



# Arkansas Fruit and Nut News Volume 4, Issue 7, 5 September 2014

## Fruit & Pecan Pests

Dr. Donn T. Johnson - Fruit Research/Extension

## Upcoming Event

### Muscadine Workshop ([Flyer](#))

University of Arkansas, Fruit Research Station in Clarksville, AR

Thursday, September 11, 2014 from 2:30-7:30 pm

Registration cost is \$25.00

For online registration and payment information [click here](#) or visit:

[http://uark.edu/ua/afls1234/webforms/muscadine\\_workshopcashnetjm.php](http://uark.edu/ua/afls1234/webforms/muscadine_workshopcashnetjm.php)

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## Mealybugs and Leafroll Virus in Vineyards

I direct you to the following article on this topic posted on August 27, 2014 by Dr. Rufus Isaacs (Michigan State University): Click [link](#) or

[http://msue.anr.msu.edu/news/mealybugs\\_and\\_leafroll\\_virus\\_in\\_vineyards?utm\\_source=Grape+%26+Wine+Industry+-+MSU+Extension+News+-+8-29-14&utm\\_campaign=Grape+%26+Wine+8-29-14&utm\\_medium=email](http://msue.anr.msu.edu/news/mealybugs_and_leafroll_virus_in_vineyards?utm_source=Grape+%26+Wine+Industry+-+MSU+Extension+News+-+8-29-14&utm_campaign=Grape+%26+Wine+8-29-14&utm_medium=email)

*Now is the time of year to check vineyards for mealybugs and symptoms of leafroll virus (Fig. 1).*

If you suspect you have leafroll virus, then collect and deliver leaves showing symptoms and/or specimens of mealybugs to your County Extension Agent. Your agent can email or call their state fruit entomologist for their address and mail the leaf samples or mealybug specimens to:

Dr. Donn Johnson in Arkansas ([dtjohnso@uark.edu](mailto:dtjohnso@uark.edu)) or

Dr. Jaime Pinero in Missouri ([PineroJ@lincolnu.edu](mailto:PineroJ@lincolnu.edu)) or

Dr. Jackie Lee in Oklahoma ([jackie.lee@okstate.edu](mailto:jackie.lee@okstate.edu))



Figure 1. Mealy bugs on grape and symptoms of curled leaves and purple discolored leaves caused by leaf roll virus (Photos: Rufus Isaacs)

### **Broad Mites Damaging Blackberries** (By Dr. Donn T. Johnson)

*Now is the time of year to check for presence of broad mites on terminal leaves of blackberry primocanes* (Fig. 2).

The broad mite, *Polyphagotarsonemus latus*, is found world-wide. In 1904, it was described on terminal buds of mango in a greenhouse in Washington, D.C. In 2007 and 2009, malformed leaves were observed on Arkansas blackberry ‘APF-46’ in Fayetteville, AR (Vincent 2010) and in southwest North Carolina (H. J. Burrack, personal communication). In 2014, blackberry plantings in Arkansas, California, North and South Carolina began showing damage by broad mites (Fig. 2). It is uncertain where and when broad mites got on blackberries or how it spread. Broad mite outbreaks may be occurring now after a year or two of elimination of broad mite natural enemies by multiple insecticide sprays that prevent infestation of ripening berries by spotted wing drosophila.

**Damage:** Broad mite infested plants have stunted and curled terminal leaves and aborted floral buds that eventually die (Fig. 2). These symptoms may appear on cuttings growing in the greenhouse in the spring or in the field plantings as early as late June.

**Identification:** *Adult:* length of 0.1 mm (male) to 0.2 mm (female), eight legs, and translucent white to light amber. *Nymph:* is smaller with six legs. *Egg:* 0.08 mm long, oval and covered by 29 or more whitish bumps (Fig. 3).

**Biology:** Males carry a mature nymph female in order to mate when she molts to an adult. Females disperse to other host plants on the male broad mite, aphid, thrips or whitefly. Female broad mites lay 30 to 76 eggs on the leaf surface over an 8- to 13-day oviposition period.

**Hosts:** Broad mites were reported to damage many other crops: beans, bittermelon, chrysanthemum, cucumber, eggplant, gourds, guava, macadamia, mango, papaya, passion fruit, pepper, ground cherry, pumpkin, and tomato.

