



UNIVERSITY OF GEORGIA EXTENSION

December 2021

SOUTHEAST GEORGIA PECAN UPDATE

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A Short Crop Gets Shorter

By Dr. Lenny Wells, UGA Extension Pecan Specialist

The never-ending array of challenges each pecan crop presents continues with the 2021 pecan crop. From the beginning this year's crop has appeared late and short. The cold spring pushed budbreak back and greatly slowed the progression of foliage expansion, and thus flowering and crop development **by at least 10 days**. This may have led to some pollination problems which limited crop set. Following crop set in early summer, I noticed that throughout the state, young orchards (30 years and under) appeared to have a pretty good crop while most older orchards appeared very light to almost blank. Every crop gets shorter as the season progresses but when the season starts out with a limited crop, it gets shorter quickly. *From my perspective, the 2021 crop is setting up to be the shortest crop Georgia has seen since perhaps 2006 in which we produced 42 million lbs as a state.*

Frequent rainfall throughout the growing season led to scab issues and we lost some nuts to scab. This season's scab pressure was at least as bad, if not worse, than what we saw in 2003 and 2013. Considering this, however, growers did an excellent job of minimizing the damage from scab. Along with frequent rainfall, a bigger issue for this season was the extended periods of cloudy weather. **Solar radiation was reduced throughout the growing season. However, the event which did the greatest damage across the state appears to have occurred over a 7 day period between Sept. 16 – Sept. 22.** I mined weather data from various UGA weather stations across the state and found that, at all locations examined, during this 7 day period, solar radiation was half of what it should have been during that time. This occurred at a critical juncture in nut development.

Kernel filling normally takes place from mid August-mid September for mid-season maturity varieties. **Because the crop was around 10 days late, this had the problem event occurring right during the heart of kernel-fill, which is a very high energy demand period in the development of the crop.** Pecan trees require adequate sunlight for photosynthesis to drive these processes. When this key resource is cut in half at such a critical time, the trees simply cannot fill the crop as they should. As a result we are seeing many light nuts on mid season varieties blowing out of the harvester or in the cleaning plant. This has reduced the volume of the crop greatly, even from orchards that appeared to have a good crop.

Early maturity varieties like Pawnee and Elliott escaped this problem because they had largely finished filling before the extended cloudy weather of that 7 day period in mid-September. The mid-season varieties seem to have suffered most on trees that had a heavy crop load.

Normally as we approach mid-November most of our varieties are ready to harvest and we see a large volume of nuts already harvested. This year, however, we have seen relatively little crop volume come in. Many growers are saying they are ending up with about 30% of a normal crop from harvested orchards of mid-season varieties, which make up a large percentage of Georgia's orchards. Some growers plan to delay harvest until a frost or freeze helps the remaining nuts open so they can minimize harvest costs by only having to harvest over the orchard one time.

In July, the Texas pecan estimate had Georgia at 85 million lbs. This appeared possible to me at that time but my number throughout the season was more like 70-75 million lbs. We never really know until the crop is in, but given how things have played out, I now think it unlikely that we make more than 60 million lbs and we may see that number fall even further, below 50 million lbs for the first time in 15 years.

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Pruning Trees in 2nd and 3rd Leaf

By Andrew Sawyer, SE Georgia Area Pecan Agent

Pruning pecan trees is a challenge to teach because it is difficult to describe with words. For a grower, it is intimidating to remove potential productive branches from a tree. Pruning's greatest challenge is that for every individual involved, there is a different opinion on what branches should be cut! The best way to learn is by observing and pruning for yourself.

I have pruned many trees over the past two dormant seasons which helped me better communicate it to you. Before I write more in detail, let me make a few statements:

- 1) The purpose of pruning is to develop or re-develop structure in a tree. If the tree has no structure, it will not pick up sunlight therefore not produce nuts.
- 2) In terms of pruning, the worst thing you could do is to NEVER prune. It would be better to make the wrong cuts than no cuts at all.
- 3) During its first four years the trees grow ROOTS, not SHOOTs. Keeping trees pruned early in their life allows it to put more effort into its root system.
- 4) We are not growing TREES, we are growing NUTS! Do what helps the tree produce nuts.

The most significant pruning is done in the first 3—4 years. In these early years, the tree's focus is on root growth, not shoot growth. By pruning trees, it is able to promote stronger roots.

Ware County Young Farmer's Pruning Clinic

Thursday, December 16th

10:00—12:00

6292 Old Nichols Highway

Millwood, GA, 31552

Call Ware County Agent Scout Carter for more details

at 912-287-2456.



Figure 1 and 2. Pruning 2nd year trees.

Figures 3 and 4. Pruning 3rd year trees.

