

Public Abstract

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Title: Biomass Production of Five Populus Clones, Soil Carbon and Soil Water Content in a Central Missouri Floodplain

Five poplar clones grown for five years in two closely-spaced plantings were tested for growth rate and soil carbon changes in the central Missouri floodplain under climatic conditions of the Midwest. Destructive harvesting was employed in the successful development of statistical models used in predicting root, shoot, and total dry weights. Major groupings in clonal production were identified with the two most local eastern cottonwood clones having the greatest production as a result of superior efficiency in converting light energy into biomass. Hybrid clones produced more poorly than did local cottonwood clones. Soil carbon losses were identified over the growth period, although there were net gains in total carbon sequestered if poplar biomass was included. Evidence of excessive soil moisture inhibiting growth in a hybrid clone was also identified.