



Arkansas Fruit and Nut News Volume 5, Issue 5, 8 June 2015

Upcoming Events

- **Mark it on your calendar: July 16th- Peach Production Workshop**
 WHEN: Thursday, July 16th, 2015
 WHERE: University of Arkansas Fruit Research Station, 1749 State Hwy 818 Clarksville, AR
Detailed information on this workshop will be sent to your county Extension agent shortly
- **Oklahoma Pecan Growers Association Annual Conference (Link): [June 11-13, 2015](#)**, Ardmore, OK
 Ardmore Holiday Inn and Convention Center. Reserve your room on-line at (Link) Use: Group Code: OPG. Get more information by emailing Amanda Early (OPGA Treasurer) at:
- **TriState ArkLaMiss Pecan-ference (Link): [June 18-19, 2015](#)**, Natchez, MS Natchez Convention Center, 211 Main Street, Natchez, MS 39120; Contact: Stephen Norman, (318) 729-3173 or by email: pecans@rosaliepecans.com; Natchez Grand Hotel information (601.446.9994: [Link](#)): rooms are around \$120/night if you ask for TriState Pecan rate.
- **Texas Pecan Growers Association Annual Conference online registration (Link): [July 12-15, 2015](#)**, Frisco, TX; Contact (979) 846-3285 or by email: pecans@tpga.org

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Alert: Spotted Wing Drosophila Laying Eggs

- We found that 23% of ripe blackberry fruit sampled in Pope County on 2 June had one or more SWD eggs laid in the drupes in first ripened blackberries (**Fig. 1**).
- In the same planting, there were no SWD eggs laid in a sample of over 60 ripe blueberry fruit.



Figure 1. Spotted wing drosophila egg with breathing tubes (threads) visible in blackberry drupe (Photos: Donn Johnson).

Do You Have Broad mite on Blackberry?

- We are doing a survey for broad mite or cyclamen mite that both appear to do the similar foliar damage in blackberry. The broad mite is 0.33 mm long, white to pinkish-amber with a white line along its back (**Fig. 2 A**) and its oval egg is 0.08 mm long with white spots (**Fig. 2 B**). The cyclamen mite is similar to broad mite but walk much faster making it hard to photograph. Its oval egg is 0.1 mm long and smooth without spots and smaller than a predator mite egg.
- **Damage:** The symptoms are stunted, curled leaves and aborted flower clusters usually on terminals (**Fig. 2 C-E**). If you see these symptoms, email Dr. Donn Johnson (Email: dtjohnso@uark.edu).

