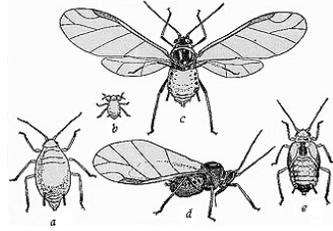


Bug-Wise

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Aphids: a, wingless; b, newborn nymph; c and d, winged; e, nymph

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Pecan Phylloxera: What's causing all of these distorted, knot-like growths on my pecan tree? Depending on the year, this can be a common question in late April and early May. This damage is caused by a small aphid-like creature known as the pecan phylloxera. The scientific name of this insect, *Phylloxera devastatrix*, gives a hint as to just how severely this insect can damage pecan trees. On heavily infested trees over 70% of the new terminal tissue can be affected, resulting in the formation of unsightly galls, rather than leaves and new growth. Severely infested trees are unsightly and unproductive. Fortunately, although pecan phylloxera are present every year, they do not occur at outbreak levels every year, and so far, this does not appear to be an outbreak year.

These insects overwinter as eggs on the bark of the tree. Hatching of the nymphs coincides closely with leaf bud break. As the nymphs, which are all females, feed on the developing stem and leaf tissue, they stimulate the formation of gall tissue, which quickly encloses them, forming the galls. These insects mature inside these galls, and then lay eggs, which hatch into a second generation that is also all females and also develops inside the hollow galls. There may be many dozens of these second generation phylloxera within a single gall. When the galls split open in late May to early June the mature phylloxera exit the gall and lay eggs on the leaves. The resulting third generation, which consists of both male and female phylloxera, does not cause the formation of galls. Mated females of this generation die with the fertilized egg still inside their bodies, thus providing a more protected site for the overwintering eggs.

In commercial pecan orchards, successful control of phylloxera depends on applying effective insecticides to the tree before galls have formed around the phylloxera. This means getting sprays applied very soon after the leaf buds reach the inner scale split stage. Sprays applied after there is more than 1 inch of new leaf growth will not be very effective.

So what can I tell a homeowner who has a problem with pecan phylloxera? First, you can prevent them from wasting time and money on an ineffective treatment. There is no point in spraying after the galls have formed. If the galls have already formed, insecticide sprays will not 'undo' the damage nor kill the insects inside. Second, you can tell them that severely damaged trees often recover in subsequent years. Sometimes a homeowner's initial reaction to a serious phylloxera infestation is to think, "if this is going to happen every year, then I may as well cut the tree down". However, phylloxera populations are cyclic and trees that are severely damaged one year will often recover in subsequent years and then go several successive years without sustaining a serious infestation. However, this does not always occur, and trees that had phylloxera infestations one year are more likely to experience heavy infestations the next year. Also, some varieties are more prone to phylloxera problems than others.

Third, you can tell them what to do to prevent the damage from occurring next year – apply an effective insecticide right at leaf bud break, and don't be late with this treatment. If the tree was heavily infested the previous year, apply a second treatment approximately 10 days later. Carbaryl (Sevin XLR 4F, or other formulations of Sevin) is probably the best phylloxera treatment to use in a homeowner type situation. Finding the Sevin is easy. Finding a properly licensed commercial applicator that will come and treat pecan trees is the hard part. It is a good idea to start making arrangements to have trees sprayed well ahead of the very narrow time window when treatments need to be applied, which, is around April 1, depending on location in the state.

Finally, if someone is planning to plant pecan trees in or around their lawn, you can help them choose varieties that are less prone to insect and disease problems. In past years local nurseries tended to stock and sell varieties that performed well in commercial orchards – where they were sprayed intensively to control diseases and insects. Such varieties do not always perform well in a low maintenance situation. Some of the varieties that are currently being recommended for use in low maintenance situations include: Candy, Elliot, Farley, Jenkins, and Syrup Mill. Generally, these varieties have smaller nuts than the commercial varieties, but they tend to perform better in an unmanaged situation, and getting local nurseries to stock these varieties would be a big help to homeowners interested in planting pecans. Note that there is a lot more than just phylloxera control involved in the selection and planting of dooryard varieties (Contact Dr. John Braswell for horticultural details).

Aphids on River Birch: The aphid, *Hamamelistes spinosus* has no common name, but we can refer to it as the aphid on river birch. This insect causes the leaves of river birch to be distorted and deeply puckered and to assume a reddish coloration. The aphids develop on the undersides of the leaves in gall-like pockets. These pockets are filled with aphids and the white cottony material that they produce. Occasionally young trees will be severely infested. However, this insect completes only one generation per year on river birch. Although the distorted leaves will persist for the remainder of the season, an insecticide treatment will not make them go away. Homeowners, who want to try to minimize this damage next year may wish to try applying Bayer’s Advanced Lawn Tree and Shrub Insecticide (imidacloprid is the active ingredient) as a soil drench at bud break next year. Certain foliar sprays can also be effective when properly timed, but these usually have to be applied by a commercial applicator.

Ready-to-Use Insecticide Sprays for the Home Vegetable Garden: Home vegetable gardeners can now purchase several different insecticides in ready-to-use (RTU), trigger pump spray bottles. Considering cost per pound of active ingredient, this is a very costly way to buy insecticides. However, it is also very convenient, and small-scale gardeners will find these to be useful tools. Worried about cutworms damaging those six tomato plants you just set out? Give um each a couple of squirts of permethrin, directed to the base of the plants. Got flea beetles feeding on both egg plants? Permethrin or Sevin in an RTU bottle provides a quick easy treatment. Seeing aphids building up on the terminals of a few plants? A quick spray of neem oil should knock them back. Only interested in organic gardening? Neem oil, or pyrethrins are useful options for many pests. Obviously, these RTU sprays won’t totally replace the standard hand-pump sprayer, but they are a quick easy way to make spot treatments. Some insecticides most commonly sold in these RTU spray bottles are listed below. Note however, that not all of these products are labeled for use on every vegetable in the garden. Some have a very restricted list of crops to which they can be applied; others can be used on a much broader list of crops. Read the label!

Some Insecticides Available as RTU Sprays for Use in the Home Vegetable Garden *

| Active Ingredient | Brand Name |
|-------------------------|---|
| Carbaryl | Garden Tech Sevin Ready to Use |
| Permethrin | Bonide Eight, Garden & Home |
| Cyfluthrin | Bayer Advanced Garden Multi Insect Killer |
| Cyhalothrin | Spectracide Triazicide |
| Esfenvalerate | Ortho Bug-b-Gon Garden & Landscape |
| Pyrethrins + Canola Oil | Monterey Take Down Garden Spray |
| Neem oil | Green Light Tomato and Vegetable Spray |

* Read and follow product label. Apply insecticides only to crops specified on the label.