



Summer Internship Program Case Study: June-August 2023

Company Profile:



Daily's Premium Meats has a vision to "be recognized as the industry's premier national supplier of consistent, high quality, value-added and innovative pork products using [their] historical expertise." The Daily's brand has evolved from a local retail meat market born in Missoula, MT in 1893. Daily's began focusing on processed pork products, especially bacon, in the 1980s, building a reputation as "The Bacon Specialists." The company expanded into a second bacon plant in Salt Lake

City in 1992. Seaboard Foods purchased the Daily's brand in 2005, and later opened a third plant. This case study was conducted in the Missoula plant, which has approximately 130 employees. The Missoula facility receives raw pork bellies from Seaboard Foods' network, which it processes into bacon predominantly for retail sale in the Northwest region of the U.S.

Challenges and Opportunities:

The Montana Pollution Prevention Program (MTP2) is a partnership among Montana State University, the Montana Manufacturing Extension Center, and the US Environmental Protection Agency. It encourages businesses to use pollution prevention strategies to increase productivity while preserving natural resources. For this project, the intern sought to pinpoint waste and constraints within the Value Stream Map and identify solutions to reduce the natural footprint of the business while also increasing cash flow. Specific opportunity areas included:

- Wasted cure in the injection/pumping process;
- Electrical waste through the generation of EMF and start-up/shut-down demand; and
- Reliance on fossil fuel sourced electricity.

Solutions:

The intern conducted an analysis of the process and associated costs, which identified the following recommendations:

- Maintain a cure waste flow of less than 14 lbs of phosphate per day
- Install power conditioners to filter waste electricity
- Invest in a solar system to reduce fossil fuel usage

Daily's has implemented a cure-recycle system to capture and re-use wasted cure through a simple gravity driven tube. This solution provides a waste-cure flow of approximately 1.5 lbs of phosphate per day, down from 20.85 lbs P/day, much below the desired 14 lbs P/day. This system has cutting the sewage bill by approximately 60%, and will save an estimated \$61,000 per year.



Cure recycle system captures wasted cure for re-use.

Based on the cost-benefit analysis, Daily's is also exploring investment in power conditioners and solar provided through Satic Solar (see table below).

Recommended P2 Actions	If Implemented:						If Not Implemented:	
	\$		Annual Reductions				Barrier to Implement	Plans to Implement within 5 years?
	One Time Cost (\$)	Annual Savings from P2 Action	Air emissions (lbs)	Water Pollution (lb)	MTCO ₂ e emissions (tons)	Water use (gal)		
Cure Recycle	\$3,226	\$60,227	n/a	7,081	n/a	70,718	Data	Already done
Power Conditioners	\$34,520	\$16,383	102,363	n/a	46	n/a	Cost	Likely
Solar	\$200,000	\$83,130	751,233	n/a	340	n/a	Cost	Likely
TOTAL	\$237,746	\$159,740	853,596	7,081	386	70,718		

Additional solutions recommended as possible future actions include:

- Inclusion of adsorbent for wastewater treatment of phosphates and organics, assuming a large rise in production. The preferred choice would be a biochar-based iron-oxide adsorbent, which may be used as fertilizer after use. An alternative would be an ion-exchange technology, like DuPont™ AmberLite™ HPR9200 Cl
- Installation of a biodigester to turn bacon waste into value-added compost for sale (~\$24,000/year, assuming \$7/20 lb compost) or pelletized fuel for in-house offset natural gas costs. The use of bacon waste (~15 kW) as fuel would also require purchase of a hybrid-biomass furnace.



About the Intern

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