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EC1510 Revised 1936 Controlling the Flat-Headed Apple Tree Borer

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Bare, O. S., "EC1510 Revised 1936 Controlling the Flat-Headed Apple Tree Borer" (1936). *Historical Materials from University of Nebraska-Lincoln Extension*. 2625.
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Nebraska
COOPERATIVE EXTENSION WORK
IN AGRICULTURE AND HOME ECONOMICS
U. of N. Agr. College & U. S. Dept. of Agr. Cooperating
W. H. Brokaw, Director, Lincoln

May 1936

Extension Circular 1510 (Revised)

CONTROLLING THE FLAT-HEADED APPLE-TREE BORER

The past three years have been exceptionally favorable to an increase of the flat-headed apple-tree borer, and damage by it has increased accordingly. During the summer of 1935 thousands of newly transplanted trees, old declining trees, and trees that had been weakened by drouth or by other unfavorable causes were destroyed or badly damaged by this pest. In a few cases the borers were even reported to be damaging apparently healthy and vigorous young trees, which is unusual, but in most cases these trees undoubtedly had been weakened by drouth or other conditions, although that damage may not have been apparent to the casual observer. There is every reason to believe that much similar trouble will be experienced during the next few years. Therefore, a knowledge of the most effective control measures is likely to be a necessity if one is to grow young trees successfully, or preserve those that he already has.

Trees Likely to be Attacked

The flat-headed apple-tree borer attacks nearly all kinds of fruit and shade trees, but under Nebraska conditions the greatest damage has been done to apple and American elm trees. Other trees often reported to be infested are soft maple, ash, walnut and pin oak. Any tree that has been weakened or damaged from any cause is particularly likely to be attacked. Pruning wounds and sun-scalded areas often furnish points of entrance on otherwise healthy trees.

Life History, Appearance, and Habits

The first adult beetles usually appear in Nebraska early in May and may be found up to the middle of August. They are rather wide, flat-bodied, hard-shelled insects about a half-inch or slightly more in length, and may sometimes be seen on the sunny side of tree trunks, logs, posts, and similar sunny locations. They are of a brownish-gray metallic color above, with some greenish spots, and of a metallic blue color underneath. Egg-laying begins in May, and may continue into August. Eggs are laid in sunny locations, usually on the south and west sides of trees that have been weakened by drouth, old age, transplanting, sun scald, pruning, or other causes. The eggs soon hatch into tiny grubs that burrow into the bark and develop between the outer bark and the sapwood, thus destroying the cambium layer. Although damage usually starts on the southwest exposure, the borers may work around the tree and girdle it completely. When fully grown, the borers are about an inch or slightly more in length, yellowish in color and slender-bodied, but having a broad flat enlargement just back of the head that gives them their common name. Their presence often can be detected by the slightly sunken, darkened areas of bark and the fine sawdust that usually protrudes through any cracks or crevices. As the borers near maturity they burrow into the sapwood, spend the winter there, and emerge as adult beetles, during the next spring or summer. In most cases the life cycle requires only one year but on fairly vigorous trees having a rather strong sap flow, two years may be required.

Control Measures

Prevention of infestation is much better than attempts to cure. After a tree has become infested, the only effective remedy is to dig out the borers with a

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sharp-pointed knife and paint the wounds with a protective or repellent substance, such as white lead paint, or a mixture of 75% coal tar and 25% crude creosote. This should be done in late summer or early fall. Dead and dying trees or badly weakened trees that are heavily infested should be cut out and burned before May 1 to prevent the emergence of the new brood of beetles. Broken or dying limbs in otherwise sound trees also should be pruned out and burned.

To prevent trees from becoming infested they should be kept in as vigorous a condition as possible. Watering and application of suitable fertilizers are of much value. If young trees are to be transplanted, the transplanting should be done very early in the spring, and the young trees should be well-watered in order to start a vigorous growth before the egg-laying beetles appear. Young trees often can effectively be protected by shading the south and west sides of the trunk and base of lower branches for several years after transplanting. This may be done by means of a board or stake driven into the ground or tied so as to provide the necessary shade. While this practice is of much help, it will not entirely prevent infestation, particularly in years when the beetles are very numerous, or weather and soil conditions are unfavorable for vigorous growth.

The surest protection is afforded by wrapping the young trees, from their base up to the limbs three-fourths of an inch in diameter or less, with some material through which the beetles will not be able to deposit eggs. These wrappings should be kept on the trees from May 1 to September 1. Effective wrappings may be made of burlap, old sacking, used muslin, or similar material in two or three thicknesses, or of wrapping paper, three ply of newspaper, building paper or a paper made of two thin plies cemented together with asphalt. Papers treated with chemicals likely to injure the tender bark of young trees should be avoided. A roll of screen wire snapped about the trunk is fairly effective if it does not hug the trunk too tightly.

Repellent washes may sometimes give good protection although results appear to be quite variable. The Michigan Experiment Station has reported excellent results from a repellent wash, but some others have reported results that were far from satisfactory. The following formula has been recommended as effective by the Michigan Station. It is said to repel the adult beetles and thus prevent egg-laying.

Common potash laundry soap..	50 lbs.
Water.....	3 gal.
Flake Naphthalene.....	25 lbs.
Flour.....	2 lbs.

Place the soap in the water and set in a warm place to soften for a few days. Use a potash soap, as it will form a smooth mixture, while a soda soap will become jelly-like. After softening, place the water and soap in a double boiler and cook until the temperature reaches 180° F. Stir in the flour and add the naphthalene flakes. Bring the temperature again to 180° to melt the naphthalene flakes. Then cool quickly, stirring the mixture occasionally. The more rapidly the mixture is cooled, the smaller will be the crystals of naphthalene. Apply the mixture to the trunk and base of lower branches with a brush while warm. It may be kept in air-tight containers, and warmed and thinned with hot water to the consistency of thick cream as it is needed. Where smaller quantities are needed, a fourth of the above formula may be mixed very conveniently. The first application should be made about May 1, and later applications should be made about every three weeks up to August 1.

(Prepared by O. S. Bare, Extension Entomologist.)

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