

State of the Industry SPE International Polyolefins Conference February 25, 2019

Alison Keane, Esq., CAE
President & CEO
Flexible Packaging Association

State of the Association



Flexible Packaging Association

- Voice of "value-added" U.S. flexible packaging industry
- Mission: facilitate industry growth & advancement
 - Promoting the benefits, contributions and advantages of flexible packaging
 - Sustainability light-weighting & source reduction, cost savings, reducing food waste, extended product shelf life
 - > Protecting/Representing association members
 - Federal trade actions
 - ➤ Advocating for the industry before stakeholders, including government, retailers & consumers
 - State & Federal legislative and regulatory processes

State of the Association



Flexible Packaging Association

- >Researching, collecting, analyzing & providing members with industry, market & benchmarking data
 - FPA State of the Industry Report
 - PTIS A Holistic View of the Role of Flexible Packaging in a Sustainable World
 - Brand Owner and Consumer Surveys
- Providing a forum for educational & networking opportunities for industry leaders
 - Annual Meeting
 - Fall Executive Conference
 - Other programs & events

State of the Industry



- Strong & Growing!
- 400+ companies / 79,000 employees / ~950 mfg. plants
- Fastest growing segment of the packaging industry in the US and globally
- \$30.9 billion/2.6% growth rate ('16 '17)
- Growth projected in almost all end-use segments of industry

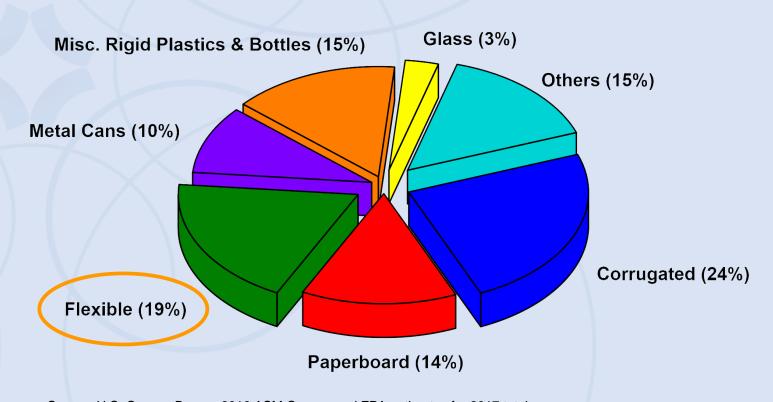




U.S. Packaging Industry



Total U.S. Packaging: \$167 Billion



Source: U.S. Census Bureau 2016 ASM Census and FPA estimates for 2017 total revenue

U.S. Packaging Industry



Total U.S. Flexible Packaging: \$31.0 Billion

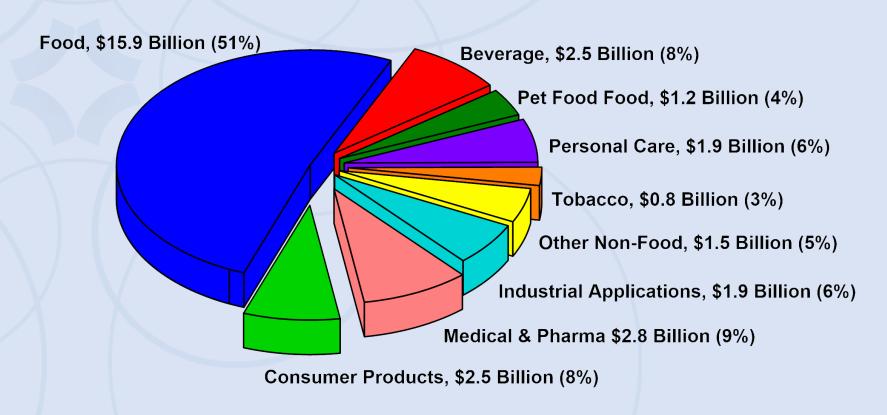


Source: U.S. Census Bureau 2016 ASM Census and FPA estimate for 2017 total revenue

U.S. Packaging End-Use Markets



Flexible Packaging Sales by End-Use Market

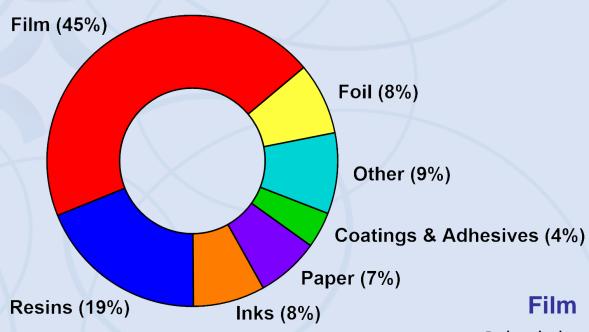


Source: FPA 2017 State of the Industry Survey data

Converters' Material Purchases



Total Industry Material Purchases Estimated Value is \$16.4 Billion



Source: FPA 2017 State of the Industry Survey data

Polyethylene: 42%

Polypropylene: 25%

Polystyrene: 1%

Polyester: 16%

■ Nylon: 4%

Resin

Polyethylene: 82%

Polypropylene: 6%

Polystyrene: 5%

Polyester: 1%

Nylon: 1%

U.S. Flexible Packaging Overview



| Metric | 2000 | 2009 | 2017 |
|--------------------------|-------------|--------------|-------------|
| Number Companies | 665 | 410 | 411 |
| Manufacturing Facilities | 1010 | 970 | 949 |
| Employees | 89 Thousand | <80 Thousand | 79 Thousand |
| Sales per Employee | \$221K | \$290K | \$391K |

