

Donn Johnson Response to 2016 Reviewer Comments of S1049 Revision Proposal
S_Temp3682: Integrated Management of Pecan Arthropod Pests in the Southern U.S. (4 Feb.
2016)

Reviewer 1:

1. There is limited participation for Obj. 3

Comment: **Those activities more in research than implementation mode at the moment.**

2. Pecan IPMPipe is often mentioned as a means of disseminating information, yet no active member participation from TAMU (Dr. Harris is Emeritus)

Rewrote: **4.1 Regional Research (All states and USDA) – We will identify funding sources to sustain and update the online interactive communication system called Pecan ipmPIPE Platform at: <http://pecan.ipmpipe.org/>. We will identify funding sources to sustain and update the online interactive communication system called Pecan ipmPIPE Platform at: <http://pecan.ipmpipe.org/>. Funds will be allocated in the budget of present and future grant proposals to support a web master to supervise updates and data input to Pecan ipmPIPE.**

3. Not clear as to how the organic management will be achieved

Comment: **This appears to be addressed throughout objective 3 on pp. 15 and 16.**

Reviewer 2:

This group has a proven track record of productive research and extension programs that benefit the pecan industry. This group is vital to maintaining a successful pecan industry. **No response**

Reviewer 3:

1. Will additional participants be picked up in the unrepresented states (California, Arizona, Oklahoma, Alabama, Kansas, etc.)?

Current Participants on NIMSS S1049 page noting those that are **head**:

Dutcher, James D	Georgia Head
Graham, Charles J.	Louisiana
Hall, Michael	Louisiana Head
Harris, Marvin	Texas Research Head
Johnson, Donn T.	Arkansas Head
Mizell, Russell F.	Florida Head
Mulder, Phillip G.	Oklahoma Head
Shapiro-Ilan, David	USDA ARS (Georgia)

Comment:

We need to add/correct the NIMSS list of participants and identify who is Head for each state. Many of these people listed below regularly attend the S1049 meetings or have shown interest by participating in regional pecan grant proposals:

Charles Rohla for Oklahoma - **Head**

Mulder for Oklahoma – change him to an alternate since he is a department head

Bill Ree for Texas - **Head** (make Marvin Harris an alternate)

Bill Reid for Kansas - **Head**

Jackie Lee for Arkansas – alternate or head – she will be our new Extension Horticulture IPM (fruit / veg. and pecan)

Elena Garcia for Arkansas – alternate, she was PI who coordinated/submitted (Dec. 2015) a multistate, multidiscipline USDA AMS-SCMS proposal on pecan

Ted Cottrell for USDA Georgia

Richard Heerema and/or Tiffany Johnson for New Mexico - **decide who will be Head**

Maybe someone from northern Mexico?

Does anyone know who to invite to participate from California, Arizona, or Alabama?

Or do we want to expand into those states?

2. The last portion of the first paragraph on page 2 cites “recent crop profiles” that are dated 1999-2003. That really isn’t that recent. Also, the last 9 lines of this paragraph don’t flow well, and at the end seem to focus solely on Georgia. **Noted as ‘outdated’**

Added statement: **Annually, these pests continue to be of grower concern as noted by recent state-by-state surveys that assess pecan grower or industry needs for research/extension/marketing. These survey summaries have been used as stakeholder input and support for multistate, multidisciplinary pecan project proposals we have submitted for USDA funding.**

3. The end of the second paragraph on page 4 is a bit confusing.

Rewrote: **Training is needed in the identification of beneficial organisms and to note how certain insecticide groups are deleterious to these beneficial organisms which result in pest outbreaks.**

4. In the last paragraph on page 4, the authors note that traps may be a practical method for monitoring for stink bugs, but is there evidence that trap captures correlate with stink bug issues in the crop (e.g., see the top of page 6 regarding pecan nut casebearer trap capture not correlating with crop damage)?

