Orangestriped Oakworm
Anisota senatoria (J.E. Smith)
Lepidoptera: Saturniidae

Objective: To develop thresholds for densities of *A. senatoria* egg masses on trees of increasing size that are predictive of the 25% leaf defoliation level on pin oak, *Quercus palustris* Muenchhausen.

Abstract: The orangestriped oakworm, *Anisota senatoria* (J.E. Smith), is a native defoliator of various oaks, *Quercus* spp., and other hardwood species in the eastern U.S. and Canada. Outbreaks became severe in some urban areas of Virginia in the early 1990s, leading to the development of integrated pest management strategies. Coffelt and Schultz (1990) developed an aesthetic injury level of 25% defoliation for *A. senatoria* based on estimating defoliation levels each day. This procedure was time consuming and often control measures were applied too late to protect trees from significant defoliation.

The authors developed an alternative method of predicting defoliation levels on urban pin oak, *Quercus palustris* Muenchhausen, by relating egg mass density to subsequent defoliation by *A. senatoria*. The density of egg masses was related positively to defoliation level on pin oaks for four size classes (12.6, 19.1, 26.4 and 35.4 cm DBH). Applying the 25% defoliation threshold to size class gave egg mass density thresholds of 0.9, 4.8, 6.6, and 9.0 per tree. Sampling egg masses should provide managers sufficient time to make control decisions before the aesthetic injury level is exceeded. Because *A. senatoria* larvae remain in gregarious clusters as young instars, these thresholds are also applicable to first and second instars.

Sampling Procedure: Measure the DBH of each pin oak sampled and assign the tree to the nearest DBH class (12.6, 19.1, 26.4 or 35.4 cm). Although not explicitly stated in the article, rounding DBH to the nearest cm is probably sufficient.

Orangestriped oakworm lays its eggs on the underside of oak leaves on terminal shoots in July in eastern Virginia. The yellow egg masses are easily spotted, but they may be more visible when sampling on a cloudy day with less glare. Walk completely around a selected pin oak and count the number of egg masses visible on the underside of the leaves in the lower canopy (P. Shultz, pers. comm.). Compare the estimate with the threshold value of egg mass density that may result in 25% or more defoliation (see Table 1). Control measures should be applied if the aesthetic injury level of 25% defoliation will be exceeded on trees with high aesthetic value.

Note: This sampling plan should only be used for *A. senatoria* infesting pin oak as the thresholds may vary with other species of oaks.

Reference:

* Coffelt, M. A.; Schultz, P. B. 1990. Development of an aesthetic injury level to decrease pesticide use against orangestriped oakworm (Lepidoptera:Saturniidae) in an urban pest management project. Journal of Economic Entomology 83: 2044-2049.

Table

Table 1. Mean diameter and height of *Q. palustris* and number of *A. senatoria* egg masses that caused 25 and 100% defoliation, 1987–1990

Tree DBH[a] (rounded to nearest cm)	DBH Range	No. egg masses that cause 25% defoliation	No. egg masses that cause 100% defoliation
12.6	8.9–13.7	0.9	4.0
19.1	14.0-22.6	4.8	14.5
26.4	23.0-30.0	6.6	17.0
35.4	31.0-40.4	9.0	28.3

[a]DBH, diameter at breast height.