WALNUT NOTES

Twig and Stem Borers

Although many twig- and stem-boring insects can be found in walnut trees, they are generally not a major problem for walnut growers. The two stem-boring insects that cause the most concern and some damage are walnut shoot moths and ambrosia beetles. Both cause multiple forks or crooks in the main stem of young trees, thereby reducing the potential for the mature trees to produce veneer or high quality lumber.

Walnut Shoot Moths

Female walnut shoot moths lay their eggs in late summer on the undersides of leaflets. Newly hatched larvae feed briefly and move to the base of a terminal bud to spin overwintering protective cases. In early spring the larvae leave their overwintering case and begin feeding on expanding buds. A small pile of excrement and webbing can be found on damaged buds as the larvae tunnel into the bud. As the larvae grow, they tunnel down the expanding shoot. The dying shoots frequently look as if they have suffered frost damage. In April or May, the mature larvae emerge, drop to the ground, pupate, and then emerge as adults in late summer to start the cycle over again.

Destruction of the terminal bud results in one or more new terminal shoots from lateral buds below the damaged terminal (fig. 1). Many young walnut trees straighten naturally by producing a single dominant leader from one of these new terminal shoots. However, when such damage occurs annually, the trees may become badly deformed with numerous forks and crooks (fig. 2). The trees may then require both corrective and side-branch pruning to produce straight, high quality stems.

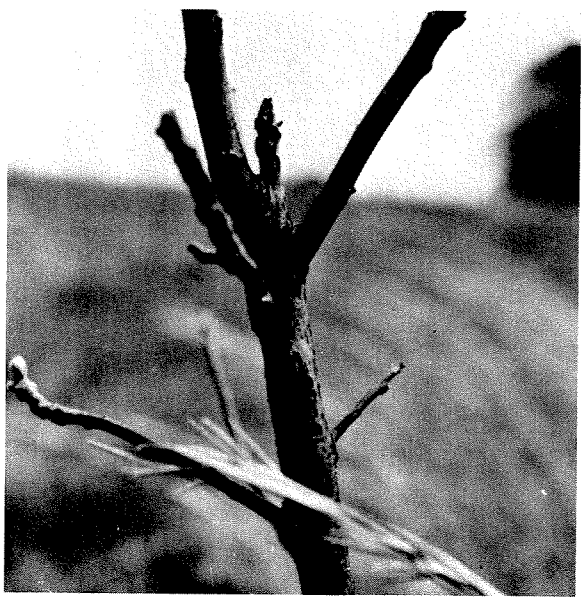

Figure 1.-New terminal shoots from lateral buds below the damaged terminal bud.

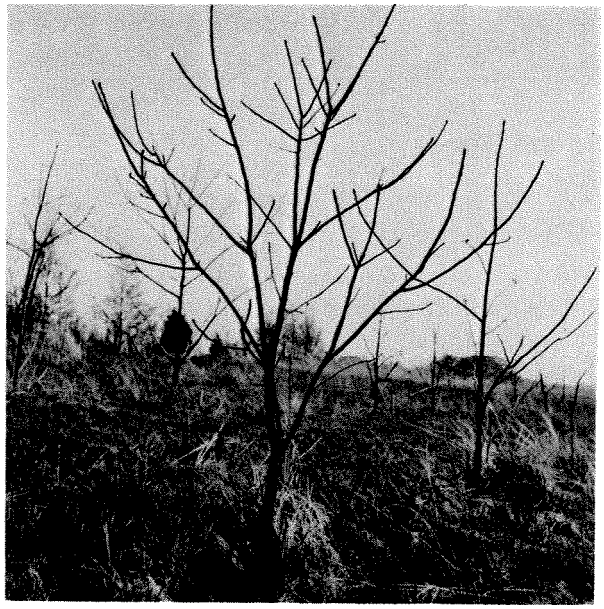

Figure 2.-Walnut trees badly deformed after repeated annual damage by walnut shoot moths.

Shoot moths also feed on older walnut trees. However, after a tree has developed a straight, single stem at least 9, 17, or 25 feet long (depending on your management objectives), forking within the crown will not reduce the tree's value.

Ambrosia Beetles

Adult females emerge in early spring from trees infested the previous year and fly short distances to new host trees to excavate galleries and lay their eggs (fig. 3). The larvae feed on fungi growing in the gallery, pupate, and emerge as adults in about a month to repeat the cycle. Two or more generations may occur each year, but the early spring generation often does the greatest damage.

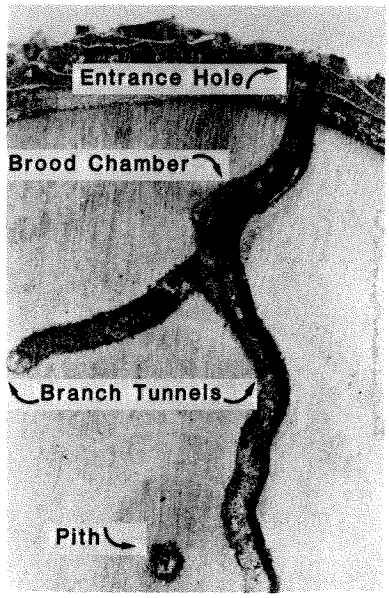

Figure 3.-Adult female ambrosia beetles excavate galleries in host trees and lay their eggs there.

Signs and symptoms of ambrosia beetle attack include pinholes, wilting leaves, stem dieback, and basal sprouts. Pinholes (fig. 4) are the entrance holes made by adult females as they attack the lower stem of trees. Pinholes are approximately 1/32 inch in diameter and are difficult to find except in the spring when sap flows from them. As the adult female excavates the gallery, she introduces a fungus into the wood that often causes wilting of the leaves and stem dieback, the most easily detected symptom of attack. Most ambrosia beetle-infested walnut trees produce basal sprouts that can rapidly replace the original stem (fig. 5). Resprouted trees are rarely attacked a second time by ambrosia beetles.

Figure 4.-Pinholes made by adult females as they attack the lower stem.

Figure 5.-Basal sprouts produced by an ambrosia beetle-infested tree can rapidly replace the original stem.

Ambrosia beetles usually attack the slower growing trees less than 10 feet tall in **a** planting. When you find signs of attacks, remove and destroy dying stems as soon as possible to reduce the beetle population in your planting. During the dormant season, prune away all but the largest basal sprout. Because basal sprouts grow rapidly in the beginning, long-term height and diameter growth of the walnut trees will not be greatly affected.

Direct chemical control of the ambrosia beetle is impractical and not recommended.

Summary

Although stem-boring insects can cause damage, don't panic if you find them in your planting. The initial damage they cause looks much worse than what the long-term damage actually is. Some trees will recover fully by themselves, and you can help most others to recover by following the suggestions above.

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