



**TREE FUND**  
Cultivating Innovation

## **Tuesday, March 3, 2026 Tree Research and Education Endowment (TREE Fund) Webinar Series**

Question and Answers with Dr. Caleb Wilson, University of Kentucky

Watch the Webinar here - <https://youtu.be/GLPgi62thpY>

### **Question and Answer Document**

**Q: Can eliminating the ants and reducing there harvesting the honeydew increase the susceptibility to black sooty mold**

A: Removing ants should reduce the amount of sooty mold eventually. This is because fewer ants means fewer scales and ultimately less honeydew forming on tree trunks. However removing ants will not do anything with the sootymold that is already there. That should degrade over time very slowly if no more honeydew is being deposited, but I suppose you could get it off with a pressure washer, provided the tree can handle it.

**Q: Last year I got question about European Elm Scales and impact of sooth and black mold on Human Health--- Anybody did any research on it**

A: Very little research on this topic. Seems that inhaling the mold can cause allergic reactions and asthma. Handling fruits with the mold can cause contact dermatitis. Here is a paper on the topic: Guarneri, F., Guarneri, C., Cannavo, S.P. and Guarneri, B., 2008. Dyschromia of hands and bronchial asthma caused by sooty molds. American journal of clinical dermatology, 9(5), pp.341-343.  
<https://link.springer.com/article/10.2165/00128071-200809050-00010>

**Q: Is dormant oil and 'sunspray' type treatments still effective and a good control?**

A: Yes oils can work well. In general it seems that horticultural oils work better on armored scales and that insecticidal soaps work better on soft scales. You can get good knockdown effects but its very hard to get complete eradication of scales

within trees. They are a good option in comparison to broad spectrum insecticides because there is no residual and thus limited risk to pollinators and natural enemies, especially if applied in winter. This paper explains in greater detail: Quesada, C.R. and Sadof, C.S., 2017. Efficacy of horticultural oil and insecticidal soap against selected armored and soft scales. HortTechnology, 27(5), pp.618-624. <https://journals.ashs.org/view/journals/horttech/27/5/article-p618.xml>

**Q: Is felt scale a relatively recent classification? I have been in arboriculture for almost 50 years and I haven't heard of this classification until this year.**

A: No they have been recognized as a family of scale insects since at least the early 1900's. Most arborists encounter them infrequently because few of them become pests. Here's the wikipedia page on the family for reference: <https://en.wikipedia.org/wiki/Eriococcidae>

**Q: How do scale insects move from tree to tree?**

A: Crawlers are blown from tree to tree by the wind and they also climb up on birds or squirrels and get moved from trees that way. They can also move to neighboring trees if the canopies touch each other.

**Q: What is the typical scale found on Crataegus trees?**

A: Several species including azalea bark scale, san jose scale, oystershell scale, and calico scale. Here are some webpages that might help: <https://pnwhandbooks.org/insect/hort/landscape/hosts-pests-landscape-plants/hawthorn-crataegus-azalea-bark-scale>  
<https://pnwhandbooks.org/insect/hort/landscape/hosts-pests-landscape-plants/hawthorn-crataegus-scale-insect>  
<https://www.uky.edu/Ag/Entomology/treepestguide/hawthorn.html>

**Q: Have they studied whether better nymph survival in hotter trees is due to suppression of predator species?**

A: I believe I answered this one live. The graph I showed was from a climate chamber study so it excludes the effect of predation. Nonetheless, hot trees have less predator diversity which likely does support nymph survival.

**Q: You don't need steel wool on magnolia scale, just use your hand on small trees. Sap does stain skin, so use gloves**

A: That's great. Probably better for the tree than steel wool too.

**Q: Want to second a question from the chat: any info on efficacy of emamectin benzoate?**

A: I looked into this and could not find any studies. So my guess is that it doesn't work well for scales, otherwise folks would be publishing those results.

