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SOUTHEAST GEORGIA PECAN UPDATE

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Low-Input Profitability

By Dr. Lenny Wells, UGA Extension Pecan Specialist

Reducing production costs is the number one concern for growers moving forward. In the Southeast U.S., over 12% of the variable cost of production comes from the cost of fungicides to control pecan scab. Many growers in Southeast Georgia have been planting low-input trees for some time.

Observing current data from the low-input trial at the Ponder Farm in Tifton, we see significant potential for increase in net profit of growing low-input pecans. For the last three years I've kept track of yield, quality, price, input costs, and net returns on three cultivars in our low-input trial at the UGA Ponder Research Farm. These trees were planted at 40 X 40 in 2008 and **have not received any fungicide sprays**.

	Yield	Count	% Kernel	Cost/A	Price ($)	Gross ($)	Net Return ($)
Desirable	1490	43	53	1467.98	2.03	3024.7	1556.72
Pawnee*	1068	46	57	1439.98	2.55	2723.4	1283.42
Lakota	2249	48	57	1154.19	1.86	4183.14	**3028.95**
Excel	2260	46	49	1154.19	1.76	3941.6	**2787.4**

Table 1. Three-year average of low-input cultivar tests at Ponder Farm. *Pawnee numbers are from commercial orchard.

From this data, the focus is on Lakota and Excel. To start, Lakota had a very big year in 2020 averaging 4,296 lbs / acre and netting $4,775.00 / acre. Released in 2007 as a cross between 'Major' X 'Mahan', Lakota has excellent scab resistance to date with medium nut size and high percent kernel.

A major issue with Lakota is in 2019, it yielded 394 lbs / acre. This is very low for an off-year. Trees that alternate this much will have to be fruit thinned. There is also an issue with the kernel color being darker. Reviews from shellers on Lakota color is mixed. Some say it is an issue, some say it is not.

If you want a nut for gift pack or mail-order, Lakota would not be a good choice. Excel on the other hand has excellent color. The data for Excel is nearly the same as Lakota. So far, Excel has had very good years in this trial. Excel, however, benefits more from an in-shell market. With the absence of one last year, the 'Excel' prices were lower than Lakota since Excel is more difficult to shell out into complete halves.

As of now, we see a lot more Excel across the state. With only 3 years worth of data and the concern over the 'Lakota' color issue , it is difficult to make a call on Lakota. However, based on the numbers, we think Lakota will be successful. There are few varieties that can generate the volume and income. It costs so little to grow, it can absorb low prices and still do well. Either way, this data shows the difference in low input and high input net return with recent lower prices.

DIEBACK AND DECLINE IN MATURE PECAN TREES

By Derrick Bowen, Tatnall County ANR Agent

One of the most difficult problems to correctly identifiy in a mature pecan orchard is the cause of die-back on an old tree. In many orchards, there seems to be one or two random trees that appears sick. The causes of these issues varies from orchard to orchard. In this article we will focus on a few of the possible causes that can be attributed but not limited to zinc deficiency, the Prionus Root Borer, and nematodes.

Zinc (Zn) is a major component in pecan production that effects flowering, fruit size, leaf efficiency, nut yield, and is particularly important to leaf expansion and shoot elongation. Zinc deficiency symptoms will include curling of young leaves which can result in a classic wavy leaf margin. In **these situations, Zn deficiency symptoms show up as terminal die-back** (Figure1).

Figure 1. Oftentimes, one tree in an orchard will show symptoms of die-back while all other trees look healthy.

You may say, "I spray zinc many times. Why is this a problem?" Remember, the trees still take up a lot of Zn from the soil. If soil Zn falls below 15lbs per acre, broadcast Zinc sulfate.

Figure 2. Tatnall County Agent, Aubrey Shirley, setting up a prionous root borer panel trap

The greatest issues with Zn uptake happens when soil test Zn is good but you see visible signs of Zn deficiency or leaf analysis falls below 50 ppm. When this scenario is confirmed, recent research shows that Zn EDTA needs to be injected in your system to provide trees with Zn.

Another suspect of die-back and decline in older orchards is the Prionus Root Borer. Two species, *Prionus laticollis* and *P. imbricirins*, are present here in the southeastern United States. The larvae of these beetles are known to be feeders of the roots of hardwood trees, including pecans. The early staged larvae start out by feeding on the root bark, but then make their way into the root to feed. This will result in the hollowing out and severing of the roots which in turn result in gradual decline and eventual death of the tree.

Before you apply any treatment, we must confirm this is the case. It is difficult to dig down to roots and inspect, although you can do this. The best way confirm beetle presence is to set traps along the periphery of the orchard and native woods. Panel traps (Figure 2)are baited with a prionic acid pheromone are used to capture male beetles. This lets you know if beetles are present and when beetle emergence is occurring. The best time to set traps is during the spring. Former UGA entomologist Dr. Jim Dutcher worked on this pest. While it is difficult to reach the larvae deep in the soil with insecticides, Dutcher's work showed that chlorpyrifos applied to the herbicide strip at a rate of 8 oz/50 gallons of water via a herbicide sprayer is an effective control method.

Plant parasitic nematodes can also be attributed to decline in older orchards that may be susceptible. These nematodes will feed on roots and stress trees by reducing the uptake of water and nutrients. Nematodes alone may not be the principal cause of die-back and decline, but in conjunction with other issues nematodes are capable of such. The nematodes which are reported to cause damage to pecans include root-knot (*Meloidogyne* spp.), ring (*Mesocriconema* spp.), root-lesion (*Pratylenchus* spp.), and dagger (*Xiphinema* spp.).

