



## **Biomass and sapwood of green ash (*Fraxinus pennsylvanica*) in the Twin Cities Metro Area**

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A primary objective of this study was to compare field measurements to quantities predicted by established models, or model validation. A secondary objective was to examine the sapwood content, with an end to more accurate application of chemical dosages in treatments for emerald ash borer (EAB, *Agrilus planipennis*). A stem dimensional analysis, described by Woodell and Whitaker (1968), was conducted for 40 trees across a range of size classes, grown in the Twin Cities Metro Area of Minnesota. Characteristics of biomass and sapwood volume are presented. The biomass model developed by Hahn (1984) demonstrated a good fit with field data, and can be modified to accurately predict biomass content of an urban-grown green ash trees in the Twin Cities Metro Area. The model developed by Jenkins et al. (2003) was less precise compared to that of Hahn, when analyzing the field data. Sapwood was shown to have strong correlations with crown surface area and a combined height  $\times$  diameter variable. A model is presented here which predicts aboveground sapwood volume with a residual standard error 8.457 cubic feet. As trees play an increasing role in the sustainable design of urban areas, it would be advantageous to know as much about their characteristics as possible. Urban woody biomass is increasingly employed as an energy source, therefore biomass estimators are needed to accurately describe this resource. With this study, measurements were used to successfully modify published models for use in urban settings.

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