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Collecting the Drops:

A Water
Sustainability
Planner

Case Example

ConAgra Foods: Improving Process Wastewater Operations at a Lamb Weston Plant in Canada

Anaerobic digestion helped the Lamb Weston potato processing plant in Taber, Alberta, Canada to increase wastewater treatment system capacity and plant production while reducing both electrical energy use and organic loading of process wastewater. Moreover, it allowed production of methane gas as a low-cost, environmentally sound energy source.

The Lamb Weston plant produces french fried potato products for the food service market. The plant's wastewater treatment system consisted of primary screening and clarification followed by two large aerated treatment/storage lagoons, with aeration provided by seven 250 hp positive displacement blowers. The plant's wastewater is then applied to over 3000 acres of agricultural lands as irrigation water. Plant effluent must be stored through the winter and only land applied during the cropping season.

Construction was phased from August 2003 through October 2004. Biological ramp-up occurred from September 2004 through January 2005, when biogas was first utilized in the plant boilers. Total capital cost of the system was \$5.3 million (USD), of which one-third was provided by an Alberta Provincial program. The reduction in water use, landfill waste, and electrical energy use yielded a cost savings estimated at \$818,400.

The addition of the anaerobic digester resulted in a number of advantages, summarized in the table at right.

Benefit	Realized Through
Reduced electrical usage with a savings of \$510,400 (USD)	Operating the aerobic system with approximately one-half the energy previously required
Production of biogas with a savings of \$308,000	Utilization of the gas in the plant boilers to reduce natural gas usage by approximately 10 to 15 percent
BOD reduction	Allowing the aerobic system to operate as designed at all times, even during spring warm-up period
Plant expansion	Increased capacity of the wastewater treatment system helped with the approval of an addition processing line
Increased production	Allowing the plant to increase the number of operating days per year, adding as much as 22 million pounds of finished product