

THE FRUIT TREE LEAF ROLLER

(*Archips argyrospila*)

By R. H. PETTIT

The fruit tree leaf roller is a pest that is becoming of greater and greater importance as each season passes. The attack on fruit trees occurs on apple and pear shortly after the opening of the buds, and continues for several weeks, during which time the active, greenish or brownish larvae or "worms" feed on the foliage and fruit.

During this period, considerable webbing of the leaves and fruit takes place. The leaves become curled or rolled and tied together in little clusters to which the larvae retreat in order to conceal themselves. The young fruit is often deeply scored and scooped out, but not sufficiently to cause the fruit to drop in all cases. The mutilated fruit often continues to grow and develop into what would be a normal fruit were it not for the conspicuous blemish left after the wound heals over. Not only do the larvae conceal and protect themselves by retreating into the clusters of webbed, curled leaves, but they seem actually to be capable of devouring safely quantities of arsenical sprays and dusts that would prove quickly fatal to most similar insects. For this reason, attempts to control the pest by the ordinary arsenical sprays have proved very disappointing and inadequate to cope with the situation. The fruit is mutilated and deformed, and also sufficient foliage is often eaten to bring about more or less defoliation, which sometimes progresses to a point where the tree is completely denuded of its leaves.

After a few weeks, these larvae reach a length of about three-fourths of an inch, whereupon they retire into the tangles of folded or rolled leaves and change to the pupal condition inside of somewhat sketchy silken cocoons. Later on these cocoons produce small moths, which measure across the extended wings somewhat less than an inch, and which lay their eggs on the bark of the twigs and branches, plastering them in masses nearly a quarter of an inch in diameter and covering them with a varnish-like material which protects them from the weather during the remainder of the summer and the following winter. Particular emphasis is placed on the appearance of these egg masses, which are illustrated in Figs. 3 and 4, since it is through the destruction of these eggs that we find our most effective control measure.

It is possible to kill these clusters of eggs if an oily spray of sufficient strength is applied just before the buds open, or indeed after the separation

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of the bud scales reveals a slight green tinge. The eggs are most sensitive to the oil at this period, since at this time they have begun to develop and are almost at the point of hatching. Spraying with Scalicide used at the rate of 1 part to $12\frac{1}{2}$ of water is known to be effective. Other oil sprays may prove equally effective. It is needless to state that the spraying must be very thoroughly done and that the emulsion must be of rather unusual

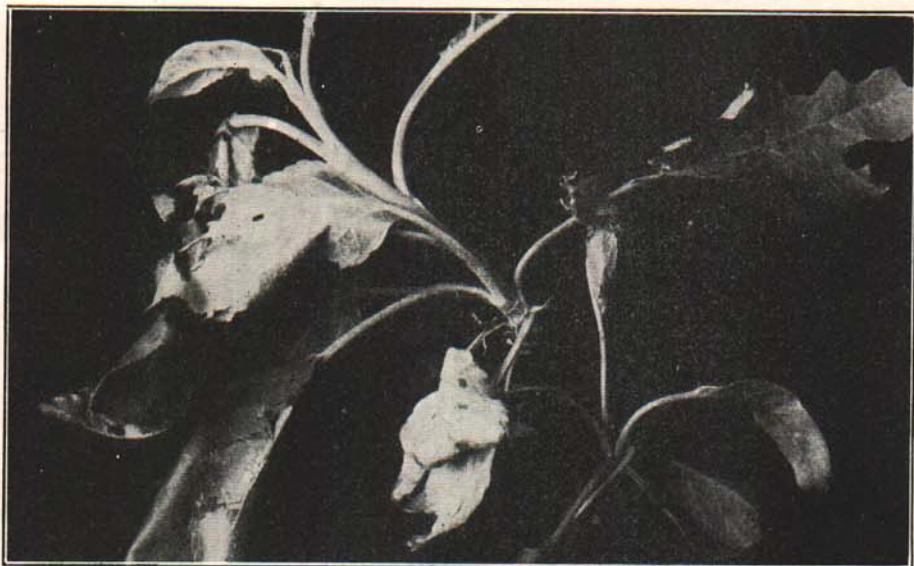


Fig. 1. Leaves rolled and tied together by Fruit-tree Leaf-roller.

strength. After selecting a miscible oil or emulsion, the fruit grower should follow the directions of the makers. On no account should the time of spraying be appreciably advanced to an earlier date nor delayed later than that specified in the foregoing paragraph.

