

Bantry Bay Case Study: Measuring (exploring) the potential of unused raw materials



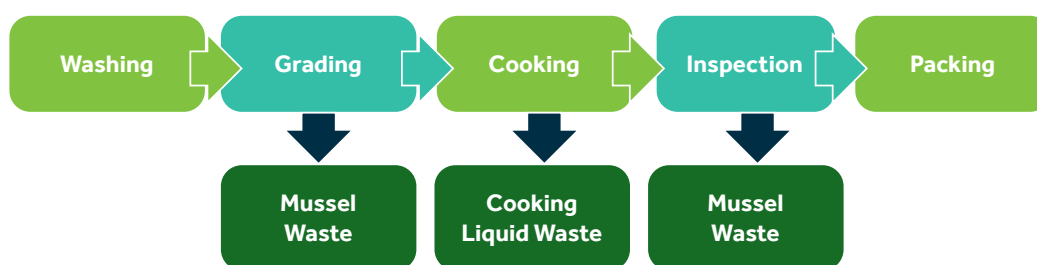
Challenges, opportunities and creating value from processing side streams.

Introduction:

Bantry Bay Premium Irish Mussels Ltd. farms and processes mussels at Bantry Bay, in West Cork, on the edge of the Atlantic Ocean. Live mussels are transferred to holding tanks where seawater is pumped through to replicate their natural environment.

Mussels are sorted and graded prior to cooking. Processing needs to take place within 72 hours of harvesting to minimise deterioration of mussel meat.

Figure: Simplified Bantry Bay Premium Seafoods Process Flowchart



The challenges:

As part of the product inspection process, out of specification mussels (based on size or quality) are manually rejected. This is followed by grading where any small mussels (below specified size) are separated automatically. With approval from The SFPA these off-spec live mussels can now be returned into the environment from where they were farmed/harvested for further growth. Previously they had to be disposed of as a Cat.3 waste (incineration or deep burial). This created significant costs and increased food miles onto our overall production. We had very low food miles getting our raw material from farm to factory while we had very high food miles disposing of our waste.

An additional challenge the company wants to investigate involves the mussel cookwater which is discharged to sewer once used. This cookwater may have potential value for further use of its nutritional content.

Tackling the issues:

Consequently, with support from BIM, they signed up to the EPA's Food Waste Charter. The Charter is part of Ireland's response to SDG 12.3 and involves a voluntary commitment to reduce food waste and improve food efficiency across the food supply chain. Following the Charter's Food Waste Protocol for the food and drink manufacturing sector, Bantry Bay are now measuring and recording their food flows in accordance with the national standard. As part of that process, they have started working with BIM and Teagasc (both Charter signatory organisations) in exploring options for their two most significant food related side streams; offspec mussels and their cookwater.



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Measuring (exploring) the potential of unused raw materials

Opportunities:

The Food Waste Charter, which many Irish businesses and national agencies have signed to, is underpinned by the Food Use Hierarchy. This hierarchy outlines the main management options for food flows that are not a business's primary product and includes a variety of side streams (co/by products), food wastes and liquid wastes. This aligns with our national and international commitments to make the food supply chain more efficient and ultimately reduce the waste of food by moving materials up the food use hierarchy.

Based on the recommended national approach of moving food flows up the Food Use Hierarchy, Bantry Bay are now investigating a number of different options and are working with Teagasc and SFPA to valorise some of their unused food flows.

This includes the extraction of value added ingredients from bioprocessing mussel by-products including shells, byssal threads and meats. Valuable components such as bioactive proteins, polyunsaturated fatty acids, mineral compounds, pigments, and enzymes that could be extracted from mussel by-products, have been identified by Teagasc. They recommend a holistic approach be taken in mussel processing to maximise the resource and minimise unused raw materials.

The work that Bantry Bay are currently undertaking reflects the changing and evolving attitude to processing secondary products (side streams, residues, co/by-products, etc.) by businesses throughout Ireland. By moving the management of these materials up the hierarchy, and developing innovative new products, businesses can reduce the waste of raw materials and improve overall profitability – a true win-win scenario.

Food Waste CHARTER

Irish Food Use Hierarchy

Most
Preferable
Option



Least
Preferable
Option

Ask yourself - do know where, and how much, food flows come out of your process? Can any of these be prevented at source?

Prevention at Source

Redistribution - can you consider donating food through redistribution networks and food banks/charities?

Feed People (redistribution/donation)

Research. If food is not suitable for redistribution, can it be converted into other consumer food products?

Feed People (repurposed)

Profit from loss. Can food based materials, unsuitable for human consumption, be converted into animal feed?

Feed Animals

Did you know? Biodiesel is a renewable fuel produced from animal fats or vegetable oils.

Industrial uses, Rendering & Bio-Refining

Grow food from food waste? Yes, your food can be composted and help grow more food. A great example of a closed loop system.

Anaerobic Digestion, Composting & Land Spreading

Segregate waste effectively. If food waste cannot be moved up the hierarchy, ensure that food waste is managed effectively. Just remember, disposal is the least cost effective option.

Disposal

