

# MANAGING PECAN PESTS

Insects and mites that feed on pecan nuts and leaves can destroy an entire crop or send trees into non-productive periods that last several seasons.

**Since 1976, a team of researchers and Extension educators from State Agricultural Experiment Stations (SAES) and the USDA has helped predict, detect, and manage pecan pests in the southern U.S.**

Over the years, these efforts have helped save the U.S. pecan crop from devastating injury. Continued research and Extension are necessary to test and share new tools and methods and keep up with changes in pest populations, environmental conditions, insecticide regulations, and grower preferences and capacity.

**To tackle complex pest problems, scientists in multiple states need to work together.**

- A large, multidisciplinary team offers diverse expertise and facilitates discussion and consensus.
- Collaboration reduces redundancy.
- Access to SAES and the USDA field sites and laboratories facilitates thorough, reliable testing of pest control methods.
- Methods can be tested under a broad range of conditions and tailored to fit specific needs.
- Long-term study ensures solutions don't cause unexpected issues down the road.
- Findings and recommendations can be shared more widely.



# RESEARCH HIGHLIGHTS

## IMPROVED MONITORING

Researchers and growers in multiple states used pheromone traps, surveys, and other methods to monitor for pecan pests. Understanding where certain pests are present—and the severity of an outbreak—helps target management efforts. For example, New Mexico scientists newly detected pecan weevil in trees in urban yards, and scientists in Georgia are monitoring the invasive brown marmorated stink bug to see how far south populations will establish.

Scientists developed better monitoring tools. For example, scientists with the Noble Research Institute in Oklahoma developed an inexpensive system that uses laser beams to detect pecan weevils entering traps and sends the information to a computer receiver. Texas A&M University scientists are developing a mobile app that runs photos through a system for insect identification.

Researchers assessed the effectiveness of lures and traps. For example, yellow traps capture more stink bugs than black traps, and studies in Georgia showed that bolts of pecan wood baited with liquid ethanol attracted more ambrosia beetles than pecan bolts without ethanol.

## IMPROVED CONTROL METHODS

Researchers tested several new control options for a wide range of serious pecan pests, including:

- Netting saturated with insecticide to trap and kill pecan weevil adults
- Bait stations containing sugar water and boric acid to kill tawny crazy ant
- A sprayable pheromone that disrupts hickory shuckworm mating
- Establishing insect-killing fungi in pecan seedlings and trees
- A virus to control hickory shuckworm
- A microbial-based product, Grandevo, to control pecan weevils and blackmargined pecan aphids in organic systems
- Gibberellic acid (ProGibb LV Plus) to impair black pecan aphid development and mitigate the feeding injury they cause
- A 3-D printed device that releases predatory mites from a drone to control plant-feeding mites
- Updating a list of labeled pesticides for pecans
- Sulfuryl fluoride fumigant (ProFume®) to control in-shell pecan weevil larvae postharvest
- Treating trees with Closer, a chemical insecticide, to reduce aphid numbers below the threshold
- Determining the best spray volume for chemical insecticides to effectively controlled black pecan aphids and blackmargined aphids

## HELPING GROWERS MAKE DECISIONS

Scientists at the University of Georgia and USDA updated the Pecan IPMPipe website ([pecan.ipmpipe.org](http://pecan.ipmpipe.org)), where researchers, Extension agents, and producers can submit data and access risk maps and forecast models that predict pest presence and help pecan growers determine when treatment is needed.

Commercial orchards in Georgia are testing the Farm Dog mobile app to record scouting data on pecan pest populations. The app can be used online and offline and is fully customizable based on the needs of the user. It is free to use for Extension purposes and available for a fee for commercial use.

## RAISING AWARENESS

Extension educators at Texas A&M University created a pamphlet about pecan weevils for homeowners and posters for regions that don't currently have weevils. Early detection is essential to prevent serious outbreaks and damage.



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