



ECOSEAL

PRISHA, ALEX, LIAM, NOAH



14%

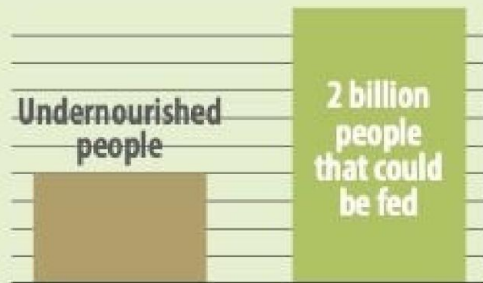
of all food produced is lost between
harvest and retail

3.3

gigatons of CO₂ are emitted due to food spoilage

Cutting food loss and waste

reduces **poverty** and **hunger** and fights **climate change**



Safe and nutritious food that is lost, discarded and wasted can feed some **2 billion people**, or more than double the number of undernourished in the world



If we save **one fourth** of the food currently lost or wasted, we can feed **870 million hungry people**

Vacuum Seal

Exposure to elements = increased spoilage



EFFECTIVENESS

- Vacuum sealing (and even UV-raying) produce can greatly increase their shelf life

By vacuum sealing produce, spoilage can be mass-prevented.

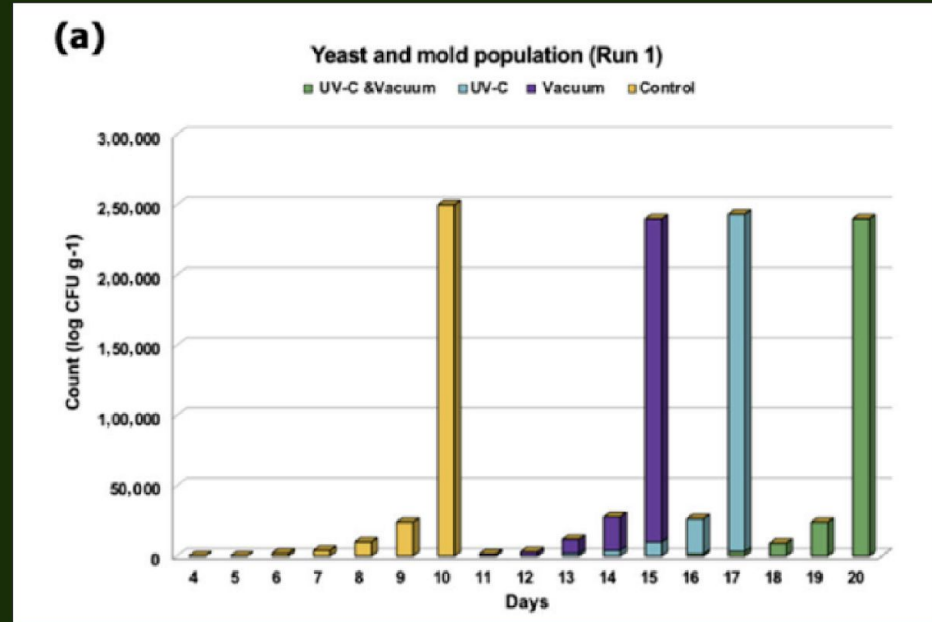


FIGURE 2 The population counts of yeast and mold (a–c) and *Pseudomonas* sp. (d–f) in the three experimental runs of the strawberry samples (log CFU/g)

Current Solutions



- Not Eco-friendly
- Meant for small amounts of produce
- Not Cost-effective

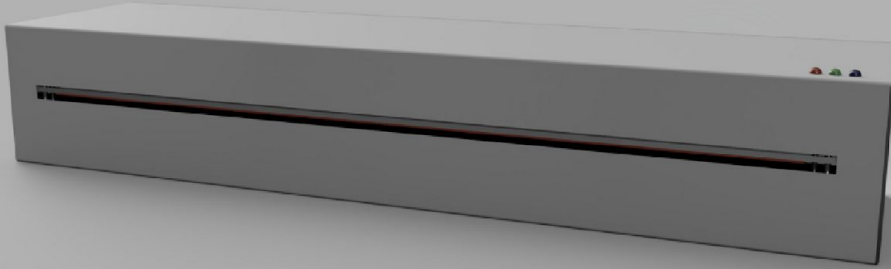


There are no current solutions to prevent spoilage of produce on a large scale.

