

Fruit growers beware: 17-year cicada in northeastern Ohio in 2019

Fruit growers in the far northeastern corner of Ohio, around Youngstown, are experiencing the emergence of the periodical cicada this year. Last seen and heard in 2002, this brood has spent 17 years developing underground, with emergence from mid-May through July this year. A map of the area where emergence is expected this year is shown in Figure 1 below. For anyone with interest in reporting locations of emergence, there is a new app called 'Cicada Safari' that is available for iOS and Android devices. Excellent information about the biology and behavior of cicadas can be found at the cicada mania website: <https://www.cicadamania.com/> and at the Magicicada website: <http://magicicada.org/magicicada/>.

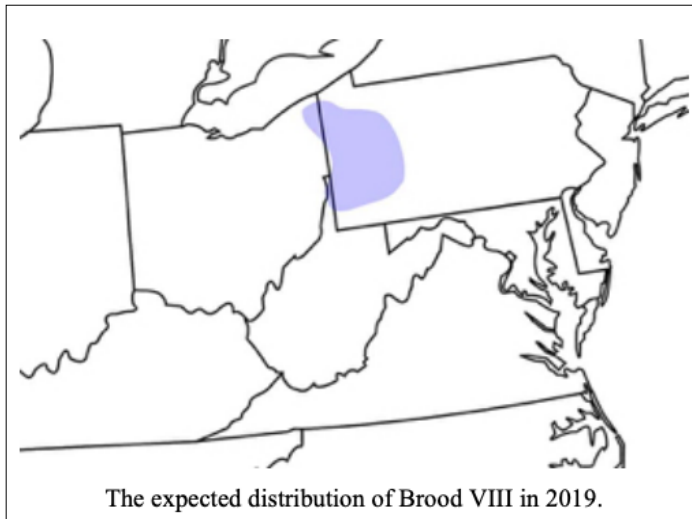


Figure 1. Area shaded in blue is where brood VIII of the periodical cicada is expected to emerge in 2019 (from <http://faculty.msj.edu/kritskq/cicada/headlines.html>, Mount St Joseph University Cicada Web Site, by Dr Gene Kritsky).

The adult cicadas injure woody stems of fruit crops by egg laying. The adult female cicada makes a series of slits in woody stems then inserts an egg into each slit. They prefer to lay eggs in woody stems that are $\frac{1}{4}$ to $\frac{1}{2}$ inch in diameter, which is a size commonly found in young apple and peach trees and in blueberry, grape, and raspberry plants. Terminal leaf clusters often wilt and die on stems that are injured, leading to a tree with 'flagging' symptoms. In addition to the physical injury to fruit plants, this insect is a nuisance pest to humans due to its large size, its presence in large numbers, and the loud mating call of the male cicadas. The adults live for 2 to 4 weeks. Eggs take 6 to 10 weeks to hatch.

Fruit growers in affected areas should avoid planting new nursery stock this spring; wait until autumn or next spring. Mechanical control in existing plantings can be done by $\frac{1}{4}$ to $\frac{1}{2}$ -inch netting to exclude the cicadas (sample product: www.industrialnetting.com/applications/lawn-garden/cicada-netting.html), and injured stems can be pruned and destroyed before eggs hatch.

Orchards should be scouted frequently to look for the start of egg-laying injury, starting one week after the cicada calling begins. Chemical control can be used by applying insecticide, starting when egg laying begins and, if needed, repeated 7 to 10 days later. Insecticides that are effective and have cicadas listed as a target pest on the label are Asana (esfenvalerate), Warrior (lambda-cyhalothrin), Proaxis (gamma-cyhalothrin), Baythroid (cyfluthrin), Danitol (fenpropathrin), and Delta Gold (deltamethrin), which are all restricted-use products. Beware that these products are in the pyrethroid group, which are known to be harsh on some natural enemies and thus their use can lead to flare-ups of spider mites, San Jose scale, and woolly apple aphid. Also effective for cicada control is Sevin (carbaryl), which is not restricted use, but it should be used with caution during 30 days after bloom due to fruit thinning effects. Insecticides known to be effective for cicada control but which do not have cicadas listed as a target pest on the label are Mustang Maxx, Brigade, Lannate, and Vydate, as well as the pre-mixes Hero and Gladiator; these are all restricted use products. Assail is not restricted use and is known to have some activity on cicadas. Danitol, Brigade, and Hero have broader activity than other pyrethroids and can kill spider mites but only if used at the maximum labeled rate.

An alternative chemical approach is to use imidacloprid as a soil drench. The label for Admire Pro, which has imidacloprid as the active ingredient, does include treatment to the soil around apple and peach trees, for control of aphids and leafhoppers, applied by chemigation into the root zone by drip irrigation or similar methods, with a 21-day pre-harvest interval. The label does not include periodical cicada on the list of target pests, however it has been shown that this chemical is effective for control of periodical cicada on ornamental trees, so it is likely to be effective on fruit trees. Keep in mind that when imidacloprid is applied to the soil, it acts as a true systemic and it taken up by the roots to the stems and leaves of the canopy, where it is active for anywhere from two to four weeks. When imidacloprid is applied as a spray to the leaves, it does not act as a true systemic, but it has translaminar movement, which means it can move from the top of the leaf to the bottom of the leaf and inside the leaf, but it will not move down the stem to other branches or to the roots. When applied as a spray, imidacloprid is active for a shorter time, for about 10-14 days, than when applied to soil.

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