1. Who We Are
2. Why Research is Important to Do Now
3. Our 2016 Research Agenda
4. Where We Go From Here
MATERIALS RECOVERY FOR THE FUTURE
A New Research Collaborative
Flexible packaging is recycled, and the recovery community captures value from it.
THE PACKAGING STREAM IS EVOLVING –
2012 to 1990 Baseline

*% of waste stream | Source: RRS
Companies are committed to finding recovery solutions for flexible plastic packaging
We don’t want **landfills to be excavated** in 50 years and our flexible plastic bags, bearing the **Purina name**, show up as “permanent branded litter”. The problem is bigger than one company, so **it makes sense to work in a research collaboration**.
Consumers are looking for packaging that can be recycled across a range of categories.

% consumers indicating “recyclable packaging” is very/somewhat important to their purchase of the following types of products:

- Household cleaning: 80%
- Personal care: 73%
- Food and beverage: 73%
In addition, consumers are interested in learning about what companies are doing to lessen packaging and reduce the waste they produce.

About 1 out of every 2 consumers are interested in learning more about what companies are doing to...

- Use more **recycled contents** in their products and **packaging** (46%)
- Use **less packaging** (45%)
- Reduce the amount of **trash** and other **waste** they produce (51%)

Companies have an opportunity to build strong brand loyalty with interested customers that want to see more environmentally-friendly packaging practices.
In fact, products and companies which keep sustainability as a focus are being viewed in a more positive light over the past 6 years.

Adding tangible benefits to products, such as recyclable packaging, can make a difference in how much consumers are willing to spend on environmentally-friendly products.

<table>
<thead>
<tr>
<th>% general population who completely/somewhat agree that knowing a company is mindful of its impact on the environment and society...</th>
<th>2009</th>
<th>2015</th>
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</thead>
<tbody>
<tr>
<td>Knowing...makes me more likely to try their products or services.</td>
<td>52%</td>
<td>51%</td>
</tr>
<tr>
<td>Knowing...makes me more likely to buy their products repeatedly</td>
<td>48%</td>
<td>53%</td>
</tr>
<tr>
<td>Knowing...makes me more likely to talk with my friends and family about the company.</td>
<td>40%</td>
<td>46%</td>
</tr>
<tr>
<td>Knowing...makes me less concerned with the price of their products</td>
<td>25%</td>
<td>33%</td>
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TOTAL LIFE CYCLE MANAGEMENT IS THE EXPECTATION FOR PACKAGING

While flexible packaging performs well from a life cycle perspective, many stakeholders expect end-of-life management options to improve.

*Flexible Packaging: Less Resources, Energy, Emissions & Waste*
THE RECOVERY VALUE CHAIN: COLLABORATION IS KEY GIVEN OVERLAPPING INTERESTS
KEY PROBLEM:
Flexible Plastic Packaging Presents Processing Challenges for Today’s Material Recovery Facilities (MRFs)
MRFF FOCUS IS THE PROCESSING ELEMENT OF THE SUSTAINABLE RECOVERY VALUE CHAIN

MAJOR EFFORTS IN THE U.S.

- Dow/FPA Energy Bag
- ACC-FFRG
- SPI FFBD and Recycling Committee
- Materials Recovery for the Future
- APR-Film Committee

Ensuring Sustainable System

1. Collection
2. Processing
3. End Markets
4. Education & Engagement
5. Supporting Policies
6. Public-Private Coordination

Building Infrastructure

SPC – ILC
How2Recycle
ACC/SPC/APR - WRAP Recycling Action Program
SPI Recycling Committee and FFBD
Bagged or Loose?

How can it be affordably sorted at the MRF?

How can increased value be created for the material?

What are viable end markets for the range of materials?

ACCESS

MRF

PLASTICS RECOVERY FACILITY (PRF)

NEW PRODUCTS OR ENERGY
4 KEY QUESTIONS FOR MRFF RESEARCH

1 | ACCESS
   Bagged or Loose?

2 | MRF
   How can it be affordably sorted at the MRF?

3 | PLASTICS RECOVERY FACILITY
   How can increased value be created for the material?

4 | NEW PRODUCTS OR ENERGY
   What are viable end markets for the range of materials?
THE KEY PATHWAY FOR OUR RESEARCH – Can loose flexible plastic be separated in a MRF system?

Without affecting the other value streams?
2016 RESEARCH RESULTS

Baseline Test • Equipment Testing
MRF Testing
Baseline Test Conducted November 2015 at IMS, San Diego
BASELINE TEST RESULTS

88% of flexible plastic packaging flowed to the fiber lines.

Optical sorters extracted a relatively clean stream of flexibles from the fiber.

Screens and optical sorters were overwhelmed.
BASELINE TEST CONCLUSION

With adequate screening and optical sorting capacity on the fiber lines, most of the flexibles in a single stream MRF may potentially be captured.
Equipment Tests Conducted December 2015 - March 2016
EQUIPMENT TEST RESULTS

90% of flexible packaging was sorted from the test stream

Identified ejection and recognition challenges
Airflow control over acceleration conveyor and in collection hood play major role in successfully sorting flexible packaging from paper.

**EQUIPMENT TEST CONCLUSION**
MRF Tests Underway May-July 2016 at Two Emterra MRFs
Surrey, BC and Regina, SK
INITIAL MRF TEST RESULTS

82% of the test material flowed through the optical sorters

70% Optical sorter efficiency

Large quantity of paper with the ejected flexible packaging
INITIAL MRF TEST FINDINGS

• Optical sorting is capable of sorting the flexible packaging from the paper stream at a high level.

• Additional testing needed to determine the full potential of the technology.
IMPORTANT PARTNERSHIP FORMED: Surrey BC Test Team
Larry Baner, Nestle Purina
Michael Timpane, RRS
Emmie Leung, Emterra Surrey MRF
Jeff Wooster, Dow
Steve Sikra, P&G
Kerry Sandford, RRS
NEXT STEPS
Lab and Further Field Testing
Focus is on optical sorter program refinements in a controlled series of tests to optimize separation of flexibles from fiber.
MATERIALS RECOVERY FOR THE FUTURE
Global Strategy

Flexible Plastics Research Program

Address Key Challenges Through Existing Technologies
- Thermal Conversion
  For example, pyrolysis. Potential solutions for smaller communities or those that want to target the broad range of plastics not currently recycled

MRF Equipment Testing Program
- 2015-2016 research program aimed at testing most feasible solution based on net system costs and adaptation of existing sortation technology

PRF Research Program
- 2016 research to develop new technology to ensure mechanical recycling of resins that currently have markets and increasing the value of the bale

Define System of the Future
- Additional work with more diverse recovery value chain partners to develop recovery infrastructure that handles new mix of materials

*Looking for partners to participate in these programs
IN SUMMARY

- Momentum is growing to solve for films and flexible packaging recycling
- Year One Research Report to be published Summer 2016
- Join Us! Adding sponsors & partners for Demonstration Projects and PRF Research in Year Two
THANK YOU

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