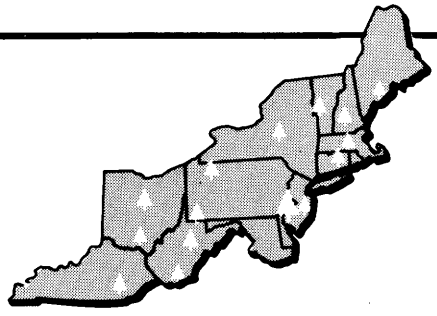
USDA FOREST SERVICE RESEARCH NOTE NE-168

1973

Northeastern Forest Experiment Station



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A STOCKING GUIDE FOR EASTERN WHITE PINE

Abstract. — A stocking chart for eastern white pine is presented and described. The chart shows basal areas and numbers of trees by mean stand diameter, representing the upper limit in stocking for practical management (A curve) and minimum stocking for full site utilization (B curve).

Eastern white pine (*Pinus strobus* L.) is one of the most important timber species in New England—it accounts for about one-fifth of the board-foot volume. Although some studies on thinning have been made, foresters lack a practical guide for thinning white pine. The stocking guide for white pine presented in this paper is similar to those for hardwoods described by Gingrich (*1964*) and Leak, Solomon, and Filip (*1969*). Detailed techniques in developing the white pine guide were given by Philbrook (*1971*).

Description of Guide

The stocking guide (fig. 1) applies to nearly pure even-aged white pine stands. The guide shows an A curve, a B curve, basal area per acre, number of trees per acre, and mean d.b.h. for trees in the main crown canopy. The A curve represents 80 percent of full stocking, based on Frothingham's (*1914*) yield data. Because most natural stands contain openings and, therefore, trees are not as well spaced as in yield study data, the A curve was considered the upper limit in stocking for practical management. The B curve represents minimum stocking for full site utilization. Stands above the A curve are overstocked, stands between the A and B curves are adequately stocked, and stands below the B curve are understocked.

Under most conditions, stands are considered for thinning when stocking is more than halfway between the A and B curves. Stocking after thinning should be near the B curve. If the stand was originally near (or above) the A curve, it would be best to bring the stand down near the B curve in several successive thinnings. After thinning, the stand should consist of well-spaced, good quality trees with crowns large enough for vigorous tree growth.

An Example

Assume that we have a stand containing 110 square feet of basal area per acre and having a mean stand diameter of 8 inches. We plot a point for this stand in figure 2. Because the point is near the B curve, we allow the stand to grow toward the A curve. The stand grows until it reaches 165 square feet of basal area and a mean diameter of 10.0 inches (indicated by the solid line in figure 2). Then we decide to thin, and we

Figure 1.—Stocking guide for nearly pure even-aged white pine stands, showing basal area per acre, number of trees per acre, and mean d.b.h. for trees in the main crown canopy.

