Pest e-alerts

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## Fall Webworms Emerging Ahead of Schedule

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Traveling around Stillwater and surrounding areas this week, I've encountered increasing numbers of fall webworm nests. While these insects can be seen in early summer in Oklahoma, I'm surprised to see the sheer number and size of their webs in late June (Fig. 1). In typical years, fall webworms aren't really noticed until late summer or early fall (hence, their common name). The fall webworm outbreak of 2015, coupled with mild winter temperatures and a wet spring, are likely the cause of these caterpillars emerging early and in such large numbers. I'm even seeing them feeding on redbuds, which can serve as a viable host in addition to their preferred hosts, pecan and persimmon. Given the early, heavy pressure I've seen so far this year, 2016 could rival last year's record outbreak of fall webworms in Oklahoma.

Figure 1. Fall webworm infestation on pecan tree. Photo credit: Eric Rebek, Oklahoma State University.

Figure 2. Adult female of fall webworm. Photo credit: Gerald Lenhard, LSU, Bugwood.org.

### Identification and Life Cycle

Adult fall webworm moths are almost pure white and have a wingspan of about 1 1/4 inches. Some individuals possess small, black spots on the front wings (Fig. 2). Larvae may be pale yellow, yellowish green, greenish, or orange, but most have

Figure 3. (Left) Terminal branch of a pecan infested with fall webworms. (Right) Late instar of the redheaded race of fall webworm. Photo credit: Eric Rebek, Oklahoma State University.

two rows of black spots running down the back. The head may be red or black. The body is rather sparsely covered with long white hairs (Fig. 3). They are found in webs on their host trees, which include at least 88 species of shade, fruit, and ornamental trees in the United States. In Oklahoma, fall webworms are most commonly seen feeding on persimmon, pecan, black walnut, and hickory. However, sycamore, birch, and redbud are often attacked in years of heavy infestations, and this year is no exception. Occasionally, infestations are reported on cottonwood, American elm, bald cypress, and sweetgum.

Adults of the overwintering generation emerge during May or occasionally in late April. Females begin to lay eggs in late May and early June. Each female can lay 400 to 500 eggs in masses on the underside of leaves. Egg masses may have a pale green background color and are covered with white hairs that come from the female's abdomen (Fig. 4). Two races or forms of this insect exist in Oklahoma: blackheaded and redheaded. Larvae of the blackheaded form possess a black head capsule and black spots (called turbercles) on the body (Fig. 5). This form generally begins hatching in May and immediately begins to spin a web, which expands as the larvae feed and grow. In late June, larvae mature and leave their host tree to pupate. There are three generations per year of the blackheaded form in Oklahoma. The redheaded form possesses an orange head capsule and orange tubercles (Fig. 5). This form is more common on pecan in Oklahoma. First-generation adults emerge during July, mate, and lay eggs. Second-generation larvae are usually present from late July into early October. There are two generations per year of the redheaded form in Oklahoma.

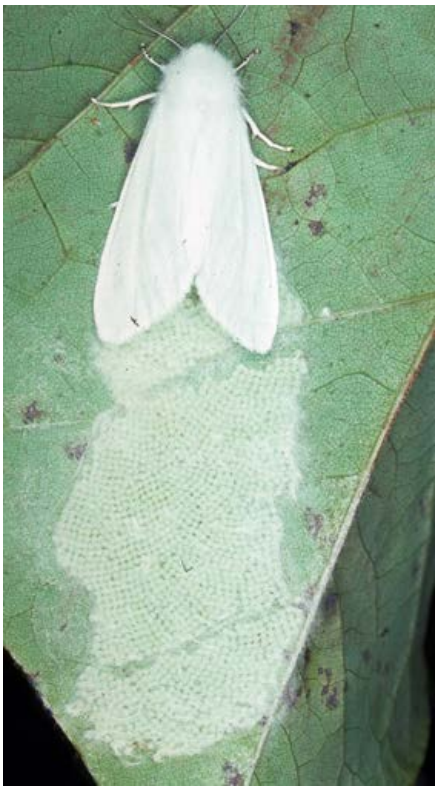

Figure 4. Adult female and eggs of fall webworm. Photo credit: Lacy Hyche, Auburn Univ., Bugwood.org.

Fall webworm larvae pass through as many as eleven stages of development (called instars). They produce a silky web that serves as shelter for the developing caterpillars. These nests are found on the terminal ends of branches. When alarmed, all caterpillars within a nest will display synchronized, jerky movements, reportedly as a defense mechanism. Eventually, the

caterpillars leave their nest and seek a pupation site under the soil or within leaf litter. The overwintering stage is the pupa.

**Damage**

Damage is caused by larvae feeding on the leaves (Fig. 6). Fall webworm populations are rarely large enough to defoliate trees except for young pecans and persimmons. For most forest and shade trees, the insect is not detrimental to the health of the tree. However, this pest does reduce the aesthetic quality of host trees. Economic damage can occur on pecans grown in orchards as defoliation affects tree vigor, yield, and nut quality. Earlier defoliation translates into more harmful damage, so pecan growers are advised to manage large populations of fall webworm that occur earlier in the season. Keep in mind that insecticide sprays will not eliminate the silky webs, which remain in trees until they naturally degrade.


Figure 5. (Left) Blackheaded race of fall webworm. (Right) Redheaded race of fall webworm. Photo credits: Lacy Hyche, Auburn Univ., Bugwood.org; Whitney Cranshaw, Colorado State University, Bugwood.org.


Figure 6. Feeding damage to a pecan leaf by fall webworm. Photo credit: Lacy Hyche, Auburn Univ., Bugwood.org.

**Management**

Despite the webs and defensive posturing by fall webworms, more than 50 species of parasites and 36 species of predators are known to attack fall webworm in North America. However, attacks by natural enemies usually do not reduce webworm populations below economically damaging levels (for pecan orchards and small nursery trees ready for market).

Remember, with the exception of smaller trees under heavy attack, fall webworms do not usually defoliate trees completely. Even so, deciduous trees are able to withstand defoliation events and should not die from webworm feeding unless the health of the tree is already compromised. Therefore, damage is mostly aesthetic and control is not typically warranted except for pecan orchards and possibly tree nurseries.

Larvae and their webs may be simply pruned out and destroyed, but those infesting the higher canopy will need to be treated to achieve control. When using conventional insecticides that rely on contact, sufficient spray pressure is needed to reach and penetrate the webs of these caterpillars. Several insecticides will normally provide control if adequate spray penetrates the webbing (for current pesticide recommendations, see E-832: OSU Extension Agent's Handbook of Insect, Plant Disease, and Weed Control). Reduced-risk insecticides are less toxic and more target specific, so they are generally more environmentally friendly and safer for the applicator than conventional insecticides. Reduced-risk products, including those containing *Bacillus thuringiensis* subsp. *kurstaki* (Btk), spinosad, and insect growth regulators (IGR's), are applied to foliage near the webbing and often must be consumed to be effective. Small, young caterpillars are more susceptible to reduced-risk insecticides, so timing of application is important. As with any pesticide, be sure to read the label entirely before each use to maximize efficacy, prevent phytotoxicity, and minimize adverse environmental impacts.

**References**

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