



(fruitCOAT)

Let's fight food waste in a sustainable way



Main Problems

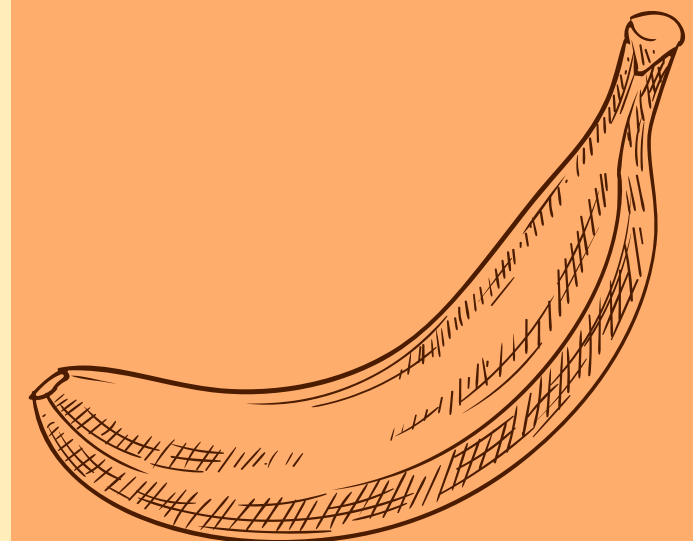
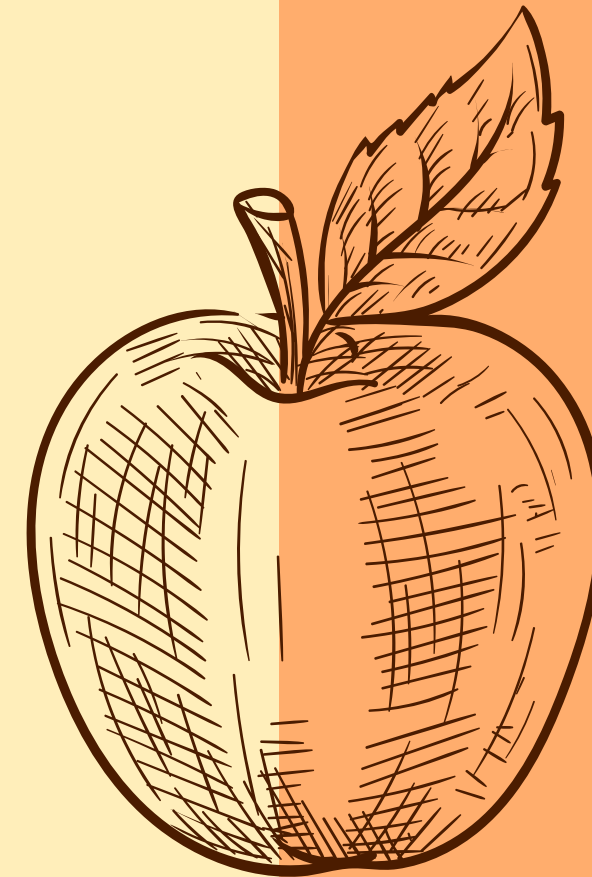
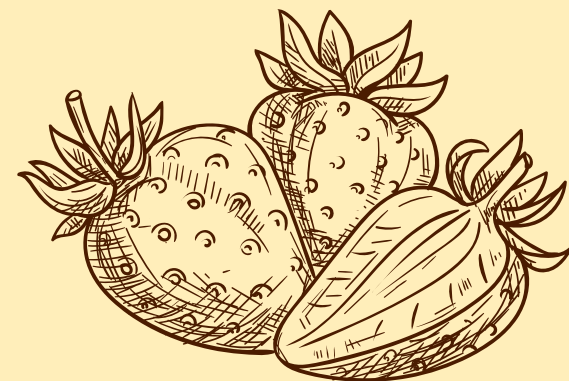
SHORT SHELF-LIFE OF POST HARVEST FRUITS

In Italy there is an annual loss of 263,645 tons of food waste, of which 40% is represented by fruit and vegetable waste, with a loss of money throughout the supply chain of 900 million euros.

