

# Life Cycle Study Gives Boost to Oak Leaf Roller Fight

Entomologists at The Pennsylvania State University have determined the life cycle of the oak leaf roller, an insect killing 43 per cent of the oaks in nearly 900,000 acres surveyed in Pennsylvania.

This biology of the oak leaf roller was described September 27 by Dr. Ralph O. Mumma of Penn State at an eastern branch meeting of the Entomological Society of America held in Hershey. Dr. Mumma indicated that

biological information must be available before effective programs to control the oak leaf roller can begin. He said the eggs start hatching in late April and have completed hatching by May 10. The larvae then go through five stages, reaching the final larval stage by about June 15. Then they pass through the pupal stage with adults emerging around July 3.

If spraying with pesticides is to be done to control the

oak leaf roller, then the middle of May is the best time to do it, Dr. Mumma pointed out. On the other hand, natural parasites such as flies take a heavy toll of larvae, especially in the latter larval stages during early June.

In the pupal stage, a certain parasitic wasp emerged from 32 per cent of the pupae examined in 1974 field studies. However, the number of parasites can vary year by year. In 1973, the wasps emerged from only 3.4 per cent of the pupae studied.

Thus far, over 1 million acres of oaks have been defoliated, primarily in northcentral Pennsylvania. The oak leaf roller have moved slowly westward, Dr. Mumma said. Defoliation is now centered in Clearfield, Cameron, Elk, and Warren counties.

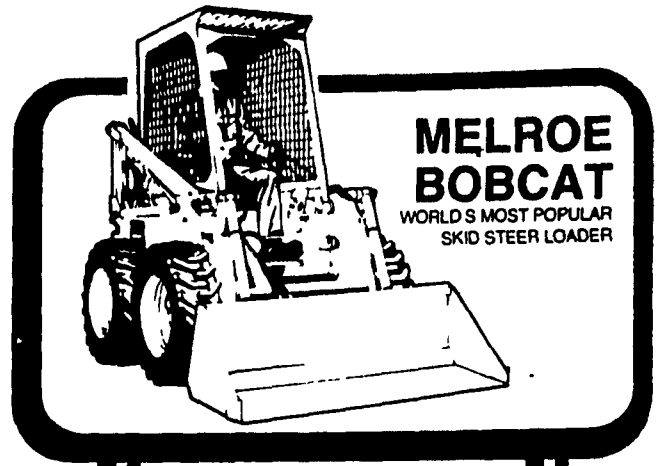
Egg masses, laid on bark of trees, were found to range from 400 to 2,000 per tree. The average female was found capable of laying two egg masses per year. Eggs remain dormant from July into the following April. As yet there is no effective

natural parasite attacking the eggs.

Dr. Mumma quoted Pennsylvania Department of Environmental Resources information describing the oak leaf roller as "the worst forest insect disaster in Pennsylvania during this century." From 1970 to 1972, of nearly 900,000 acres sampled, 43 per cent of the oaks were killed with a lumber stumpage value of 57 million dollars.

Working with Dr. Mumma and associates on Penn State's oak leaf roller project is Dr. Lawrence B. Hendry in chemistry. The two scientists are investigating the use of the female sex attractant, pheromone. With this product they hope to confuse the males so they can not find the females and thus will not mate.

A graduate student from State College, Andrew Zettle, studied the life cycle of the oak leaf roller over a three year period in working toward a doctor of philosophy degree in entomology. The biological studies are supported by Agricultural Experiment Station funds.



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service man with Agway's Petroleum Division and later joined the heating sales and service staff.

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Born and raised on a farm in Bradford County, Pa., Young has been associated with Agway since 1952. For several years he was a farm

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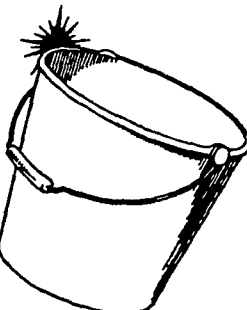


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