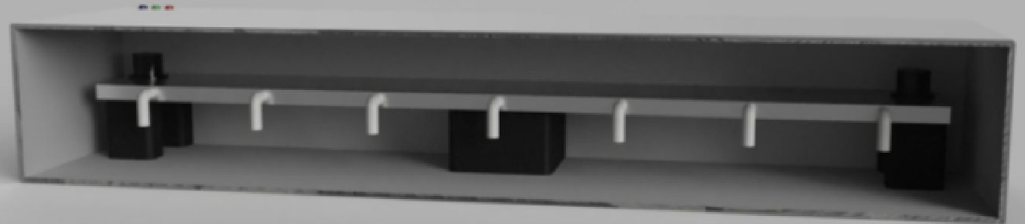
EcoSeal

Novel Technology for increasing life of produce on a large scale

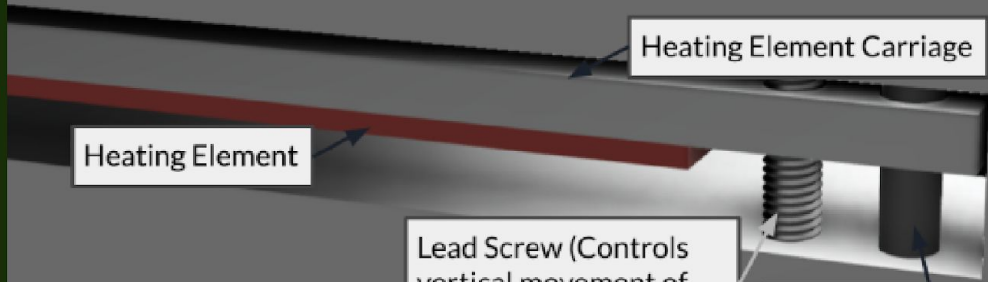
EcoSeal - Front View



EcoSeal - Back View



EcoSeal - Heating Element Assembly

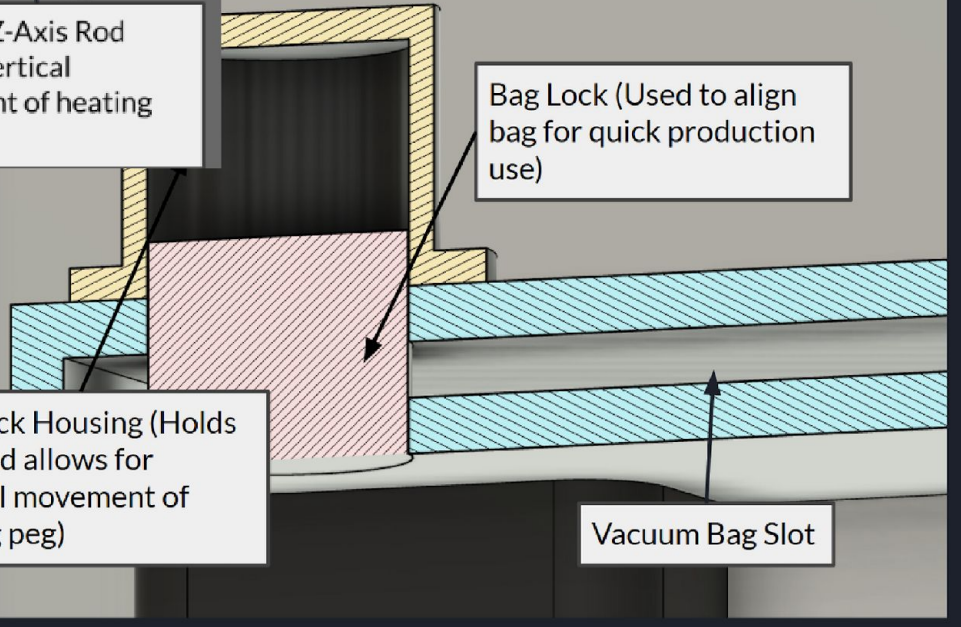


Heating Element Carriage

Heating Element

Lead Screw (Controls vertical movement of heating carriage)

