

# Problem - Food Loss Global Average

Average	Agricultural Production	Post-Harvest	Processing & Packaging	Distribution	Consumption	Total
<b>Fruits &amp; Vegetables</b>	<b>16.00%</b>	<b>7.86%</b>	<b>13.71%</b>	<b>12.00%</b>	<b>13.71%</b>	<b>63.29%</b>
<b>Roots &amp; Tubers</b>	<b>14.29%</b>	<b>12.43%</b>	<b>13.43%</b>	<b>6.57%</b>	<b>10.29%</b>	<b>57.00%</b>
Fish & Seafood	8.94%	3.57%	7.71%	11.29%	9.14%	40.66%
Cereals	4.29%	6.14%	8.07%	2.57%	14.00%	35.07%
Oilseeds & Pulses	9.71%	4.71%	6.71%	1.57%	2.57%	25.29%
Milk	3.86%	4.43%	1.99%	5.36%	4.87%	19.90%
Meat	5.93%	0.66%	5.00%	5.43%	7.14%	24.16%



Food and Agriculture  
Organization of the  
United Nations



# Cool Innovation

**Extends the freshness of fruits and vegetables by up to 10x  
without any chemical sprays or special packaging**

# Actual Results

Item	Lettuce
Condition	0°C & 95%
Period	<b>30 Days</b>
Packaging	PET

Week 1



Week 2



Week 3



Week 4



Week 1



Week 2



Week 3



Week 4



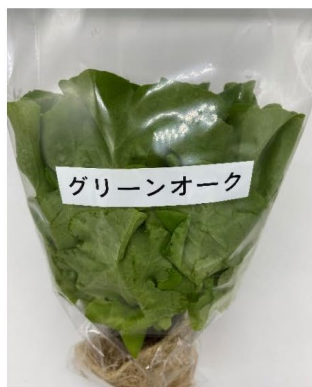
# Actual Results

Item	Lettuce
Condition	0°C & 95%
Period	<b>30 Days</b>
Packaging	PET

Week 1



Week 2



Week 3



Week 4



Week 1



Week 2



Week 3



Week 4



# Actual Results

Item	Flower
Condition	0°C & 95%
Period	<b>30 Days</b>
Packaging	Cardboard Box

**Cool Innovation was able to extend the life of flowers up to 30 days, maintaining a freshness as if they had just started to bloom. The samples did not use any preservatives or chemicals to extend the life of the flowers or maintain their freshness.**

**Purchased at a flower shop and stored in the Cool Innovation's environment.**



**Taken out of the warehouse and placed in a vase.**



**2-3 hours later.**



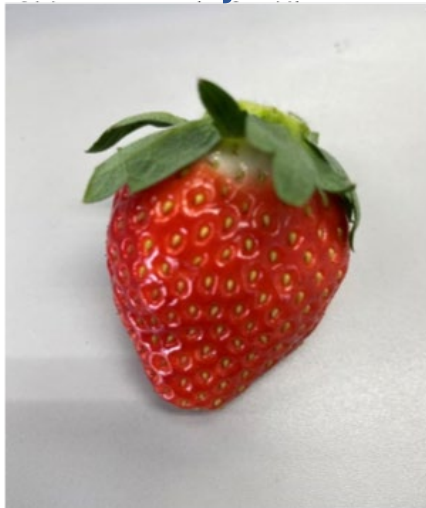
# Actual Results

Item	Strawberry
Condition	0°C & 95%
Period	<b>45 Days</b>
Packaging	PET

The strawberries are the famous Tochiotome from Utsunomiya. After being preserved for 26 days using Cool Innovation's technology, no changes were observed. On the 26th day, we conducted inspections on appearance, taste, and texture, but all three indicators remained unchanged from the first day.

**Note:** These strawberry was bought at a local supermarket so if we preserve the goods directly from the farm, the result would be much better.

