



UNIVERSITY OF GEORGIA EXTENSION

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SOUTHEAST GEORGIA PECAN UPDATE

Ambrosia Beetle Update

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UGA Pecan Radio Update

WAJQ 104.3 FM—Alma
WDXQ 96.7 FM—Cochran
WUFF 97.5 FM—Eastman
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I'm working with Dr. Angel Acebes-Doria on an Asian Ambrosia Beetle (AAB) project to determine if painting trees with insecticide reduces beetle attacks. Using AAB traps, it compares traps only painted, traps sprayed with pyrethroid once a week, traps painted with pyrethroid, and traps with herbicide guards.

Generally as we move west to east, we have less occurrence of these beetles. *However, I just talked to a grower in Southeast Georgia who has caught a lot of ambrosia beetles this past week!* Dr. Will Hudson has traps in Athens and has seen a fair number of attacks this season as well.

What does this mean for a grower? Keep in mind, we generally see adult AAB flights *again* at the end of April and beginning of May. For this reason, I would still watch my youngest trees.

What should you do once beetles attack traps?

First, check trees within the first 4 rows near those traps and see if you find toothpicks or holes (Figure 1). Many growers will want to spray trees once activity is observed, but the purpose of the traps is to indicate when the beetles are flying. (Remember, traps need to be refilled with ethylene every week, since it evaporates and soaked the wood soaks it up.)

What do you spray? Since AAB have been here since the '70s, we know about efficacy. Pyrethroids are the best option for control (bifenthrin, cypermethrin and permethrin). Why not drench imidacloprid? Because the beetle is not feeding ON the tree, just boring into it. Imidacloprid will not help. Only insecticide on the trunk is effective.

How is it best applied? A hand sprayer is more effective at getting a concentrated pyrethroid on the tree compared to an air blast sprayer. Start by treating attacked trees with a hand sprayer. Pyrethroids do not have a long residual, so **you will need to follow up 7-10 days later** with another treatment. **Beetle attacks are far greater on the outside of the orchard (maybe 4 rows) compared to the inside.** Don't forget to remove the plastic herbicide guards to check for beetles. When treating, spray inside the guard also. **Reapply insecticide if rain follows an application.** You can certainly use an air blast sprayer for the follow up spray. It is sufficient to cover the first four rows of pecans closest to the woods, since these are the trees most likely hit.

What rate should I use? For handgun approach, 1 oz per 10 gallons of water is plenty. If using an air blast sprayer, whatever labeled rate per acre given by label is recommended.



Figure 1. Exit hole (top) and adult ambrosia beetle (bottom) on pecan log.

SCOUTING FOR BUDMOTH ON YOUNG TREES

We are receiving calls and photos of budmoth damage. Last year was a bad year for budmoth. I'm seeing initial signs on young trees (generally 1–3 years old) as of the first week of April. Identifying budmoth at this time of the year is not easy since worms are very small.

Scouting & Biology



Figure 2. Necrotic leaf tips

Scout for 1) webbing around newly developing leaves and 2) small necrotic (dark) spots on the tips of developing leaves (Figure 2). These are early signs of budmoth. You may see the caterpillar, but at this stage it is very, very small. It is cream-colored with a black head. As the caterpillar matures, it will turn yellow-green.

Adult moths start laying eggs in the Spring. Eggs hatch in about 6 days and young larvae begin feeding on the leaves then spin web to roll leaves where they will bore into the shoot. They only do this for a few days. Once they get in the shoot, insecticide will not reach them. This is where they do the damage particularly if they get inside a terminal shoot. It takes about a month to complete a generation and can have 5–6 generations in a year.

Should I spray my young trees at budbreak? Yes and no. It depends on how much time you can spend in the orchard. Since we have a small window to apply insecticide for control, spraying at budbreak is reasonable. If you have time to scout, treating at the first sign of infestation is fine.

Of all insecticides listed for budmoth control, all have a residual long enough to control the first generation. Some of these insecticides move into the plant but don't translocate, some do not move into the plant, and some move into the plant and translocate.

What insecticide to use? Worm materials are good to use if we catch them early. For one, they have a certain amount of residual and are effective weeks to come. If budmoth damage is severe and the onset outbreak was missed, we must use Lorsban for a quick knock-down. When we see them early, these insecticides will kill the worm as they molt to another stage and provide residual:

Insecticide	Plant Uptake	Rate / 10 gallons
Intrepid	Not absorbed into leaf; not translocated	1 oz
Intrepid Edge	Absorbed into leaf; not translocated	1 oz
Dimlin	Absorbed into leaf; not translocated	1.5 oz
Minecto Pro	Systemic	1.5 oz

Insect damage that resembles budmoth

Some growers will see larvae from sawflies (Figure 3) that strip leaves of young trees. They are typically seen on sporadic trees and do not require treatment. You can tell the difference by looking at prolegs on the underside. Sawflies have 7 pair of prolegs, much more than a caterpillar. Also sawflies are gregarious feeders, feeding in groups. There is a sawfly species that after feeding leaves behind shot-holes. Other species leave the leaf midrib untouched.

We also see damage from hickory shoot curculio along with budmoths. Shoot curculio is a weevil whose larvae bore into newly developing shoots leaving a tunnel. We do not see them cause consistent, significant damage.



Figure 3. Sawfly larvae chew leaves. Photo by John Offenburg.