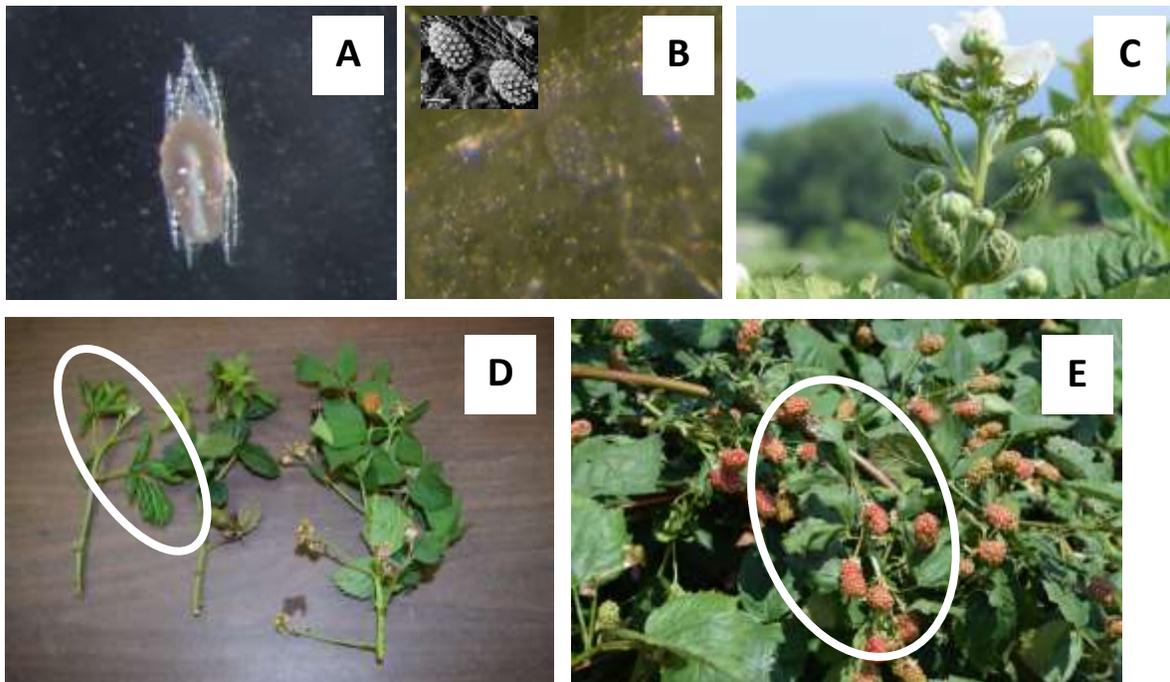


Figure 2. Adult broad mite (A) and egg (B) on blackberry. Mite feed on terminals leaves and flowers that stunts and curls leaves (C and D). (E) shows stunted, curled leaves on blackberry on 2 June in central Arkansas (Photos: Donn Johnson).

Codling Moth

Biology: There are three to four generations of this pest per season. In 2015, the first generation egg hatch period occurred from 10 May to 12 June (equates to 250 to 824 DD; base 50°F). The next generation of adult moths should start emerging by 20 June followed by egg hatch period from 30 June to 20 July (equates to 250 to 824 DD; base 50°F).



Scouting: You can confirm presence of this pest by checking several hundred apples weekly for a red ringed hole with frass and slice wound open to see if it is new - larva is still < 1/8" long. Pheromone traps are usually set out by pink stage and monitored weekly for moths. In 2015, moths were first captured in traps in Fayetteville on 22 April (**Fig. 3**).

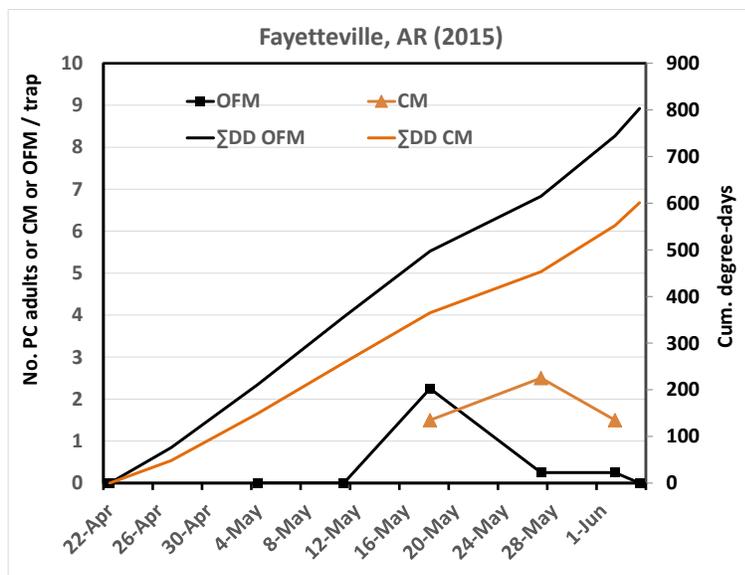


Figure 3. Pheromone trap catch versus respective cumulative degree days (Σ DD) for Oriental fruit moth (OFM) and codling moth (CM) in Fayetteville, AR (2015).

Control: Insecticide is applied against the first generation during the hatch period from 250 to 700 DD (base 50°F) and second after 1,250 DD accumulated since first consistent pheromone trap catch which was 10 May

to 8 June or second starts by 30 June (see **Table 1**). One grower indicated first trap catch was delayed until 1 June indicating a later egg hatch period from 10 June to 2 July.

Table 1. Predicted codling moth (base 50°F) and Oriental fruit moth (base 45°F) egg hatch periods (insecticide protection period) for Fayetteville, AR. Used online degree-day (DD) calculator at <http://uspest.org/> where biofix date was 22 April 2015 (first trap catch for both).