WATER POLLUTION - $0,7 \text{ m}^3/\text{Kg}$

CONSUMED LAND - $3,7 \text{ m}^2/\text{Kg}$

CO₂ GENERATED - $0,08 \text{ CO}_2/\text{Kg}$





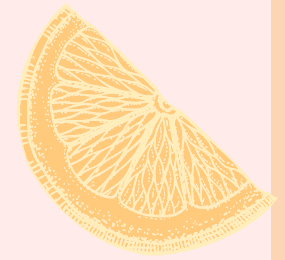
Food Waste

GLOBAL FOOD PRODUCTION 17%

- **Domestic environments** 10%
- **Food service** 5%
- **Retail stores** 2%



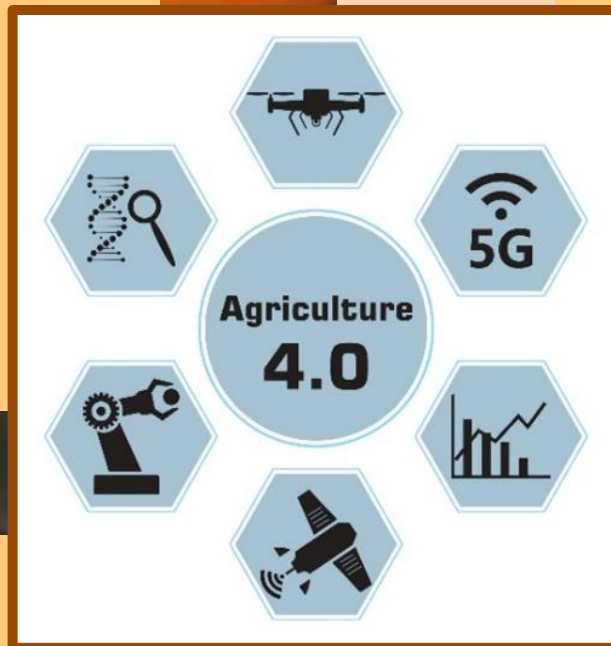
WE PROPOSE A hybrid solution



Transparent and biodegradable natural film, which will act as a coating for the fruit.

Made up of natural polymers.

Computer Vision applied sustainable Artificial Intelligence (AI) using UAV and UGV.



The system identify right time to pick and apply film, ensuring maximum effectiveness.





How do we do it?

The biopolymers chosen have important properties:

- *Anti-microbial*
- *Anti-oxidants*
- *Barrier against O_2*

The final product allows to:

- Slow down its aging by increasing its shelf-life
- Preserve the nutritional properties from harvesting along the entire supply chain

**The biopolymers used will be extracted
from agri-food and fish waste**

How do we do it?

The UAV is equipped with:

- Wi-fi sensor;
- Camera;
- Portable tank.

They Collect data and high-resolution imagery from cropland.

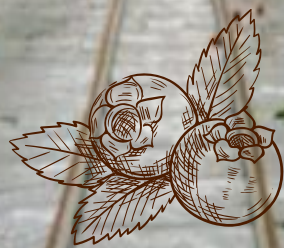
Allows:

- Monitor crop health and stress;
- Monitor irrigation;
- Identify best time to harvest;
- Spray film on fruits.

