



Investigating food waste generation and prevention in Greek hotels using an AI technology

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Multi-actor design of low-waste food value chains through the demonstration of innovative solutions to reduce food loss and waste (<https://lowinfood.eu>)

LOWINFOOD has selected a set of very promising innovations designed to reduce the amount of waste at certain stages in the food value chain.
























The aim is to validate and improve them in order to provide society with tools to help combat food waste.

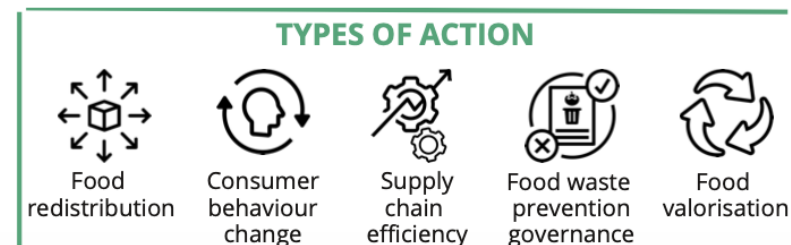
The Project is working on the following 4 value chains:

- Fruit & vegetables
- Bakery
- Fish
- At-home & out-of-home consumption.

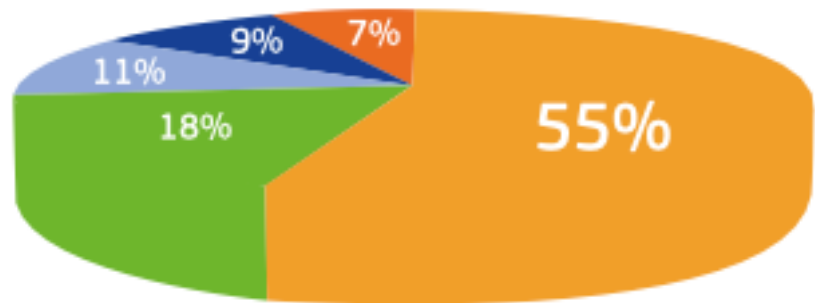
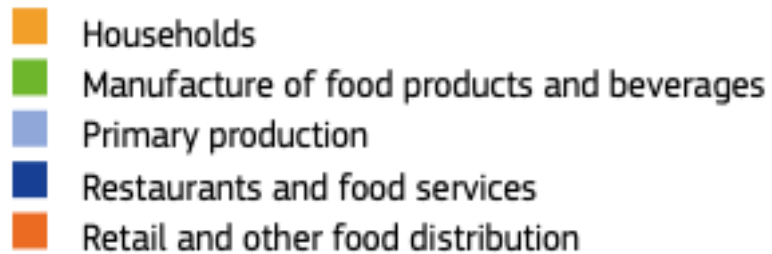


Innovations and their type of action

	Software to manage withdraws of fruit and vegetables and donate them to charities			Matomatic: Plate waste tracker for school canteens	
	Cooperation system between farmers and food service sector			Educational approach against food waste at schools	
	Foresightee: Fruit and vegetables sales-forecasting software for supermarkets				
	Leroma: B2B digital market place for reducing food losses in the vegetables and fish industries				
	Stakeholder dialogue to develop guidelines against food loss and waste in the bread and fish value chains			Regusto: Mobile app to sell restaurants' surplus food provisions	
	FoodTracks: Software for optimization of bakeries' production			CozZo: Mobile app to manage household food provisions	
	Innovative supplier/retailer agreements for bakery products				



Food waste in EU (baseline year 2020): 127 kg/ca/yr



Food Waste Sector

PERCENTAGE OF OVERALL FOOD WASTE	COMES FROM...	PER INHABITANT
55%	Households	70 kg
18%	Manufacture of food products and beverages	23 kg
11%	Primary production	14 kg
9%	Restaurants and food services	12 kg
7%	Retail and other food distribution	9 kg

KITRO | Smart bin for the kitchen of restaurants and hotels



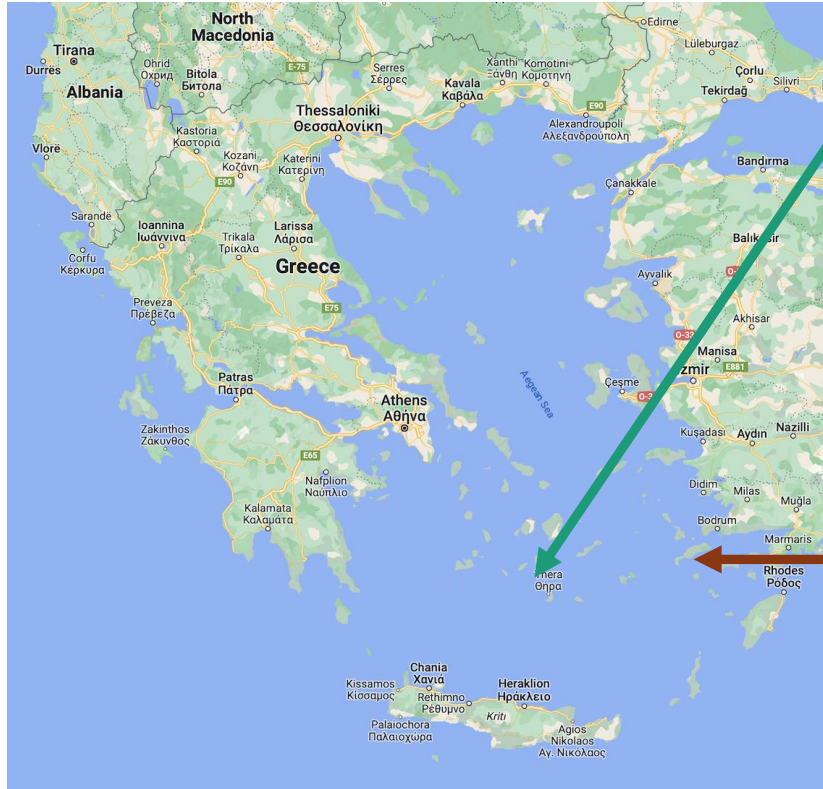
KITRO provides restaurants, canteens and hotels with a fully automated food waste management solution.