Source: U.S. Census Bureau and FPA 2001 and 2010 State of the Industry Reports and 2017 State of the Industry Survey data

U.S. Flexible Packaging Industry Growth



| Growth | 2000 | 2009 | 2017 |
|-----------------------------------------------------|----------|----------|-------------|
| Total Flexible Packaging Industry | \$19.0 B | \$23.2 B | \$31.0 B |
| Compound Annual Growth Rate (CAGR) last 10 years | 4.2% | 2.0% | 1.6% |
| Profit over previous year | Up | Down | Flat |
| Volume | | Down | Up Slightly |
| \$ Growth | 2.1% | -12.9% | 2.6% |
| Benchmark GDP | 1.1% | -4.0% | 2.4% |

Source: U.S. Census Bureau and FPA 2001 and 2010 State of the Industry Reports and 2017 State of the Industry Survey data

FPA Industry Revenue





Source: U.S. Census Bureau and Flexible Packaging Association

* FPA Estimate

U.S. Flexible Packaging Industry Expenses & Profitability (2015-2017)



| | % of NET SALES | | |
|-------------------------------------------------------------|----------------|------------|------------|
| | FPA (2015) | FPA (2016) | FPA (2017) |
| Materials | 58 | 55 | 53 |
| Direct Labor | 9 | 10 | 12 |
| Sales, Marketing, Research & Development and Administrative | 11 | 11 | 10 |
| All Other Manufacturing | 16 | 17 | 19 |
| Profit before Tax (EBIT) | 6 | 7 | 6 |

Source: 2015 and 2016 State of the Industry Reports, 2017 data from 2017 SOI Survey

U.S. Converters' Printing Comparison % of Shipments



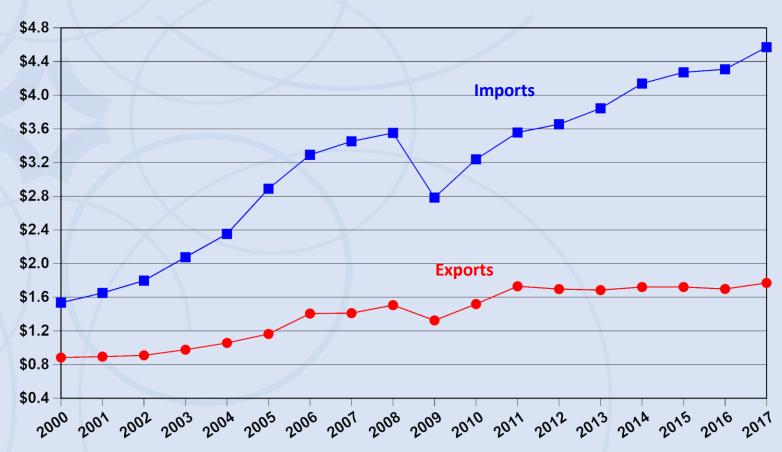
| Print Type | 2012 | 2015 | 2017 |
|----------------|------|------|------|
| Flexo | 64% | 67% | 75% |
| Gravure | 10% | 14% | 8% |
| Offset & Other | 2% | 4% | 3% |
| Digital | <1% | <1% | <1% |
| Unprinted | 24% | 15% | 14% |

Source: FPA 2013-2015 State of the Industry Reports & FPA 2017 State of the Industry Survey data

Flexible Packaging Imports and Exports



Billions of Dollars



Source: U.S. Census Bureau, Foreign Trade Division Calculations by the Flexible Packaging Association

Flexible Packaging Imports and Exports Continued



- 75% of FPA members export
- 5.7% of U.S. flexible packaging production is exported
- 13.5% of U.S. flexible packaging consumption is imported
- U.S. flexible packaging trade deficit is about \$2.8 billion

| \$1.8 Billion Exports to: | | \$4.6 Billion Imports from: | |
|---------------------------|-----|-----------------------------|-----|
| Mexico | 35% | China | 43% |
| Canada | 35% | Canada | 16% |
| United Kingdom | 4% | Mexico | 7% |
| Japan | 2% | Thailand | 4% |
| Dominican Republic | 2% | Germany | 3% |

Source: U.S. Census Bureau, Foreign Trade Division

Percent of Total U.S. Packaging and Flexible Packaging by End-Use (Retail)



| Market | % of Total Packaging | % of Flexible Packaging | 2017-2022 Flexible CAGR |
|------------------------|----------------------|----------------------------|----------------------------|
| Beauty & Personal Care | 3% | 1% | +0.3% |
| Beverages | 42% | 5% | +0.7% |
| Dog & Cat Food | 2% | 2% | +3.1% |
| Food | 41% | 69% | +0.8% |
| Home Care | 2% | 1% | +1.6% |
| Tissue & Hygiene | 2% | 5% | +0.9% |
| Tobacco | 8% | 17% | -2.1% |
| Total Packaging | 100% | 100% | +0.3% |

Source: Euromonitor International Passport Data - the number of packaging units sold to consumers through all retail channels.

