

PACKAGING TECHNOLOGY & RESEARCH

WHO WE ARE
WHAT WE DO
HOW WE DO IT



Dr. Claire Sand thinks “all food packaging all the time”

About our More Sustainable Packaging capabilities



Claire’s mission is to enable a more sustainable food system with science and value chain innovations that more sustainably increases food shelf life and prevents food waste

- 35+ years of food packaging experience
- Ranks innovative packaging science and value chain solutions to extend shelf life
- Generates implementation roadmaps and aligns business cases
- IFT Fellow, Riester-Davis-Brody life-time achievement in food packaging award recipient
- Doctorate in Food Science and Nutrition at University of Minnesota
- MS and BS in Packaging at Michigan State University

Owner



Adjunct Professor



Monthly Columnist



Current Leadership & Editorial Boards



Recent Awards



What We Do

Provide tailored packaging
science & value chain
solutions to the
food & packaging industry





**Future of
Food
Packaging**



**Active
Packaging**



**Intelligent
Packaging**



**Value Chain
Drivers**



**Material
Science**



**Process &
Package
Interactions**



**Migration
Complexities**



**Global
Research
Institutes**



Food Waste



**Consumer
Research on
Sustainability**



**More
Sustainable
Packaging**

**Our solutions are
tailored to client
needs**

Blending Packaging and Food Science with Value chain



Our solutions are tailored to client needs



Realizing the future of food packaging



Our solutions are tailored to client needs



Selected Clients



Food Industry



Packaging Industry



Associations





More Sustainable Packaging

We help clients achieve more sustainable packaging with packaging solutions that are Rational, Defensible, and Achievable.

CLIENTS: PACKAGING AND FOOD COMPANIES AND ASSOCIATIONS

Increase Shelf Life & Prevent Food Waste

PTR's science-based packaging solutions increase food shelf life and prevent food waste.

CLIENTS: PACKAGING AND FOOD COMPANIES AND ASSOCIATIONS

Food Packaging Innovations

PTR helps businesses identify and enact meaningful packaging innovations that meet business goals.

CLIENTS: PACKAGING AND FOOD COMPANIES AND ASSOCIATIONS

Food Package Optimization & Problem-Solving

We fine-tune food packaging using material science, deep value chain, and cost-savings experience.

CLIENTS: PACKAGING AND FOOD COMPANIES AND ASSOCIATIONS

More Sustainable Packaging

Dr. Claire Sand is a food packaging expert with 35+ years in industry and 18+ cases as an Expert Witness.

CLIENTS: ATTORNEYS WORKING ON FOOD AND BEVERAGE, PACKAGING & LABELING OR PATENT & INTELLECTUAL PROPERTY LITIGATION AND LAWSUITS

Learn more at www.PackagingTechnologyandResearch.com

Client Work: More Sustainable Food System



A More Sustainable Food System involves optimizing more sustainable packaging to prevent food waste and is:

RATIONALE

Actually be more sustainable and not reduce product shelf life

DEFENSIBLE

Be communicated to retailer, consumers, and post-consumer handlers in a meaningful manner

ACHIEVABLE

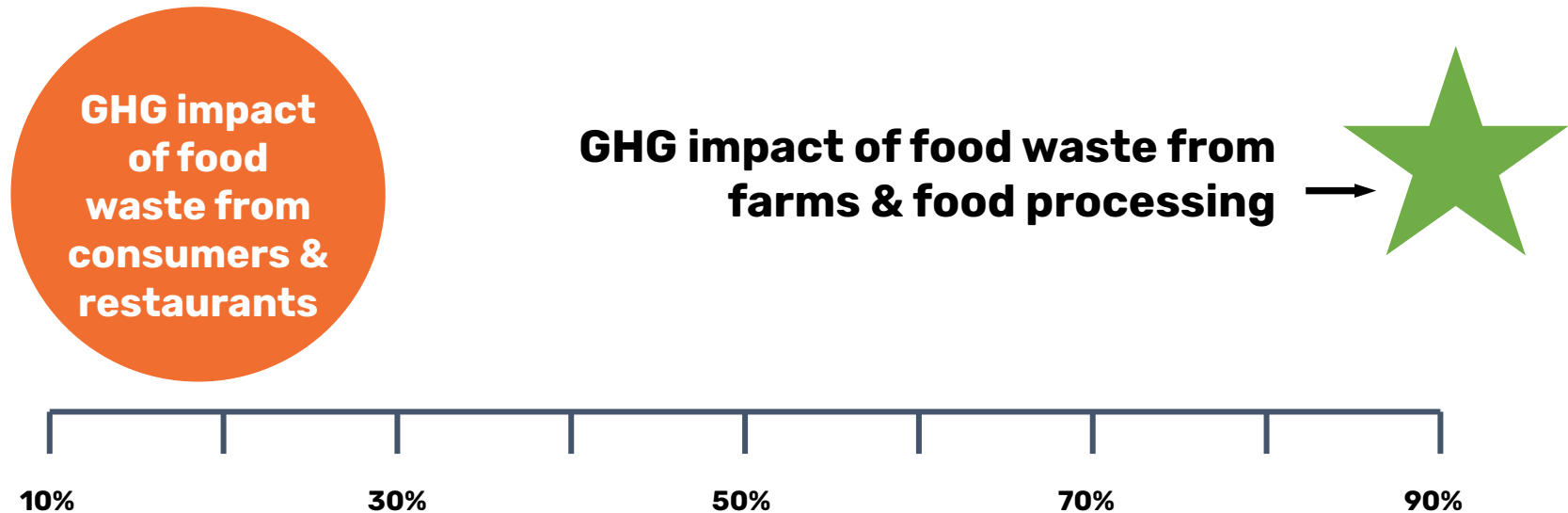
Uses what is viable in 1,3,5 years within defined constraints

