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Pecan Aphid Populations on the Rise

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Throughout Oklahoma, protecting pecans from aphids becomes difficult when pecan weevil season arrives, particularly if that time occurs early, when conditions are still favorable for aphid buildup. If environmental conditions are mild and dry during the latter portion of the season (as they are now) and insecticide applications are introduced to control sub-economic weevil populations, these early applications have been known to cause a dramatic resurgence in aphid numbers. Whether this is due to depletion in predator numbers or just a consequence of favorable environmental conditions is not always certain. Deciding on when and where to control aphid problems in pecan can be a difficult proposition depending on several key factors. First and foremost, you must consider which aphid species is creating a problem for your trees. Basically, pecan growers are concerned with three common species; the yellow pecan aphid, *Monellia caryella*, the black-margined aphid, *Monelliopsis pecanis,* and the black pecan aphid, *Melanocallis caryaefoliae*. These aphid species differ not only in their outward appearance but also show some dramatic differences in the levels at which they can create a significant problem. Threshold levels may vary across regions but basically the black pecan aphid is a more significant problem than the other two species. Economic thresholds of 3-5 aphids per compound leaf have been used for black pecan aphids, while several authors report tolerating from 20 to 30 yellow aphids (yellow and black-margined species combined) per compound leaf.

Certainly, early defoliation can have a profound effect on filling of the nut for that particular season, especially if the problem occurs too early. However, in addition to the effects encumbered on fruit production for that year, is the even more dramatic effect that early

defoliation plays in return bloom the subsequent year. In addition to these effects, honeydew secretions can support mold and mildew growth on pecan leaves.

Several researchers have looked at susceptibility of specific cultivars of pecan relative to how many aphids they typically sustain. While some cultivars, such as Giles or Colby may sustain relatively high numbers of aphids (about 50 aphids/compound leaf), other cultivars, such as Pawnee and Maramec will typically only harbor 15 or fewer aphids per compound leaf. Naturally, these numbers will fluctuate considerably based on environmental conditions, time of the year and control measures impacting the populations.

Basically, four options exist to combat these aphid problems. Option number one includes applying tank mixes of good aphid control materials with the first treatment for weevils. One such chemistry that may not be widely available this year is Endigo, which contains the active ingredients in Warrior and Centric. These active ingredients have proven effective against weevils and aphids, respectively. Option number two might mean user a longer residual synthetic pyrethroid, such as Warrior® or Proaxis®, which are encapsulated. Option number three could be to incorporate an application of Admire® on both sides of susceptible trees just before the problem normally arises (mid-July). This option may not carry the grower through the mid-October time frame needed if mild weather conditions persist and beneficials do not surge to control the populations. The final option is to do nothing and hope that these beneficial organisms (lady beetles, lacewings, etc.) and weather (cool, wet conditions) will eventually bring everything back into harmony. The choice of approaches may be dictated, in part, by the pressure in your area, but more likely will be tied directly to costs associated with these choices.

Bottom line to this discussion is to assess the populations in each of the affected areas based on aphid species, numbers and beneficial effects and make an informed decision based on the retention of the majority of the leaves in the orchard through mid to late October. If early defoliation seems imminent, then protecting those leaves from abscission will help insure a return crop for next year, independent of the crop size this year.

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