Year 1: Pruning at planting is simple. It is best to **top the tree at chest high**, about 4 1/2 feet, to reduce stress from transplanting. The taller the tree in the nursery, the more it needs to be cut back! If the tree is short, the top does not have to be cut back as far. This is why 4 feet is recommended. It satisfies both tall and short trees.

Year 2: For a tree going into its second leaf, it remains pretty straight forward (Figures 1 & 2). 1) Select a central leader, 2) cut off all lateral branches and 3) tip below the bud cluster of the leading branch.

Year 3: To keep it simple, I remember a few principles: 1) Select a central leader and remove the rest of the 'crow's foot.' 2) Remove all branches below your head. 3) Remove crossing branches or branches with weak crotch angles. 4) DO NOT tip the central leader! A typical tree at third leaf looks like figure 3 & 4. If you tip the leader, the tree will produce a crow's foot again which would need to be removed next year. At this tree's height, removing the crow's foot the following year is much more difficult.

Follow these principles and all will be good. About making a particular cut: **If you are ever in doubt, CUT IT OUT!!**

Unusual Traits of Cultivars

By Dr. Tim Brenneman, UGA Extension Pecan Specialist & Walker Johnson, UGA MPPPM Student

There are many pecan cultivars available for growers to choose from with a wide variety of attributes. There are traits that can vary considerably among cultivars that are not well known. This summer we had the unique opportunity to collect data on two characteristics of pecan cultivars that I had little information on previously.

The first is the differential susceptibility of cultivars to the relatively new foliar disease that is showing up across the southeastern pecan states. That disease is leaf dieback caused by *Neofusicoccum caryigenum*. Symptoms of this disease are easy to identify and are shown in (Fig. 5.) Individual leaflets become necrotic, and the disease moves down the compound leaf until eventually the whole leaf is killed. The entire compound leaf often persists in the tree for some time making the disease highly visible. Fortunately it responds well to most of our fungicide programs, so is usually not severe in managed orchards. However, it is worse in wetter years, and with the rainfall experienced in 2021 it was evident even in some well-sprayed orchards. We have seen it occur to a significant degree on Desirable, and both Wichita and Pawnee are also susceptible. More complete data on cultivar susceptibility to this disease has been lacking, but the wet weather of 2021 provided an opportunity to see it expressed in the UGA variety block at the Ponder Farm in Ty Ty, Georgia. This block contains some of the newer cultivars and received a lower input fungicide program of about 6 sprays to provide some degree of scab control. Some of the cultivars in the orchard were pretty clean, but some of the more susceptible ones had considerable scab by the end of the season.



Figure 5. Typical symptom of leaf die-back caused by *Neofusicoccum caryigenum*.

It was also evident that there was a big difference in susceptibility of these cultivars to *Neofusicoccum*, and that damage was rated by visual estimate of individual trees on Oct 5, 2021. The mean disease ratings are shown Table 1 below. There were different total number of trees per cultivar scattered within the block, and each rating shown is the mean rating for at least 3 or as many as 9 trees. As observed previously, Pawnee is very susceptible, as is Byrd and Treadwell. Desirable and Morrill were also highly susceptible. Although not grown in this block for direct comparison, Wichita trees at the same location showed high levels of this disease for several years. It is interesting to note that Byrd, Treadwell and Morrill are all crosses of Wichita and Pawnee, so their susceptibility is not completely unexpected.

Cultivar susceptibility to leaf dieback caused by *Neofusicoccum caryigenum* (Tifton, 2021)

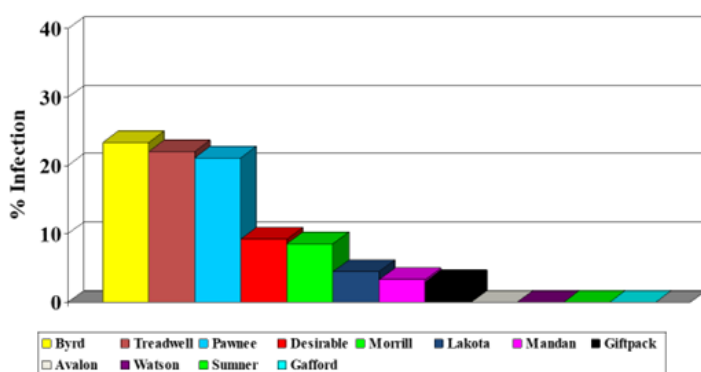


Table 1. Differential susceptibility of pecan cultivars to leaf dieback in Tifton, GA, October 2021. Data were not analyzed statistically but were the mean visual rating of multiple trees (up to 8) growing in a single block at the UGA Ponder farm.

