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IMPORTANT PECAN INSECTS OF NORTHERN FLORIDA

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INTRODUCTION

The literature of pecan insects includes reference to at least 125 species of insects that have been reported as attacking the pecan tree and its fruit. Fortunately for the pecan grower, all of these pests are not present in any one section. Insects that cause a great loss in one section may be considered as minor pests in other areas. This paper deals chiefly with the insects that are important in the Monticello pecan-growing section of northern Florida, unless otherwise stated. Some minor pests are mentioned that become important in some years, and two important insects are mentioned that do not occur in Florida except as minor pests.

Pecan Nut Casebearer, *Acrobasis caryae* Grote

In northern Florida the major pecan insect is the pecan nut casebearer. This insect has been persistent in its attack on pecans since the industry was established. It overwinters in the larval stage in hibernacula on the twigs of the past season's growth. In the spring it completes its growth by feeding on the twigs. Adults appear early in May, and maximum oviposition occurs from May 15 to 25, depending on the tem-

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perature and locality. The first-generation larvae attack the young nuts and do more damage to pecans at this time than at any other period of the season. One larva of this generation may destroy several nuts, as many as two complete clusters, before reaching maturity. The second generation is present from June 15 through July; and since the nuts remaining on the tree are larger at this time, a single larva would not destroy over one or two nuts before reaching maturity. During the third generation the nut shell has formed, the larvae confine their feeding to the outside shucks, and little or no damage is done at this time. This generation does not complete its larval growth in the fall, but overwinters as immature larvae in hibernacula on the twigs. Parasites assist in keeping this insect under control, but in severe infestations spraying measures must be adopted if the crop is to be saved. Spraying experiments for the control of this pest are in progress at the Cooperative Laboratory, Monticello, Fla.

Hickory Shuck Worm, *Laspeyresia caryana* (Fitch)

The next important pecan insect in this section is the hickory shuck worm. This pest is present every year, but does not become serious before June or July. The adult moths are present in the orchard even before the young nuts are pollinated. These early-emerging moths are known to oviposit on hickory nuts and phylloxera galls, and an early generation is passed on them. The overwintering larvae pupate, and adults emerge from February throughout the summer. Maximum emergence occurs the latter part of March or early in April, depending on the temperature and locality. When the newly hatched larvae enter the nuts they fall to the ground, and early in the spring, when the nuts are small, desiccation will in most instances kill the larvae, although later in the season, when the nuts are larger, the larvae can complete their growth in the fallen nuts. In August, when the shells become hard, the larvae confine their feeding to the outside shucks. When the nuts are attacked at this stage they will remain on the tree, but sometimes the shucks will adhere to the shell at harvest. Nuts that are attacked before the shucks start opening usually do not fill out and are placed in a lower grade. Varieties that have thick shucks are always more heavily infested. No control measures are known at present that will successfully keep this insect under control. It is highly parasitized, and this no doubt plays a big part in holding it down.

Pecan Leaf Casebearer, *Acrobasis juglandis* (LeB.)

The pecan leaf casebearer is a pest of as much importance as the hickory shuck worm in certain years when conditions become favorable for its development. It overwinters in the larval stage in hibernacula formed at the base of the buds on the twigs of the past season's growth, in the same manner as the pecan nut casebearer. In the spring when the buds begin to swell the larvae become active and start feeding on the young buds. In heavy infestations they can destroy the foliage as fast as it appears. This is the stage and time when the greatest damage is done to the crop. In many cases the destruction by the pecan leaf casebearer of the terminal and lateral buds, which produce the nuts and pollen, causes the trees to fail to set a crop of nuts. This condition is sometimes attributed by the grower to other causes. Later in the summer, when the foliage has reached its maximum growth, damage from this pest rarely occurs, except in cases of severe infestation. It prefers varieties with luxuriant foliage, and those varieties are usually more heavily infested. This insect has one generation each year, and a large percentage is parasitized. It can be successfully controlled by spraying in the summer.

Black Pecan Aphid, *Melanocallis caryaefoliae* (Davis)

The black pecan aphid must also be recognized as an important pest. It attacks the leaves. It is not so consistent in its seasonal appearance as some of the other pecan insects, but once it becomes abundant in an orchard, preventive measures must be adopted. In severe infestations complete defoliation has been known to occur. This loss of foliage upsets the normal activity of the tree and causes it to shed its fruit. This condition will also affect the crop for the next season. This pest does not become serious before midsummer, and is most certain to appear after bordeaux sprays have been applied for foliage diseases. It prefers varieties with luxuriant foliage and makes its first appearance on the inside lower leaves of the tree. Weather conditions will sometimes assist in its control. Hard showers of rain will dislodge many from the leaves, and it is very improbable that they will reach the tree again. They can be successfully controlled by spraying when necessary.

