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MAJOR: Chemical Engineering

TYSON FOODS INC. - HILLSHIRE BRANDS



STORM LAKE

COMPANY PROFILE:

Tyson Foods, Inc. - Hillshire Brands is one of the largest food companies in the world, specializing in protein production through meat processing and prepared foods. Tyson was founded in 1935 in Springdale, Arkansas by John W. Tyson. The company started out with a focus on raising chickens and grinding feed for farmers and since has grown to be a multinational company with operations located in 16 different countries, employing approximately 142,000 members. Tyson produces approximately 20 percent of the chicken, beef, and pork in the United States and is a leading protein producer for restaurants, schools, military bases, hospitals, care facilities, and all major distribution retail channels.



PROJECT BACKGROUND

The focus of the P2 intern project was to reduce solid waste generation through source reduction, improved recycling, and other landfill diversion efforts. Implementing strategies to reduce waste generation and reduce landfill disposal is important both economically and environmentally. At Tyson's turkey operation in Storm Lake,

waste is generated throughout the plant and feed mill from production activities, packaging operations, and sanitation processes. The purpose of this project was to support the company to reach its goal of zero landfill status.

INCENTIVES TO CHANGE

Waste generation and landfill disposal is an ongoing concern worldwide as population grows and material consumption increases every year. Lowering the amount of waste both generated and landfilled is a first step in achieving environmental sustainability. Tyson is working towards building a sustainable and resilient food system that will be able to sustain the planet and feed future generations. To reach these goals, the company is working toward attaining zero landfill status by reducing solid waste generation and increasing landfill diversion.

RESULTS

Pallet Waste Collection: Pallets are used to transport material throughout the plant and are one of the primary waste streams generated at Tyson's Storm Lake turkey operations. Pallets that have broken down beyond the point of use are loaded onto a trailer and returned to the pallet vendor to

be rebuilt. Even though most pallets are reused or recycled, this project identified sources of pallet waste that were not being recycled. One source of pallet waste was pallets that were not provided by the pallet vendor but arrived on site from shipments of inventory and other supplies. Another source of pallet waste was broken pallet boards and pieces that could not be transported by forklift. By developing new collection processes to transport these pallet waste streams to the vendor truck, an additional 26.1 tons of wood waste will be diverted from the landfill each year. These new collection processes have been implemented. Ongoing observations and education will continue to ensure long-term success.

Cardboard Recycling Program Enhancement: Tyson has a cardboard recycling program. Even so, some cardboard was consistently being placed in one of the plant's roll-off containers for waste. Through further investigation, it was





discovered that cardboard was being disposed by some plant personnel that were new and were not fully aware of the recycling process that had been established for their area. The intern provided education by meeting with department employees and creating signage to better direct employees to where the cardboard should be taken for recycling collection. This recommendation has been implemented and will continue with on-going monitoring and education.

Feed Waste Management: The feed mill generates quantities of organic feed waste that is collected in a trailer located outside the mill. Once the trailer is full, the waste is

transported to the local landfill. A higher tipping rate is assessed by the landfill for their feed waste. Land application was investigated as a possible alternative to landfilling. To determine the feasibility of land applying this variable feed composition material, a lab analysis was conducted on a sample. Additional verification steps will be taken pending the results of this analysis. If the feed waste proves viable to land apply, 194 tons of waste could annually be diverted from the landfill.

Hand Dryer Installation: Paper towels are one of the primary waste streams generated by the plant. Sanitation is highly important in a food production environment. Employees must wash their hands anytime they enter and exit the production floor as well as numerous other times throughout their shifts. Because of this safety procedure, sizeable quantities of paper towel waste are generated. As an alternative to paper towels, the intern identified a hand dryer that is certified for use in food production environments. These hand dryers could be installed in all wash stations throughout the plant, as well as in all non-production areas, to effectively eliminate paper towel use. The intern recommended that a pilot program be implemented by installing dryers in a few strategic locations. After evaluating the durability and effectiveness of the dryers, an informed decision regarding full scale implementation could be made. The proposal is awaiting corporate-level approval.

Expanded Recycling Program: The current recycling program at Tyson captures cardboard, paper, and plastic barrels. Beyond this, other regularly generated waste streams were identified to potentially expand the recycling program. The intern investigated vendors that have the capability of recycling plastic liners, poly super sacks, and Kraft paper ingredient sacks. A plan for capturing these materials has been presented to management for approval.

ENVIRONMENTAL AND ECONOMIC SAVINGS TABLE

PROJECT	ANNUAL COST SAVINGS	ANNUAL ENVIRONMENTAL RESULTS	STATUS
PALLET WASTE COLLECTION	\$5,348	26.1 tons of wood	IMPLEMENTED
CARDBOARD RECYCLING PROGRAM ENHANCEMENT	\$1,562	6.7 tons of cardboard	IN PROGRESS
FEED WASTE MANAGEMENT	-	194 tons of feed	RECOMMENDED
HAND DRYER INSTALLATION	\$67,759	13.36 tons of paper towels	RECOMMENDED
EXPANDED RECYCLING PROGRAM	-	67.5 tons of mixed recyclables	RECOMMENDED