



MEASURING THE VOLUME OF STANDING TREES WITH A SCALE STICK

Updated 9/26/95

Standing trees sold for veneer or sawlogs are valued in terms of board feet, a board foot being a board 1 inch thick, 12 inches wide, and one foot long. One of the basic tools for measuring the board-foot volume of standing trees is a calibrated 25-inch-long scale stick. Other names used for this instrument are Cruiser's or Biltmore sock. With the scale stick, the diameter at a point 4 1/2 feet above stump height and the merchantable height in terms of 16-foot and additional 8-foot logs are measured. With these two measurements, the board-foot volume of the tree may be determined from the various tree volume tables. Most scale sticks have the International 1/4-inch volume tables imprinted on them. Scribner or Doyle volumes may be found in *Handy Tables for Measuring Farm Timber*, Cooperative Extension Service publication AG-119. The volumes will differ because of differences in the way they were formulated. Using the International 1/4-inch rule as the basis for the volume, the Doyle scale will be less up to 28 inches and Scribner will be intermediate.

Measuring Diameters

Tree diameter is the most important measurement of standing trees. The point of measurement is 4 1/2 feet above ground level or stump height, a point referred to as "diameter breast height" or "DBH." Diameters are usually measured to the

nearest inch, but where large numbers of trees are to be scaled, 2-inch diameter classes are used.

Stand squarely in front of the tree and hold the scale stick 25 inches from the eye in a horizontal position against the tree. Shift the stick right or left until the zero end of the stick coincides with the left edge of the tree trunk. Without moving your head, read the diameter figure that coincides with the right edge of the tree trunk - DBH is an outside measure (Figure 1). On sloping ground, measure from the upper side. Two measurements at right angles to each other will give a more accurate reading since many trees are not perfect cylinders.

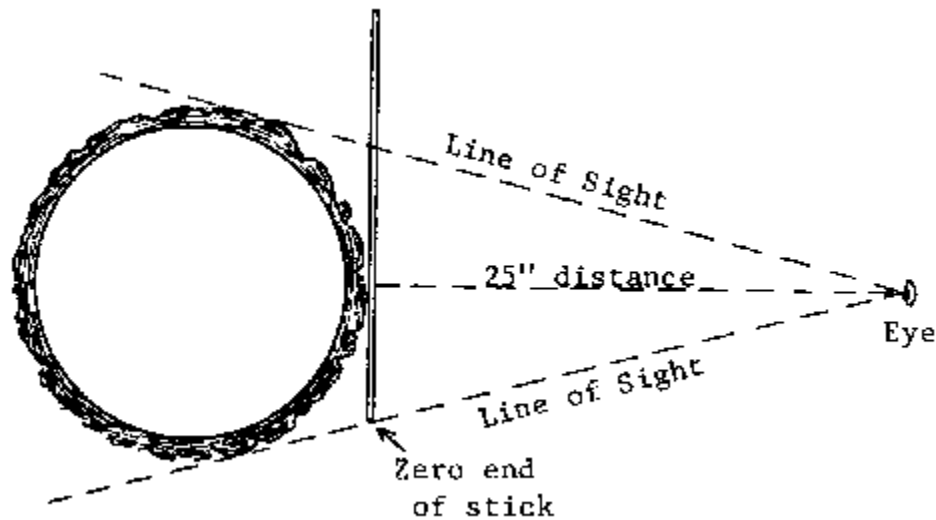


Figure 1. Diameter measurement.

Merchantable Height Measurement

Merchantable height refers to the length of usable tree and is measured from stump height to the cutoff point in the top. The cutoff height will vary with locality, with product being produced, and with excessive limbs. The scale stick has been calibrated so that if you stand 66 feet away from the tree being measured and hold the stick upright, the number of merchantable logs from the stick margin can be read. It is important not to move the stick when taking a measurement,

therefore, tilt your head back slightly so that it does not have to move when reading from stump point to cutoff height (Figure 2).

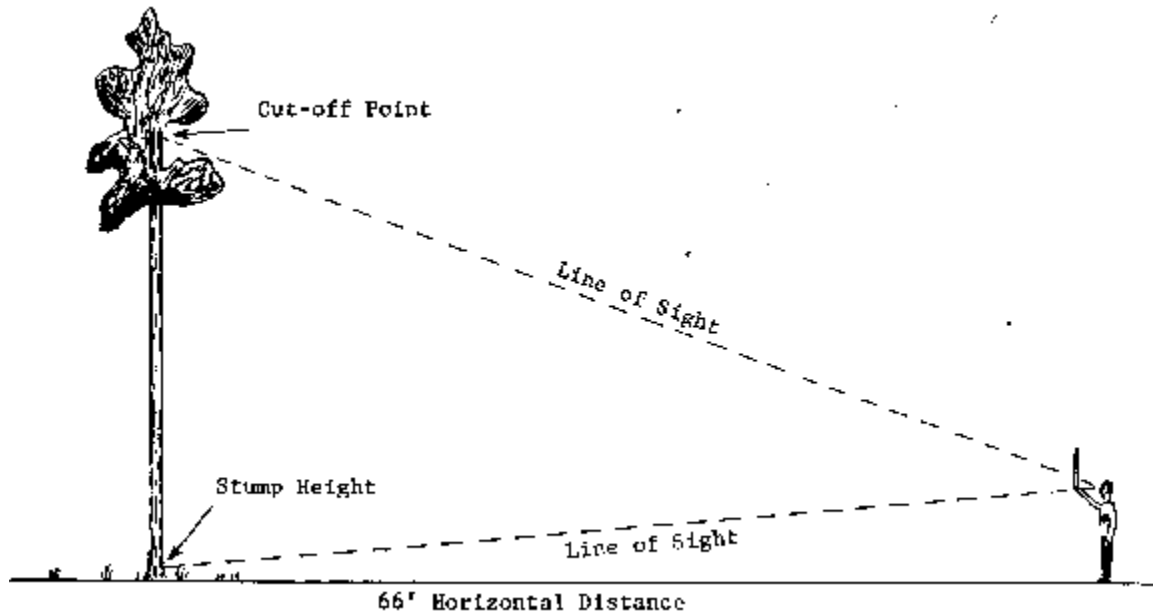


Figure 2. Height measurement.

It is essential for accuracy in measuring diameter and height that the stick be held 25 inches away from your eye and that the distance away from the tree in height measurement be 66 feet. Scale sticks may be purchased from the N. C. Division of Forest Resources, P. O. Box 27687, Raleigh, NC 27611; (919) 733-2162.

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