

NYSP21 Works with Wegmans Food Markets, Inc. and LiDestri Food & Drink to Conduct an Upcycling Feasibility Study



Challenge

Wegmans and LiDestri wanted to evaluate the viability of collecting excess products and co-streams and turning them into new end-products.

Solution

NYSP21 collaborated with a sustainable agribusiness consultant to assist Wegmans and LiDestri with a feasibility study.

The work performed included quantifying the available fruit shrink at the store level, processing waste from juice manufacturing, evaluating on-site standard operating procedures for handling, and storage and analyzing shipping logistics.

An evaluation of several different drying facilities and a marketing assessment was performed to evaluate consumer trends and market opportunities.

Results

NYSP21 concluded that it is logistically feasible for both companies to create new end-products via dehydration from their respective excess procedure and manufacturing co-streams.

Not every drying technology evaluated (tray drying, conveyance drying, etc.) is suitable for all products. Several factors play a role in the decision including sugar content, material integrity, and volume.

Both the nutritional testing and market assessment were fruitful for understanding the end-product market potential for both Wegmans and LiDestri.

Wegmans and LiDestri

Two companies located in the Rochester, New York area, Wegmans Food Markets, Inc. (Wegmans) and LiDestri Food & Drink (LiDestri) collaborated to assess the opportunity to upcycle some of their respective food waste streams into new end-products via industrial dehydration.



Wegmans is a family-owned major regional supermarket chain, which was founded in 1916 by the Wegman family. Wegmans is currently one of the largest private companies in the United States (2013 annual sales of \$7 billion), operates 92 store locations and employs over 45,000 people. A single Wegmans supermarket can offer up to 70,000 products. With such variety, managing demand and ultimately excess food is a constant challenge.



Founded in 1975, LiDestri is a privately owned, Fairport, New York based contract food and drink manufacturer that strives to be innovative and customer-focused. The company has two locations in the Rochester area, which employs nearly 700 employees. LiDestri has continually improved to offer state-of-the-art processing, including high pressure processing (HPP), cold fill aseptic and hot fill, with a focus on customer service.

Challenge

Food waste is generated both in-store, in the form of expired or excess product, as well as upstream during the production of Wegmans brand food products (e.g. orange peels from orange juice manufacturing). In the store setting, produce is one of the more challenging foods to manage because of its relatively short shelf life, high aesthetic standards, and susceptibility to spoilage. Excess grapes, raspberries and strawberries are currently three products with considerable shrink in Wegmans stores. Upstream from the store, large volumes of lemon and orange rinds (co-streams) are produced through the making of Wegmans brand orange juice and other products at LiDestri.

Both companies were interested in evaluating the viability of collecting the previously defined excess products and co-streams and turning them into new end-products. Before performing a pilot or conducting a detailed market assessment, it was important for Wegmans and LiDestri to assess the logistical feasibility of industrial dehydration.

Solution

The New York State Pollution Prevention Institute (NYSP2I) collaborated with a sustainable agribusiness consultant, Assured Edge Solutions (AES) to assist Wegmans and LiDestri with a feasibility study. AES assists businesses to create new ingredients from excess and/or by-products that had traditionally been viewed as waste streams.¹ The work performed included quantifying the available fruit shrink at the store level and processing waste from juice manufacturing, evaluating on-site standard operating procedures for handling, and storage and analyzing shipping logistics. Additionally, there was an evaluation of several different drying facilities based on technology and necessary certifications and standards. Lastly, a marketing assessment was performed to evaluate consumer trends and market opportunities based on the products included in this study.

Results

Considering volume of excess product and co-stream available from each location, feedback from the marketing assessment, logistics from the source to drying facilities, and nutritional analysis, NYSP2I concluded that it is logistically feasible for both companies to create new end-products via dehydration from their respective excess produce and manufacturing co-streams.

Major findings from both companies include:

Wegmans

- Using only three products from a single store limits the volume of end-product available
- Given the specific parameters of this study, product from Wegmans is best suited for tray drying
- The dry down ratio for all three products from Wegmans is approximately 12:1

LiDestri

- There is a large volume of lemon and orange peels available to transform into new end-products
- Given the specific parameters of this study, product from LiDestri is best suited for conveyance drying

Market Results

- Consumers are becoming more aware of how the food they purchase affects their health, and are looking for products that meet their standards i.e. clean labels and healthy ingredients
- Nutrition testing of the fruit powders from this feasibility study revealed attributes that consumers are looking for (e.g. no added sugars) and nutrients that are typically under consumed²

For both companies, next steps involve assessing how production volumes factor into logistics and market potential. Volumes, whether it be low or high can drive cost, customer basis, and appropriate dehydration technique, among others.

Overall, both Wegmans and LiDestri are well positioned to pursue upcycling of their food waste streams in the future.

¹ <https://assurededge.com/whatwedo/>

² <https://health.gov/our-work/nutrition-physical-activity/dietary-guidelines/previous-dietary-guidelines/2015>

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