



Characterization and Management of Food Waste in North America



Food Waste Source Reduction



complex world | CLEAR SOLUTIONS™

Sources: Tetra Tech, 2014; Just Eat It: A Food Waste Story, 2014

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Source: Tetra Tech, 2015



FOOD PRODUCTION
POST-HARVEST



PROCESSING



DISTRIBUTION



RETAIL



FOODSERVICE

Definition – Food Waste Source Reduction

- Food waste source reduction
 - Actions to minimize surplus food generation and prevent avoidable food waste generation throughout the food supply chain



Source: Granville Island, 2010

Building the Case for Food Waste Source Reduction

- Investing in food waste reduction strategies has potential benefits for stakeholders across the food supply chain
- Case by stakeholder type
 - **Industry** (Post-harvest Food Production and Processors)
Current practices are not sustainable and cannot be sustained in the long term; economic benefit
 - **Businesses** (Distribution, Foodservice and Retail)
Economic benefit; brand recognition
 - **Government**
Opportunity to reduce greenhouse gases; benefit from monetary savings; promote innovation, sustainability and efficient food systems
 - **Food rescue nongovernmental organizations:**
Make better use of staff and financial resources

Challenges to Food Waste Source Reduction

	Post-Harvest Food Production	Processing	Distribution	Retail	Foodservice
High grading standards					
Market fluctuations					
Best-before date uncertainty					
Customer expectations					
Lack of cold chain management					
Limited shelf/storage space for second grade products					
Food waste is not seen as an economic issue					

Challenges by Stakeholder – Highlights

- **Industry**
 - Lack of awareness of waste
 - Concern around minimal short-term financial benefit
- **Businesses**
 - Health risk concerns
 - Limited shelf space
- **Government**
 - Limited funding
 - Balancing different stakeholders needs across the complex food system
- **Food Rescue Nongovernmental Organizations**
 - Concern may arise that food waste reduction could result in fewer food donations



Source: Greater Vancouver Food Bank, 2015

7 Approaches to Food Waste Source Reduction



Approaches Across the Food Supply Chain

Approaches: <i>Canada, Mexico & United States</i> ¹	Post-Harvest Food Production	Processing	Distribution	Retail	Foodservice
1. Menu Adjustments					
2. Operational Changes to Reduce Over Portioning					
3. Waste Measuring and Tracking					
4. Increasing Marketability of Produce					
5. Clarifying Best-Before Dates					
6. Packaging Adjustments					
7. Improving Cold Chain Management					

1. Approach sections pertain to all three countries with the exception of #7 which addresses cold chain management as relevant for Mexico

Approach 1

Menu Adjustments

- **Description** – Adjust customer ordering options
 - Offer flexible portions and small plates instead of full meals
- **Trend** – Restaurants are changing menus to reflect customer issues, like health and food waste
- **Challenge** – Perception that larger portions offer more value
- **Examples**
 - CAN: Neighbourhood Group of Companies
 - MEX: Diabetes Association of Mexico
 - USA: Los Angeles Unified School District



Case Study – Canada: Menu Adjustments

- Neighbourhood Group of Companies owns four restaurants in Guelph, Ontario, Canada
- Three-month study revealed 0.6 kg waste generated by each guest, 80% of which is food waste
- Side-order portions reduced, potato skins left on, optional bread
- Overall savings in operating and food costs
- “Going sustainable has resulted in growth.”



Source: Neighbourhood Group of Companies, 2016

Approach 2

Operational Changes to Reduce Over-Portioning

- **Description** – Structural shift to promote right-sizing of portions
 - Smaller plates
 - Trayless cafeterias
- **Trend** – Trayless dining in university cafeterias
- **Challenge** – Customer convenience and satisfaction

Examples

CAN: Dalhousie University

USA: Rochester Institute of Technology



Source: Queens University, n.d.