Predicted Codling Moth			Predicted Oriental Fruit Moth		
Date	DDs	Event	Date	DDs	Event
5-10-15	250	1ST GENERATION, 3% EGG HATCH	4-24-15	32	first egg-laying
5-18-15	366	1ST GENERATION, 20% EGG HATCH	5-4-15	212	first egg-hatch
5-29-15	492	1ST GENERATION, 50% EGG HATCH	5-14-15	403	peak larvae
6-5-15	629	1ST GENERATION, 75% EGG HATCH	5-26-15	587	first pupae
6-12-15	824	1ST GENERATION, 95% EGG HATCH	6-9-15	969	first moth catch 1st generation
6-20-15	1015	2ND GENERATION, 5% ADULT EMERGENCE	6-10-15	1002	first egg-laying 2nd gen
6-30-15	1269	2ND GENERATION, 7% EGG HATCH	6-16-15	1183	first egg-hatch 2nd gen
7-8-15	1483	2ND GENERATION, 30% EGG HATCH	6-23-15	1387	peak larvae 2nd gen
7-12-15	1592	2ND GENERATION, 50% EGG HATCH			
7-18-15	1759	2ND GENERATION, 75% EGG HATCH			
7-31-15	2122	2ND GENERATION, 99% EGG HATCH			

Oriental Fruit Moth

Biology: There are five or more generations of this pest per season. Some first generation larvae will enter fruit and some will tunnel in terminals causing terminals to die (flag).

Scouting: Pheromone traps are usually set out by mid-March near peach bloom and monitored weekly for moths (Fig. 3). You confirm presence of this pest by walking the orchard looking for flagged, dying terminals or by cutting open at least 100 fruit looking for legged caterpillars often near pit.

Control: It is nearing time to apply insecticide against the second generation hatch period which will occur after 969 DD (base 45°F) accumulated since first consistent trap catch (see Table 1).



Plum curculio

Biology: There are at least two generations of adults per season that lay eggs in tree fruit and blueberries. Adult weevils have been dispersing from adjacent woodlots into orchards since 15 April. This group of adults have laid eggs, larvae entered fruit and most adult weevils have died indicated by low pyramid trap counts in late-May (Fig. 4).

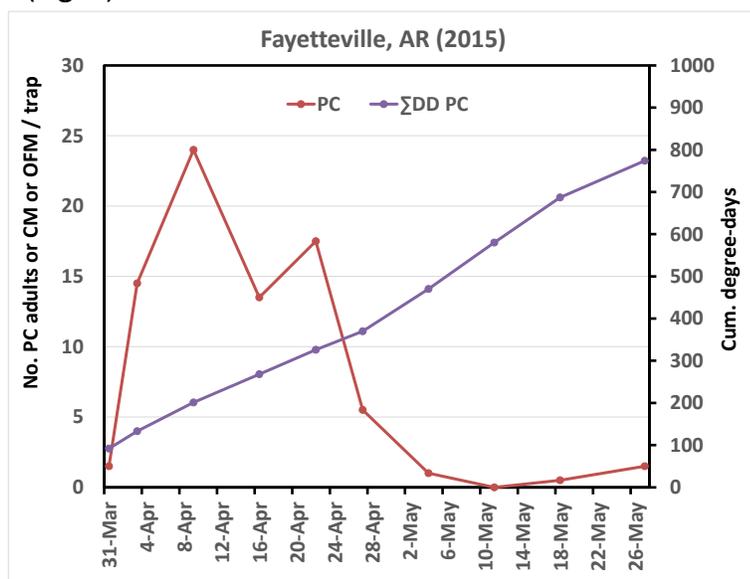


Figure 4. Baited pyramid trap catch of plum curculio (PC) versus respective cumulative degree days (Σ DD) in Fayetteville, AR (2015).

Many larvae are now exiting fruit to pupate in the soil under fruit trees. The summer generation of adults should be emerging by mid-June after accumulating 1,200 DD (base 50°F) since the biofix on 18 March when temperatures exceeded 70°F for a second

day in March in Fayetteville, AR.

Scouting: Once March temperatures reach or exceed 70°F for a couple days, tether baited black pyramid traps to several trunks of perimeter apple or peach tree adjacent

to a woodlot (overwintering site of adults). Check traps weekly for adult PC. Also begin weekly checks of 30 fruit in each of 10 perimeter fruit trees or blueberry plants (300 fruit sample) looking for new egg laying damage.

Control: As soon as you see new egg laying damage after mid-June, begin insecticide spray program to protect fruit. Keep checking for new egg laying damage on fruit to determine need to continue insecticide spraying every 10 to 14 days.