**Detection:** Weekly from early June to September, use hand lens (10X magnification) to scan underside of terminal leaves of blackberry primocanes (especially any curled terminal leaves) for presence of broad mites.

**Management:**

Biological control: Predatory mites (*Neoseiulus californicus*) reduced broad mite on peppers in greenhouses when released at ratio of one predatory mite to 10 to 20 broad mites per plant.

<http://extension.usu.edu/files/publications/factsheet/beneficials-mites.pdf> and

<http://www.rinconvitova.com/predator%20mite.htm>

Chemical Control: No products are labeled specifically to control broad mites on blackberry. However, Kumulus (wetable sulfur) is labeled against broad mite only on citrus and for powdery mildew on blackberries. It is suggested that a grower could restrict sprays to only broad mite-infested blackberry plants with one of these miticides recommended for spider mites on blackberry:

- Acramite (bifenazate; 1 day PHI; 2 sprays allowed per season; 30 days between applications);
- Savey (hexythiazox; 3 day PHI; 1 application allowed per year);
- Zeal (etoxazole; 0 day PHI; 1 application allowed per year) and
- Kumulus (OMRI; Micronized Wettable Sulfur; 0 day PHI; do not apply if within 21 days of an oil application or if temperatures are expected to exceed 90°F in three days of application);
- Aza-Direct (OMRI; azadirachtin; 0 day PHI; 2-3 applications made at 7-10 day intervals; buffer tank water to 5.5-7 pH);

**Future Studies:** Several of miticides listed above plus horticultural oils (JMS Stylet Oil, a mineral oil; OMRI), insecticidal soap (M-pede, potassium salts of fatty acids; OMRI) and SucraShield (sucrose octanoate ester; OMRI) are being evaluated to determine which adequately reduce broad mites on blackberry.

*Notes:* Spraying oils or sulfur should be limited to cooler nighttime or daytime periods to minimize phytotoxicity. Remember to read and follow the recommendations of all product labels before using any pesticide. The listing of these products does not imply endorsement by the authors.

