



United States  
Department of  
Agriculture

**Agricultural  
Research  
Service**

1998-04

February 1999

# **Pecan Industry: Current Situation and Future Challenges, Third National Pecan Workshop Proceedings**

Recorders Report for Entomology Session II  
Marvin Harris, Professor of Entomology,  
Texas A&M University

Paper by Ree on Casebearer:

Bill Goff Horticulturist, Alabama asked: Do we know enough detail on the interaction of first summer generation pecan nut casebearer larvae and pecan to allow an infestation to proceed until the crop is thinned to the desired load and then stop the infestation with a surgically timed pesticide? This would be a possible tool to regulate the crop load without having to shake trees in August.

B. Ree and M. Harris replied: We know the rate of nut consumption by casebearer larvae (Ring, D. and M. Harris. 1984. Nut entry by 1<sup>st</sup> summer generation pecan nut casebearer. Southw. Entomol. 9:13-21). Unfortunately, the density of casebearer larvae is relatively stable at about 20,000 larvae/hectare regardless of crop load so that light crops of 250,000 nutlets/hectare suffer a 25% infestation but didn't need thinning, and heavy crops of 500,000 nutlets/hectare or more have a 12% infestation or less and still require thinning of an additional 30% or so of the crop (see Harris, M., C. Chung and J. Jackman. 1996. Masting and pecan interaction with insectan predehiscent nut feeders. J. Econ. Entomol. 25: 1068-1076). Furthermore, insecticide efficacy cannot presently be relied upon to exactly regulate the precise degree of infestation. Our current Texas recommendations usually result in spraying light to intermediate crops and not spraying very light crops, because no harvestable crop can be produced, and not spraying heavy crops because sampling will show casebearer densities aren't high enough to harm the crop. The use of *B.-t.*'s is typically recommended with intermediate

crops that require some thinning but have higher densities of casebearer than needed to do that thinning. The short residual of *B.-t.*'s kills feeding larvae for a day or two but allows adults, eggs and larvae already in nuts to survive and develop to thin the crop to some extent. Growers should be made aware of the potential of casebearer as a thinning agent with heavy to intermediate crops as well as it's ability to devastate some crops. Careful sampling for crop load and the developing infestation will allow limited use of this principle.

Brad Lewis Entomologist New Mexico State also noted finding casebearer egg lays in New Mexico in 1998 as high as 30% of infested nut clusters that did not materialize into larval populations that caused much economic damage (only a few % infested clusters at most). This continues the enigma of pecan nut casebearer in the Mesilla and El Paso Valleys since its discovery in the city of El Paso in 1988. Dispersal has been much slower than expected and economic damage in unsprayed trees has, to date, only been documented in one orchard near El Paso. Current recommendations base the need for spray application and timing on egg density and larval hatch. This approach may need to be reexamined in New Mexico and Far West Texas where high egg/neonate larval mortality appears to occur at least under some circumstances. High temperatures, low humidity, abundance of natural enemies, etc., may be influencing this situation differently in the Far West compared to central Texas and requires investigation.

Paper by McVay on Shuckworm:

No specific questions. Observations indicate a need for better monitoring tools for hickory shuckworm. Confirm® appears to provide good control when needed

comparable to currently labeled materials.

Paper by Smith on hemipterans:

J. Benton Storey, Horticulturist, Texas A&M University asked: You noted differential infestation among varieties, can you explain this based on shell thickness and development at the time of infestation?

McVay answers: Shell thickness/hardness doesn't appear to govern (be correlated to) relative infestation. The polyphagous hemipterans appear to be sequentially monophagous, that is, they exploit many plant species during the season, but do so primarily one after the other as the development and attractiveness of each species waxes and wanes through time culminating in pecan at the end of the season becoming almost a default host when abundant densities of hemipterans have fewer and fewer alternatives. Pecan tree location and other factors besides shell thickness also appear to be important here. Trap crops may provide at least a partial answer to this problem.

L.J. Grauke, Horticulturist, USDA-ARS, Pecan Breeding Program asked: How do you measure shell thickness?

The consensus answer indicated relative subjective measures of shell thickness/hardness through time among varieties provided useful comparisons within a season at one location, but more objective measures were needed to make comparisons between locations and seasons to allow uniform analysis of this factor.

Paper by McVay on Pecan IPM:

Unidentified questioner asked: What role do hemipteran pheromones play in pecan IPM?

McVay answered aided by M.T. Smith:

Hemipteran pheromones are currently limited to *Euschistus* so that monitoring, trap out or other pheromone based stink bug (pentatomid) and leaf footed bug (coreid) management is unavailable for assessing the overall problem from the species complex. Trap catches of *Euschistus* are enhanced by pheromone usage, but trap out strategies must include other species where trap attractiveness is insufficient to reduce populations below economic levels.

General Comments by Recorder on Session

The participation by producers, horticulturists, plant pathologists, entomologists, agricultural economists, plant breeders and others representing research, extension, USDA, industry and production perspectives provided a range of inputs and responses that will stimulate further research, delivery and practice efforts that will benefit the pecan industry. The diversity of workshop participants and the interaction format designed into the program allowed information exchange among groups in a more fundamental way than is usual. Increasing these lines of communication in the limited time context of this workshop provides a catalyst and direction for further effort rather than a definitive final answer now. There is no forum for pecan as broadly represented as in this workshop and the emphasis on communicating both successes as well as problems across disciplinary and institutional lines encouraged broader thinking by all participants to improve the pecan industry. The quadrennial cycle now established by this third workshop allowed sufficient elapsed time for real progress in programs without losing relevancy. We look forward to greater interaction as a result of this workshop and achieving this standard again in 2002.