**Q: Besides ants, I'll also see yellow jackets going for the honeydew. Am I right to assume this basal application will have no impact on them?**

A: Only if they are going down to the base of the tree to collect pollen or nectar from flowering weeds. Although wasps are carnivores they will still feed on nectar as a supplemental resource. So if there are flowering plants at the base of a tree and you spray bifenthrin down there, it can kill wasps that go down there for whatever reason. So better than fogging the whole canopy but there still are risks for off-target effects.

**Q: Have you looked at trees growing in turf against trees in garden settings (as in providing habitat for all sorts of insects and birds)?**

A: Other researchers have examined trees in forests v. urban trees and generally the forest trees have greater natural enemy diversity and fewer pests and that is partly why differences occur. Water stress is also less of a problem in the woods vs. downtown and that contributes to these effects. In another project we are examining the impact of planting flowering shrubs on scale biocontrol and the results are exciting so far - seems flowers do support biocontrol even in an urban landscape. Maybe I'll present on that one in a future year!

**Q: I don't have that many issues with Scale insects here, but do have issues with aphids and honey dew damage to property. Do you think using these methods would work to lessen aphid damage in trees?**

A: I think they could work for aphids. I can't guarantee it would work, since it hasn't been tested to my knowledge. But if you want to experiment on your own it might be worth testing.

**Q: What treatment for osyster scale on Tony aster type shrubs?**

A: Horticultural oil should work well

**Q: Also, I've noticed trees with girdling roots have scale problems, and trees with good root flare do not. Is sap flow speed a factor?**

A: Answered this one live

**Q: What happens when the ants are living inside the tree?**

A: Few of the ants we collect are nesting in the canopy. Most are nesting below trees. If you live in the tropics you might find more canopy nesters, but in general most of these ants are nesting below the tree.

**Q: Has emamectin benzoate also been tested for long term efficacy against lecanium scale?**

A: Not that I know of

**Q: Are there any birds that eat the crawlers?**

A: This hasn't been tested but I suspect they are too little for birds to bother with.

**Q: Is any other reason besides feeding from sacles for ants to be on the trees**

A: Sure they are likely also looking for other little insects that they can feed on or nest building materials.

**Q: How well does IGR work for the scale?**

A: Pyriprofixfen and buprofezin can both work well, but you have to target crawlers to get good efficacy.

**Q: In 2026 why don't you do some trials using the introduction of beneficial insects into the trees?**

A: Because they are not likely to hang around. One of your seminar speakers in a few months has found good efficacy with an aphid specialist predator on linden aphids, but in general most generalist predators will not stay put and won't do very much damage to scales. You'd spend a lot of money to get worse efficacy than using an insecticide which costs far less. That said, someone may find a technique to increase natural enemy residency within trees and that is something I plan to investigate in a future project.

**Q: Are there any other known relationships between pests and synergistic insects where you might expect suppressing a synergistic insect would help suppress the pest, outside of scales?**

A: I am sure this exists, I just can't think of one example at the moment.

**Q: Will spinosad affect scale directly? if small enough, why target just ants?**

A: Generally no it doesn't work well for scales. The reason to target ants is you use far less product than a full canopy spray to target crawlers and limit mortality to the beneficial insects in tree canopies.

**Q: Have you tried the combination of imidicloprid and sugar laced hydrogel bait?**

A: I have not because we are trying to avoid using neonicotinoids since they are becoming more restricted worldwide. I suspect a bait like you are suggesting would work though.

**Q: Recording ant species- are some ant species associated with higher levels of scale? The chart that you showed us, is that showing the number of ants of a particular species found on a tree with the treatment you described? Were these counts from before the trees were treated?**

A: The chart I showed was over the course of the entire season - just to show you how variable the data was. Certain ants are likely more associated with scales than others and we are currently exploring that with our analyses. Stay tuned.

**Q: Is neem oil effective?**

A: Yes it can be but I would use soaps or oils first.

