

# **LOGISTIC MODELING OF A BIOMASS UTILIZATION SYSTEM**

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## **ABSTRACT**

A logistic model was developed for a biomass utilization system and implemented in ExtendSim. The model allows for system simulation and analysis of biomass supply chain in terms of economic viability and energy balance. The supply chain network was divided into three main subsystems including crop production, biomass handling and logistics, and biomass processing. After validation, the model was used to simulate different conditions and practices so that favorable system configurations and realistic limitations could be determined to maximize net energy output and economic viability. The model was based on the operation of Show Me Energy Coop, a local biomass pelletization plant near Centerview, MO. The simulation results indicated potential benefits from increased truck capacity for transportation, expanded plant capacity, and improved process throughput. The study also suggested that corn stover, a biomass material the plant uses, provides better performance than other biomass materials such as switchgrass and miscanthus.