

# Organic Waste Reduction and Valorization

## Background

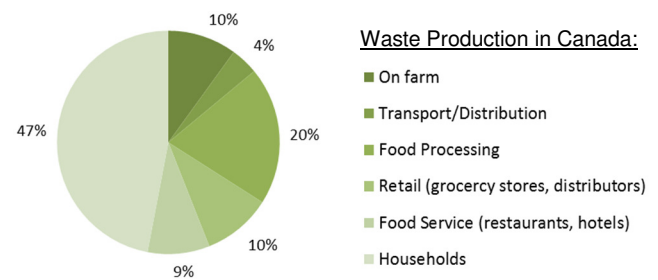
In 2016, Alberta's food and beverage manufacturing sector was valued at \$14.6 billion, the second largest in the province. For the agri-food processing sector to continue growing, companies must understand the economic, environmental and social challenges they are facing and convert them into opportunities that will help enhance their businesses and become increasingly competitive.

Whether it is research and development of a novel food or beverage product, production process optimization, automation and efficiency improvement, waste production reduction, or market access, Alberta Agriculture and Forestry (AF) has a wide range of programs to help companies succeed and grow.

The Bio-Industrial Opportunities (BIO) Branch helps agri-food companies with their organic waste streams — both solid wastes and wastewater — by participating in industry development and extension activities. It has funded a number of studies aimed at helping industry understand opportunities regarding food processing wastes. In addition, The BIO Branch is also active in Alberta bioenergy and biorefining initiatives.

## Organic Waste — What, Where and How to Divert from Landfills

Partnering closely with Alberta Innovates, the BIO Branch completed an Organic Waste Inventory in 2015. It provides a snapshot of the quality and quantity of available organic waste streams from Alberta's municipal, agriculture and food processing sectors. This includes livestock manure and on-farm dead, food processing waste, grocery store waste, and yard waste, which totalled over 3.3 million dry tonnes per year.



Source: Value Chain Management, 2014

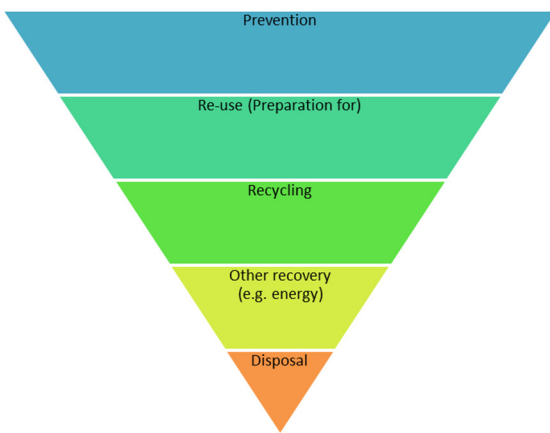
The information on these waste streams include composition, seasonal variation, as well as geographic distribution. Of particular interest is the vast amounts of manure (>2.5 million tonnes) and food processing waste (>500,000 tonnes) generated annually, which have tremendous bioenergy and biorefining potential.

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The report also provides regional data that help to identify potential sites for bio-industrial projects that aim to valorize these waste streams.

In 2017, a follow-up food waste study was completed that explores the true cost of food waste disposal, as well as the associated opportunities and challenges in diverting organic wastes from landfills.

Value propositions for different waste management tactics



The environmental, social, and economic impacts of food waste generation were examined, and several suitable technologies to extract additional value from food waste were ranked. The preliminary technology evaluation includes ratings on the technology readiness level, ease of implementation, environmental benefit, the economic opportunity, and capital/operating expenditures. Eight different recommendations for Alberta to divert solid organic wastes from landfills were suggested.

## Canadian Food Loss and Waste Case Study Series

AF and Provision Coalition partnered with Byblos Bakery and Calgary Italian Bakery Ltd. on a food and resource conservation initiative to explore the opportunities on prevention of food loss and waste (FLW), as well as utility consumption. The initiative involved piloting Provision Coalition's online FLW Toolkit in tandem with a food waste prevention assessment conducted by Enviro-Stewards.

The FLW Toolkit, which is part of Provision Coalition's online Sustainability Management System, is the only Canadian resource accessible by all food and beverage manufacturers to help with quantifying in-plant avoidable food waste, calculating its dollar value, and conducting a root cause analysis to developing cost-effective FLW reduction strategies. It is available free of charge to food processing and other industry members.

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"It is a fairly simple equation for business that when you streamline operations you improve profitability. This project did exactly that by exploring food loss and waste in our operation and the related utility consumption. At Byblos, we are also concerned about our impact on the environment and now we are a step closer to that goal with an achievable greenhouse gas reduction target of 500 tonnes per year."

-Joe Swiston, General Manager



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