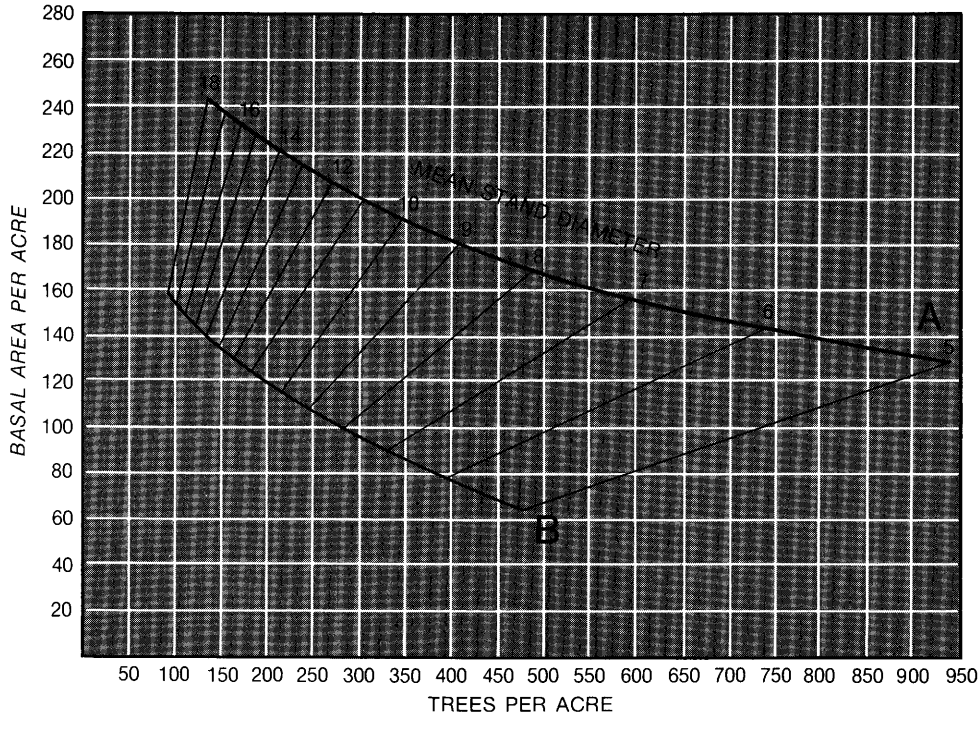
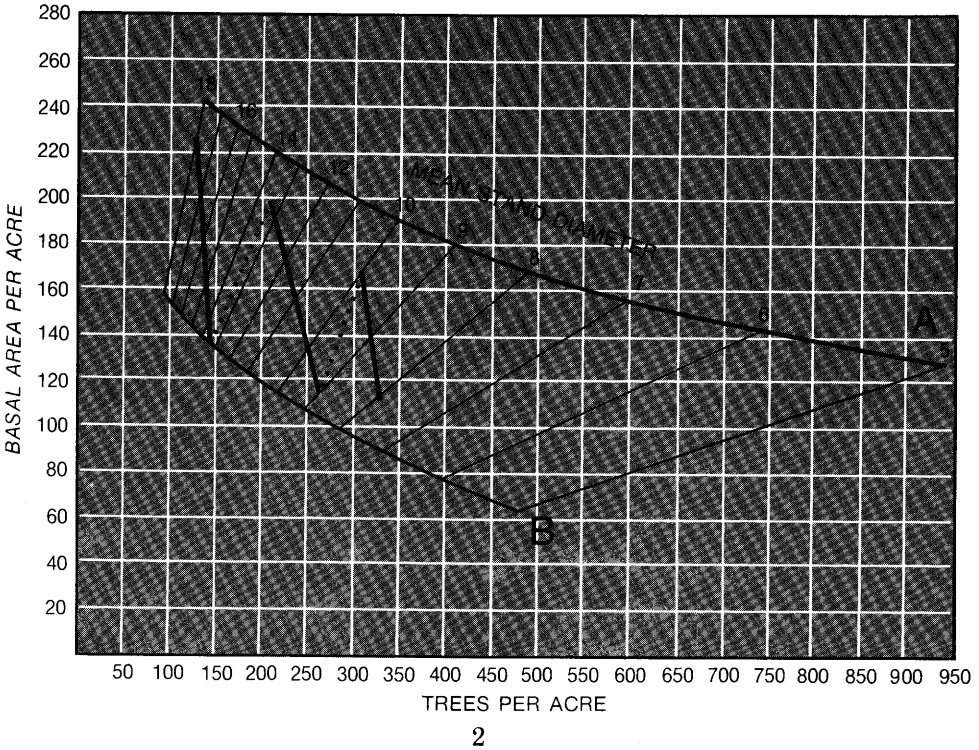


Figure 2.—An example of using the stocking guide in a hypothetical thinning schedule.



cut the stand back to a basal area of 116 square feet and a mean diameter of 9.2 inches (dotted line).

The mean stand diameter was reduced from 10.0 to 9.2 inches presumably because some large, poor quality trees were cut. The stand grows to 200 square feet of basal area per acre and a mean diameter of 13.4 inches (solid line). We thin a second time. After thinning, the stand contains 140 square feet of basal area per acre and has a mean diameter of 13.9 inches (dotted line). Then the stand grows to 222 square feet of basal area per acre and a mean stand diameter of 18.0 inches. At this time, we might consider a harvest cut.

Of course, the example given is hypothetical. A forester would have considerable flexibility in using the guide.

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This paper contains partial results of a cooperative study between the University of New Hampshire (Hatch 149) and the U.S. Forest Service.

☆ U.S. GPO: 1973—711-161/508

MANUSCRIPT SUBMITTED FOR PUBLICATION 28 NOVEMBER 1972