***Through Deep Learning algorithms,
data is analyzed to identify crop
health and stress levels***

SMART AGRICULTURE

«innovative model for managing agricultural activities»



NEURAL NETWORK TRAINING:

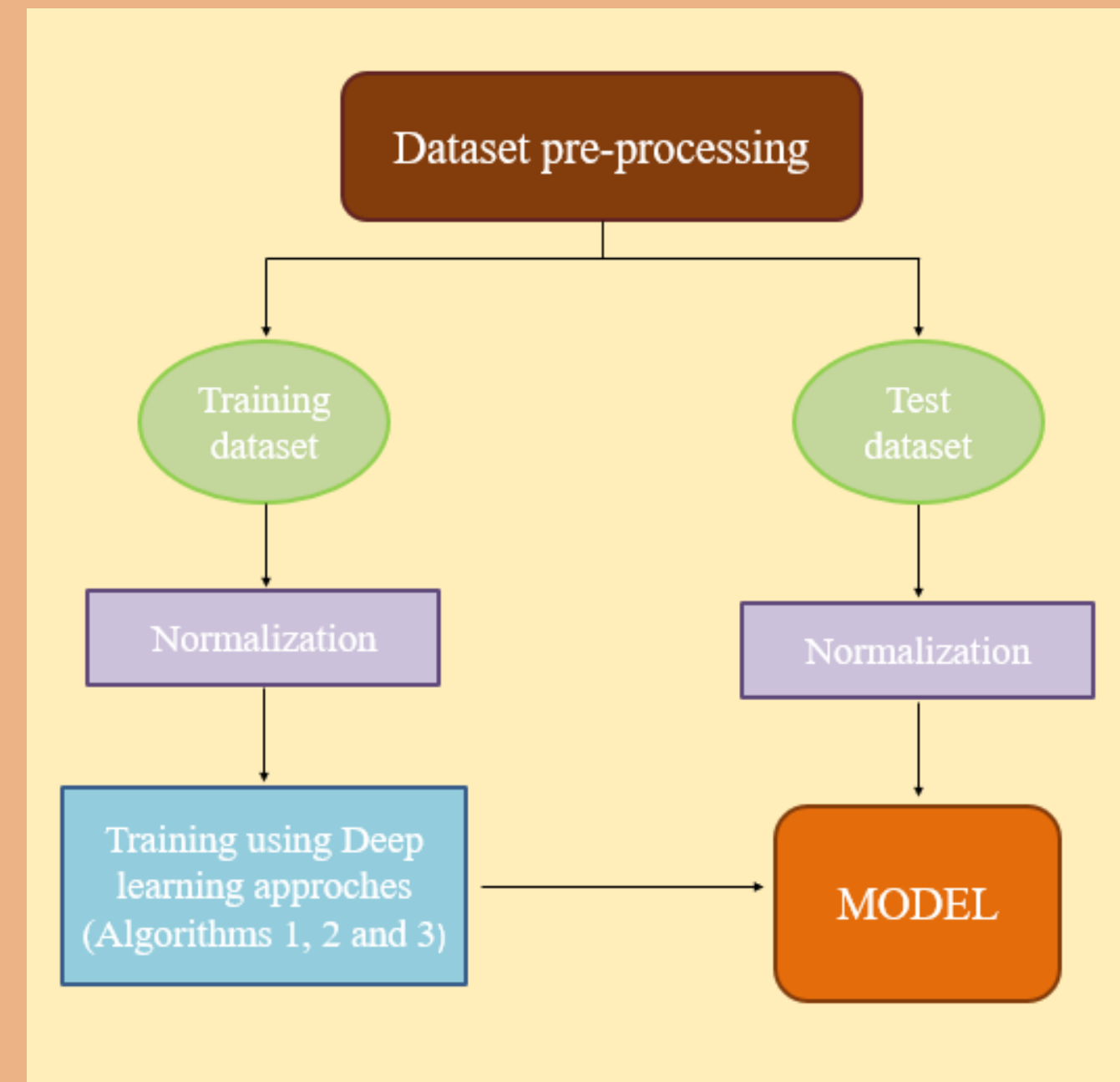
- Existing image collections;
- Refinement over the years of neural network for addition of new data acquired in field. .

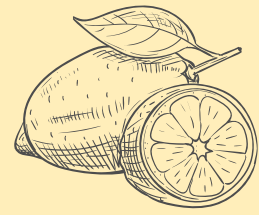


TECHNOLOGY



Deep Learning models for image recognition and their segmentation.





