

Wind Borne Pest

omnivorous leaf tier controlled readily by insecticide treatments

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Satisfactory control of the omnivorous leaf tier—*Cnephasia longana*—can be obtained with either DDT or dichlorodiphenyl dichlorethane when used at a rate of two pounds of the 50% wettable powder per 100 gallons of water.

Parathion gave control on asters but plant injury was produced. Benzene hexachloride, chlordane, and toxaphene were found to be ineffective.

Nearly all of the major field-grown flower crops near San Francisco are subject to attack by the omnivorous leaf tier. Asters, Marguerites, Shasta daisies, bachelor-buttons and straw flowers are seriously damaged by the maturing caterpillars which feed largely within the buds of new growth or burrow within the developing flowers. On heather, the caterpillars feed on the tips of new growth or mine the more succulent terminal shoots. The damage to calla lilies, watsonias, gladiolus, daffodils and iris is largely due to the webbing and feeding of the larvae within the buds or opened flowers.

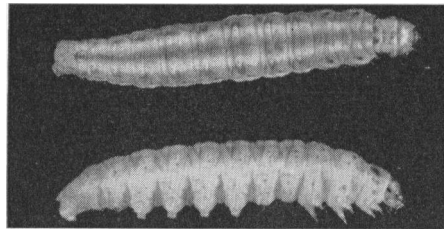
Field crops which are known to be injured in California include flax and strawberries. On strawberries in particular, the omnivorous leaf tier is a potentially important pest. Peas, hops, clover, vetch, and alfalfa are recorded as being subject to damage.

Nursery stock is also subject to attack. The tips of apple, cherry, plum, and ornamental shrubs and trees—such as lilac,

magnolia, birch, hawthorne, and conifers—are tied and eaten. This sometimes results in malformed plants.

The omnivorous leaf tier is an introduced pest, first recognized in California in 1948. It proved to be a serious pest of field-grown cut flowers along the San Francisco peninsula. The damage to these crops appeared to be considerably more severe in 1949, and considerable damage to flax was also noted. The known range of the leaf tier was extended in 1949 to the east side of San Francisco Bay, and as far south as Santa Cruz.

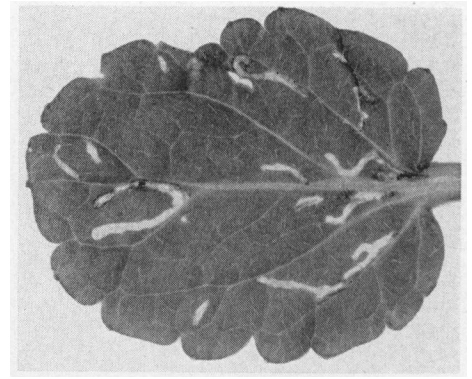
The omnivorous leaf tier overwinters as a tiny caterpillar within a cocoon. Cocoons are found under the bark of trees and in crevices of posts and telephone



Adults of the leaf tier are about $\frac{5}{8}$ inch in length.

poles. From the latter part of February to early April the caterpillars come to the surface of the wood and spin silken threads and are then carried by the wind to the fields and gardens.

clipped frequently or grazed heavily. Bermuda grass is usually considered a pest in irrigated pastures in Merced County. As soon as it flowers it becomes unpalatable to most livestock and is the last plant eaten during the winter period. It is killed early in the fall and all growth ceases until spring. If narrow leaved birdsfoot trefoil or Ladino clover are found growing in the Bermuda grass, cattle will eat it a little more readily. It is usually recommended that the Bermuda be burned in the fall and overseeded with Ladino, birdsfoot trefoil and/or the rye grasses. These latter plants will usually come along during the winter and have considerable growth before the Bermuda begins to grow in the spring. It may be desirable to harrow the burned over spots but success has been obtained by just sowing the seeds on the burned areas.



Larval mines, the initial injury, on an aster leaf.

At first the tiny caterpillars mine within the leaves for several weeks. Then they leave the mines and move within the centers of new growth or buds to feed. The caterpillars reach maturity during the latter part of April and in May. The pupae are formed between webbed leaves or blades of grass.

The moths emerge mainly during May, and can be flushed from the low vegetation in fields during the day time. At night the eggs are laid in groups on the bark of trees. The eggs hatch soon after being laid, and the tiny caterpillars immediately spin a cocoon within which to spend the summer and winter.

Control of the caterpillars is most easily accomplished when they are leaving the leaf mines and before they are protected by new growth. During the 1949 experiments, the best time for spraying was found to be during late March or early April.

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GRAZING

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Orchard grass makes good growth between September 1st and the first killing frost. It then behaves very much like Dallis grass. The leaves become quite limp and unlike tall fescue, can be eaten clear to the ground. The seed stalks do not seem to be as stiff as those of fescue and are usually broken down or pushed aside. The stem and leaves remain green at the base of the clump and these are relished by livestock after the tops have been eaten off. Orchard grass pastures which get ahead of the farmer during the summer may be grazed off completely during the winter period by beef cows, dry cows, heifers and sheep. In order to prevent the clumping of Orchard grass it must be

Fertilization of the pasture is essential if maximum growth is to be obtained during the fall. An annual application of 300 pounds of single superphosphate has been found to be adequate to maintain a high amount of growth. Barnyard manure has also been found to be beneficial when applied at the rate of about 10 tons per acre. An application of nitrogen just prior to the irrigation—about September 1st—would be of benefit in stimulating growth of the grasses.

After the pasture has been grazed off it will be advisable to spread the cow droppings that will have accumulated. In some fields the accumulation of droppings has made them look like feed lots. A spike tooth harrow will do a fair job of spreading the droppings.

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