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ED

Relationship Of Stump Diameter to D.b.h.

For Yellow-Poplar In The Northeast

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This is the sixth report on a series of studies to show the relationship of stump diameter to diameter breast high (d.b.h.) for commercially important tree species in the Northeast.* This report is for yellow-poplar (Liriodendron tulipifera).

In this study 939 stump-diameter measurements were used, ranging from 4 inches to 46 inches. Both stump diameter and d.b.h. were measured to the nearest 1/10-inch with a diameter tape. To obtain diameter inside bark, bark thickness was measured with a Swedish bark gage. Stump heights were measured on the uphill side to the nearest 1/10-foot.

It was found that 81 percent of the stumps left on logging operations were between 0.6 and 1.8 feet high; 8 percent were higher than 1.8 feet; and 11 percent were lower than 0.6 foot.

In the computations, inside-bark stump diameters were used to avoid inaccuracies due to unequal bark thickness, logging damage to bark, and bark peeling off. Stump diameters were sorted into 2-inch classes. Stump-height measurements were sorted into 0.6-foot classes within each stump-diameter class.

To develop an equation expressing the stump diameter--d.b.h. relationship for yellow-poplar, the method described by Deming** was used. The following equation was obtained:

$$\text{D.b.h.} = 0.896 (\text{stump d.i.b.}) + 1.406 (\text{stump height}) - 0.575$$

The relationships developed from this equation were worked out as a graph (fig. 1).