U.S. Flexible Packaging Unit Volume Growth Potential (Food)

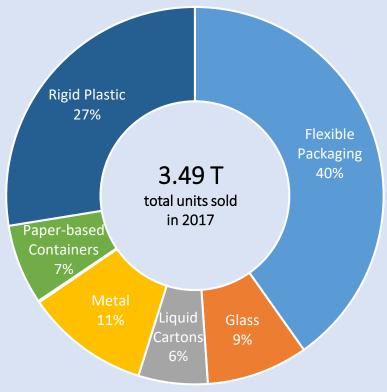


| Market | 2012-2017 CAGR | 2017-2022 CAGR |
|-------------------------------|----------------|----------------|
| Baby Food | +11.6% | +1.4% |
| Biscuits & Snack Bars | +1.6% | +1.3% |
| Dairy Packaging | 0.7% | +0.7% |
| Processed Fruits & Vegetables | +4.8% | +3.9% |
| Processed Meat & Seafood | -0.6% | +1.0% |
| Ready Meals | +0.6% | +0.7% |
| Sweet & Savory Snacks | +2.0% | +1.5% |
| Soup Packaging | +0.8% | +0.5% |

Source: Euromonitor International Passport Data - based on the number of packaging units sold to consumers through all retail channels.

Global Overview





| Total 2017 market size | 3.49 Tn |
|--------------------------------------|---------|
| Total 2022 market size | 3,93 Tn |
| Forecast Absolute Growth (2017-2022) | 12.7% |

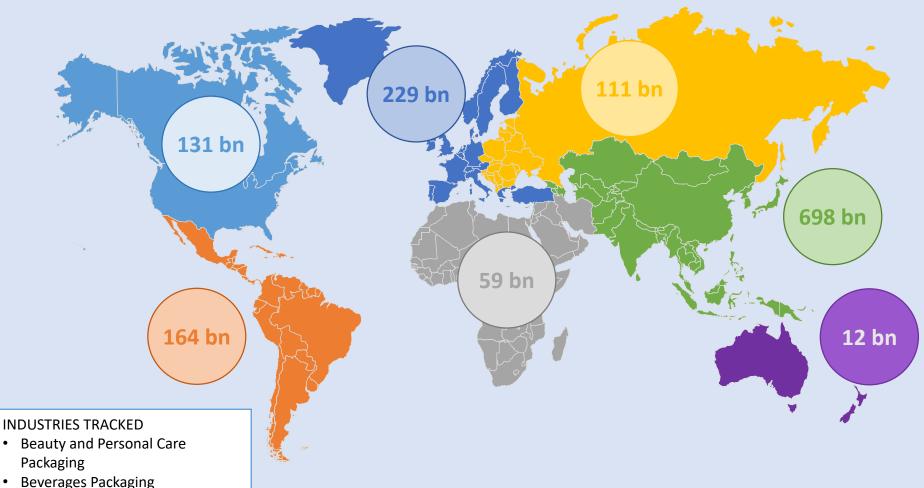
Executive Summary

- Total Packaging will grow 12.7% by 2022
- Absolute Growth of 443 billion units
- Flexible Packaging: 193 billion
- Glass: 18 billion
- Liquid Cartons: 20 billion
- Metal: 24.5 billion
- Other Packaging: 871 million
- Paper-based Containers: 26.8 billion
- Rigid Plastic: 159.5 billion

Source: Euromonitor International Passport Data - based on the number of packaging units sold to consumers through all retail channels.

Flexible packaging across the world, with Asia Pacific making up 50% of global totals

Absolute volume totals (2017) by region in billions of units



Packaging

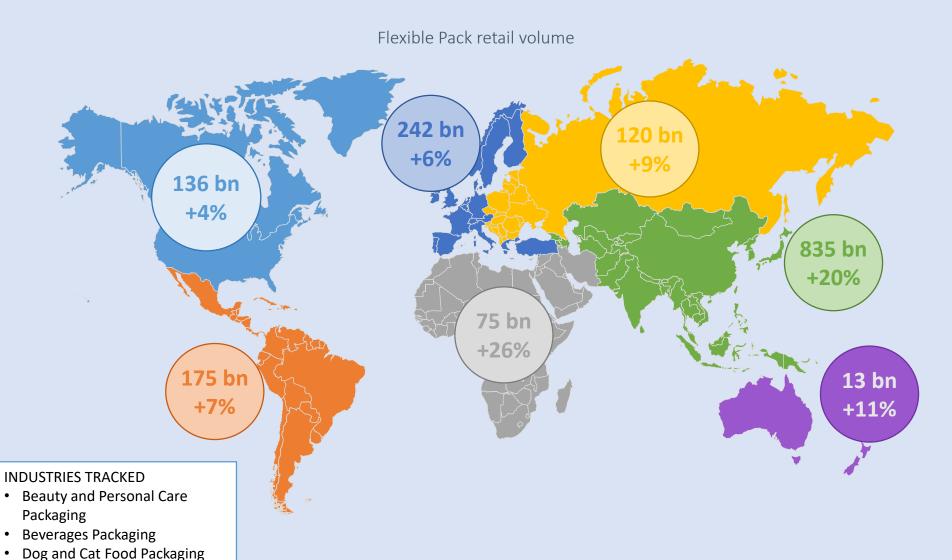
Dog and Cat Food Packaging

Food Packaging

Home Care Packaging

Source: Euromonitor International Passport Data - based on the number of packaging units sold to consumers through all retail channels.