Minor Pecan Insects

Some pecan insects that are considered as unimportant may under certain conditions become very destructive. The stink

bugs *Nezara viridula* (L.) and *Euschistis euschistoides* Voll. and the leaf-footed bugs *Leptoglossus phyllopus* (L.) and *L. oppositus* Say will migrate to pecans when their preferred host plants are destroyed in or near an orchard. These insects puncture the nuts in feeding and cause a condition called black pit and kernel spot. If the affected nut does not drop to the ground, the kernel will have a discoloration which reduces its value in the markets. These insects are controlled by preventing their host plants from growing in or near an orchard. If at any time they migrate to an orchard, there is nothing that can be done to stop their damage.

The walnut caterpillar, *Datana integerrima* G. & R., and the fall webworm, *Hyphantria cunea* (Drury), become numerous some years in an orchard, and complete defoliation may result if the infestation is heavy. These pests are usually present every season, but control measures are seldom necessary. They are very highly parasitized, and if they become destructive, they can be controlled by hand picking or spot spraying.

The twig girdler, *Oncideres cingulatus* (Say), is usually present in all pecan orchards. The adults appear late in summer and girdle small branches, on which they deposit their eggs. In a heavy infestation severe pruning by the pest will reduce the crop. They can be controlled by collecting and burning all of the twigs that have been attacked.

The pecan budmoth, *Gretchena bolliana* (Sling.), and a casebearer, *Acrobasis caryivorella* Rag., attack the young growing shoots and the foliage of pecan nursery trees. The pecan budmoth also attacks pecan trees of all ages. In severe nursery infestations by either of these insects, growth will be retarded and the trees may become stunted. They can be controlled by spraying in the summer when necessary.

There are several wood borers which attack young nursery trees. Among these are a shot-hole borer, *Xyleborus* sp., and the flatheaded apple tree borer, *Chrysobothris femorata* (Oliv.). These insects do not usually attack healthy growing trees. Damage from these pests can be eliminated by keeping the trees in a vigorous growing condition and by cutting out and destroying all dead and dying limbs or trees.

In western Florida, in the vicinity of Milton and Pensacola, the pecan cigar casebearer, *Coleophora caryaefoliella* Clem., is very destructive in some years. Although this insect is present in all the pecan-growing areas of Florida, it is only in the

western section that it has been considered as important. It overwinters in the larval stage in cases attached to the limbs of the tree. The larvae become active in the spring at about the same time as the buds begin to swell. In heavy infestations they can destroy the foliage in the spring as fast as it appears. It is at this time that the most damage is done. They can be controlled by spraying when necessary.

Injurious Insects Not Important in Florida

There are two important insects that are very seldom observed in this State, but they are very destructive in other sections. The pecan weevil, *Curculio caryae* (Horn), is an important insect in central Georgia, Alabama, and Mississippi. The adults emerge from the ground in July and puncture the nuts in feeding. Later in the season, when the kernel is formed, more nuts are punctured in the process of oviposition. The young grubs mature in four to six weeks and enter the soil, where they remain until the next season. Cultural practices assist in keeping this pest under control.

The obscure scale, *Chrysomphalus obscurus* (Comst.), is an important pest in Texas, Arkansas, Louisiana, Mississippi, and Alabama. It attacks all parts of the tree except the leaves and nuts. As the population increases it spreads over the tree and gradually kills the smaller branches. After the tree has been weakened, it becomes attractive to wood-boring insects, and if control measures are not used it will finally die. This pest can be controlled by spraying during the dormant period.

DESCRIPTION OF NEW VERNAL FORM OF

Thecla wittfeldii Edwards

(*Lepidoptera: Lycaeinae*)

MALES. Expanse varies, but for four males it is about 1.25 inches. Upper side black-brown; primaries have large oval stigma; secondaries have the edge on the hind margin of posterior third fading; large fulvous spot in second median interspace over black on the margin; two tails, the posterior one very long, black, tipped with white, fringes whitish.

Under side slate-gray, inclined to fade in time; the hind margins narrowly edged with white, the costal edge on primaries next to base red. Both wings crossed by two maculate white lines; outer one submarginal, nearly parallel to the margin and quite regularly broken at the nervulae; ornated on the posterior half of secondaries and ending in oblique streak up the inner margin; each spot edged with black on the outer side, and on the primaries in the median interspaces there is more or less fulvous;