

# THE ECONOMIC FEASIBILITY OF AN INTEGRATED WOODY BIOMASS HARVEST IN THE MISSOURI OZARK HIGHLANDS

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## ABSTRACT

Questions have risen in recent years regarding the impacts of biomass harvesting for renewable energy production on the cost and efficiency of biomass harvesting using different harvest equipment configurations. Missouri has a set of Best Management Practices (BMPs) to guide woody biomass harvesting. This study will address the different results (mainly cost and production data) that come with incorporating various harvest intensities and how costs and revenues can vary when implementing these different management practices. Treatments were: 1) clearcut to establish a new cohort of trees and 2) intermediate thin in an attempt to improve residual stand quality, in which both small diameter trees and merchantable sawlogs were removed. Both treatments used a mechanized, integrated harvest approach. Each treatment had 3 sub-treatments (clearcut had 4 sub-treatments) that called for leaving varying levels and types of residues on the ground to maintain soil nutrient pools. Trees were merchandized for the highest value possible, with biomass chips produced from limbs and tops or stems that were otherwise unmerchantable. A system feasibility analysis was implemented to determine productivity, costs, and prices needed for economic feasibility. An average of 49.4 tons of SHWP and 10.9 tons of fuel chips were removed per acre at an average cost per ton of \$27.70 and \$48.62 in the clearcut treatments, respectively. An average of 19.1 tons of SHWP and 3.7 tons of fuel chips were removed per acre at an average cost per ton of \$32.87 and \$64.84 in the intermediate thinning treatments, respectively.