PROVISION COALITION

MAKING FOOD SUSTAINABLY

Food Loss + Waste Reduction & Toolkit Application

Case Study Series

HANS DAIRY

By participating in Provision Coalition's Onsite Sustainability Management System (SMS) Support Program, Hans Dairy realized the opportunity to save resources and costs by reducing food loss + waste in their operations. Like many companies, their internal staff was at capacity with running the business, so they recognized the need to seek outside opinions to find expert solutions.

That's why Hans Dairy partnered with Provision Coalition and Enviro-Stewards to conduct a food loss + waste assessment in their facility using Provision's online Food Loss + Waste (FLW) Toolkit.

The FLW Toolkit[1], part of Provision's online Sustainability Management System, is the only online resource available at no cost to food and beverage manufacturers. The toolkit assists in quantifying food waste, calculating its economic, social, and environmental value, and conducting a root cause analysis to develop cost effective FLW reduction strategies. The assessment and application of the toolkit found two opportunities for food loss + waste reduction at Hans Dairy.

KEY FINDINGS

- A potential reduction of 67,500L of raw milk food savings annually
- $71,719 in potential resource savings annually, which includes the embedded environmental reductions
- Potential annual environmental and social savings of 820 kWh of electricity, 65 m^3 of natural gas, 50 tonnes of CO_2e GHG emissions[2], 75 m^3 of water and 5,166 meals[3]

[1] This Toolkit was developed by Enviro-Stewards and 2cg.

[2] CO_2e includes emissions from raw materials, production and disposal. Assumptions were made when calculating the emissions from raw materials.

[3] Calculated based on assumption of 750 calories per meal

About Hans Dairy

Hans Dairy was founded in 1997 and specializes in South Asian dairy products. Hans' facility is located in Mississauga and produces authentic Indian products including Dahi (yogurt), Lassi (a yogurt drink), Kheer (rice pudding), and Makhan (whipped butter).

In addition to these product lines, the small enterprise also produces bagged milk and fruit flavoured smoothies. All products are manufactured from milk, which is delivered to the facility.

Food & beverage manufacturers can apply the step-by-step process followed for the FLW assessment at no cost using the FLW Toolkit.

The Food Loss + Waste Assessment Process

Following the methods used in the FLW Toolkit, the food waste assessment began with an evaluation of the entire processing facility from milk receiving to final product packaging. The quantity and value of food waste was then determined for each of the production processes followed by a "5 Why" approach to identify root causes of each waste. Possible solutions for each food waste stream were considered, and an implementation plan was developed for selected measures. The business case for each solution was then presented to Hans Dairy.

Food Loss + Waste Assessment & Conservation Opportunities

The utilization of Provision's FLW Toolkit while completing the food waste prevention assessment identified 90,000 L of raw milk annually, which is currently being discharged to sanitary sewers or classified as degraded value. Implementing the recommended opportunities would result in the prevention of 67,500 L of raw milk wasted annually. In addition to saving the raw ingredient costs, addressing these issues would reduce the amount of BOD sewage charge fees, improve product quality control, health & safety and reduce embedded natural gas, electrical and water costs.

The FLW Toolkit measures the true cost of food loss + waste as well as associated greenhouse gas (GHG) emissions, electricity, natural gas, water, and meals wasted.

TRANSFER LINE RECOVERY

In order to clean the piping systems and maintain quality, some of the pasteurized milk used to create yogurts, smoothies, and puddings is currently being pushed to the drain with water. Capturing the line transfer flushes and sending them to a holding tank to use as a smoothie ingredient would result in annual milk savings of 56,250 L, totaling $59,766, with a payback of 3.5 months. This would also result in a savings of 820 kWh of electricity, 33 tonnes of CO_2e of GHG, 74 m^3 of water, 65 m^3 of natural gas and 3,370 meals.

Food Loss + Waste is a Global Issue

In 2015, the UN Sustainable Development Goals set an ambitious global food waste reduction target. Goal 12, to "ensure sustainable consumption and production patterns" includes as one of its objectives to "halve per capita global food waste at the retail and consumer level, and reduce food losses along production and supply chains by 2030."

Environmental & Social Resource Conservation Opportunities

- Electricity saved from switching 20.4 incandescent lamps to LEDs
- Emissions from two passenger vehicles driving across Canada
- Water to fill 469 bathtubs
- 5,166 wasted meals[1]

[1]Based on 750 calories per meal

Source: Provision Coalition

TRUCK UNLOADING RECOVERY

Raw milk is piped from delivery trucks into raw milk silos. After the transfer is complete, any product remaining in the transfer line is drained to the floor. Recovering raw milk from the transfer line through draining it directly into the raw milk silo or into a separate tote and then adding it to the raw silo storage would result in an annual savings of 11,250 L of raw milk, representing 1,796 meals. The savings are valued at $11,953 with a payback of 2.5 years. The GHG savings are 17 tonnes of CO_2e from raw materials, and all others are null because the raw milk has not yet been processed.

"We didn't know what we were getting into until we got into it. We learned how to recoup what goes down the drain, and the recommendations put forward from the initiative were beneficial for reducing contamination and loss. The process of the assessment asked questions you never would ask yourself, because you're too busy working. The right questions helped narrow it down, focus our vision and explain it to the rest of the family."

KATEN KOHLI / MANUFACTURING ENGINEERING

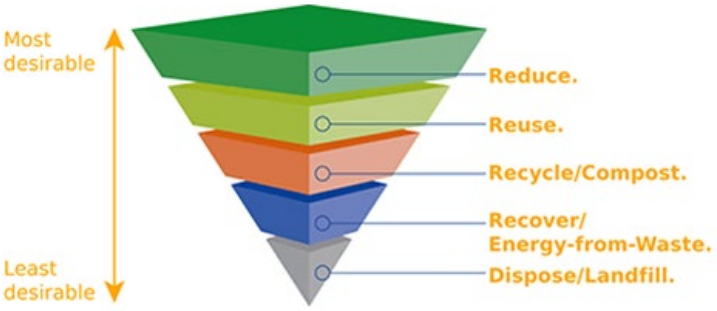

Fig. 1.1 Reduction in food waste at its source will result in the lowest amount of required disposal and associated costs. Source: PIWHA

Value Chain: Recognizing the Full Value of Food Waste

The assumed cost of food waste is often only associated with the removal and destruction of waste, and therefore the true cost of waste is greatly underestimated. Retail grade products inherently have the highest possible value as the greatest amount of investment has been added to them in the form of ingredients, cost of labour, cost of utilities, cost of packaging, marketing, and distribution. Therefore, food waste must be calculated as the cost of disposal plus the total value that was added to a product before disposal (refer to Figure 1.1).

Since redirecting waste to higher valued diversions does not capture much of the lost revenue of the ingredients and processing invested in the product, real change and savings are only achieved when waste is identified and reduced altogether.

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Provision Coalition is Canada's premier food and beverage manufacturer sustainability organization. At Provision, the latest sustainability advances, resources and solutions are shared with food and beverage businesses across the country. With the organization's 16 provincial and national agri-food association members, Provision has committed to reducing the food and beverage manufacturing sector's environmental footprint, improving employment culture and strengthening business competitiveness. To learn more visit **www.provisioncoalition.com.**

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Check out other case studies in our FLW series including Campbell Company of Canada, where $706,000 in savings opportunities were identified, Byblos Bakery, where $207,000 in resource savings were identified and Calgary Italian Bakery, Ltd, with $194,000 of identified opportunities.

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