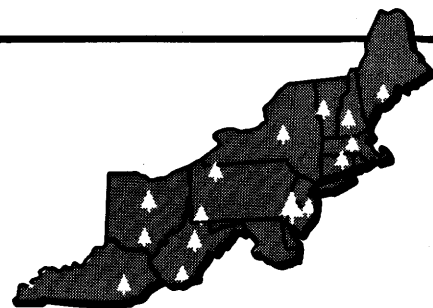


1977

Northeastern Forest Experiment Station



FOREST SERVICE, U.S. DEPT. OF AGRICULTURE, 6816 MARKET STREET, UPPER DARBY, PA. 19082

ATTEMPT AT CONCENTRATING RED OAK BORER EGGS BY PROVIDING ARTIFICIAL OVIPOSITION SITES

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Abstract.—Thirty-eight scarlet and 14 black oaks were spirally wrapped to a height of about 2 m with black or white cotton tape 2.5 cm wide in an attempt to increase oviposition of the red oak borer, *Enaphalodes rufulus* (Haldeman), on selected trap trees. However only 57 eggs were laid under tape on 17 of the trees, all scarlet oaks. Attacks but no eggs were found on some of the wrapped black oaks.

Key words: *Enaphalodes rufulus*, cerambycidae, oviposition, control

The red oak borer, *Enaphalodes rufulus* (Haldeman), is a primary borer in living oak trees. Its boring causes permanent defects which show up in milled products as degrade; the losses amount to millions of dollars annually (Donley 1974).

Red oak borers will mate readily when confined in jars; in the laboratory, they also will lay eggs under cotton textile tape wrapped around bolts of freshly cut red, black, scarlet, white, or pin oak. The tape is a substitute for bark scales, lichen patches, and other natural sites that the beetles usually select for oviposition (Hay 1969). Since the beetles readily lay eggs under tape in the laboratory, I thought they also might oviposit under tape wrapped around selected oak trees. Borer populations could be reduced if the beetles were enticed to concentrate their

eggs on a few selected trees where the eggs or larvae could more easily be destroyed.

Materials and Methods

During June, 1975, 38 scarlet and 14 black oaks were selected for this study. They ranged from 4.8 cm to 17.5 cm in diameter at breast height (dbh); the mean dbh was 10.2 cm. The trees ranged from vigorous dominant trees to suppressed trees with dead tops and likely to die within 2 or 3 years. About two-thirds of the trees were overtopped by larger trees and these were most likely to be attacked.

Half of the scarlet and black oaks were spirally wrapped to a height of about 2 m with white cotton textile tape 2.5 cm wide. The tape spirals were spaced about 8 cm apart. The remaining trees were wrapped the same way, but with

black tape. The tape was held in place with thumbtacks.

The trees were checked weekly during July; I unwrapped the tape, counted and destroyed any cerambycid eggs, and rewrapped the trees.

Results and Discussion

A total of 57 red oak borer eggs were laid under tape on 17 scarlet oaks. The greatest number of eggs on a single tree (9) were laid under black tape on a scarlet oak 4.8 cm dbh. The largest tree with eggs (7) was 15.5 cm dbh and was wrapped with white tape. Apparently tape color was not a factor in oviposition—31 eggs were laid under black and 26 under white tape. No eggs were laid by red oak borers under tape wrapped around trees with dead tops; all eggs were deposited under tape wrapped around trees with very smooth bark. No eggs were found under tape wrapped around black oaks, but attacks were found on some of these trees. This indicated that borers had been on black oaks but failed to oviposit under the tape. One black oak wrapped with tape had 12 red oak borer attacks, but the female beetles used the natural rather than the artificial oviposition sites.

A total of 121 eggs of an unknown cerambycid species were laid under black and white tape

wrapped around some of the trees with dead tops. No eggs of the unknown species were laid under tape on trees that seemed healthy.

The results suggest that the physical—and perhaps physiological—requirements for oviposition are more critical for red oak borers in the forest than they are for borers in the laboratory. Borers in the forest are more selective about where they lay eggs; natural egg sites, when available, are used before artificial sites are used. This explains why no eggs were laid under tape on black oaks, which usually have many oviposition sites, and why eggs were laid under tape on scarlet oaks, which usually have few sites.

In conclusion, not enough eggs were laid under cotton tape to be useful in reducing red oak borer populations. However a material other than cotton tape, or another technique, might successfully induce and increase oviposition on selected trees.

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