PECAN FETILIZATION

As of April 14th, we are seeing a very good flower crop on all pecan cultivars in Georgia. Some have asked about predicting your crop by looking at the catkin crop. Just because we have a large catkin crop does not mean we will have a large nut crop. On the contrary, if there were no catkins, there would be no pecans. The flower crop is what we use to more or less determine our season. According to UGA Pecan Breeder Dr. Patrick Conner, *we are 9 days earlier with budbreak this year* compared to 2019. With budbreak occurring in March, does this change our fertilization timing? When budbreak occurs, leaves are using stored nitrogen. But shortly after they will need nitrogen.

Nitrogen (N) —In pecan production, historically nitrogen was put out at budbreak. As synthetic fertilizer was developed following WWII, nitrogen was put out in March simply due to convenience. There was nothing else to do during that time of year. But research has shown that the budbreak timing is the old way. The proper timing is a little after this, **about two weeks following budbreak.**

Pecans have two different demands for nitrogen: 1) leaf growth and 2) kernel filling. **For well managed, irrigated orchards, we need 10 lb N / acre for every 100 lbs of expected crop.** This range of is about 75–125 units per season, representing “off” and “on” seasons respectively. For a mature pecan tree, we generally put out about 70% of the total nitrogen in April and the remaining in June and late August. The example below helps to break it down:

“On” Year		“Off” Year	
Month	N to apply	Month	N to apply
April	75–100 lbs	April	75–100 lbs
June	25–30 lbs	June	0
Late August	25–30 lbs	Late August	0

- *In an “off” year, assess the crop in late June. If the crop load is heavy, apply another third of the rate in late June and the same amount in late August. The last application provides nitrogen for kernel filling, leaf retention following and subsequent nutrient storage.*
- *If only two applications are made per year, apply 1/2 the recommended N in April and the other half in late August.*

Nitrogen in leaf tissue samples—We sometimes need to adjust our N rates and leaf tissue samples are the best indicator to use. Nitrogen needs to be less than 3 % inside the leaf to maintain adequate uptake of potassium. A second indicator is your nitrogen to potassium ratio. The N:K ratio should not exceed 2:1. If the N:K ratio is too high OR nitrogen exceeds 3 %, we need to reduce total nitrogen. ‘Desirables’ are especially sensitive to the N:K imbalance. When our N samples push over 3% or N:K ratio is higher than 2:1, cut back on the nitrogen rate.

Phosphorus (P)—Phosphorus is important for energy storage and the production of wood and nuts. Because P is mostly immobile in the soil, our soils generally remain adequate for P. Deficiencies can occur during drought. Keep in mind that 1,000 lbs of crop removes 1.6 lbs / acre of P. Broadcast P if soil samples fall below 30 lbs / acre and band P if leaf tissue sample falls below 0.14 percent. **When applying phosphorus, we apply it and potassium in early Spring, about March.**

Potassium (K) —It is interesting that pecans ineffectively absorb potassium. It is transported to the nuts at the expense of the leaf, which can accelerate deficiencies in heavy crop years. The balance between N and K is very important in pecan. When leaf K is low, heavy N applications can induce a visible K shortage called “nitrogen scorch.” Scorched areas occur on the leaf margins and lead to serious defoliation. Given the N sufficiency range of 2.5% to 3.3%, leaf K levels are realistically maintained between 1.25% - 1.65%. Leaf K concentrations of 0.7% - 2.5% are adequate for “off” crops. We generally do not see the upper range of 2.5% K in Southeastern orchards.

When do we put out K? Put it out early along with phosphorus.

Can we split K applications? K does leach but not as much as nitrogen. In an “on” year when we are applying late season nitrogen, we can put out K when leaf samples show a N:K ratio greater than 2.5:1.

Nutrient	Leaf Tissue Range	Soil Range
Nitrogen	2.5–3.3 %	—
Phosphorus	0.12–0.3 %	30–60 lbs
Potassium	1.25–2.5 %	60–150 lbs

2020 UGA PECAN FUNGICIDE PROGRAM

Below are example scab programs from Dr. Lenny Wells posted on the UGA Pecan Blog. These examples are great to follow but can be altered if needed. **The important thing to remember is to rotate chemistries and use the fungicides to their strengths.** At our meetings this year, there were a few points Jason Brock made regarding fungicide information for 2020:

- Group 3 + Group 11 materials are excellent on leaf scab when combined and work well on nut scab.
- Phosphites make a great leaf scab material and can be used alone at the 2 qt rate.
- Miravis Top is a superb new material that provides an additional chemistry and should be focused on nut scab.
- Elast and Tin both work better on nut scab than on leaf scab and when combined are an excellent choice.

Low-Input Varieties

<u>April</u>	<u>Mid-June</u>	<u>Late July</u>
Phosphite	Group 3/11	Either

Above is an example program for low-input cultivars such as Elliott, Eclipse, Excel, Gafford, McMillan and Lakota. Since 2008, these have shown great scab resistance. Growers commonly ask if any fungicide should be applied to these trees. There are other pathogens that affect pecan besides scab and for this reason, a minimal fungicide program is recommended that consists of three fungicides per year. This program focuses on Groups 3/11 and phosphites.

Highly Scab Susceptible Varieties

Moderately Susceptible Varieties

Absolute	Phosphite (2 qt rate)
Phosphite (2 qt/acre rate)	Absolute
Absolute	Phosphite (2 qt rate)
Phosphite (2 qt/acre rate)	Group 3 +Tin
Miravis Top (this should be about the time nut sizing begins)	Absolute (or Miravis Top if pressure is high)
Elast/Tin	Tin (full rate)
Miravis Top	Group 3 + Tin (or Elast/Tin if pressure is high)
Elast/Tin	Tin (full rate)
Miravis Top	
Elast/Tin	

(Continue with Elast/Tin or rotate with Absolute if additional sprays needed beyond this point.)