Avalon Pollinators

By Dr. Lenny Wells, UGA Extension Pecan Specialist

I had an article a recent Pecan South magazine discussing 'Avalon' and 'Zinner'. In that article it mentions Avalon as being a Gloria Grande X Barton cross. This is what Dr. Conner originally thought upon its release and this is what's stated in the original literature on Avalon because that is the cross that was made. However, recent genetic analysis has revealed Avalon to actually be a Gloria Grande X Caddo cross. This is not a big deal in the grand scheme of things but it does present some implications with regard to pollination.

Based on the original thinking of the Glorida Grane X Barton cross, I suggested Caddo as one of the potential pollinators for Avalon in the article. In light of the genetic evidence regarding Caddo as a parent of Avalon, *it is not advisable to use Caddo as a pollinator*. Stick with **'Creek', 'Oconee', 'Desirable', 'Pawnee', 'Whiddon'**, and '**Tom'** as the best 'Avalon' pollinators.

Pecan Budmoth

By Ben Reeves, Berrien County Extension Agent

The pecan bud moth, *Gretchena bolliana* (Slingerland) is a pest of 1 to 3-year-old pecan trees. When left untreated, this pest can cause serious injury. Damage is not often noticed until too late, and this is due to the inconspicuous nature of the caterpillar phase.

Figure 3. Photo of budmoth larvae in pecan terminal—Candler County, 2019.

Pecan budmoth larvae are a dull yellow color and grow to be a half inch long (Fig 3). Adults overwinter within pecan orchards and emerge in early spring. Shortly after emerging moths lay single eggs on pecan shoots and buds. Larvae hatch within six days of egg laying and begin feeding on buds, leaves and developing shoots. The most common damage appears as "toasted" or "burned" leaves, called necrosis. The larvae spin web causing young leaves to roll. Following this, larvae may bore into the young shoot, preventing insecticide contact to the larvae and cause the twig to die back.

Early detection for bud moth is critical for control. Pecans are starting to budbreak in South Georgia now. *This is the time to scout for webbing and dark necrotic lesions on young leaves*. Look for tiny webs strung from bud to bud. You may see webs just around the bud itself. This is the first sign of budmoth.

There is not an established threshold for budmoth control. A good rule of thumb is to be prepared to treat in 1 to 3 year-old orchards around bud break. If infestation persists, then follow up treatments are necessary.

Regarding insecticide use, insect growth regulators offer good residual control. Multiple applications of these products are likely warranted due to the bud moth having 5-6 generations per year. Last year, we saw budmoth damage in Berrien County through June. If you find an infestation with serious damage, use Lorsban as a quick knockdown. Remember, Lorsban has little residual, so you will need to follow up with a residual soon after.

It is often more convenient to use a sprayer on the back of an ATV. All you need to do is mix percentage of the product based on what we use per acre. The table below provides calculated rates of each product per 10 gallon sprayers.

Insecticide	Plant Uptake and Movement	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

Table 2 Budmoth insecitides, plant uptake and rate per 10 gallon sprayer.

Phosphites on Non-Bearing Trees

By Andrew Sawyer, Southeast Georgia Area Pecan Agent

In regards to spraying fungicides on non-bearing trees, UGA says probably no is the right answer. Nut scab is much is a greater concern than leaf scab alone. But if a high scab susceptible cultivar is close to bearing pecans and scab becomes noticeable, we certainly need to implement a few fungicide sprays. If we need to treat leaf scab, we know that Group 3's (triazoles) Group 11's (strobilurins), Group 33 (phosphites) would be good choices.

In recent years, phosphites were researched for additional nutrient benefits. Some research shows that as a nutrient, phosphites were found to suppress the developmental response of plants with phosphorus (P) deficiency as well as mimic phosphorus in some plants with phosphorus deficiency (Thao et al., 2008).

Figure 4. Scab on control.

Figure 5. 2 quart K-Phite, every 3 weeks

Figure 6. 4 quart K-Phite, every 6 week

Do to its significant translocation in plants, their low risk of resistance and good control of leaf scab, we need to look at potentially additional benefits in pecan. Last season, we looked at different rates and intervals of a phosphite on a 2-year planting of Caddos.

Using K-Phite7LP, we treated the foliage of trees at different rates and intervals. The five treatments included: 2 quarts of K-Phite per acre, 4 quarts of K-Phite per acre at 3-week and 6-week intervals. We collected height and caliper data as well as a leaf analysis. In September, I rated scab incidence and severity on each tree. Dr. Wells finalized the data through his statistics program.

Starting with scab, phosphite provided great control, as we already know. The highest mean (2.5) of scab severity was found on the control, but it was only significantly more than one other treatment. Scab on the control treatment was not at a high enough incidence or severity to justify fungicide sprays. Keep in mind this is second leaf Caddo, only a medium scab susceptible cultivar.

In terms of horticulture response, we looked at leaf samples, tree height and caliper. We saw no differences in leaf nitrogen. But phosphorus and potassium provided significant results. Where the four-quart (highest) rate of K-Phite was used, the trees were able to pick up phosphorus. This is good news considering previous work on phosphites in other crops. Significant differences in potassium showed that plants did get potassium from the K-Phite.

In terms of a horticulture response, data showed that no treatment was different from each other in both height and caliper measurements. Although the trees received potassium and were able to take in phosphorus, this did not translate into any horticulture benefit of these trees during last season.

This being said, we will continue this work on the same trees this year. I am also replicating this trial on 4-year-old Byrd trees this season. That will be higher susceptibility and sooner to bearing. Thanks to grower Dennis Holley (Laurens County) as a collaborator and Gary Veal (Plant Foods Systems) for supplying product and resources to carry out this project.