Rewrote: **There has been no correlation between stink bug catch by any of these sampling method and subsequent pecan damage by stink bugs. However, pecan damage occurs whenever there are one or more stink bugs captured in yellow traps during water through dough stage of nut maturation. It is hypothesized that yellow traps, baited with aggregation pheromones of both the brown and green stink bugs, will be the best way to detect presence of stink bugs. Cowell et al. (2015) noted that yellow pyramid traps may be the most acceptable method for growers to monitor for stink bugs in pecan groves. Further study is needed for using baited yellow pyramid traps to monitor for stink bugs in the lower canopy of pecan trees where the most nut damage occurs.**

5. In the second full paragraph on page 8 the authors focus on the brown marmorated stink bug in Texas, yet the stink bug has been reported from a number of other pecan-producing states. Will this work be expanded beyond Texas? And as an aside, stink bug is variously spelled stink bug and stink bug in the proposal. The former is correct. Also, the green stink bug is now *Chinavia hilaris* rather than *Acrosternum hilare* (third full paragraph, page 8).

Rewrote: Brown Marmorated Stink Bug: This invasive stink bug, first detected in PA in the mid 1990's has now spread to 40 states in the continental US. In most pecan producing states east of line from Kansas to Texas, there have been several interceptions of adult brown marmorated stink bugs, but there is only one confirmed site with feral collected specimens which is Corpus Christi.

6. The Objectives section (pages 10-11) seems to be quite redundant with the Methods section. I would recommend simply listing the Objectives here, and including the state-specific detail only in the Methods section. Otherwise it is confusing.

Rewrote: I tried to simplify the Objectives section and rewrote the methods in the Methods section to eliminate redundancy. I also changed some of the participants for each objective.

7. On page 13 in paragraph 1.2 the authors note that "The pheromone is anticipated to be commercially available in 2010". Presumably it is now available? Was this just left over from the previous iteration of the proposal?

Rewrote and added sentence on LED lights noted in objective 1.2 p. 11: Improvements in pheromone trap placement and design will be field evaluated for monitoring for *Prionus* root borers. In 2009, pitfall traps with the sides sprayed with RainX and a pheromone dispenser placed over the opening successfully caught *Prionus laticollis* and *P. umbricornus* adult males. Trap catch of *Prionus* beetles will be compared in traps placed either along the border of the orchard or in the center of the orchard. Traps for female *Prionus* spp. beetles will be developed as pitfall traps amended with solar-powered LED lights and/or vanes radiated over the ground out from the center of the trap so that beetles will follow the vanes into the trap once the encounter the distal end. The pheromone tested in 2009 was derived from *P. californicus*. Female beetles in Georgia are needed to determine the pheromones for these species.

8. In paragraph 2 of page 14 the authors describe a trial where predatory mites are to be released into 6 commercial orchards each with its own practices in place. What happens if none of the releases work? In the absence of a control orchard where the standard practices may not be implemented, would it be possible to determine why the releases failed?

Rewrote: Each month from July to Oct the abundance of pecan leaf scorch mites and phytoseiid mites will be monitored in each release tree, adjacent trees (to note dispersal

from release tree) and trees at least three tree spaces from the release tree (control = no predatory mite release).

I will see if people in Georgia can add a statement of past success with predatory mites in this paragraph.

9. Last paragraph on page 14 – What are “new chemical microbial controls”? And are the thresholds for microbials the same as those used for chemical insecticides?

For the list of microbials, I inserted an excerpt from page 15:

2.3 Regional Research (Georgia, U.S.D.A., Louisiana): Large plot applications will assess the ability of promising microbial control agents including nematodes (particularly *Steinernema carpocapsae*), fungi (*Beauveria bassiana* and *Metarhizium brunneum*) and the bacterium *C. subtsugae* to control pecan weevil in organic settings.

Comment: I believe they are talking about endemic microbials (entomopathogenic fungi). If not, these participants can add a sentence as to what microbials might be evaluated against aphids after use of a fungicide against a pecan scab event.

Reviewer 4:

I have no doubt that as a result of this project one can expect (as the authors state) “[pecan] producers to be better informed, increase adoption of IPM including biocontrol, apply fewer and better timed treatments and thereby reduce operating costs, risk of resistance and harm to the environment.”

No response