All of this effort is likely to prove unavailing, or perhaps it would be better to state that only a partial kill may be expected, unless one takes into account

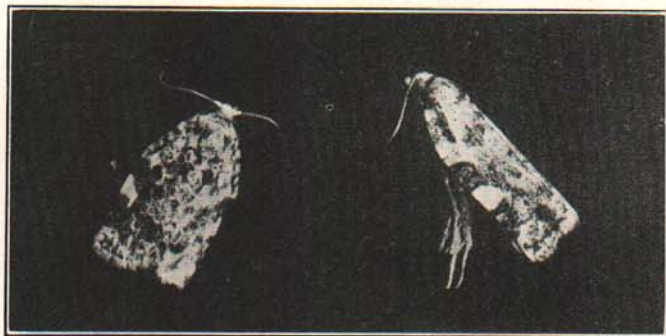


Fig. 2. Adult moths, of Fruit-tree Leaf-roller, slightly enlarged.

larvae coming from eggs placed on twigs and branches that have fallen to the ground during the pruning of the tree. It is customary to prune during the winter time and to remove the large branches from the orchard when convenient. Even if all limbs are raked up and burned during the late winter, there will still be many small branches and twigs that will remain on the ground, and many of these twigs will be plastered with eggs. If one watches closely about the time the fruit sets, active larvae may be observed coming from the twigs on the ground and crawling on the trunks of the trees, thus bringing about a reinfestation. Of necessity the spray must be delayed until about the period of pruning, and therefore eggs on twigs lying on the ground never get their coating of oil.

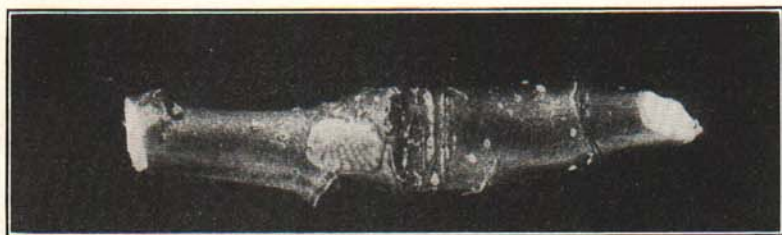


Fig. 3. Egg cluster of Fruit-tree Leaf-roller, slightly enlarged.

It remains to prevent the larvae from getting back into the trees from which the eggs originally came, and in order to do this it is absolutely necessary either to gather all twigs with egg masses, which is impracticable, or to place a barrier in the way of the larvae on their journey into the tree. The writer has found a band of Tanglefoot most suitable for this purpose. The Tanglefoot should be applied and maintained in effective condition from the time the eggs hatch until all danger is passed. This period will begin shortly before the time of blossoming and will continue for two or three weeks.

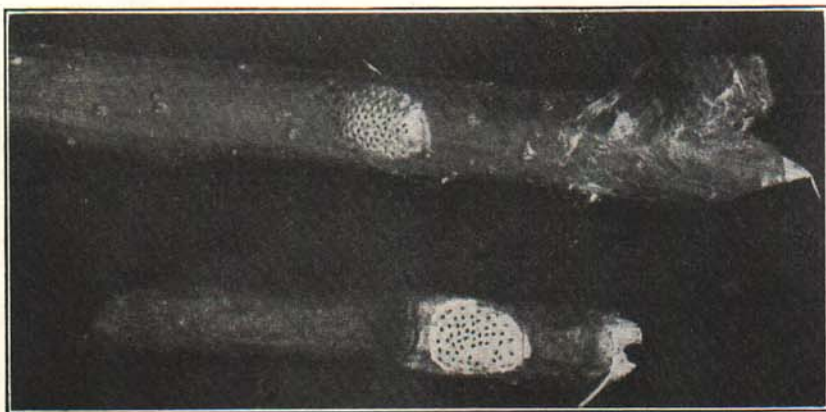


Fig. 4. Egg clusters of Fruit-tree Leaf-roller, after eggs have hatched and larvae emerged, somewhat enlarged.