Global Flexible packaging retail 2022



Food Packaging

Home Care Packaging

Source: Euromonitor International Passport Data - based on the number of packaging units sold to consumers through all retail channels.

State of the Industry

Challenges and Opportunities

Plastics have a bad "Wrap"

War on Plastics, particularly in Europe due to NGO campaigns on marine debris

End-of-life management/recyclability

➤ Blamed for litter and marine debris versus other more recyclable packaging types increases threat of state

legislation

China's National Sword





Opportunities

Flexible Packaging
Advancing Loading

- Consumers are a main driver in product/packaging decisions
- Sustainability, and particularly, climate change, is a key issue, and plastics and flexibles fill the need
- Legislators are a main driver in regulation of packaging
- So, it is going to take lifecycle thinking and education of consumers and policy makers by the entire value chain
- And, it is going to take EOL solutions

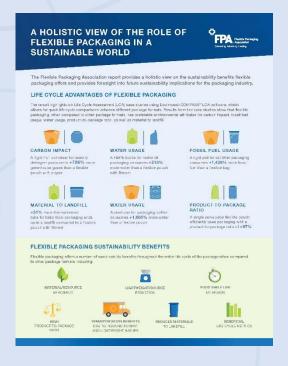


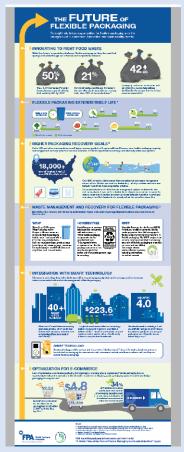
"Holistic View" of Flexible Packaging Report



- Sustainability Report materials now available
 - Factsheet
 - Case Studies
 - Infographics







FPA Consumer and Brand Owner Sustainability Study



Understand what sustainability means to consumers



- Importance of sustainability overall and relative to packaging
- Understanding of packaging-related sustainability attributes
- Opportunities for education that drives purchase decisions



2,012 U.S. consumers

Ages 18+ surveyed in July 2018

Understand how brand owners are addressing sustainability



- Extent to which sustainability is part of business goals
- How brand owners think consumers perceive sustainability
- Barriers and opportunities for growth



349 Brand Owners

Surveyed in June 2018



Flexible Packaging
Association
Connecting. Advancing. Leading.

Sustainability is important



^{*}Percentages based on summary of those who strongly agree or somewhat agree with statements



 Sustainable packaging attributes have become even more important

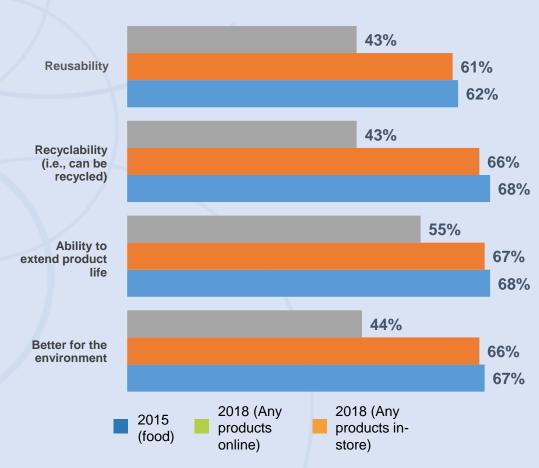
CONSUMER Q:

2018: "In your opinion, how important are each of the following packaging attributes for products sold online/in-store?"

(Summary of Absolutely Essential/ Extremely Important/ Very Important)

2015: "How important, if at all, are each of the following packaging features of food products to you?"

(Summary of Absolutely Essential/ Extremely Important/ Very Important)



^{*2015} study conducted online by The Harris Poll on behalf of FPA September 9-11, 2015 among 2,120 U.S. adults ages 18+



Convenience attributes have remained consistently important

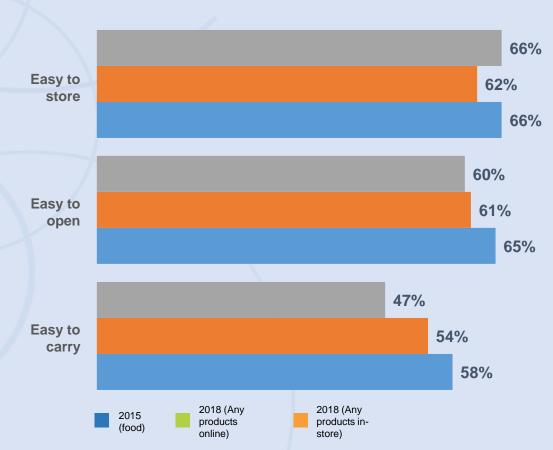
CONSUMER Q:

2018: "In your opinion, how important are each of the following packaging attributes for products sold online/in-store?"

