

# Improving Alfalfa-Based Livestock Forage Production Systems Using Life Cycle Analysis

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The environmental impacts of food production are becoming a much larger consideration of consumer's opinions on food and farming. Food manufacturers and retailers have begun to make changes to their supply chains to address some of these concerns. As alfalfa is one of a number of crops used in the dairy industry, it is critical that its environmental impacts are analyzed. This project analyzes the greenhouse gas, land, and water impacts for alfalfa production using a variety of cropping, livestock, soils, and economic data to model agricultural alfalfa production in the Midwest. It also uses soil and economic modeling to examine the broader considerations in using alfalfa and crop rotations with alfalfa in dairy production. Preliminary life cycle analysis (LCA) results will be presented as well as the limitations of LCA in assessing biodiversity and soil health issues.