Our value proposition



HORTICULTURAL COMPANIES



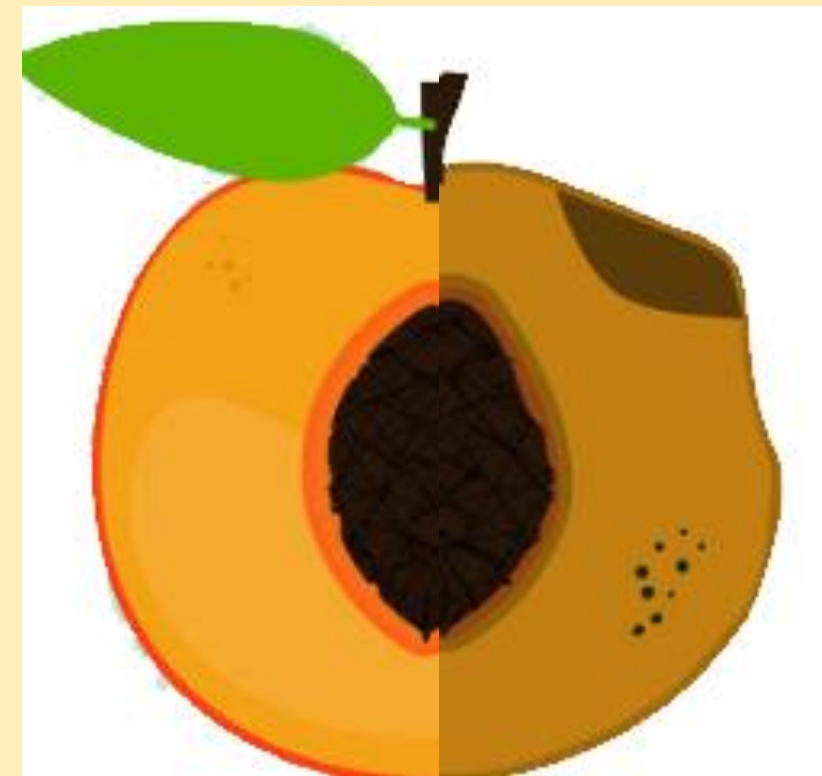
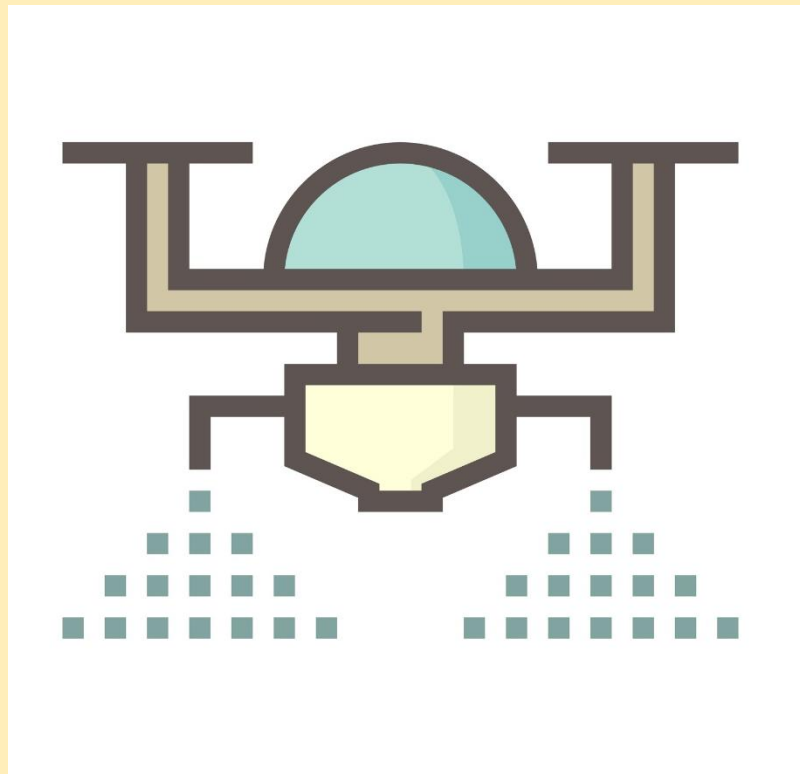
- Reduced loss of stored fruit with consequent reduction of waste.
- Avoid falling prices on long-term stored fruit.