(Summary of Absolutely Essential/ Extremely Important/ Very Important)

2015: "How important, if at all, are each of the following packaging features of food products to you?"

(Summary of Absolutely Essential/ Extremely Important/ Very Important)





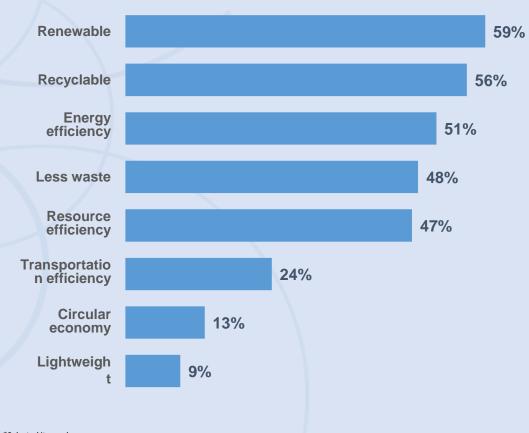
Full lifecycle impacts of packaging sustainability are not always top-of-mind

CONSUMER Q:

"Which of the following terms do you believe best describe sustainability?"

Select all that apply.

Words like "transportation efficiency" and "lightweight" are less likely to be associated with sustainability than "recyclable."



*Selected items shown



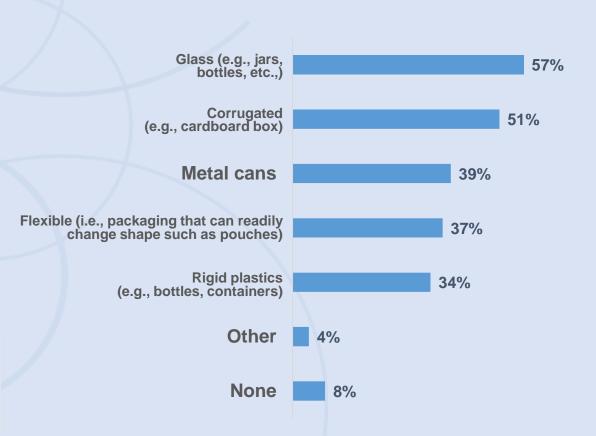
In fact, consumers are more likely to think glass is sustainable

CONSUMER Q:

"Which of the following types of packaging do you believe are sustainable?"

Select all that apply.

Consumers are more likely to believe glass and corrugated packaging are sustainable than they are to believe flexible packaging is sustainable.





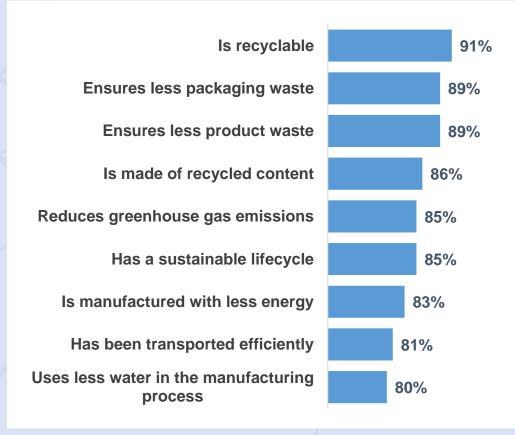
When presented specific lifecycle packaging impacts, consumers recognize importance

CONSUMER Q:

"Thinking about the products you buy, how important is it to you that product packaging..."

(Summary of "at least somewhat important")

When presented with a list of packaging attributes specific to sustainability, the vast majority of consumers say they care about all of the attributes listed – including transportation efficiency and using less water.



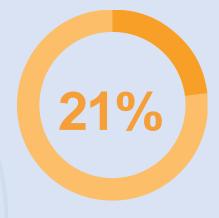


Consumers care about sustainability but don't always take action



say they always or often actively seek out products in sustainable packaging

of consumers say they always or often pay more for products in sustainable packaging





Have grown skeptical of sustainability claims



are often skeptical of sustainability claims made by companies

say they are tired of hearing about sustainability



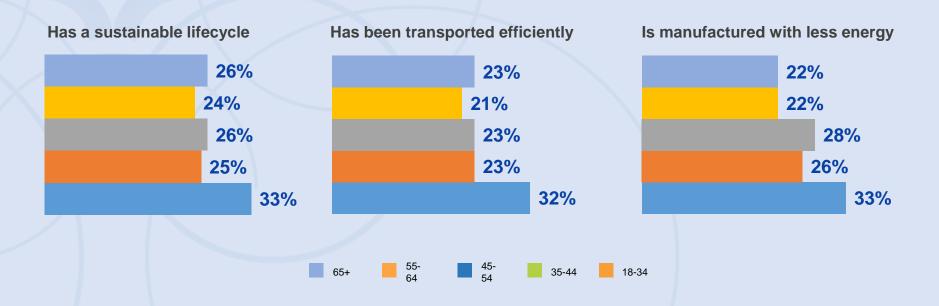


Millennials more likely to think full lifecycle impacts are important

CONSUMER Q:

"Thinking about the products you buy, how important is it to you that product packaging..."

