



PLANT DISEASE AND INSECT ADVISORY

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Grape Rootworm Season – Be on the lookout

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This past week in Perkins, Oklahoma we discovered an unusual pest that we have not seen much of in the past, the grape rootworm, *Fidia viticida* (Walsh). The grape rootworm is a native species of leaf beetle (family: Chrysomelidae) that occurs from the Atlantic Seaboard states to North Dakota, Nebraska, Kansas, and Texas. The wild hosts of this pest are grapes (*Vitis* spp.), Virginia creeper (*Parthenocissus quinquefolia*), and redbud (*Cercis canadensis*).

Feeding by larvae (grubs) on the root system of vines can seriously damage commercial vineyards. The grape rootworm produces only one generation per year. Eggs of the grape rootworm are deposited under the bark of grape vines by adult females. After eggs hatch, the larvae will spend from 9 to 10 months of its life as an immature grub in the soil. During this time, the larvae will feed on roots, and will spend the final month or so of its life as an adult feeding on grape foliage and laying eggs.

Adult of the grape rootworm are approximately 8-10 mm (5/16 - 3/8 in.) long and are grayish- brown or chestnut colored with a fine light-colored pile or pubescence covering the thorax and elytra (wing covers). Initially, the beetles seem to concentrate their feeding on leaves of sucker growth and the lower canopy. When present in high densities, grape



rootworm beetles have been found feeding on the leaves of the upper canopy and on grape berries. There seems to be a peak in activity of rootworms around mid- to late morning.

Larvae of the grape rootworm are creamy-white with a dark brown head capsule. They move from the hatching site under the bark to the soil where all further larval development will take



Photo - Cornell University

place. Development through five larval stages progresses as they feed on grape roots throughout the growing season. It is this feeding that is destructive to vine health. Though most larvae are able to complete development through all five larval stages during the growing season in which they hatch from the egg, some larvae do not complete larval development before the onset of winter

and therefore must continue larval development the following season. Upon completion of larval development in the following growing season, these "2-year larvae" will remain in the soil

for the duration of their second season and pupate and emerge as adults the following spring. While actively feeding on roots, most GR remain within the upper 30 cm (12 in.) of soil. In late fall, they move deeper into the soil and form overwintering cells. The following spring, they move back toward the surface to pupate or to complete larval development.

The most serious damage that grape rootworm causes to grapevines is not generally seen - that caused by larvae feeding on the roots. The most noticeable damage is the characteristic chain-like feeding pattern caused by the adults on leaves. Vine damage by adults is rare. Damage to the grape root system resulting from high densities of larvae can stunt, and in some cases, even kill grapevines. Larvae are thought to prefer small tender roots, but, in heavy infestations have been observed to channel along the inner bark of older, larger roots. In some vineyards in New York, marked reductions in vigor and production have been observed in as little as 3 years. Because dispersal of grape rootworm is generally slow, infestations are often spotty within a region and within a particular vineyard.



Control of the grape rootworm is most easily accomplished through insecticide treatments directed at the adult stage, therefore, timing is critical. Treatments applied too early may not persist long enough to kill rootworm adults during the 3- to 4-week period when most emerge from the soil. Treatments applied too late will allow some eggs to hatch and the larvae to enter the soil unharmed. Treatments should be made when the first beetles are observed in vineyards. This period can vary from late May to early- to late-June, depending upon location. Growers should carefully check their vineyards each week following application of treatments. A second application should be made if any adult rootworms are detected. Unfortunately, the gentler materials that can be used for grape berry moth (e.g. Intrepid, Deliver or Spintor) are not effective on beetle pests. Standard chemicals for controlling grape rootworm include Imidan, Sevin and Mustang-Max. Please, read and follow all label directions when applying any pesticide.

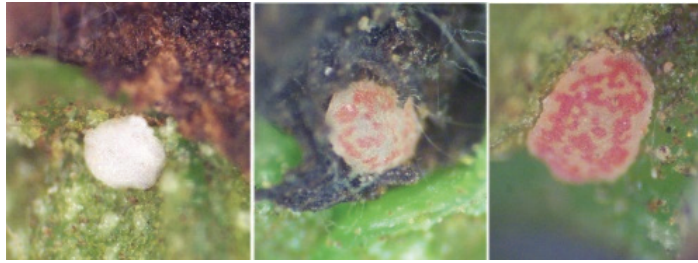
Second Reminder for Pecan Nut Casebearer Treatment Time

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Please see the earlier article for information regarding pecan nut casebearer (PNC) moth capture data generated across the state. I suggested in that article that early indications from captures of PNC moths throughout the state suggest that first generation larvae could be present and damaging pecans as early as late May in southern Oklahoma. Based on later predictions it appears I may have jumped the gun a little. June 4 was the predicted first entry

date in Burneyville, Oklahoma; however, if applications went out during late May and Intrepid or Confirm were used with a spreader/sticker then control should still be excellent. Moth flights have been recorded across the state of Oklahoma and eggs are now present in all



locations. Egg populations have been easier to locate than previous years, not requiring many clusters before reaching threshold (2-3 eggs in 310 clusters checked). Although we still have the PNC predictive model or advisory on Mesonet, we have been working with Texas A&M research and extension personnel to discover how we might use the pheromone traps to our advantage. Although still in the validation phase, we have already constructed maps to help growers decide on treatment times. We would encourage you to access these maps for Oklahoma and/or Texas to help in making treatment decisions. They can be found at <http://pncforecast.tamu.edu/>. Go to the bottom of the introductory page at this site and click on the URL to access the map. The previous three years in Oklahoma, this system has worked extremely well and uses real-time insect events to arrive at predictive dates for first eggs, and first significant nut entry.

The drawback to such a system is that we will need grower cooperators in the future to run traps and scout pecans to continue the validation phase of these studies. If you are interested in participating in such a study and your orchard is readily accessible (nearby) we would like for you to help us and the growers across the state discover the utility of this methodology. Please contact one of us at the OPGA Meeting or via email for more information regarding this future program. Information and supplies will be free of charge to all grower cooperators. Thank you.

Dr. Richard Grantham, Director, Plant Disease and Insect Diagnostic Laboratory

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