Zero Waste Strategies & Innovations for Sustainability

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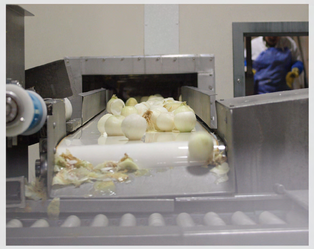
What is Zero Waste?

Zero Waste is a strategy that aims to minimize the amount of resources and materials consumed in an effort to conserve water and energy, and ultimately to mitigate climate change.

Case Study: Gills Onions

In 2009, Gills Onions, the largest fresh onion processor in the United States, set a goal of achieving zero waste at its processing facilities. The company processes over 200 million pounds of onions every year, generating onion and material waste and consuming vast amounts of energy and water.

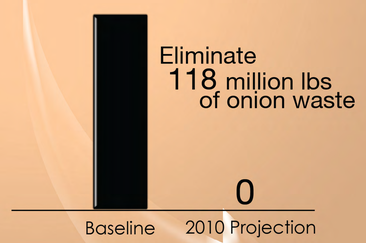


Zero Waste Methodology

1. Establish baseline for major resource categories.
2. Analyze resources consumed.
3. Recommend strategies to reduce, reuse, and recycle based on enviromental impacts, economic implications, and practical limitations.

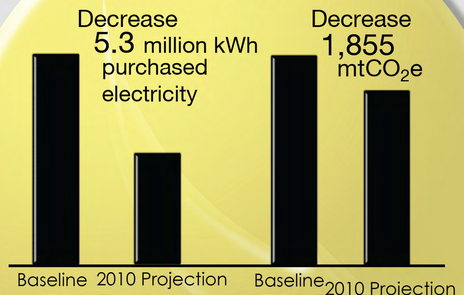
2010 Projected Waste Reduction and Savings

Onion Waste



99% Reduction
Total Waste

Energy

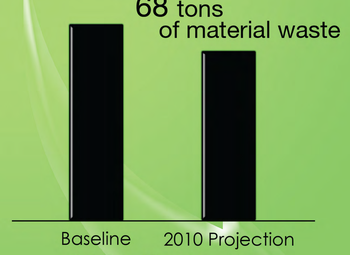


47% Reduction
Purchased Electricity

17% Reduction
GHG Emissions

Zero Waste

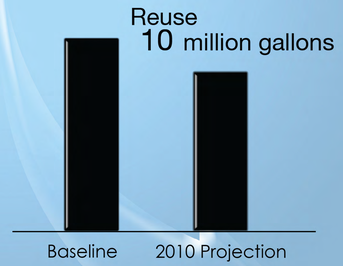
Materials



12% Reduction
Material Waste

25% to 39%
Increased Recycling Rate

Water



11% Reduction
Water Use

Solutions

- Convert onion waste to biogas and cattle feed.
- Produce electricity onsite with biodigester and fuel cells.
- Reuse water from wastewater treatment plant.
- Reduce, Reuse, Recycle.

Key Findings

A zero waste initiative is not only good for the environment, it is also a good business strategy.

	Cost Savings	Payback Period
Onions	$507,000	0
Energy	$537,000	6-7 years
Water	$215,000	3-4 years
Materials	$211,000	1-2 years
Total	$1,470,000★	

★ Annual savings after payback periods.

Recommendations

- Separate onion waste from plastic bags within the processing plant to prevent contamination.
- Implement Key Performance Indicators to quantify, track, and reduce energy and water consumption.
- Conduct a comprehensive energy audit.
- Reuse wastewater from onsite water treatment plant for biodigester, cooling tower, and irrigation.
- Replace single-use blue bags used internally with reusable containers.
- Use baler to increase diversion rate and marketability of recyclables: chipboard, plastics.
- Install energy efficient hand dryers to eliminate paper towels.
- Replace single-use cardboard containers with reusable bins together with a reverse logistics system.
- Evaluate waste heat from air compressor and fuel cells.
- Establish ongoing employee training to communicate sustainability goals.
- Eliminate illegal dumping of waste by enclosing and securing dumpster area.