LINKED

Aligns with retailer, consumers, and post-consumer handler needs and targets

PTR has the blend of value chain, food and packaging science to achieve a more sustainable food system

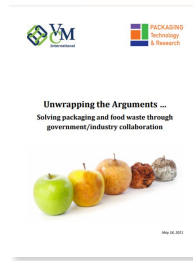
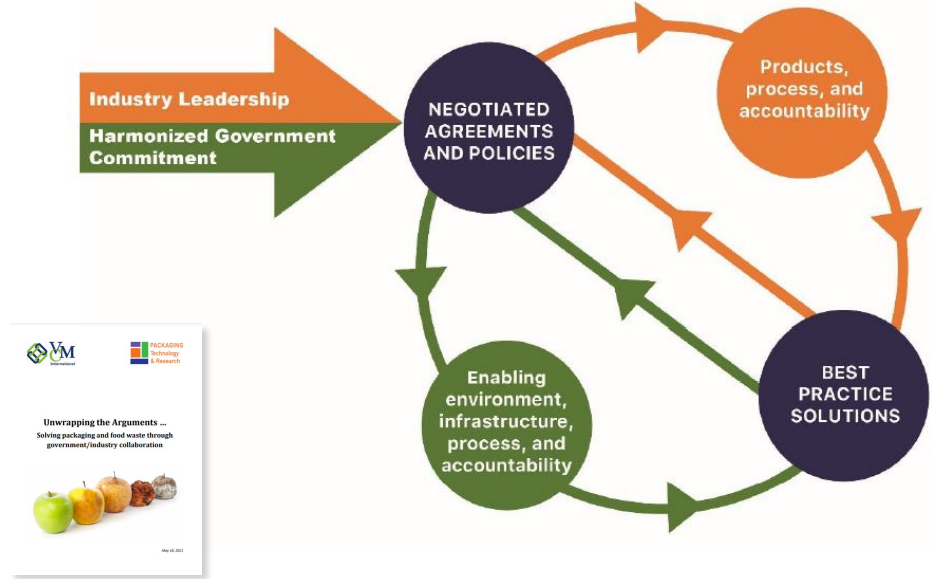
More investment in consumer and restaurant packaging is needed to reduce GHGs associated with food waste

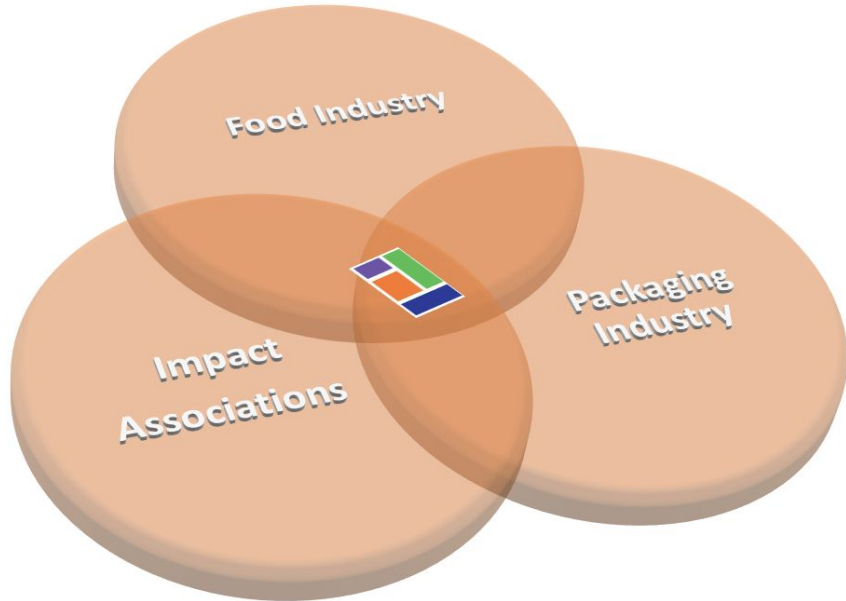


THOUGHT LEADERSHIP Addressing Packaging Bans

- Hammer policies **villainize** plastics
- Government hammer policies will increase GHG emissions
- **Effective packaging** and resultant less FLW would lead to a:
 - 10 % reduction in FLW
 - 50 % reduction in landfilled FLW
- **Viable solutions to reduce both GHG and FLW**

Industry leads with support from sound government policies & regulations





Companies we have worked with come in all shapes and sizes!