Lesser Peachtree Borer

Biology: There are two generations of this pest per season. Moths lay eggs on scaffold limb wounds from early-April to mid-May and the summer generation adults start emerging in mid- to late-June. Larvae tunnel into and feed in these scaffold wounds that further weakens limbs.



Figure 5. Scaffold limb wound, lesser peachtree borer pupal skin and adult male.

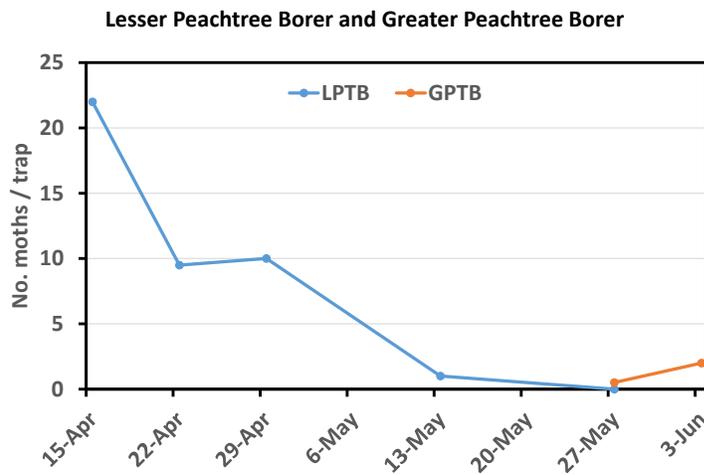


Figure 6. In peach, nectarine and plum, greater peachtree borer and lesser peachtree borer pheromone trap catch in Fruit Station in Clarksville (2015).

Scouting: You can check for presence of this pest in two ways. You can confirm presence of this pest in your orchard by checking for amber pupal skins sticking up from scaffold limb wounds (Fig. 5). Use pheromone traps to detect adult male moths (Fig. 5). Set out traps by late-March and monitor weekly for moths. In 2015, most of first generation moths were captured at the Clarksville Fruit Station from early- to late-April and trap catch dwindled in May (Fig. 6).

Control: The insecticides applied to control plum curculio and Oriental fruit moth in April and early-May probably killed many of the lesser peachtree borer larvae as they hatched.

Greater Peachtree Borer

Biology: Adults lay eggs on lower peach trunk and larvae tunnel into trunk below the soil line.

Scouting: Pheromone traps started catching a few moths at the Clarksville Fruit Station on 27 May (**Fig. 6**).

Control: A trunk drench application of insecticide is applied to the lower foot of the trunk starting a couple weeks after first trap catch of adult males. The drench requires about 1 gallon of insecticide spray mixture per tree applied to drench the soil around each fruit tree trunk.

Grape Berry Moth



Figure 7. Grape berry moth (A) infested cluster (purple berry), (B) new larval entries into berries and (C) mature larvae exiting damaged fruit (Photos: Donn Johnson)

Biology: The biofix date of first trap catch of grape berry moth was on 4 May in Fayetteville, AR. The degree-day (DD) model predicted on 26 May in Fayetteville there had been an accumulation of 400 degree-days (DD; base 47°F) after biofix indicating eggs would begin to hatch. However, this first generation of larvae initially eat whole berries until berries exceed pea size and then tunnel into and feed inside these larger berries. This first generation tends to restrict egg laying to the perimeter vines of the vineyard with the greatest berry damage in vines adjacent to a woodlot where grape berry moth pupae accumulate on fallen leaves and overwinter.

Scouting: If grapes exceed pea size, it is time to start weekly checking of 300 clusters for signs of new grape berry moth larvae entering berries (**Fig. 7**) (check 10 clusters on each of 30 vines in vineyard perimeter nearest woods).

Control: If you see more than 3 clusters with new GBM larvae entering berries then you can make one application of insecticide to the perimeter row. This spray kills most of the first generation larvae.

Japanese Beetle

Biology: Japanese beetles should start emerging in the next week or so. Keep an eye out for the first Japanese beetle foliar damage on the upper canopy of fruit plantings (**Fig. 8**).

Control: If greater than 15% of the canopy is skeletonized, apply an insecticide to the upper third of the canopy to minimize further damage. You may have to apply a second spray if beetles continue to disperse into and feed on fruit plants.

