

People often ask us what it takes to grow pecans organically. One of the first subjects that an organic pecan grower has to master is an understanding of the insects that attack the pecan tree and the young nuts.

First shown is a nut that has been growing on the pecan tree for about six weeks. The mass of material at the base of the nut is called "frass"; it is actually feces left behind by a pecan casebearer worm as it chewed its way into the young nut. The worm is now inside the nut, eating all the soft tissue. This nut would fall off the tree in a matter of weeks, as the nut dies once a worm eats into it.

With the frass cleared away, you can clearly see the nice round hole where the worm has bored into the nut (in the second picture). We try every year to limit the damage to about 2% of the total nuts that are set on the trees. Without some type of control strategy, a pecan grower can lose between 50% and 70% of the crop to the pecan casebearer worm.

Next we can see that having been disturbed, this worm is crawling back out of the nut. Normally, the worm would morph into the pupal stage, and eventually it would emerge as a next generation moth. The moths lay eggs on branches close to the small nut. Our entomologist, Robert Sandner, scouts the orchard every two days looking for casebearer eggs. When he finds enough eggs, we spray the orchard with bT, a bacteria that is harmless to people, but is deadly to the newly hatched worms.

Next, it looks like Mr Worm is headed for the border!!

All food producers, whether conventional or organic, face challenges controlling damaging insects. In our organic farming system, we use naturally occurring substances, as opposed to synthetic chemicals, to control damaging insects. Our system of scouting for insects is very labor intensive, and the timing of our applications of bT is critical to achieve control.

In the fifth picture, you can see where the pecan casebearer worms have damaged three out of the four nuts. If this level of damage is extensive in the orchard, then there is very little chance of having a crop at the end of the season. Fortunately, in our four years of using organic farming methods, our orchards have built up large numbers of beneficial insects, such as lady beetles and green lacewings. These insects eat the casebearer eggs, and help to control the casebearer outbreak.

Finally shown, this young pecan tree is entering its second growing season in Quemado. We are seeing some of the young branches exceed three feet of growth in one season. We are experimenting with a number of techniques to maximize the yearly growth on these young pecan trees.

Currently, most pecan trees need seven to eight growing seasons before they start to produce a harvestable crop. We are hoping that land leveling, intensive water and organic fertilizer management, and weed control will reduce this waiting period. The long period between tree planting and full nut production is one factor that keeps world nut production low, and nut prices high. As people look to add healthier items to their daily diet, the demand for tree nuts will continue to grow!

{gallery}blog/entomology-101{/gallery}