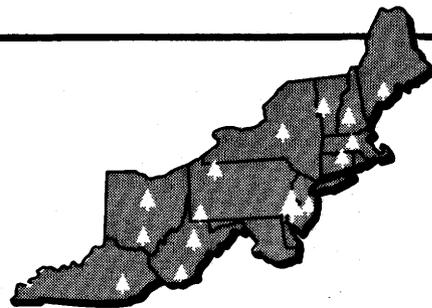


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COST OF CUTTING GRAPEVINES BEFORE LOGGING

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Abstract.—To reduce damage to hardwood stems by grapevines, it is recommended that grapevines be cut near ground level several years before the harvest cutting. Cost of completing this practice on 117 acres supporting 22 vines per acre was found to be about \$3.50 per acre.

In recent years the pros and cons of even-aged management—and particularly the use of clearcutting methods—have been thoroughly discussed in relation to esthetics, utilization, logging methods, soil and watershed protection, wildlife habitat, reproduction, and future stand development. Meanwhile a little-mentioned situation is beginning to emerge on some clearcut areas of the central Appalachians: the establishment and uncontrolled growth of grapevines on good and better hardwood sites.

In West Virginia we have observed with increasing concern the prolific growth of grapevines and the damage the vines do to young stands after clearcutting (fig. 1). Measures for controlling grapevines are limited. However, a recommendation has

been made to control grapevines by cutting vines near ground level several years before logging. The purpose of this note is to report a cost figure for this treatment.

Of the several species of grapes in the central Appalachian mountains, those of major concern are the summer grape (*Vitis aestivalis* Michx.) and a variety silverleaf grape [*V. aestivalis* var. *argentifolia* (Munson) Fern]. The problems with grapevines have been summarized by Shutts (1968, 1974), Trimble (1973), and Trimble and Tryon (1974).

Grapevines break and deform stems and crowns of trees, resulting in the reduction of stem quality and growth rates. Often tree reproduction is so severely damaged by grapevines that recovery is doubtful.



Figure 1.—A tree crown damaged by a combination of vines and possibly snow or ice.



Figure 2.—Severe grapevine damage to reproduction. The vines have formed a mat over the trees.

However, we are not advocating the elimination of all grapevines. Grapevines provide habitat and food sources for many wildlife species (*Shutts 1974*); consequently, a recommendation to kill all vines on an area is not a desirable forestry practice. But where the production of wood products on good to excellent sites is a major objective of the owner, control of grapevines is advisable and should be considered where even-age management practices are used.

As newly established reproduction and grapevines grow on former clearcut areas, only a few treatments are available for controlling the vines. Individual stems cannot be treated easily because they are too numerous or too small (fig. 2). In large areas, basal spraying and mistblowing with a backpack are impractical. Aerial mist blowing of herbicides is possible, but it is expensive and often difficult to control. Thus it appears that grapevines cannot be controlled after cutting without the cost of considerable time and expense.

As an alternative, Trimble and Tryon (*1974*) suggested that grapevines that spread into the tops of second-growth stands could be cut near ground level several years before a harvest reproduction cutting—long enough before cutting for the stumps of the vines to die from the shading effects of the overstory canopy. Although we have other methods under study, cutting vines before logging seems to be a simple and effective method for reducing the number of grapevines in the new stand.

Method

We cut vines on 117 acres of a 65- to 70-year-old second-growth Appalachian hardwood stand on the Fernow Experimental Forest near Parsons, West Virginia. Slopes in this area range from 50 to 60 percent. The trees were more than 75 feet tall at age 50, averaging 17,500 board feet (International 1/4-inch log rule) to the acre. The area had been logged between 1900 and 1910, with high-grading practices, and openings were created throughout the residual stand. Wildfires were numerous during and after this

early logging. Perhaps the occurrence of fire was one reason why grapevines have not been a serious problem in second-growth hardwood stands.

An experienced 3-man woods crew located and cut grapevines near the ground during the last week of June, when the foliage was well developed. Locating grapevines was more difficult at this time than it would have been if the treatment had been applied during the dormant season. The crew used a Woodsman's Pal (fig. 3) or a small ax to cut the vines, and a tally-whacker to count the number of vines cut. Also, they were not aware of the time-cost aspects of this study.

Figure 3.—Cutting a 4-inch grapevine stem.



Results

It took 78 man-hours for a 3-man crew to cut 2,510 vines on 117 acres. These 78 man-hours included 7.5 man-hours for lunch and periodic breaks whenever the men so desired. However, travel to and from the study area was not included in these estimates. About 32 stems were cut per man-hour. Looked at in another way: one man treated 10.5 acres in a 7-hour work day—excluding travel. If we assume a cost of \$35 per man-day, the per-acre cost was about \$3.50—a low price to pay for controlling the potential grapevine damage. The reader may apply his own hourly rates to obtain his dollar cost per acre.

Naturally, we expect cost of this work to vary with a number of factors such as steepness of the area, number of vines cut per acre, difficulty of getting around the stand, and efficiency of the crew members. How-

ever, these results should serve as a base estimate for anyone interested in the cost of cutting grapevines several years before logging central Appalachian hardwoods.

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