Day 1



Day 20



Day 26



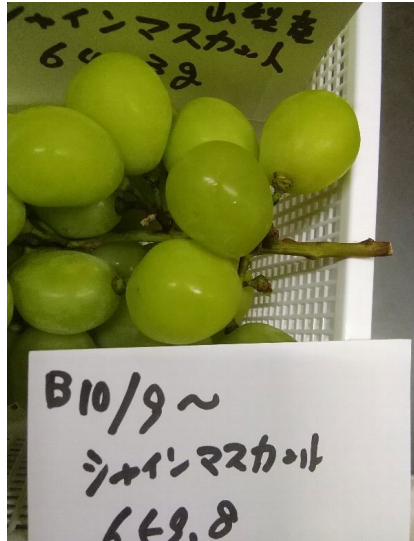
# Actual Results

Item	Sunshine
Condition	0°C & 95%
Period	<b>90 Days</b>
Packaging	None

In Japan, we have premium grapes. After 90 days of preservation using Cool Innovation's technology, changes in appearance and texture were minimal. They were stored without any packaging, but better freshness maintenance can be expected when appropriate packaging is applied.

Note: The best way to determine the freshness for muscats is stems. After 3 months, the stem part was still green and firm.

Day 1



Day 90





# Actual Results

Item	Pear
Condition	0°C & 95%
Period	<b>157 Days</b>
Packaging	Cardboard Box

We stored the Japanese variety of Nii Takana pears along with grapes for 5 months. After 157 days of storage, the weight decreased by about 8%, but the appearance was at a sellable level. The texture just below the skin was slightly dry, but over 90% of the taste and texture maintained its freshness. The condition is expected to be significantly improved with PET packaging.



Pear 1



Pear 2



Pear Inside



# Actual Results

Item	Chestnut
Condition	0°C & 95%
Period	<b>170 Days</b>
Packaging	Cardboard Box

Generally, chestnuts cannot maintain their freshness for 50 days, but in the Cool Innovation environment, they were able to maintain freshness for 170 days. The increased sweetness due to ripening surprised the producers.

170 days  
in Cool Innovation and Cooked



50 days in conventional refrigerator



75 days in Cool Innovation



# Actual Results

Item	Red Sea Bream
Condition	0°C & 95%
Period	<b>7 Days</b>
Packaging	Stainless + Cloth



Moisture is present, but no freshness.

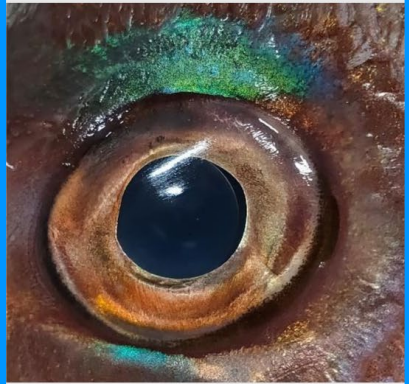


The eyes have a whitish tint overall, with a flattened appearance.

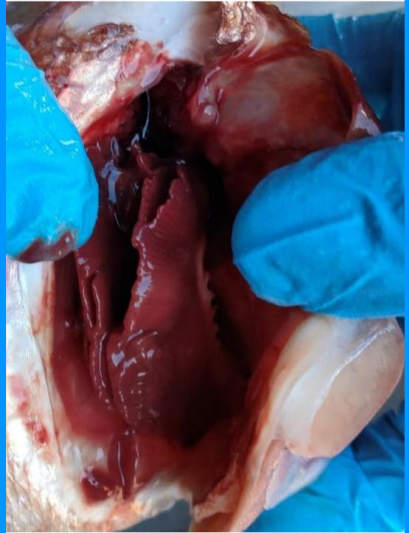


No redness remains in the gill area.