FINAL CONSUMER OF FRUIT

- Fruit with longer storage times with all the nutritional properties.
- Reduction of domestic waste



MVP



- A: Coated with a low concentration of FruitCoat
- B: Coated with a high concentration of FruitCoat
- C: NOT Coated

After applications, the plums were placed in an oven at 40°C for 12h at 70% relative humidity.

THE COATING WORKS?



Plum A

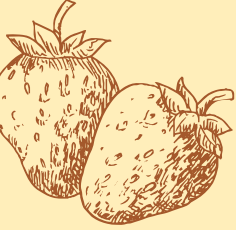
Plum B

Plum C

It is possible to lower the temperatures of cold storage rooms, used for crop storage, allowing energy consumption to be reduced for the farm and for environment itself.



Market size



*Annual fruit produced in the world:
883.42 million tons*

*Annual fruit produced in
Europe: 65 million tons*

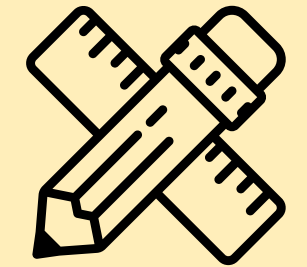
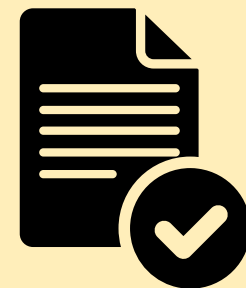
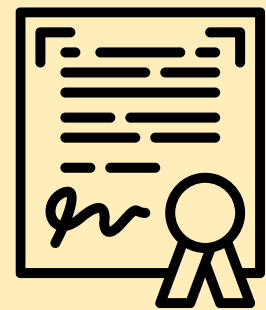
*Annual fruit
produced in Italy:
9.524 million tons*

**Our potential
EARLY ADOPTERS**

The Horticultural
companies in Southern
Italy

Road map

A 7-STEP PROCESS



1

2

3

4

5

6

7

RESEARCH AND
DEVELOPMENT

ESTABLISHMENT OF
THE COMPANY

PATENT DEPOSIT

EFSA
APPROVAL

SEARCH FOR
PERSONNEL

GO TO MARKET

INDUSTRIAL PLANT
COSTRUCTION AND
BUY DRONE

Q2/3 2022

Q1 2023

Q2 2023

Q3 2023

Q1 2024

Q2 2024

Q3 2024

ECONOMIC SUSTAINABILITY

Estimated cost of our idea: 350.000 €

- *Cost pilot plant realization (250.000 €)*
 - *Marketing activity*
 - *Research and Development*
- *Drones, Cameras, Software Development*



SALES STRATEGIES

- *Fixed monthly fee for loan of use for Drones and Software*
- *Variable fee depending on the coating needed by the company*





Our Team

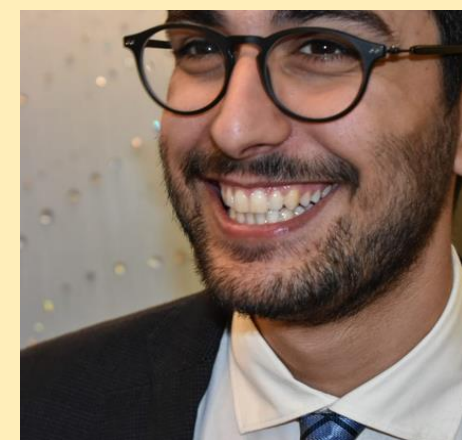


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