

Abstract

The objective of this study was to determine what climate variables most strongly influence radial growth of white ash (*Fraxinus americana* L.) at the Lakeside Laboratory site in Iowa, near the northwest corner of the species range and to evaluate white ash and northern red oak (*Quercus rubra* L.) as a functional group for climate modeling. Tree ring measurements were taken for 28 cores representing 14 trees sampled at the site. Measurements were correlated with monthly and seasonal values for climate variables including temperature, precipitation, and drought index. There was no indication that early wood formation was influenced by these climate variables. Latewood formation was significantly negatively correlated with spring temperatures and was positively correlated with precipitation in the previous winter and the current summer and Palmer drought index for the previous winter through the current summer. These correlations coefficients were compared with results from a previous study of growth-climate correlations for northern red oak at a site 24 kilometers east of Lakeside Laboratory. White ash radial growth was more sensitive to spring temperatures while red oak was more sensitive to summer temperature. White ash and red oak showed similar growth-climate responses to precipitation and Palmer drought severity index. These results will be interpreted in the context of white ash growth at the extent of its distribution.

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