The surface has become slightly hard



Bluish tint around the eyes remains



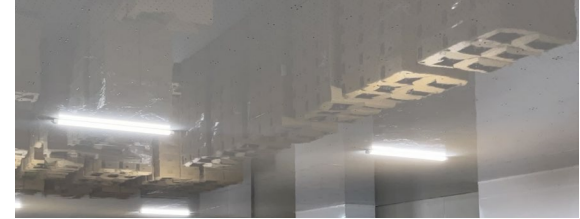
There is redness in the gill area

# Technology



# Solution - Cool Innovation Technology

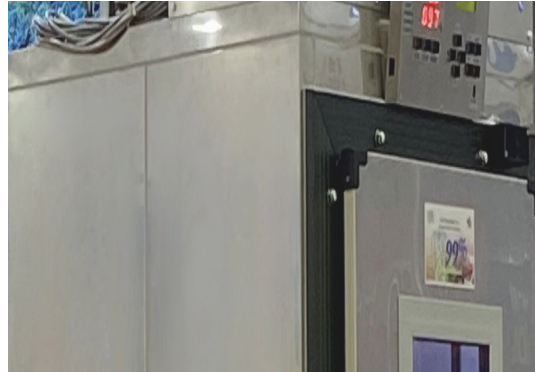
- **Precision Control: Low Temperature + 99% Humidity**
- **Extended Freshness: Up to 10x**
- **Energy & Carbon Efficiency: 50% Less Energy Use**



COUNTRY	ELECTRICITY COST MARCH 2024 (USD PER KWH)	▼	ELECTRICITY COST MARCH 2023 (USD PER KWH)	ELECTRICITY COST SEPT. 2022 (USD PER KWH)
Japan	0.221		0.246	0.247
Philippines	0.202		0.184	0.176



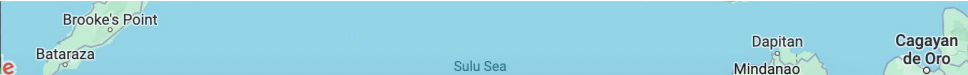
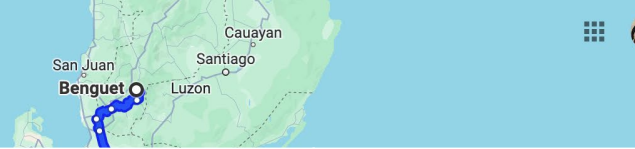
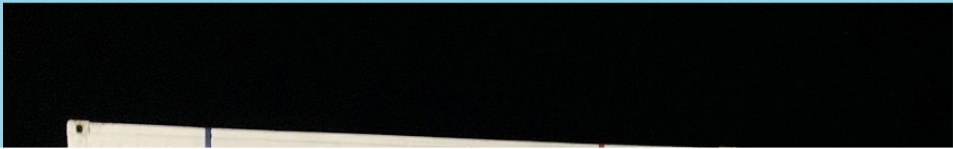
20/40ft Refrigerated Containers



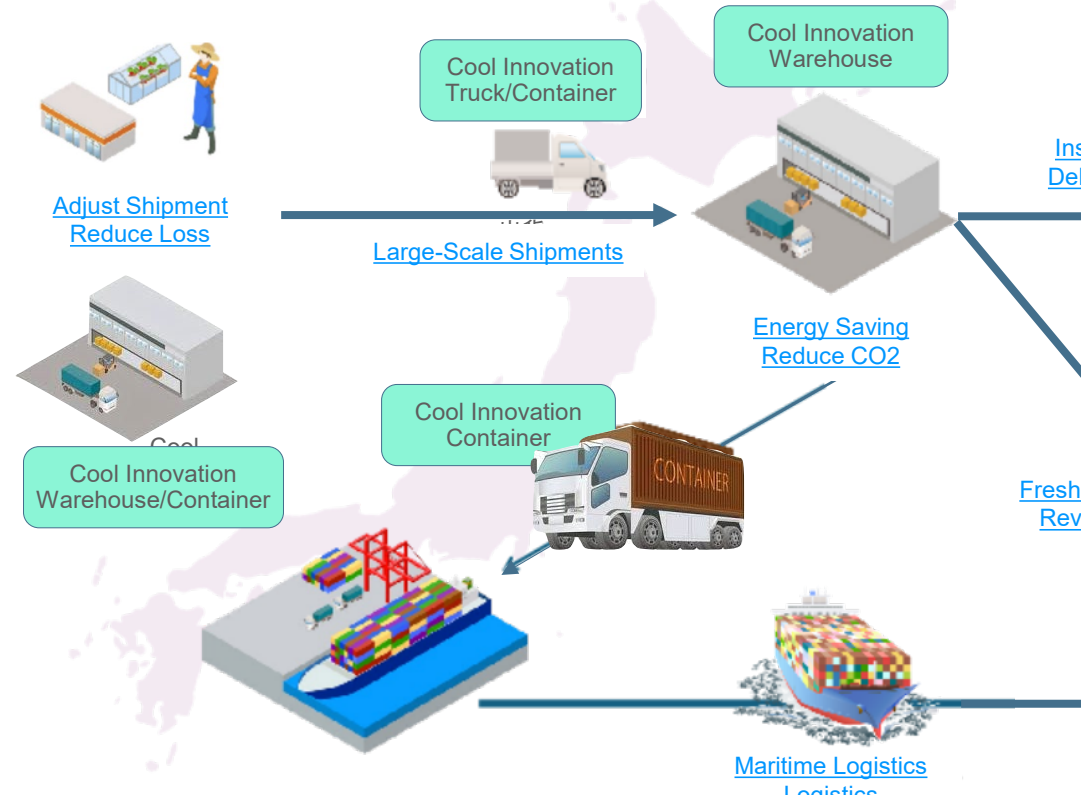
Small Refrigerators for Experimental Use



