Innovation Demo Day: Packaging Solutions

NOVEMBER 11 | 1.00PM ET

The ReFED Food Waste Action Network
<table>
<thead>
<tr>
<th>ACTION AREA</th>
<th>SOLUTION NAME</th>
<th>EMISSIONS REDUCTION</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Portion Sizes</td>
<td>11.5M Metric Tons CO2e</td>
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<td></td>
<td>Meal Kits</td>
<td>7.53M Metric Tons CO2e</td>
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<td>Consumer Education Campaigns</td>
<td>7.41M Metric Tons CO2e</td>
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<td></td>
<td>Centralized Composting</td>
<td>4.94M Metric Tons CO2e</td>
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<td>Manufacturing Byproduct Utilization (Upcycling)</td>
<td>4.85M Metric Tons CO2e</td>
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<td>Waste Tracking (Foodservice)</td>
<td>4.78M Metric Tons CO2e</td>
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<td><strong>Package Design</strong></td>
<td><strong>3.57M Metric Tons CO2e</strong></td>
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<td>Markdown Alert Applications</td>
<td>2.85M Metric Tons CO2e</td>
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<td>Enhanced Demand Planning</td>
<td>2.78M Metric Tons CO2e</td>
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<td>Standardized Date Labels</td>
<td>2.73M Metric Tons CO2e</td>
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<td>Manufacturing Line Optimization</td>
<td>2.51M Metric Tons CO2e</td>
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<td><strong>Active &amp; Intelligent Packaging</strong></td>
<td><strong>2.43M Metric Tons CO2e</strong></td>
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<td>Intelligent Routing</td>
<td>2.28M Metric Tons CO2e</td>
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<td>Decreased Transit Time</td>
<td>2.24M Metric Tons CO2e</td>
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Source: ReFED Insights Engine
Package Design

650,000 Tons of food waste can be cut each year by optimizing food packaging size and design to ensure complete consumption by consumers and avoid residual container waste.

Annual Impact Potential *

- **Net Financial Benefit**: $2.39 billion
- **Food Waste Diversion**: 650k Tons
- **Emissions Reduction**: 3.57M Tons CO2e
- **Water Savings**: 120B gallons
- **Jobs Created**: 985

*Incremental potential in addition to what is already happening currently*
Learning from Customers

Many companies have started to understand how their customers use their product and have improved their packaging size and type as a result:

- Warburton’s learned some customers weren’t finishing their loaves of bread, so they made a “medium” loaf.
- Instead of packing beans in cans, Heinz made a resealable container.
- Sour cream and tomato paste squeeze packs are more widely available.
Pre-portioned packaging has been shown to reduce a product’s overall carbon footprint:

President found that by portioning their camembert cheese from 300 grams to 6 sections required 3.3 grams more of composite paper, but the reduction in carbon emissions from preventing food waste is ~4-5x higher than the impacts of additional packaging.
Active & Intelligent Packaging – A 452,000 Ton Solution

Packaging to slow spoilage through technologies such as ethylene absorption, modified atmospheres, moisture absorption, etc., or adaptive materials that inform as to the quality/safety of the contents can reduce food waste by

452,000 Tons annually

Annual Impact Potential *

- Net Financial Benefit: $1.74 billion
- Food Waste Diversion: 452k Tons
- Emissions Reduction: 2.43M Tons CO2e
- Water Savings: 194B gallons
- Jobs Created: 685

* Incremental potential in addition to what is already happening currently
Different Types of Active & Intelligent Packaging

- **Innoscentia**
  - freshness indicators

- **mimica**

- **SAVRPAK**
  - shelf-life extension

- **Iyp LABS**

- **GREENPOD LABS**
Food Waste Repackaged

LEARNING • INNOVATION • MENTORSHIP
Olga Kachook
Senior Manager
SUSTAINABLE PACKAGING COALITION
ReFED Food Waste Action Network

Innovation Demo Day: Packaging Solutions to Reduce Wasted Food

November 10th | 1-2pm ET

BILL BIRGEN
SAVRpak

DEEPAK RAJMOHAN
Green Pod Labs

ERIK MÅNSSON
Innoscentia

MOODY SOLIMAN
Ryp Labs

OLGA KACHOOK
Sustainable Packaging Coalition

SOLVEIGA PAKŠTAITĖ
Mimica
Bill Birgen
Co-Founder & Chief Technology Officer
SAVRpak
Bill Birgen is the inventor of SAVRpak and former rocket scientist. X-Prize winner, CES winner, & UN Sustainable AgTech winner.

