

slightly in coloring, size, and extent.

Two principal types of injury are usually distinguishable. One is early leaf blight which results in the complete killing of young leaves during April or May. This type of injury varies from partial to complete defoliation of tender leaves and is similar to frost injury in appearance. It is most common on sycamore. The second type of injury shows up later in the season as irregular brown areas adjacent to and surrounding diseased spots on midribs and lateral veins of mature leaves. This type rarely causes serious defoliation, but the fungus may spread through the twigs into younger branches, producing cankers which in turn can cause twig and branch dieback.

As with many other tree pests, successful control by spraying depends on the frequency and the thoroughness of application. A suggested schedule follows:

- (1) Just before the buds start to swell in the early spring.
- (2) When the buds are breaking and before the leaves unfold.
- (3) One or two applications at weekly intervals depending upon the amount of rainfall.

The following treatment is suggested in curbing anthracnose: Puratized Agricultural Spray (a mercury compound spray) — 1 pint per 100 gallons of water applied in the dormant stage followed by 2 treatments of Zineb (2 pounds per 100 gallons of water).

#### **Powdery Mildew**

Extensively distributed and occurring on a wide variety of plants, the powdery mildews have distinguishing characteristics which enable specialists to identify them. The powdery mildews are important in this country on maple, oak, alder, elm, poplar, and willow.

The damage caused by this disease is usually slight except when young trees are attacked. The powdery mildews are usually confined to the upper or lower surfaces of leaves, forming a white superficial growth visible to the naked eye. Occasionally, when conditions are right, and the infestation is severe, the mildews will progress onto fruits and twigs of the host. In addition to covering the surface



Citywide programs for controlling shade tree pests are frequently handled by CAs. Spraying shown above is part of a Japanese beetle control program in Sacramento, Calif.

of the leaf, the mildews also produce a sucking organ which penetrates the cells of the host to withdraw food. The spores of the developing mildews are readily carried by the wind and spread the fungus widely during summer months. The fungus overwinters in the black fruiting bodies found on fallen leaves, ruptures in the spring, discharging the spores which are carried by air currents to infest new foliage.

The powdery mildews definitely create an unsightly condition on the leaves of the host trees, but they may be checked during the growing season by use of a sulfur dust or spray at weekly intervals. Burning the fallen leaves in autumn is also quite helpful in a small or confined area.

#### **Leaf Spots**

Leaf spots on trees can be caused by insects, toxic gases, bacteria, and fungi. Leaf diseases such as this can be important when defoliation results or when the infestation is so severe that most all the leaves are involved and cannot function normally. Defoliation for several successive years may bring about the death of hardwoods. Species of trees commonly infested by the leaf spot fungi include: elm, chestnut, oak, red maple, hickory, ash, locust, and sycamore.

Characteristic of leaf spot is the formation of dead areas in the leaf. Size and shape of the area can vary from small to large and round to irregular. The deadened tissue varies in color from yellowish to all shades of brown and

black. Some of the dead areas frequently fall out, leaving holes (sometimes called "shot hole").

The spread of the leaf spot fungi is basically the same with all species. They overwinter in the old fallen leaves, develop and spread to the newly developing leaves in the spring. Wet seasons favor increased infestations of leaf spot.

Recommendations for control include the burning of fallen leaves in the fall. Dead and cankered twigs should be pruned out before the buds break in the spring. If infestations are severe, spraying with ferban or COCS (copper oxychloride-sulfate) is helpful. Puratized Agricultural Spray (mercury compound) is also useful in the control of leaf spot of walnut, elm, and maple.

#### **Subsoil Problems Blight Lawns**

Dead spots on lawns or patches that yellow during dry weather may be an indication of subsoil problems, according to Vaughn H. Holyoke, assistant crops specialist with the Cooperative Extension Service, University of Maine, Orono.

Pockets in subsoil, 4" to 8" below the top, can collect water in fall and winter, causing winter-killing, Holyoke explains.

"These areas can be the starting point of a severe weed problem, as well," Holyoke adds. In established lawns, turf renovation is the only solution to subsoil problems, so be sure to watch out for it when establishing new lawns, Holyoke warns.