Case Study – Canada: Operational Changes

- Food waste audit conducted at Dalhousie University
- Most food waste was generated at dinner; 227 kilograms of food waste was generated per student per year
- Switched to trayless dining, used smaller plates
- Aramark (food service provider at Dalhousie) sees 25–30% reduction in food waste after going trayless



Source: Dalhousie University, 2008

Approach 3

Waste Measurement and Tracking

- **Description** – Data are required to quantify waste, identify sources and inform operational changes; build economic case for food waste reduction
- **Trend** – The foodservice industry is more actively adopting measuring and tracking tools and practices
- **Challenge** – Food loss and waste not seen as issue across food supply chain
- **Examples**
 - CAN: Compass Group Canada
 - MEX: SIMAPRO
 - USA: LeanPath



Source: LeanPath, 2015

Case Study – Mexico: Waste Measurement and Tracking

- SIMAPRO, a tool to promote jobs and sustainability, identified food waste as a profitable opportunity for optimizing efficiency
- Reduced food waste by 32% in five restaurants and one hotel, and altogether saved US\$36,000



Source: SIMAPRO, 2016

Approach 4

Increasing Marketability of Produce

- Description – Accept and integrate blemished or off-grade produce into retail settings
- Trend – Second-grade “ugly” produce campaigns
- Challenge – Limited shelf space
- Examples
 - CAN: The Misfits
 - MEX: Central Supply Markets
 - USA: ImperfectVeg



Source: Feeding the 5000, 2015

Case Study – Canada: Increasing Marketability of Produce

- The Misfits Campaign was launched by RedHat Cooperative in southern Alberta
- Pilot program in Calgary, Alberta, Canada, has expanded to broker produce from the United States and Mexico
- Retailers are slow to scale-up program beyond running pilots



Source: The Misfits, 2015



Source: Feeding the 5000, 2015

Approach 5

Clarifying Best-Before Dates

- Description – Date labels do not indicate safety of food, but rather convey “peak freshness” of product
- Trend – Educating consumers on interpreting date labels



Source: National Resource Defense Council, 2013

- Challenges – Industry skepticism that label standardization can significantly reduce food waste; retail high product turnover
- Examples
 - CAN: Canadian Food and Inspection Agency
 - USA: The Daily Table
 - USA: Food Recovery Act

Case Study – US: Clarifying Best-Before Dates

- United States:
 - Food Recovery Act – Promotes and supports food recovery at all supply chain stages
 - Food Date Labeling Act – Standardize date labeling; will allow food retailers to donate food that is beyond best-before dates



Source: Pingree, 2016

Approach 6

Packaging Adjustments

- **Description** – Improvement and innovations in packaging technology can extend shelf life and reduce food waste
- **Trends** – Packaging tailored to consumers' eating patterns or size of household; new technology for rapid detection of spoilage and quality preservation
- **Challenge** – Implementing packaging improvements requires resources and energy
- **Examples**
 - USA: Bemis Company
 - MEX: Walmart
 - USA: Wegmans



Source: Moisson Montreal, 2015

Case Study – US: Packaging Adjustments

- Wegmans Food Markets adapted food packaging to individualized portions
- Shrank “Club Pack” to “Family Pack”
- Although customers purchase smaller amounts of food, Wegmans is able to maintain their financial bottom line



Source: Wegmans Food Markets Inc., 2016

Approach 7

Improving Cold Chain Management

- **Description** – Improving or upgrading infrastructure to maintain appropriate temperatures for food during transportation, such as in trucks, cold rooms and warehouses
- **Trend** – Refrigerated transportation in Mexico has increased since 2006, but mainly for export to United States and Canada; refrigerated trucks required for food recovery
- **Challenge** – Access to capital
- **Example**
 - MEX: Grupo CMR



Source: Maines Paper and Food Service Inc., n.d.

