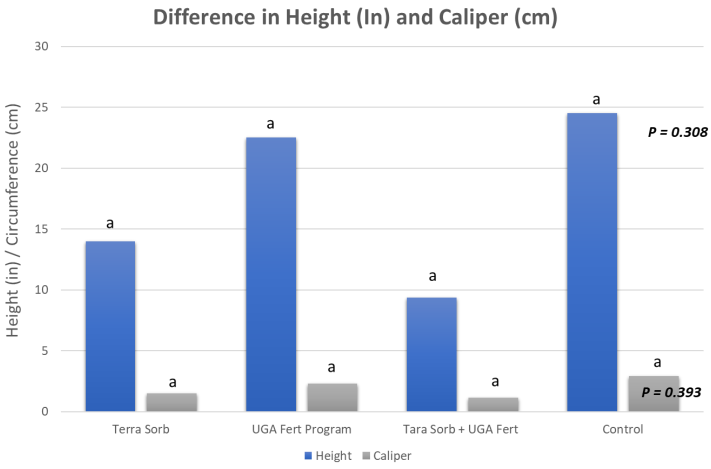

Figure 7. Difference in height bars are blue and caliper bars in gray.

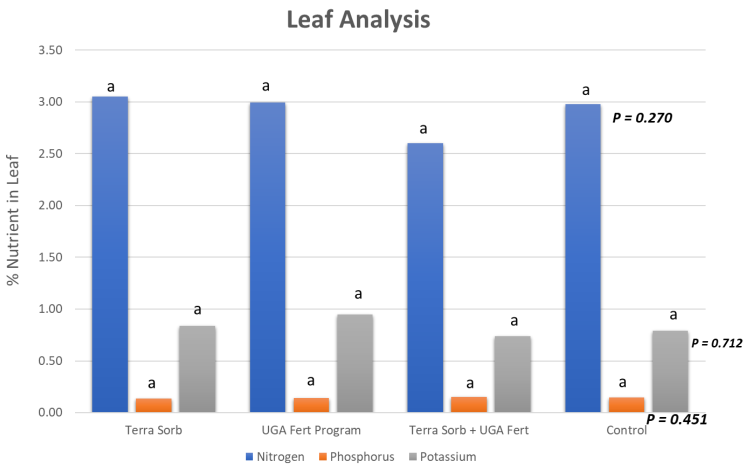

Figure 8. No differences were found in N (blue), P (orange) or K (gray).

STORING PECANS AND MAINTAINING QUALITY

By Michasia Dowdy, Brooks County Extension Agent

With a bumper crop and low prices, more producers will be storing and selling their own pecans. Many producers who sell on the export market are deciding to shell, package and store their pecans until they sell. Once kernel moisture is down to 4%, there are a few things to consider when storing the pecans. The important factors include temperature and packaging. But other factors like piece size, fat content, foreign odors, pests and diseases are also important.

This past summer, it was becoming evident that much of our crop may go in to cold storage. Temperature is the most significant factor in storing pecans. *Generally speaking, the lower the temperature, the longer the storage life of pecans*. The reason freezing does not damage pecans is because their moisture content is very low. **Pecans held at 0 degrees Fahrenheit maintain a good quality for as long as 2 years.** Table 1 shows storage life of shelled pecans at different temperatures.

Packaging can also make a difference in shelf life. Since pecans are high in oil content, have oxidizable tannins and volatile flavors, they are relatively unstable. Pecans have to be protected from air, light, moisture, insects, rough handling and foreign flavors. Most pecans are packaged and stored as raw nuts in flexible, plastic materials. However, if you can have your pecans vacuum sealed, you can really extend the storage life. **Raw pecans can increase storage from 3 to 10 months at 70 degrees and to more than 30 months at 32 degrees when vacuum packaged.**

Temperature (degrees F.)	Months
70	3
50	6
32	12
0	24

Table 1. Storage life at different temperatures. *Southeastern Pecan Grower's Handbook.*

Backyard growers had a significant crop as well. We talk to many people who say, "The kernels look rotten" or "The taste was odd after I picked them off the ground." This is because the nuts sat on the ground and moisture inside the shell rose. Nuts generally do not fall from the tree until they get down to about 8%. On the ground they will get down to 5-6% in dry weather. Generally, 5% is enough. (The reason we talk about drying to 4% is because of the export market. Drying to 4% helps prevent damage traveling across the ocean.)

We had a lot of rain in November after the first round of harvest was complete. Many backyard nuts accumulated mold. Pecans have to be picked up quickly when they fall, and moisture has to further be taken down. When the storage temperature reaches 55 degrees and above, the chances of insect infestations increase. Pecans dried to 4% moistures and stored at or below 45 degrees F are practically immune to attack by storage insects and diseases. *If the moisture is more than 4%, mold could develop on the meats*.

The size of the pecan pieces that are being stored can affect the how well they store. Smaller pieces tend to have more surface exposed that lead to bruising while being shelled and processed. Because of this, the oil can migrate from the kernels which makes them stale and rancid quickly. This *is why pieces and meal do not tend to do well stored more than 3 months.*

Additionally, you may also read in the literature about foreign odors. Pecan meats are porous and can absorb gases and odors just like they can moisture. If the pecan meats were to absorb any gas or odor, the meat flavor can change. **It is recommended not to store pecans with apples, other fruits or petroleum products or in rubber-like packages or rooms that get musty.** Freon or brine are suggested to use as a refrigerant instead of ammonia. **Ammonia is known for leaking and small amounts of ammonia could blacken the seed coats.**

Keep in mind that if you are going to sell shelled meat in volume—thousands of pounds—you must put as much time into marketing and sales as you do in to production. Social media is a great way for smaller growers to sell a few hundred to a couple thousand pounds.

GEORGIA PECAN GROWERS Association