**Q: We have a problem with pine needle scale in Winnipeg. Do you have any experience or observations regarding this pest?**

A: I do not but there are great extension publications to look up such as this one: <https://www.canr.msu.edu/uploads/files/e2812.pdf>

**Q: How often were the baits checked and refilled?**

A: They did not need to be refilled all season. That surprised us too. Seems like ants ate some of it at the beginning of the season and the surviving ones ignored it as the season went on.

**Q: Do you think excluding ants might also help felt scale infestation?**

A: Yes I do. Some species produce more honeydew than others, but for a species like crape myrtle bark scale I think it would work just as well.

**Q: Wouldn't the decrease in nymphs from May to August be because they are settling in as adults?**

A: No they don't become adults until the following spring. They only molt once during the summer and at the end of the summer they move to branches as nymphs.

**Q: Has there been any research to your knowledge or thoughts on some kind of pheromone exclusion for ants in place of pesticides?**

A: Not to my knowledge but that is a cool idea.

**Q: Were the starting densities of scale on these trees to represent high infestation found in urban trees? Can you speak to the differences if any between UKY and farm? As it relates to heat island. Also - did you irrigate trees during study?**

A: All trees were unirrigated. I would say that these were moderate to high infestations - there was a decent amount of variation.

**Q: Was azadiractin considered as a systemic pesticide that could also be used in conjunction with sprays and traps?**

A: I believe it has only been tested as a foliar spray with some efficacy, but generally less efficacy than soaps, oils, or neonics. I am unsure if trunk injected neem would work better or not.

**Q: Has there been any research of the affects of using earthworm castings to eliminate scale. I have had a lot of success on woody shrubs, A chitemase degrading enzyme seems to be present in castings that is thought to have repellancy to sucking insects**

A: Not that I am aware of but that's a cool idea! Insect growth regulators like pyriproxifen and buprofezin can work well on scales.

**Q: What life stage do most parasitoid wasps end up killing? Could affect how quickly you see tree health improvement depending on crawlers vs eggs vs adults**

A: They attack crawlers and overwintered nymphs. That's why we are measuring parasitism again in the spring because there are 2 time points at which the parasitoids can affect them - summer and the following spring.

**Q: Did you consider or discover if drier climates would different from humid environments? IE Western States.**

A: It certainly matters to some extent but that wasn't a goal of this project.

**Q: I have found coffee grounds deters ants so I use it around my vegetable gardens plants and fruit trees.**

**Maybe this can be tested in your methods and see if it works and can provide some useful data!**

A: That's a cool idea. We are also considering using diatomaceous earth for the same reason.

**Q: Bait+spray+drench?**

A: We only tested sprays and baits for this project. We are trying to avoid using systemic drench treatments because of their effects on beneficials. Next year we will test baits + sprays compared to each on their own.

**Q: I noticed in one of the last slides there were young assasin bugs going after the scale. Do ants kill these insects as well as the other predators you mentioned? I ask because I have seen a lot of young assasin bugs in spring but when the summer is in full swing I barely see any adult assasin bugs. Are the ants the culprits?**

A: Its unclear if assasin bugs kill scales but I suspect they do. Other small predatory hemipterans like minute pirate bugs are known to eat scales so it may be that the

assassin bug nymphs feed on crawlers or overwintered nymphs. Whether or not the ants are attacking them is also an unknown but I would not be too surprised

**Q: I recently read about some research on tree photosynthetic abilities and that it decreases in the increasing summer temperatures that areas are experiencing. Would reduction in photosynthetic activity potentially affect the scale feeding or just the tree health? Not specific to the insecticide but curious about that interaction.**

A: I suspect it might affect scales in some way but it is unclear to me if that has ever been experimentally tested. Ultimately it depends on how that change in photosynthetic ability influences the movement of phloem and the chemical composition of the phloem.

**Q: Is there a treatment to target adult scale rather than the nymphs?**

A: No because the adults stop feeding soon after reaching that stage and essentially turn into a mass of eggs. Adults have thicker cuticles and it is hard for pesticides to penetrate and cause mortality.

**Q: Would you see a decline in scale over use after several years/**

A: That is what we are hoping for!