Grant Stafford has 20 years of experience developing packaging. Developed “Flippy”, the Miso Robotics robot, and the PopID touchless restaurant payment hardware.

Greg Maselli has 20 years of experience managing international operations and sales for “117 Global”.
The Solution
The Solution

Condensation

O²

CO²

Water

Respiration films too SLOW

Condensation is FAST

Respiration

Heat

CO²

Water

Transpiration
The Solution

- SAVRpak extends shelf life of produce 50% to 100%, without chemicals.
- Uses the dew point temperature to eliminate condensation, reducing microbial load.
- SAVRpak is compostable & sustainable.
- Hazel & Apeel are effective with thick peeled produce, which already has long shelf life. Proprietary chemical solutions are proprietary; no consumer transparency.
- SAVRpak adds nothing.
The Solution
The Solution

TIME (MIN): 00:00

SAVRPAK

CONTROL
The Solution

- French Fries delivered in a clamshell with SAVRpak measures up to 180% crisper (measured 3rd party validation, McCain Foods)
- Uses the dew point temperature to eliminate condensation
- Exothermic Enthalpy of Condensation balances Endothermic Enthalpy of Melting
- Hot & Cold Food; Works with All Containers
- Vent holes do not work
The Solution

Temp=200°F @ Time=0

115°  27:20  120°
Traction

- Have long term purchase orders from Sysco Foods, East Fork Creek, Mr Lucky and San Jose Farms. We have customers in 21 countries.
- Entering into “A Round” of funding
- $3.5 million raised in seed round, lead by Mark Cuban
Get Involved
Get Involved

- **Farmers Wanted** - Let SAVRpak help you get your produce to market, fresher, with a longer shelf life
  - Airfreight
  - Semi-Truck
  - Train

- **Restaurateurs Wanted** - Let SAVRpak help you deliver
  - Crunchy Hot Food
  - Crisp Salads
  - Longer Delivery Window & difficult menu items
Thank you!
Erik Månsson
CEO
INNOSCENTIA
The Team
The Team

**BOARD**

KARIN WEHLIN  
Chairwoman

**MANAGEMENT**

ERIK MÅNSSON  
CEO

PELLE EKEDAHN  
COO

RAMBABU ATLURI, PhD  
CTO (Co-Founder)

**TECH TEAM**

- Sashi  
  Doctor Microbiology
- Aradhana  
  Researcher Microbiology
- Swarnali  
  Assistant Microbiology
- Deeksith  
  Packaging Engineer
- Sravanti  
  Lab Assistant
- Arun  
  Senior Researcher
- Mounika  
  Researcher Food Technology
- Susmita  
  Project Manager
- Sanjita  
  Project Manager

Prof. Stein Kleppestö  
Erik Lindberg (Co-Founder)  
Robin Thiberg (Co-Founder)  
PhD. Roger Eriksson

ReFED
The Solution
The Problem

20-30%
Shelf Life Lost
The Solution

We help you reduce food waste!
The food is good to eat until the inner circle shifts into the same colour as the outer circle.

We help you reduce food waste!
The food is good to eat until the inner circle shifts into the same colour as the outer circle.

We help you reduce food waste!
The food is good to eat until the inner circle shifts into the same colour as the outer circle.

ReFED
Label is placed inside package, attached to top plastic film

Meat degrades and produces Volatile Organic Compounds (VOCs)

VOCs react with Innoscentia Ink

Reactive ink changes color
Values

- Food Waste Reduction
- Price Premium
- Brand Value
Traction
Traction

Raised capital
Total: $1,5 M

Grants
Total: $0,5M

Pilot dialogues

LOIs

Postcode Lottery
Green Challenge
EAT
EIT Food Accelerator Network
Get Involved
Get Involved

SIZE & GROWTH

NR 1 LARGEST MEAT MARKET WORLDWIDE
(Statista, 2021)

ESTIMATED GROWTH FRESH MEAT VOLUME
(Statista, 2021)

2.8%

FOOD WASTE IN AMERICA

AMERICANS STRIVING TO REDUCE FOOD WASTE
(MSU, 2019)

FOOD WASTE IN GROCERY STORES
(ReFED, 2016)

88%

12.7%

WHAT ARE WE LOOKING FOR

PILOT PARTNERS

INVESTMENT
Seed round spring 2022
Thank you!
Moody Soliman
CEO & Co-Founder
RYP LABS
Innovation Demo Day | Packaging Solutions

Makers of StixFresh™

Moody Soliman
CEO & Co-Founder
The Team
The Solution
Traction
Traction

We are working with a growing number of global customers on pilot studies and tailored solutions.