Smooth Z-Axis Rod (Aligns vertical movement of heating carriage)



Bag Lock (Used to align bag for quick production use)

Bag Lock Housing (Holds lock and allows for vertical movement of locking peg)

Vacuum Bag Slot

EcoSeal Technology

Produce Crates placed in vacuum chamber



Biodegradable bags are aligned in sealer with alignment pegs



Air is removed from chamber- making a vacuum sealed environment



Package is heat-sealed (airtight)



Package can be transported further, and life of product increases

WHAT MAKES ECOSEAL SPECIAL?

Large-scale high-volume
production Vacuum
Sealing

Further market spread
for farmers

Biodegradable bags and
ec-friendly integration

Longer produce life

ECOSEAL

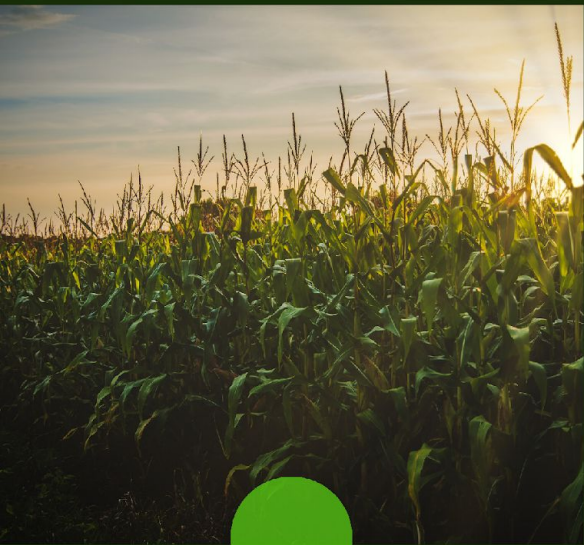
TYPES OF FOODS FOR ECOSEAL

- Vegetables
- Fruits
- Grains

In the future:

- Meat
- Dairy
- Seafood





IMPLEMENTATION

PHASE 1: LOCAL FARMS

- Produce - Corn and other produce grown locally
- Implementation From July-September
- Free Service
- Testing under a real-world scenerio



IMPLEMENTATION

PHASE 2: TRUCKING SERVICES

- Produce- Fruits, Grains, Vegetables
- Implementation - Winter 2023
- Combination with Large-Scale Containers
- Establish Connections and Trust With Farmers



IMPLEMENTATION

PHASE 3: LARGE-SCALE STORES AND FARMS

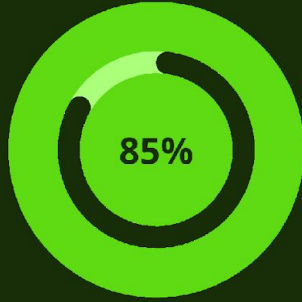
- Local (and chain) Grocery Stores
- Produce- Fruits, Grains, Vegetables,
- Work with their Production Line
- Nationwide

MONETIZATION

1. **Installation of Communal Vacuum Sealers**
 - Monetization: Locations that take farmers' produce, pay for bags and service
2. **Companies buy their own Vacuum Sealer**
 - Monetization: Buy Vacuum Sealer + Pay for Eco-friendly Bags

Low-cost unit price: Each large-format sealer can be produced for **under \$700 USD.**





FUTURE INNOVATIONS

UV/TEMPERATURE CONTROL

Implementation:

- UV Sanitization
- Temperature Control Modules
- Installation onto produce trucks

Effects

- Eliminate the need for Refrigerated Trucks for Dairy and Meat
- More Effective Holding for Different types of Produce
- Bacteria Removal

IMPACT

- 5X Produce Shelf life
- Save 103 million tonnes of food wasted
- Reduce Starvation for over 87 million
- Economic Benefits
- Reduce CO2 emissions by 20%



SOURCES:

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