Figure 8. Japanese beetle foliar damage to upper part of canopy. (Photo: Donn Johnson)



Stink Bugs

Biology: This week, we have been seeing stink bugs mating and finding egg masses (**Fig. 9 A**) on the leaves, especially on blackberries. I have been seeing ooze coming out of punctures where stink bugs have been feeding on peach fruit or small dimples on apples (**Fig. 9 E**).

Scouting: Check fruit plantings for presence of feeding damage and for immature stink bugs.

Control: Immature stink bugs are the stage most susceptible to insecticides. Apply insecticide once you see multiple immature stink bugs present (**Fig. 9 B**).

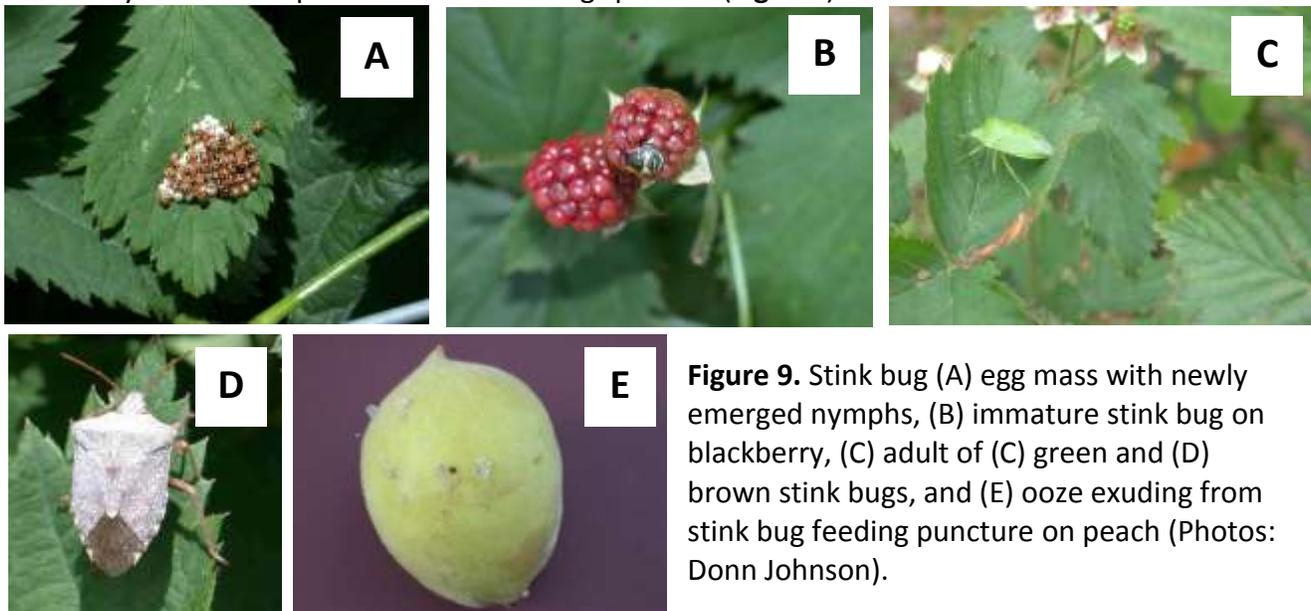


Figure 9. Stink bug (A) egg mass with newly emerged nymphs, (B) immature stink bug on blackberry, (C) adult of (C) green and (D) brown stink bugs, and (E) ooze exuding from stink bug feeding puncture on peach (Photos: Donn Johnson).

Much of the information obtained for this newsletter was gathered by the authors at the University of Arkansas-Fayetteville. All chemical information is given with the understanding that no endorsement of named products is intended nor is criticism implied of similar products that are not mentioned. Before purchasing or using any pesticide, always read and carefully follow the directions on the container label. Compiled by: Donn T. Johnson, University of Arkansas, Department of Entomology, E-mail: dtjohnso@uark.edu; and Elena Garcia, University of Arkansas, Department of Horticulture, E-mail: megarcia@uark.edu. Issued in furtherance of Cooperative Extension work, Acts of May 8 and June 30, 1914, in cooperation with the U.S. Department of Arkansas Division of Agriculture, University of Arkansas, Agriculture, Director, Cooperative Extension Service, University of Fayetteville. The Arkansas Cooperative Extension Service offers its programs to all eligible persons regardless of race, color, sex, gender identity, sexual orientation, national origin, religion, age, disability, marital or veteran status, genetic information, or any other legally