Refrigeration Modules for Warehouses



# New Cold Chain Infrastructure for Fresh Produce



# Milestones

## SusHi Tech Challenge 2024 Pitch Finalists

*Finalist*

Entrepreneurial Biotech S&B Bhd	Cool Innovation, Inc	BUYO Bioplastics Company Limited	Fermentation Co., Ltd.	CancerFree Biotech	E-Plant Pro, Ltd.	Degis Ltd.
CO-Founder & Chief Commercial Officer	CEO	CEO & Co-Founder	CEO	Founder and CEO	Co-Founder & CEO	Founder & CEO
Malaysia	Japan	Viet Nam	Japan	Taiwan	Singapore	Japan

## 2024 Meet Taipei TAIWAN+1

### 創新創業 Neo Star Demo Show

嘉華 評審團參獎

PwC Award 評審團特別獎  
2024 Meet Taipei Neo Star Demo Show 評審團首獎  
嘉華 評審團貳獎



## サステナブルな食・生物多様性の実現を目指す

### MUFG ICJ ESG ACCELERATOR

おいしいは、味だけじゃ語れない。  
Food is not only a matter of taste.

# FOOD X TECH Mercato

ACCELERATOR

## 大賞受賞企業決定!



# ILS INNOVATION LEADERS SUMMIT

## TOP100 startups

12th







**1 kg** of food waste produces over **2.5 kg** of **CO2**, and in landfills, it generates



“On agriculture, we have to find long-term solutions. I know I keep saying the phrase but that really is where we are headed: the value chain of

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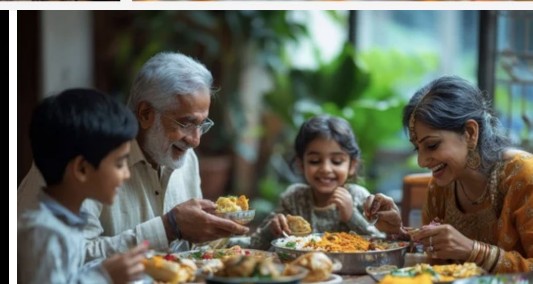
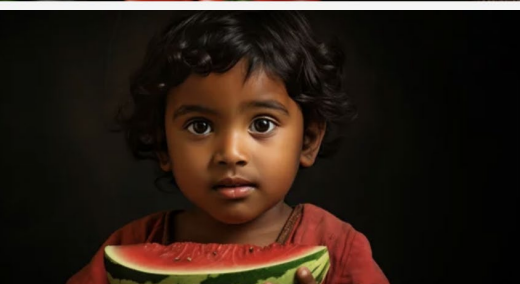
**stronger than CO2.**

FAO, [Food wastage footprint Impacts on natural resources.](#)



processing, to mechanization, to credit, all the way to retail.

**FERDINAND 'BONGBONG' MARCOS, JR.**  
President - elect of the Republic of the Philippines



# Cool Innovation

**Dan Chang**

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