38. Cottonwood Leaf Beetle

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Hosts

Eastern cottonwood is the major host, particularly in the South, for the cottonwood leaf beetle (*Chrysomela scripta*). Poplars, willows, and alders are also affected.

Distribution

The cottonwood leaf beetle occurs throughout the United States but is most numerous in the lower Mississippi River Valley.

Damage

These beetles are serious defoliators of cottonwoods, particularly in the South and West. Continuing defoliation and twig damage through the summer reduces seedling growth and vigor. Lateral buds sprout below the injured terminals and grow rapidly, resulting in multiple-forked tops. Stunted growth in nursery plantings reduces cutting yield.

Diagnosis

Look for the sudden appearance of ragged foliage near branch ends and terminals (fig. 38-1). Some leaves will have brown patches where young larvae have skeletonized the leaves. Other leaves will have only their veins and midribs remaining. Heavy damage results in dead, black terminals with most of the leaf tissue consumed. Also look for black droppings on leaves.

Egg clusters, gregariously feeding larvae, and adult beetles are present on the affected foliage. The lemon-yellow eggs (fig. 38-2) are laid in clusters of 15 to 75 eggs on the underside of the leaves. Larvae are blackish to gray and about 12 mm long when mature (fig. 38-3). There are two whitish spots on the sides of each segment. When disturbed, they release a pungent odor. Adults have a wide variety of color markings. Beetles are oval, yellow, and about 6 mm long, with slender black markings on their wingcovers (fig. 38-4). The head and thorax are black, and the margins of the thorax are yellow or red.

figure 38-1—Damage to terminals and leaves of cottonwood caused by cottonwood leaf beetles.

Figure 38-2—Lemon-yellow egg clusters of the cottonwood leaf beetle.

Figure 38-3—Larvae of the cottonwood leaf beetle.

Figure 38-4—Adult of the cottonwood leaf beetle.

Biology

The adults hibernate under bark, litter, and forest debris. They emerge in early spring and feed on unfolding leaves and tender buds at the tips of twigs. In a few days, the female begins to lay eggs in clusters on the underside of leaves.

When the eggs hatch, the larvae begin to feed in groups on the underside of the foliage. Older larvae often feed separately and consume the entire leaf, except for the larger veins.

The pupae (fig. 38-5) attach themselves to leaves and bark or to weeds and grass beneath the trees.

There are from two to several generations per year, depending on latitude. In Mississippi, a generation can develop in 35 days, and there may be up to seven generations per year.

The spring generation of the leaf-beetle may be greatly reduced by ladybird beetles, *Coleomegilla maculata*, which feed on the eggs and pupae (fig. 38-6). Several other species of lady beetles, predaceous bugs, and two species of parasites also destroy leaf beetle eggs and larvae.

Figure 38-5—Pupae of the cotton-wood leaf beetle.

Figure 38-6—Ladybird beetle feeding on cottonwood leaf beetle egg cluster.

Control

Prevention—Use cottonwood clones that have demonstrated tolerance to leaf beetle defoliation.

Cultural—Employ sanitation practices in and around nurseries to either destroy the hibernating beetles directly or to expose them to winter temperatures.

Chemical—Apply chlorpyrifos for the control of cottonwood leaf beetle adults and larvae. Schedule the insecticide applications before larvae enter the pupal stage; treating at this time minimizes damage to predator populations.

Selected References

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