New Approach For Apple Growers

Stethorus punctum, the tiny black ladybird beetle that can devour 75 to 100 plant-feeding mites per day, is making it possible for numerous Pennsylvania apple growers to greatly reduce spraying with miticides in orchards, entomologists of The Pennsylvania State University report.

Such use of natural predators in apple orchards could be a real boon to apple growers, according to Dr. Richard B. Colburn and Professor Dean Asquith, entomologists at Penn State's Fruit Research Laboratory at Biglerville, Adams County. They said recently that some 2.4 million dollars is spent annually in Pennsylvania to control insects, mites, and diseases associated with apples. Pennsylvania ranks in the top five states in annual apple production, averaging 12 million bushels per year.

found in 27 apple orchards monitored during 1974 in 11 counties as part of the Pennsylvania Pilot Apple Test Management Project. In the 27 orchards there were ample ladybird beetles to aid substantially in mite control.

Ladybird beetles live and reproduce best in orchards that are operated on an integrated control program. This means coordinating two or more techniques of pest control to avoid complete reliance of any one method. Spraying with chemicals must be harmonized with biological control of mites by the tiny beetles. To date, Stethorus punctum is the only mite predator found in sufficient numbers in orchards operated on an integrated control program to assist in mite control effectively.

Colburn and Asquith are associated with the Agricultural Experiment Station at Penn State. With innovative apple growers in southern Pennsylvania, they and their fellow workers were the first group in the eastern United States to develop integrated pest control on apples. These experiments had their beginning in 1968. Many of the same growers now cooperate with Penn State and the Pennsylvania Department of Agriculture on the Pilot Apple Pest Management Project initiated in 1973 with funds from the U.S. Department of

Fruit growers using integrated control of pests have found they must leave some mites for Stetherus punctum beetles to feed on. The tiny predators disappear when the mite population becomes too low. For this reason, many orchard owners like to use a mite suppressant such as dinocap. This material keeps mites in form check, а of

Agriculture.

The ladybird beetles were the cooperation of several management rather than elimination-thereby encouraging the increase of Stethorus in apple orchards.

Indications are that apple orchards with at least five mites per leaf will keep Stethorus punctum active. These shiny black beetles. about four times the size of a pinhead, feed on all stages of mites. Both the larval and adult stages of the beetle feed on mites.

The beetles become active in apple orchards from mid-April to mid-May which is close to the time the European red mite and twospotted spider mite begin to emerge.

Stethorus punctum adults overwinter in and near the orchards. If they remain in the apple orchards they are beneath the fruit trees under leaf debris. They move into the trees during the spring, feeding on mite eggs left from the previous season. Eighty percent of the adult beetles hibernate within 3

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feet of the trunks of the trees. Thus, fruit growers are advised to delay cultivation under the trees until mid-May, after the beetles have emerged into the apple trees.

Carrying out an integrated insect control program is not as simple as operating a standard chemical control program, Colburn and Asquith point out. The grower must arrange a careful balance between protecting the apple crop and the trees from injury by insects, diseases and mites, while at the same time not harming Stethorus life stages.

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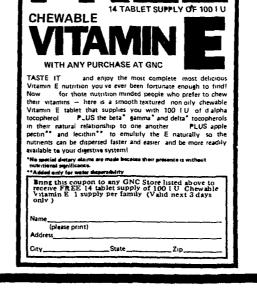
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