Obviously this list of cultivars is not definitive, but it gives an idea of where to expect the worst damage. In terms of impact, the need to control scab on the most susceptible cultivars will generally require fungicide applications that will result in control of leaf dieback as well. Fortunately, some of the cultivars most resistant to dieback also have good resistance to scab, which would serve well in reduced input situations. Overall this disease is currently not a major factor in cultivar selection, but it is gaining recognition, and these data will help us understand it better.

Unusual Traits of Cultivars Cont...

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The second observation this year originated with a comment made at the Georgia Pecan Growers meeting by a grower who indicated they saw phytotoxicity from their phosphite fungicide applications on one cultivar, but not on others. This was new to me, so we set up a trial in the UGA Tifton cultivar block and sprayed 4 replicated terminals per cultivar with a full rate (4 qt/A) pf Kphite applied with a hand sprayer in 100 GPA equivalent. The first applications were during a cooler, cloudy period and resulted in little damage. Repeated applications 2 weeks later during sunny, hotter weather did result in foliar injury on some cultivars. Symptoms of injury were tan or brown necrotic blotches on the leaf tips or leaf margins as shown in Fig. 6. The treated terminals were then visually rated for injury, and the test was repeated on another set of terminals to insure reproducibility of results.

The data were statistically analyzed, and with no treatment X trial interactions, the tests were combined and the data are presented in Table 2. As noted in the footnote, this rate and application method resulted in a “worst case” scenario. Injury from commonly used rates and spray volumes is seldom an issue. However, under these conditions, leaf burn did occur, and there was a surprising degree of difference among the cultivars.

A number of the entries suffered little if any damage, even in this situation of intentional high pressure for foliar injury to occur. This is a testimonial to the general crop safety of this chemistry. However, it has been observed on multiple crops that phytotoxicity can occur under some conditions with the phosphites. Fortunately some of the entries most susceptible to injury, such as Zinner and Gafford, are more resistant to scab and would likely receive lower fungicide inputs. However, others with moderate sensitivity to injury are also very

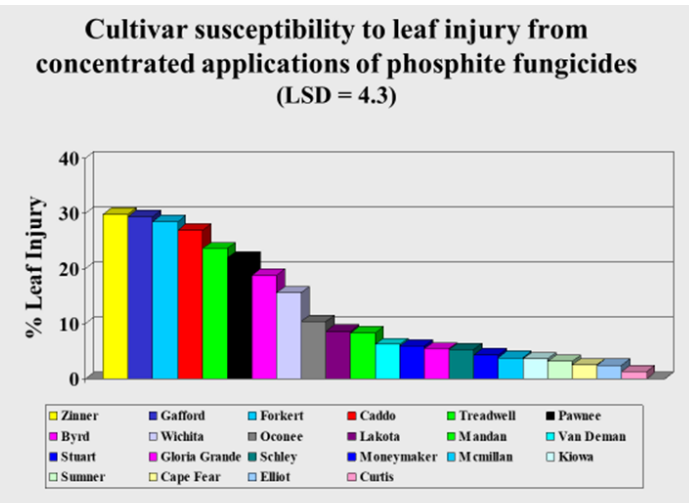


Table 2. Differential susceptibility of pecan cultivars to phytotoxicity of phosphite fungicides. Ratings are a visual estimate of the % necrosis on pecan foliage when terminals received multiple applications of Kphite applied to runoff at the highest labeled rate of 4 quarts/A in a spray volume of 100 GPA. The sequence of the cultivars shown in the legend is from left to right, starting over on the subsequent line.



Figure 6. Differential susceptibility of pecan cultivars to phytotoxicity of phosphite fungicides. Ratings are a visual estimate of the % necrosis on pecan foliage when terminals received multiple applications of Kphite applied to runoff at the highest labeled rate of 4 quarts/A in a spray volume of 100 GPA. The sequence of the cultivars shown in the legend is from left to right, starting over on the subsequent line.

susceptible to scab, and likely would receive maximum fungicide programs, including phosphites. In the great majority of situations this should not be a problem, but these data may help explain issues that might occur. For example, there is interest in reducing fungicide volumes to reduce application costs. This would result in increased concentration of phosphite in the spray tank, and would certainly increase the likelihood for crop injury. Growers often apply a wide range of tank mixed products that can also result in unexpected injury. Another interesting observation from 2021 came from work done by Logan Moore as part of his Ph.D. research on scab control. Logan was mixing micronized sulfur with various fungicides to try and improve their efficacy on scab. While this was largely unsuccessful in terms of scab management, he did find that adding sulfur to phosphites can reduce the risk of foliar burn from concentrated applications. Overall phytotoxicity can often be hard to predict or even reproduce, but hopefully these data may help explain situations that might arise in the future.