Case Study – Mexico: Improving Cold Chain Management

- The Mexican Transport Institute (IMT) has built a database of cold chain transportation
- Identifies need for refrigerated transport in specific regions
- Refrigerated transport infrastructure is still less common in the southeast region, but as a nation, has increased tremendously over the past decade (from 12,000 to 55,000 units from 2005 to 2015)



Source: Alimento para todos, 2016

National Policy and Education Highlights

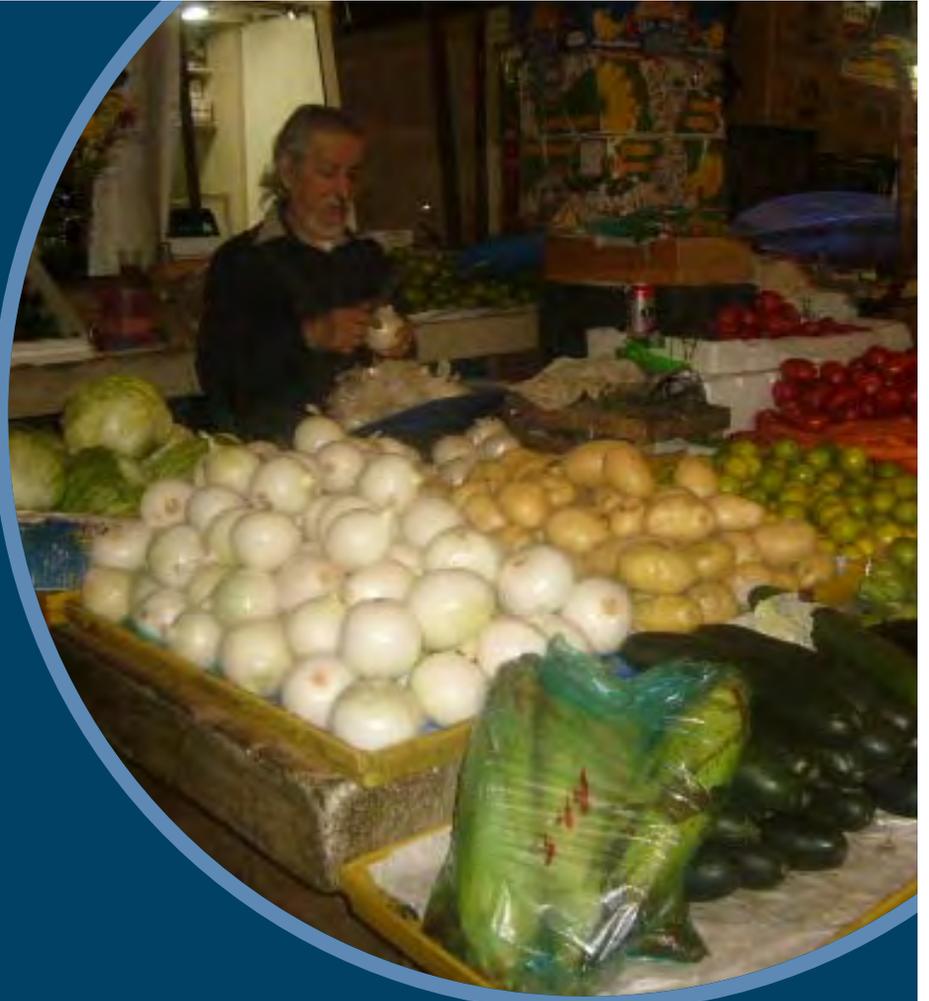
- Canada
 - The Government of Canada is developing a national food policy, which is anticipated to include food waste
 - Canadian Federation of Agriculture and Conference Board of Canada mention food waste in food policy proposals
 - National Zero Waste Council proposed a national food waste reduction strategy
- Mexico
 - Multi-stakeholder groups, including federal ministries, are collaborating to develop policy and educational programs with food waste reduction and rescue components. Examples include:
 - The Crusade Against Hunger
 - Simapro tool to promote jobs includes a food waste minimization element
 - Sagarpa farm programs include food waste prevention elements, including price incentives and storage infrastructure support
 - Proposed national food waste awareness campaign and national council
- United States
 - National goal to halve food waste to landfills by 2030, utilizing the ReFED 2016 “A Roadmap to Reduce US Food Waste by 20 Percent”
 - Environmental Protection Agency’s Stakeholder Call to Action
 - Proposed legislation related to food date labeling and food recovery



Thank you

Questions?

Tetra Tech Project Team



Source: Market Medellin, 2016