

# Apple Spray Technique Cuts Costs

Penn State research has shown that mature apple trees can be sprayed from the middle of alternate rows and still achieve 90 per cent coverage of the entire tree.

The finding was made by Dr. Fred H. Lewis, scientist-in-charge of the Fruit Research Laboratory of Penn State University in Adams County.

Within the past 20 years, scientists at the laboratory have steadily improved methods of

spraying to control pests without undue damage to the environment.

From the grower's standpoint, such experiments have achieved significant reductions in spraying costs, in labor, and the amount of pesticides used. From the consumer's standpoint, the studies are decreasing residues on fruits and are reducing environmental pollution from pesticides.

In the alternate spraying

technique, the spraying is done down the middle of alternate rows 1, 3, 5, etc., one week, spraying to left and right. Seven days later, the sprayers move down the middle of the other alternate rows 2, 4, 6, etc., again spraying left and right.

In this technique, apple trees are pruned to a height of 18 or 19 feet and thinned in a normal manner. Airblast sprayers are used with a pump pressure of at least 180 to 200 pounds per square inch. Air volume and velocity must be sufficient to drive the spray into and well above the trees. Speed of the sprayer is held to two miles per hour.

Concentrate sprays are used, mixed at four times the standard dilute rate. This spraying reduces the amount of pesticide by about 18 per cent by eliminating run-off from the trees, Dr. Lewis reports. Concentrate sprays also require less labor. Timing of the sprays can be improved since less time is required to apply each spray. And the total cost of the whole pest control program is decreased.

"Our experience in large-scale trials has been that the chemicals for alternate row spraying might cost about 35 per cent less than the chemicals for a standard dilute spray program used at 400 gallons per acre," Dr. Lewis states.

In reducing possible pollution of the environment, Dr. Lewis works with Professor Dean Asquith on a program of integrated control of mites by using natural predators in association with small amounts of chemicals.

Under the integrated control technique, spray programs are designed so that the ladybird

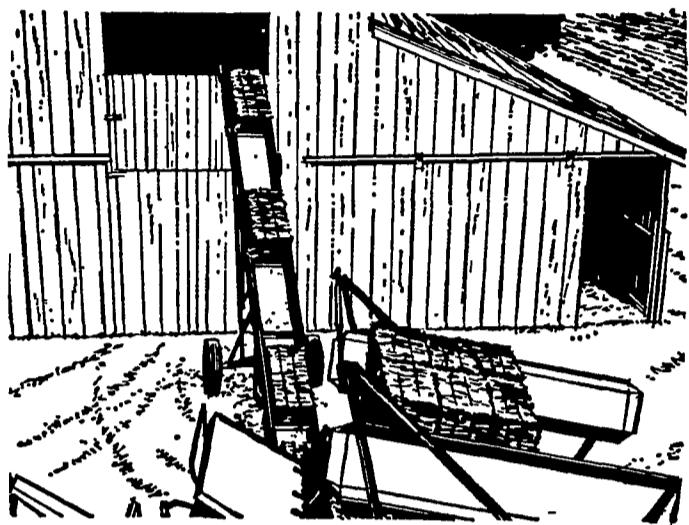
beetle, *Stethorus punctum*, survives. These beetles multiply on apple trees over three generations and eat millions of harmful mites.

"We do not know of any apple grower in Pennsylvania who has failed to obtain good pest control with either concentrate sprays or a combination of concentrate sprays and the integrated mite control program — provided he had suitable equipment and followed the rules of

the game," Dr. Lewis affirms.

More and more fruit growers, he says, are employing technical advisors to direct the pest control programs. This is due, in part, to the increasing need for closer control of pesticide application methods and the choice of pesticides. In some cases these advisors represent a farm service organization where purchase of pesticides pays for the technical advice.

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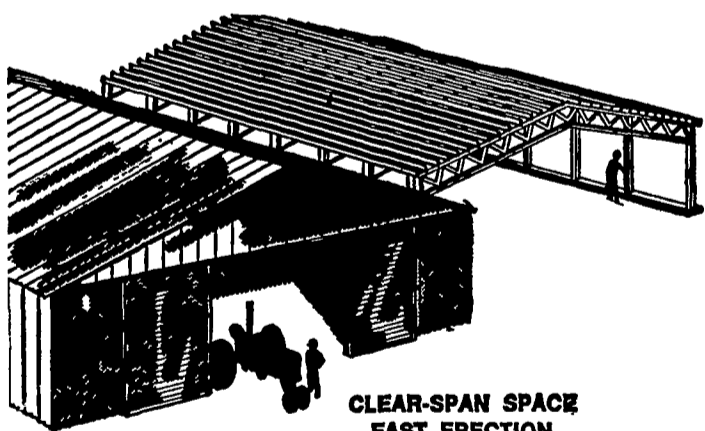
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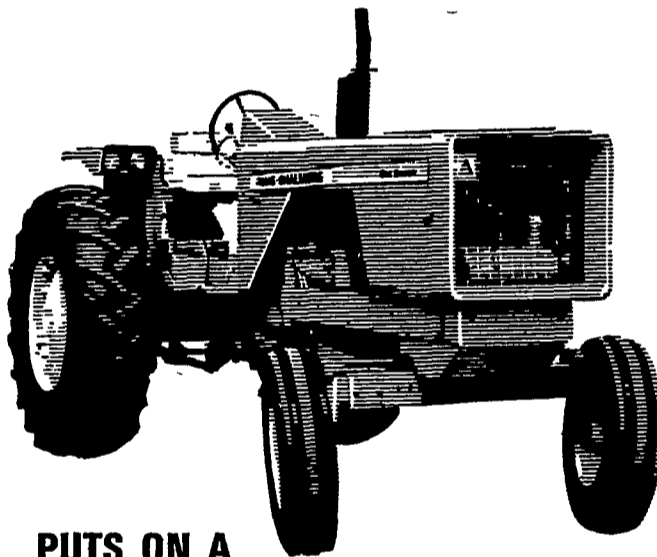
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