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An Alternative Procedure for Improving Height/Age Data From Stem Analysis

Comment by J. David Lenhart¹ on a paper by Willard H. Carmean, "Site Index Curves for Upland Oaks in the Coastal States."

In a recent article by Carmean (Forest Sci. 18:109-120), the author adjusted his stem analysis data so that the tree height at each bolt section point more closely approximated the actual tree height for the tree age at that point. His adjustment procedure can be expressed as:

$$\text{Adjusted tree height} = \text{unadjusted tree height} + (\text{bolt length}/\text{age difference})/2$$

The assumption is that, on the average, the annual height growth is equal for each year

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lying within the bolt. An additional assumption is that the stem analysis section point will occur in the middle of the annual leader

An alternative approach for improving stem analysis height/age data can be stated as:

$$\text{Adjusted tree height} = \text{unadjusted tree height} + (\text{bolt length}/(\text{age difference} + 1))$$

In this latter procedure, the assumption is that, on the average, the terminal buds located within the bolt are equally spaced through the bolt.

By following one of the two procedures described above, the resulting stem analysis sample set should in all probability be more representative of the true (yet unknown) tree height values.