From startups to high volume global companies



Food Waste



More Sustainable Packaging

Global Food Company

SITUATION

Package sustainability initiatives lacked clear metrics

SOLUTION

- Conducted Life Cycle Analysis (LCA) to provide **fact-based information on the environmental impact**
- PTR developed the **environmental impact translation** for internal employees and stakeholders
- PTR assessed LCA impact of the removal of a package component and facilitated communication to employees, Board, and consumers

Learn more about this project from a [related article on this project here](#)

RESULTS



Enhanced Board understanding of company achievements and CSV statements



Removal packaging component meaningfully qualified



Chief Sustainability Officer role created and filled by key project stakeholder



Food Waste



More Sustainable Packaging

Frozen Food Company

SITUATION

Package sustainability initiatives lacked clear metrics

SOLUTION

- Conducted Life Cycle Analysis (LCA) to provide **fact-based information on the environmental impact** of package changes in the past 3 years
- Performed Baseline LCA on current packaging and 156 solutions that provided a 10-212% lower impact
- Developed the **environmental impact translation** for internal employees and external stakeholders
- Worked with existing suppliers to define and rank options for alternate packaging in 1,3,5 year and environmental impact and cost
- Aligned with Post-Consumer Recyclers, Retailer, and Supplier initiatives to gain momentum
- Ranked options by impact and cost

RESULTS



Enhanced Board and internal understanding of sustainability achievements



1,3,5 year Sustainability Roadmap



Clearly ranked more sustainable packaging by their impact, and cost



Produce company

SITUATION

More sustainable packaging was viewed as a means to differentiate product in the eyes of consumer and align with company mission

SOLUTION

1. Conducted LCAs on current packaging
2. Developed and assessed 13 potential packaging options
3. Assessed LCA impact of sourcing distance
4. Assessed shelf life and food waste associated with each packaging option
5. Guided decision-making and internal and value chain communications

RESULTS

Compostable packaging used as a means **to differentiate products in crowded category**





National Cattlemans Association and Minnesota Beef Council

SITUATION

Concrete direction follow-up from Phase 1 was needed to focus food waste & sustainability efforts

SOLUTION

- 16 prototypes with specific food waste prevention (resealable, intelligent packaging portioning) and more sustainable packaging (less packaging, less plastic, paper-based, recyclable, compostable, bioderived content) were developed
- Labeling to align with labels currently in use and approved by the FTC and labels that communicated sustainability and food waste, were developed
- Prototypes with and without aligning labels were assessed with consumers in focus groups
- Analysis provided clear direction for the meat industry on the "sweet spot" of food waste prevention and more sustainable packaging

RESULTS

Concrete direction included that Consumers:

1. Weighed food waste prevention higher than more sustainable packaging for meat
2. Connected the ability to see meat (via clear packaging) to food waste
3. Intelligent packaging to food waste but data codes augmentation still needed
4. Vacuum packaging connected with more sustainable packaging (minimal packaging) as well as quality due to less freezer burn
5. Needed obvious direction on recyclability

Opportunities exist in:

1. Adding more portioning to vacuum packaging
2. Expansion of SDO recycling to recycling centers at stores within rural areas



Industry Association

SITUATION

The link between sustainable packaging and packaged beef was missing

SOLUTION

1. Identified 4 more sustainable packaging formats with >5 material options that lowered the environmental impact of packaging
2. Conducted LCA and qualitative consumer testing on packaging options
3. Defined consumer view of package elements of reseal, portioning and intelligent packaging in the context of sustainability

Learn more about this project from public articles on [MDPI Academics Open Access here](#) or in the materials from this [Agricultural Utilization Research Institute webinar here](#)

RESULTS

- Correlated sweet spot for more **sustainable packaging in the eyes of the consumer** and factual LCAs
- **Sparked industry package redesigns**
- Direction to design packaging to **prevent consumer-derived food waste** as a means to connect with consumers on sustainability



Nonprofit Environmental Advocacy

SITUATION

Client needed intelligence on what chemicals to prioritize for action from 600+ Intentionally (and Non-Intentionally) Added Substances (IAS & NIAS) used as Food Contact Chemicals (FCC) / in Food Contact Material (FCM)

SOLUTION

1. Identified COCs currently used for 20 direct food contact packaging materials via an industry survey
2. Defined 608 NAIS & IAS within food contact packaging materials

Learn more about this project from a public article from

RESULTS

Output used in the development of the first-ever, free, and comprehensive **tool for making food contact safety-based purchasing decisions** for these products **based on the latest available science:**



Understanding Packaging
Scorecard



Packaging Company

SITUATION

Excess capital and declining core drove a 2 billion company to enter - via acquisition - the NA plastic food packaging arena

SOLUTION

- PTR provided strategic food & packaging science **trend analysis and market sizing** to rank acquisitions as part of M&A team
-
- Identified **market gaps** based on shifts in food technology and emerging food processing

RESULTS

The firm is on their third acquisition in 3 years

