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FACT SHEET

L-702

TREE BANDING . . .

To Determine the Best Spraying Time for Pecan Nut Casebearer

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One of the biggest problems in first-generation pecan nut casebearer control has been the timing of spray applications. A method of timing has been developed which is superior to the old method of examining the young nuts for eggs. The more efficient method involves banding trees to determine moth emergence and subsequent egg hatch.

The pecan nut casebearer overwinters as a partially grown larva in a tiny cocoon or hibernaculum at the base of buds on the shoot, Fig. 1. With the unfolding of new leaves, the larvae tunnel inside the developing shoot, resulting in a wilting of that particular shoot or twig, Fig. 3. Upon reaching maturity, many larvae migrate down the limbs and pupate in the rough areas of the bark. The moths then emerge from these pupae usually in late April or early May. Egg deposition usually occurs 2 or 3 days following moth emergence.

Tree bands of corrugated cardboard or burlap strips, 4 to 6 inches wide, are wrapped around the limbs on the smooth bark just before it gives way to rough bark, Fig. 2. Normally this occurs where the limb is about 2 inches in diameter. The number of wraps depends upon the length of the band and the size of the limb.

Select limbs for banding which have the largest number of wilted terminals. This helps insure catching larger numbers of larvae. The larvae mature in the shoot and crawl back down the limb to the band where they pupate. Avoid crushing the bands on the end facing the terminal. If crushed, larvae will not be able to crawl into the corrugations.

The strips may then be removed and the pupae carefully counted into cloth-covered glass containers, polyethlene bags or other suitable containers to be left in open areas near the orchard. A minimum of 75 pupae is needed for accurate moth emergence counts in a grove. The larger the number of larvae collected, the greater the accuracy of estimating moth emergence. Limit pupae in each container to 75 to 100 so that moth emergence can be observed more accurately.

Holding or emergence cages of various descriptions have been used to hold pupae or the smaller jars, polyethlene bags, or other containers in which the pupae have been placed. One such cage developed in Guadalupe County appears below. This This cage is 12″ x 12″ x 12″, stands on 6″ legs and is constructed from 1″ x 2″ lumber, Fig. 4. The screen wire is 16-mesh or similar to that used on screen windows or doors. A door, 6″ x 12″, is on top and allows pupae to be added while preventing any moths from escaping. Natural or normal environmental conditions are simulated by placing the cage out in the orchard. Place the holding cage (or smaller holding containers) where they **never** receive direct sunlight. Protection from ant damage to the pupae is possible by placing the legs of the cage in No. 3 cans containing water.

Observe collections daily until the first moth emerges. Record the number of adults which emerge daily. **Spray 8 to 10 days after a number of moths (from 5 to 10 percent of the pupae collected) have emerged.** Applications should begin 2 to 3 days earlier if orchards require several days to spray so that the orchard can be covered by the tenth day. Moth counts should be continued for the entire period of adult emergence. If a steady

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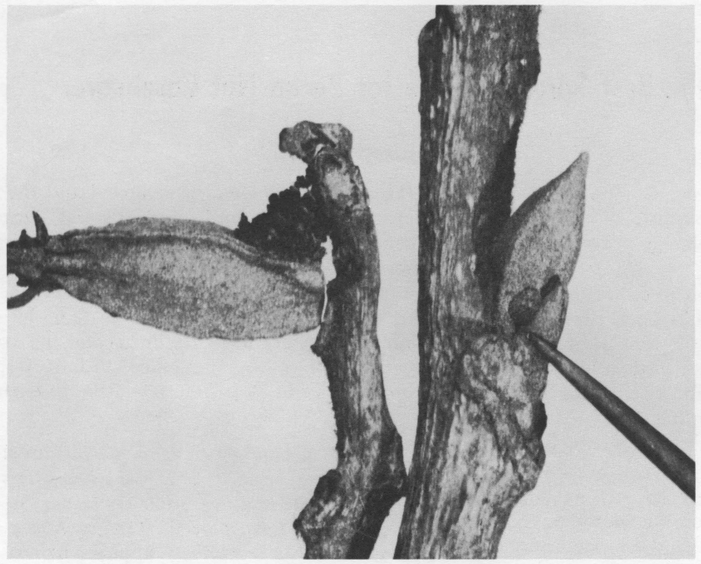

Fig. 1. Overwintering hibernaculum of pecan nut casebearer.

daily emergence of moths continues for more than 2 weeks, a second application will be required. If a good residual insecticide such as DDT, toxaphene, carbaryl (Sevin) azinphosmethyl (Guthion) or endosulfan (Thiodan) is used for the first application, the second application should be about 10 days later. If a shorter residual material such as parathion or malathion is used, the interval between applications should be shortened to 7 days.

The greatest problem in this method is determining when to put the bands on the limbs and when to remove them. Bands should be put on when the first wilted shoots are observed in the orchard (about April 15 in South Central Texas). Best results are obtained when limbs with several wilted shoots are selected for banding. Several pecan producers report the use of a selected tree or trees in or near their orchard for banding. These insect-indicator trees may have received insecticide applications during the previous season, but are known to be infested from year to year.

Bands should not be removed too soon since late-maturing larvae may be missed. If they are removed too late, some of the moths may emerge before the pupae are placed in containers. Most of the bands should be removed from the trees when most of the larvae have left the shoots (about May 1 in South Central Texas). The remainder should stay on the trees for another 7 days to capture late-maturing stragglers. If 25 to 30 percent of the pecan nut casebearers in the bands are still in the larval stage at the time the bands are being removed, new bands should be placed on the trees as the old bands are removed. These new bands can be removed in 7 to 10 days.

Fig. 2. Tree bands should be placed on smooth bark just before it gives way to rough bark.

Fig. 3. Wilted shoots resulting from tunneling of larvae.

Fig. 4. Emergence cage for holding pupae.

Summary of Banding Method

1. Place bands on limbs when first wilted shoots are observed in the orchard. One hundred bands per orchard are usually sufficient regardless of orchard size.

2. Remove most of the bands when most of the larvae have left the shoots. Remove the remaining bands 7 to 10 days later.

3. Carefully count and remove the pupae from the burlap or corrugated cardboard strips. Place them in cloth-covered glass jars, polyethylene bags or the screen wire cage previously described. Limit pupae in each container to 75 to 100 so that counting adults will be easier. Take precautions to prevent jars from turning over, bags from blowing away or ant damage. **Keep container out of direct sunlight.**

4. Record emergence of moths daily.

5. Apply sprays 8 to 10 days after 5 to 10 percent of moths have emerged. In large orchards, complete first application by tenth day.

6. If significant moth emergence continues for 2 weeks or longer, apply a second application 7 to 10 days following the first application.

Advantages of Banding

1. The producer has a more dependable starting date than previous methods used.

2. It gives a clearer picture of a probable egg deposition pattern based on moth emergence than egg count observations, and warns producers in advance of possible need for two applications.

3. It discourages early spraying following the discovery of a few eggs.

4. After a few years of collecting data in a given area, the producer can determine the size of the impending infestation by comparison with previous years.

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