

Bug-Wise

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Pecan Phylloxera: Pecan phylloxera are small, aphid-like insects that cause distorted, knot-like galls on the leaves and stems of pecans. By the time these galls appear in late April and May, it is too late to treat for this pest. The time window for successful treatment is very narrow, lasting only a couple of weeks or less.

The scientific name of these insects, *Phylloxera devastatrix*, gives a hint as to just how severely they 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.

Phylloxera overwinter as eggs on the bark of the tree. Hatching of the nymphs coincides closely with 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. But 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 they can do to prevent the damage from occurring again—apply an effective insecticide between the time the leaf buds break and before there is about $\frac{3}{4}$ inch of new growth, and don’t be late with this treatment. Only trees that were infested the previous year, or trees located next to previously infested trees, need be treated. 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 at the proper time 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. But it is important to time the treatment based on plant development—bud break to $\frac{3}{4}$ inches of new growth, rather than calendar date.

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. Too often local nurseries tend to stock and sell pecan varieties that perform well in commercial orchards where they are 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 or order 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 pecan varieties. Contact Dr. John Braswell for horticultural details.

See pages 15-16 of Extension Publication 2369, *Insect Pests of Perennial Plants in the Home Landscape*, for more information on pecan phylloxera. Commercial pecan growers should refer to Publication 461, *Commercial Pecan Pest Control: Diseases, Insects, and Weeds*. Both of these publications can be accessed by going to www.msucare.com, clicking on “Publications,” and searching for them by name.

Spiny Witch-hazel Gall Aphid on River Birch: This insect behaves a bit like pecan phylloxera, causing unusual early season galls on its host plant. Affected leaves are enlarged and distorted, have a distinctive, deeply wrinkled surface and turn yellow or red (see photo on page 1). They are quite striking and easily seen. Heavily infested plants have accumulations of honeydew and sooty mold, and severe infestations can cause stunting and limb dieback, though such serious injury is uncommon. The aphids develop on the undersides of the leaves in gall-like pockets. These pockets are filled with aphids and the white cottony material they produce. Spiny Witch-hazel gall aphids have an unusual, complex life cycle, completing some generations on witch-hazel and others on river birch, but there is only a narrow window of time when they can cause leaf galls to form on the river birch.

Doing nothing is usually a good way to deal with this pest. Infestations are usually rather light, and by the time the leaves are distorted, it is too late to treat anyway. Affected leaves usually turn brown and drop from the tree by mid-summer. Look for aphid resistant varieties of river birch when purchasing trees. Hand pruning affected leaves may be feasible on small trees. If the river birches are located in a sensitive site, such as over a patio where honeydew will cause problems, or if trees have a history of severe infestations, you can try preventive treatment with a soil-applied systemic insecticide like imidacloprid (Bayer’s Advanced Lawn Tree and Shrub Insecticide). Apply treatments early in the spring before bud break or in early fall. Certain foliar sprays can also be effective when properly timed (timing is right at leaf bud break, much like pecan phylloxera sprays), but these usually have to be applied by a commercial applicator.

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This information is for educational and preliminary planning purposes only. Brand names mentioned in this publication are used as examples only. No endorsement of these products is intended. Other appropriately labeled products containing similar active ingredients should provide similar levels of control. Always read and follow the insecticide label.