PILOT STUDY CUSTOMERS HAVE SEEN 52 - 96% REDUCTION IN LOSSES WITH RYP LABS
Get Involved
Join us in the fight against food waste

For more information, please contact us to schedule a chat.

Moody Soliman, Co-founder

Email: moody@StixFreshusa.com
Tel: +1 612.598.8889
Thank you!
Solveiga Pakštaitė
Founder & Director
MIMICA
The Team

Laurence Kayson
Chief Executive Officer

Lawrie Matthews
Chief Technology Officer

Solveiga Pakštaitė
Founder & Director
The Team

The problem we’re solving

Up to 83% of food waste in Europe is still perfectly edible.
- FUSIONS, 2016

Having to use cautious expiry dates to protect consumers drives tremendous waste.
There is an opportunity to create brand loyalty by increasing consumer confidence & helping them waste less.

“If things are short-dated, I buy less of them.”

*TLF focus group research, 2018*

65% said they would **buy bigger packs** of food, if they were able to finish them by the expiry date.

*Qualtrics, 2020*
For perishable products, overcaution leads to expiry dates being shortened by 2 or 3 days, sometimes more.

If we could add back just 2 of these days, there could be...

- Cuts in home waste of* 63%  
  *Date-code led waste, WRAP 2013

- Cuts in retail waste of* 50%  
  *As field-tested by leading global retailers on perishable products 2011/12

- Increases in sales of* 10%  
  *As field-tested by leading global retailers on perishable products 2011/12
Why does this drive profitability?

1. Longer time to sell before wasting
2. Extra days to consume makes people feel that they will waste less and encourages them buy more
3. Confidence in food freshness drives loyalty and return purchases
The Solution

The breakthrough is Mimica Touch, dynamic food expiry labels.
Traction to date

- Provide details on current customers, funding raised, etc.

CAP FEELS SMOOTH

FRESH

CAP FEELS BUMPY

DON’T CONSUME
The Solution

Watch a short demo of our technology in action
Traction
Get Involved

Join our Mission

To radically reduce unnecessary waste
Thank you!
The Team
The Team

Deepak Rajmohan, CEO
Vijay Anand, CBO
Shankar S, R&D Director
Subramani P, Operations Engineer
Ananya Payal, R&D Scientist
Keerthi Ranjith, Operations Engineer
The Solution
Active Packaging – The patented product activates the plant’s defense mechanism to slow down the ripening rate and prevent any microbial growth.

Identifying “Specific” Plant Defense Mechanism

Nano-encapsulating the Plant Bioactive

Using data to customize formulation
The Solution

Competitive advantage:

▪ A proprietary formulation and delivery model

▪ Use of all-natural bio-active compounds to activate the defense mechanism

▪ A cost-effective solution with easy adoption throughout the supply chain

▪ Customization based on volume, days, fruit/vegetable, and variety
The Solution

On an average 40% – 80% increase in shelf life at 35*C
The Solution

Day 0  
Day 7  
Day 14  

On an average 30% – 60% increase in shelf life at 35°C
Traction
Current running pilots with 25+ customers

Raised a pre-seed investment ($120k) in May 2020, closing our seed round ($600k)

Completed product development for 3 new crops

Established relationship with contract manufacturer for large scale production
Get Involved

Food Waste is a Preventable Problem

https://greenpodlabs.com/
Get Involved

- We’re here to offer our customizable solution to extend the fresh produce shelf life
- We’re looking large farmers/ producers to conduct product pilots and commercialize
- We’re looking for University partnership to conduct product validation studies (functionality and safety)
Thank you!
Thank you for being a part of the ReFED Food Waste Action Network.
Please answer the poll questions appearing on screen.

Your answers will be anonymous.

Thank you!
Following the Roadmap to 2030 Discussion Series

Recycle Anything Remaining

NOVEMBER 17 | 1:00 P.M. ET

ReFED

In partnership with foodtank
THE THINK TANK FOR FOOD
A Platform for Education, Collaboration, and Investment

THE FOOD WASTE FUNDER CIRCLE

Help Fund the Fight Against Food Waste

DECEMBER 8 | 1:00 P.M. ET

REGISTER NOW

Co-founders of the Food Waste Funder Circle
Stay Connected

@refed

refed.org
insights.refed.org

Questions/Feedback: lily.herd@refed.org