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Multi Scenario Pellet Fuel Manufacturing Operation Utilizing Cotton Waste

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Prior work demonstrated the economic feasibility of gin waste-based pellet fuel manufacturing. The goal of this project was to expand the economic analysis model to include a multi-scenario manufacturing approach to analyze the economics of the expanded scenarios. The objectives required a complete and comprehensive analysis of three different machine configurations for manufacturing of pellet fuel from cotton byproducts. The results concluded, within the parameters of the analysis, that a scenario which excluded the use of extruders in the manufacturing process was the most economically feasible for producing pellet fuels from cotton byproducts. At the pre-set production limitation of 9,072 Mg per year, the Net Present Worth (NPW) was 30.25% with a 2.35 year payback period. If the annual production was increased to 13,608 Mg per year, the project pay back period was reduced to 1.09 years with and NPW of 79.74%.