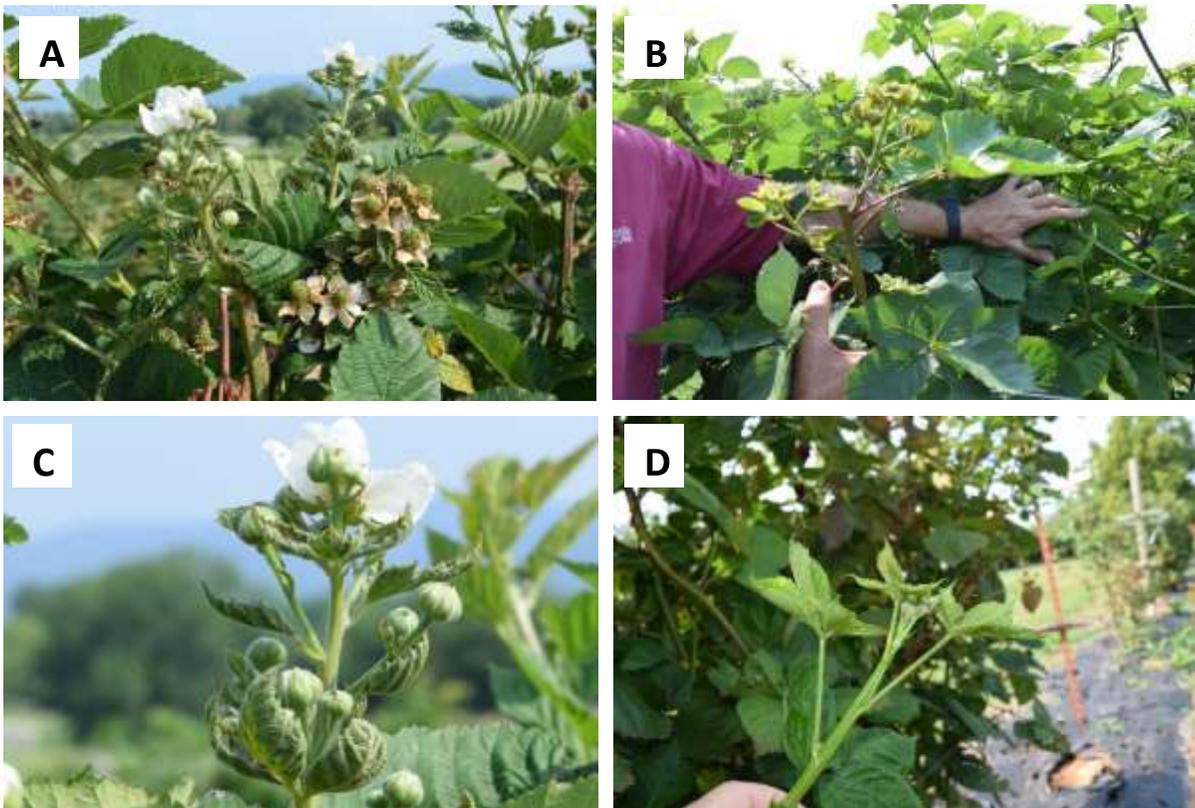


Figure 2. A-B) Broad mite stunted and curled leaves, C) close-up of photo A of broad mite damaged primocane terminal, and D) healthy terminal in Clarksville, AR (Photo: Donn Johnson)

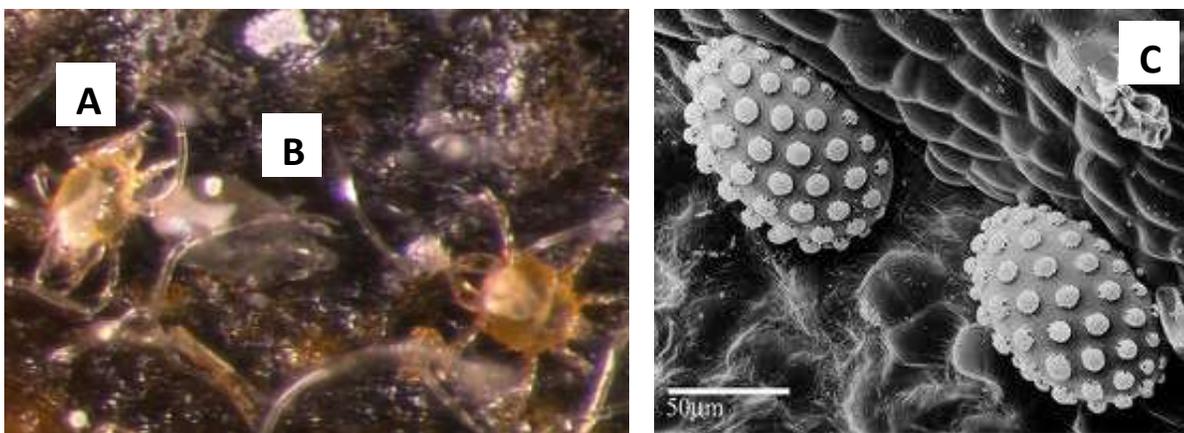


Figure 3. Broad mites on underside of 'Prime-Ark 45' blackberry leaf: A) adult males are amber-white with long legs, B) female is clear white, and C) eggs are oval with raised white bumps (Photo: Chris Vincent and egg by USDA BARC)

## Sources and Literature Cited:

<http://www.sel.barc.usda.gov/acari/content/broad/d.html>

<http://ipm.ncsu.edu/InteriorScapes/insect.html#L4P>

<http://edis.ifas.ufl.edu/pdf/IN/IN34000.pdf>

Gerson, U. 1992. Biology and control of the broad mite, *Polyphagotarsonemus latus* (Banks) (Acari: Tarsonemidae). Exp. Appl. Acarologia 13: 163-178.

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Weintraub, P.G., S. Kleitman, R. Mori, N. Shapira, and E. Palevsky. 2003. Control of the broad mite (*Polyphagotarsonemus latus* (Banks)) on organic greenhouse sweet peppers (*Capsicum annuum* L.) with the predatory mite, *Neoseiulus cucumeris* (Oudemans). Biol. Control 27:300-309.

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](mailto:dtjohnso@uark.edu)

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