(Summary of Absolutely essential or Extremely important)



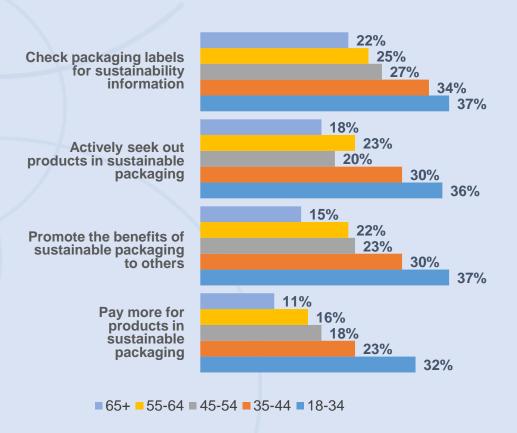


Millennials are more likely to take action

CONSUMER Q:

"How often do you do each of the following?

(Summary of always/often)





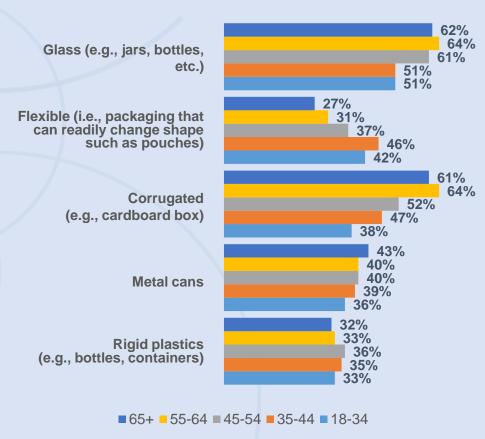
Younger generations more likely to view flexible packaging as sustainable

CONSUMER Q:

"Which of the following types of packaging do you believe are sustainable?"

Select all that apply.

In fact a similar proportion of consumers ages 18-34 and 35-44 are likely to think flexible, glass and corrugated are sustainable. A smaller percentage in these age ranges think metal and rigid are sustainable.



Brand Owners:



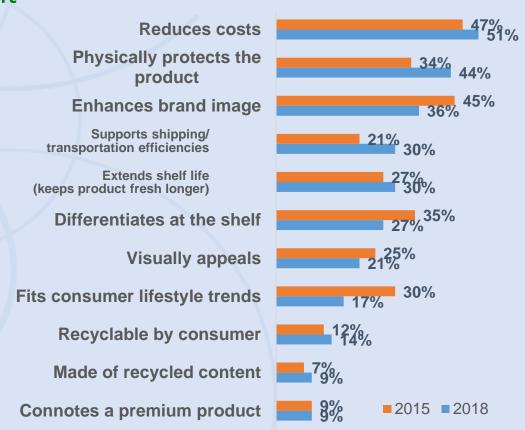
Brand owners see reducing costs and physical protection as most important

BRAND OWNER Q:

"When assessing packaging, which THREE attributes do you consider most important to your brand?"

(Respondents could choose up to three answer choices)

Compared to the 2015 study, physically protecting the product and shipping/transportation efficiency were considered as more important. Enhancing brand image and differentiates at the shelf were considered as less important.

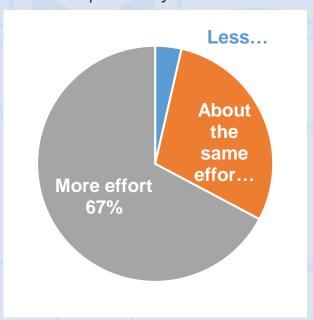




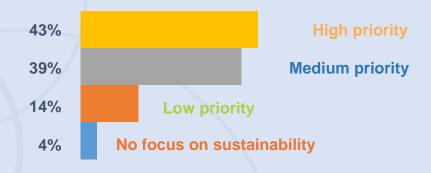
Brand owners are becoming more sustainable

BRAND OWNER Q:

"How have your company's sustainability efforts changed in the past five years?"



Within sustainability approach, packaging is:





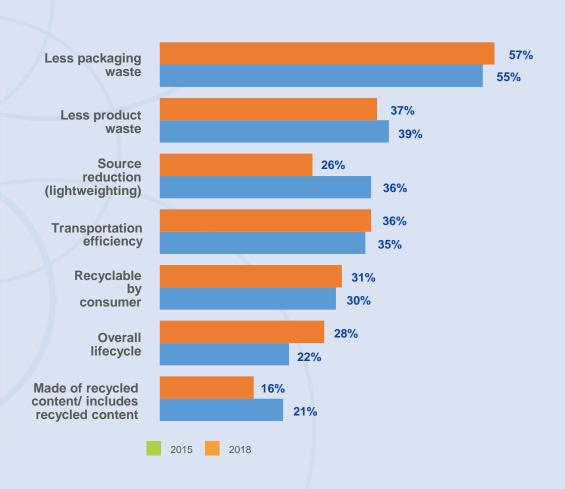
Brand owners prioritize packaging and product waste

BRAND OWNER Q:

"Which THREE of the following factors are MOST important to your company's sustainability goals?"

