Characterization and Management of Food Waste in North America

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

• Definition
  ▪ Food Waste Source Reduction

• Building the Case for Food Waste Source Reduction

• Challenges

• Approaches

Source: Tetra Tech, 2015
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
<table>
<thead>
<tr>
<th>Challenges to Food Waste Source Reduction</th>
<th>Post-Harvest Food Production</th>
<th>Processing</th>
<th>Distribution</th>
<th>Retail</th>
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<tr>
<td>High grading standards</td>
<td><img src="image1" alt="Post-Harvest Food Production" /></td>
<td><img src="image2" alt="Processing" /></td>
<td><img src="image3" alt="Distribution" /></td>
<td><img src="image4" alt="Retail" /></td>
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<td>Market fluctuations</td>
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<td>Best-before date uncertainty</td>
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<td>Customer expectations</td>
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<td>Lack of cold chain management</td>
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<td>Limited shelf/storage space for second grade products</td>
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<td>Food waste is not seen as an economic issue</td>
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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

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<th>Approaches: Canada, Mexico &amp; United States¹</th>
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<td>2. Operational Changes to Reduce Over Portioning</td>
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<td>4. Increasing Marketability of Produce</td>
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<td>6. Packaging Adjustments</td>
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<td>7. Improving Cold Chain Management</td>
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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

Source: Ontario Ministry of Health and Long Term Care, 2011
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 no indicate safety of food, but rather convey “peak freshness” of product

• **Trend** – Educating consumers on interpreting date labels

• **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

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