

FUELWOOD PRODUCTION OF MIXED-OAKS

ON WELL-DRAINED SITES IN

SOUTHERN RHODE ISLAND

BY

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ABSTRACT

Fuelwood biomass production was determined for three coppice origin, mixed-oak stands growing on well-drained sites in West Greenwich, Rhode Island.

Ninety trees were selected for destructive sampling by stratified random sampling by diameter class. Tree size ranged from 6.60 to 29.21 cm dbh. Trees were felled, sectioned, and separated into stemwood, branchwood, and deadwood components for weighing.

Total green weight was obtained for each component. Subsamples of each component were then obtained to determine oven-dry weight and percent moisture content. Subsamples were also taken for specific gravity determinations on a green volume, oven-dry weight basis.

Data pooled from the three study areas indicated average cordwood yields of 49.1 cords per hectare (19.9 cords per acre) at 45 years and a mean annual increment of 1.11 cords per hectare (.45 cords per acre). Comparisons with other studies indicated that these sites produce less than average yields for similar sites in the eastern hardwood forest.

Regression analyses developed equations for predicting individual tree oven-dry and green weights. Models for predicting diameter class weights and stand weights were also developed. Both linear and allometric equa-

tions are presented because of the inherent advantages and disadvantages in the use of each.

Basal area multiplied by height proved to be the best estimator of weights in both the transformed and untransformed models. Basal area and dbh also proved to be good estimators of weight.

An attempt was made to relate soil properties with study site yields, but no relationships were found. An attempt was also made to relate radial growth of coppice root crowns to past and present stem vigor, but the attempt was unsuccessful.