(Respondents could choose up to three answer choices)

Findings are similar to trends seen in 2015 Brand Value Study although lightweighting notably increased in importance.



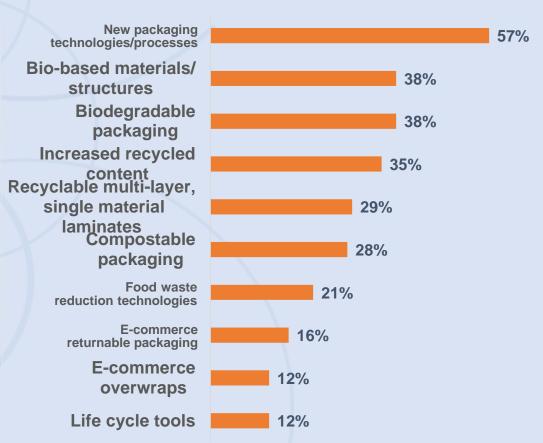


Brand owners say new technologies/processes will drive trends

BRAND OWNER Q:

Which of the following sustainability trends do you expect to drive change in your packaging processes in the next five years?

Please check all that apply.





Barriers to increasing sustainability efforts are related to price and quality

BRAND OWNER Q:

"Which THREE of the following are the biggest barriers to increasing sustainability efforts at your organization?"

(Respondents could choose up to three answer choices)





Believe consumers prefer products that are in sustainable packaging and trust labels on sustainability

BRAND OWNER Q:

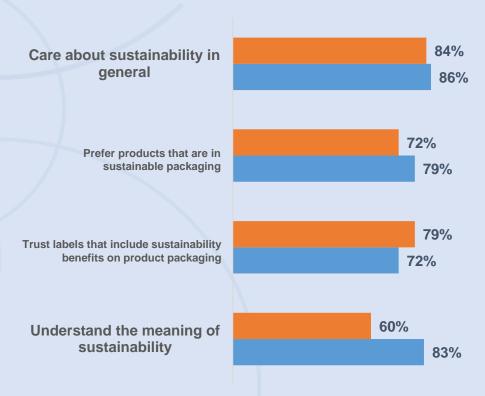
"In your opinion, do you feel that consumers..."

(Percent who somewhat/strongly agree)

CONSUMER Q:

"How much do you agree or disagree with each of the following statements about sustainability?"

(Percent who somewhat/strongly agree)



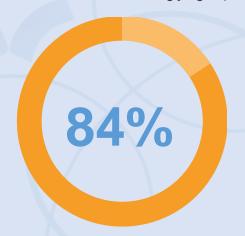


Brand owners believe consumers care about sustainability, but may not understand it

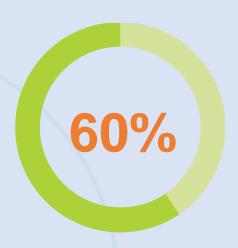
BRAND OWNER Q:

"In your opinion, do you feel that consumers..."

(Percent who somewhat/strongly agree)







Understand the meaning of sustainability



Believe consumers care more about materials than processes



believe consumers care about the sustainability aspects of packaging materials

VS.

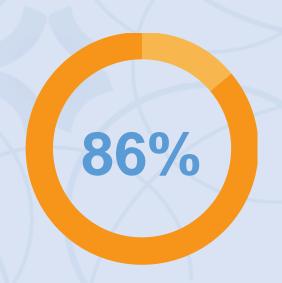
believe consumers care about sustainability aspects of packaging processes



Consumers:



Consumers say sustainability is important...



of consumers at least somewhat agree that they care about sustainability in general

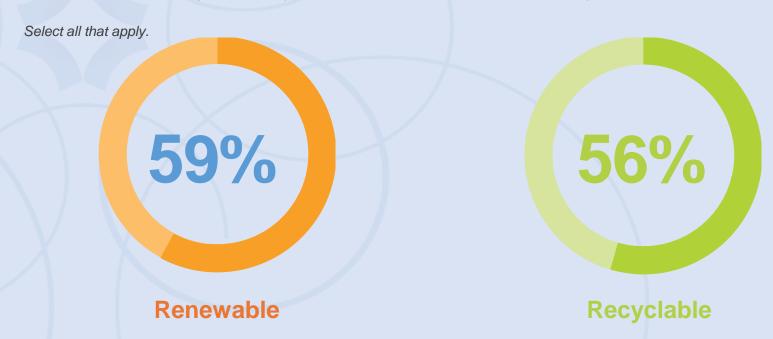
Consumers:



Some full lifecycle impacts of packaging are not top of mind

CONSUMER Q:

"Which of the following terms do you believe best describe sustainability?"



Consumers:

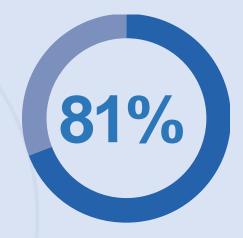


But when presented specific lifecycle impacts of packaging, they recognize the importance



say transportation efficiency describes sustainability

think it's at least somewhat important that product packaging has been transported efficiently



Key Points



Driving understanding of specific lifecycle impacts of flexible packaging is needed



There is a clear need for greater consumer education about specific lifecycle impacts of flexible packaging

The entire flexible packaging supply chain must amplify communications about specific sustainability benefits



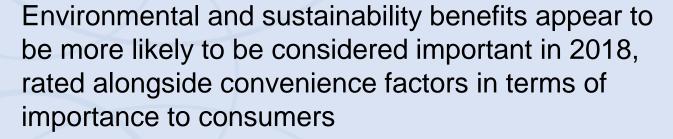
This indicates an opportunity to elevate the visibility of specific sustainable manufacturing processes and supply chain concepts in the sustainability conversation among consumers.

Key Points



We need to Embrace Millennial receptiveness and influence







Consumers aged 18-34 are more likely than members of other generations to recognize full lifecycle benefits of flexible packaging

Younger generations are more likely to view flexible packaging as sustainable – on par with glass and corrugated; better than metal and rigid plastic Millennials are also more likely to say they always or often take action

FPA Outreach



FPA Consumer Microsite

An FPA consumer microsite dedicated to combating the bad press and misinformation about flexible packaging, and particularly plastics, to consumers and policy-makers



FPA Outreach

Flexible Packaging
Association

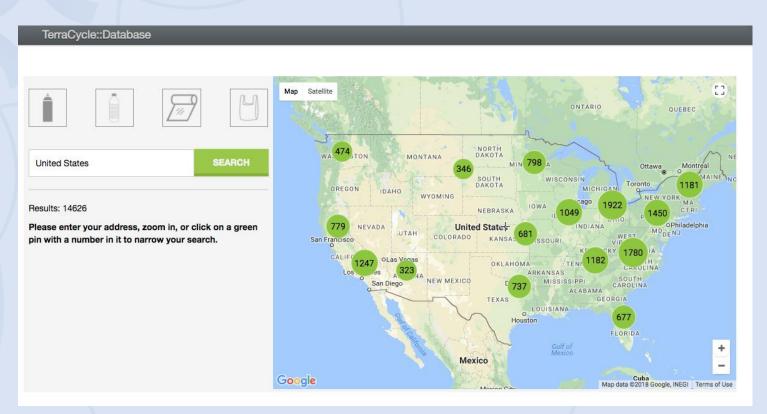
- Perfectpackaging.org is now live!
- Specific pages on:
 - Why Flexibles
 - Reducing Waste
 - Environmental Footprint
 - Recycling
 - Global View
 - About Us (FPA)
- Will promote the rest of the year



FPA Outreach



- Partnered with TerraCycle on zip code locator for store drop-off program
 - Bags, film, overwraps, air pillows, etc.



EOL Management Options Exist



- Recognizing that End-of-Life Management is not the litmus test for sustainability, recycling and other options are still available
- Much of flexible packaging is recyclable
 - ➤ Store Drop-off Programs
 - (WRAP, Bag2Bag and Terra Cycle)
 - Recycled into new plastic pellets to be reused or other goods
 - ➤ More Consumer Education is needed
 - How to Recycle label (Sustainable Packaging Coalition)









EOL Management Options Exist



- For the not YET "recyclable," there are solutions
 - Waste to Energy should not be dismissed
 - Chemical Recycling is gaining traction (particularly in light of China's ban on imports)
- Materials Recovery for the Future

Sponsored by ACC, FPA, various consumer product companies and retailers

 Mission: Flexible packaging is recycled and the recovery community captures value from it (2018 Demonstration project)

- DOW Hefty Energy Bag Program
 - > Sponsored by FPA and members
 - ➤ Cobb County, GA 2019
- More policy-maker education is needed



Federal Advocacy



- Infrastructure
 - FPA joined coalition led by Plastics Association to advocate for dollars for material recovery facilities
 - ➤ In Infrastructure bill or as a stand-alone bill
 - Met w/Senate Offices
 - ➤ Toomey (R-PA)
 - ➤ Booker (D-NJ)
- ➤ Schumer (D-NY)
- ➤ Brown (D-OH)
- ➤ Casey (D-PA)
- ➤ Menendez (D-NJ) ➤ Murphy (D-CT)
- ➤ Gillibrand (D-NY)
- ➤ Tillis (R-NC)
- > Portman (R-OH)
- Good reception on both sides of aisle



State Advocacy



California

- Current reprieve from CalRecycle Packaging Reform Workshop's proposed legislation and regulation of packaging due to China National Sword program
 - > Requesting a total reset instead of just a delay

Rhode Island

- New Task Force to "Tackle Plastics" set up by Executive Order by the Governor
- Report due February 2019, including possible legislation and regulation to eliminate sources of plastic pollution

2018 Elections

- Some states have flipped from Red to Blue
- WA has a plastic packaging EPR bill this session

State of the Industry: Conclusion



- Future of flexible packaging is bright
 - > The transition to flexibles will continue...
 - Use of flexibles is expected to grow in most market segments and all food categories
 - ➤ Must educate on its sustainability & solve for recyclability so that consumers and policy-makers are satisfied
 - ➤ Will take the entire supply chain!
- While the challenges are great; the opportunities are greater!
- FPA will be here Connecting, Advancing and Leading!

WWW.FLEXPACK.ORG



Questions?

Alison Keane
President & CEO
Flexible Packaging Association
akeane@flexpack.org