By combining **image processing and deep-learning** technologies with a hardware solution, relevant information on the food being thrown away is captured and analysed.

This empowers food services to make informed decisions and optimize work practices leading to a reduction in food waste, food cost and their negative environmental impact.



KITRO implementation in Greece



A

Santorini – TUI BLUE Meltemi (όμιλος Meltemi Hotels & resorts)

- 5 KITRO devices (Pastry, Preparation vegetable, Preparation meat / fish, Culinarium, Main restaurant)

B

Kos – Atlantica Thalassa Hotel

- 5 KITRO devices (Central Kitchen, Cold Kitchen, Restaurant, Terrace L, Terrace R)



Implementation period:

April 2022 – October 2022

April 2023 – October 2023

Kos – Atlantica Thalassa Hotel

Overall



Edible waste weight

Over selected time period

5'043 kg



Edible waste cost

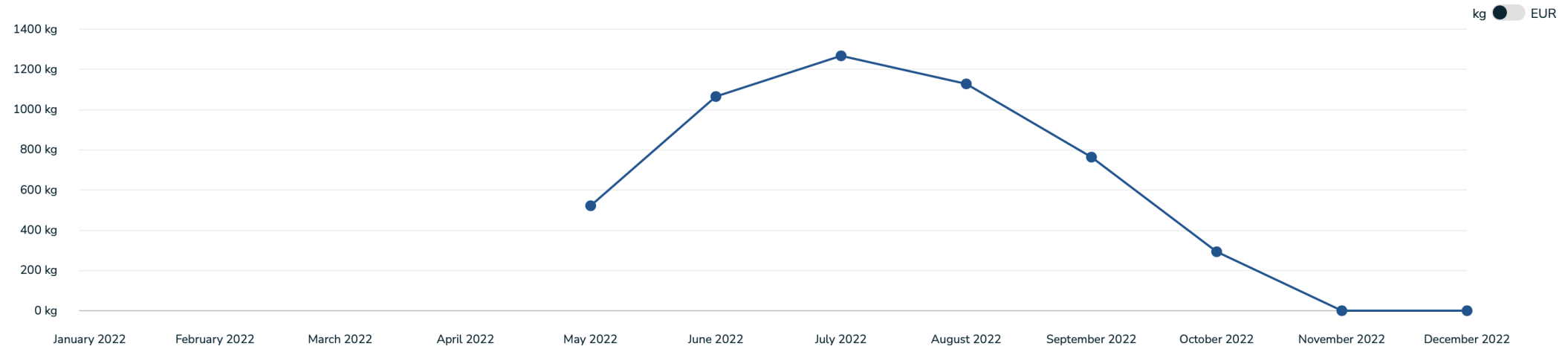
Over selected time period

EUR 27'944

Show less ^

 **Tip:** Hover over peaks to see more information

● Selected time period ● Comparison period average

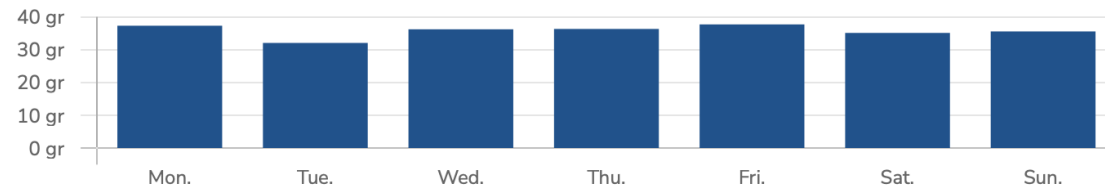


Kos – Atlantica Thalassa Hotel

Overall

Average waste per guest per day

gr ☒ EUR



Edible vs. inedible waste

kg ☒ EUR



☐ Inedible
☒ Edible

kg	EUR
5'091	8'742
5'043	27'944

Sources of edible waste ⁱ

kg ☒ EUR

 **Tip:** Hover over segments to see % for different sources



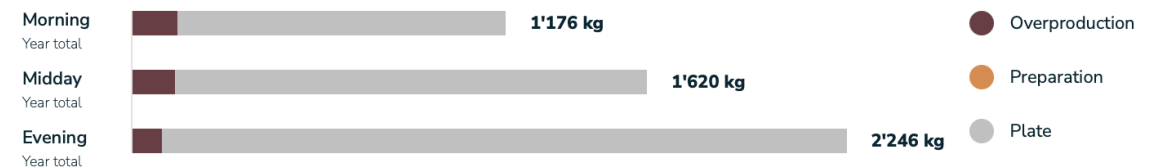
☐ Plate
☒ Overproduction

kg	EUR
4'676	26'723
367	1'221

Edible waste - service times ⁱ

kg ☒ EUR

 **Tip:** Hover over segments to see data per source



Kos – Atlantica Thalassa Hotel



Santorini – TUI BLUE Meltemi



**TUI Blue
Meltemi**

**Food
Waste per
Guest:**

**Main
Restaurant**

vs

Culinarium



KITRO

TUI Blu Meltemi, Main restaurant

Device: Main Restaurant

Period: Year

Date: 01/01 - 31/12/2022

Waste type: All



Waste per guest

Over selected time period

38 gr

↑ 0% from 2022



Cost per guest

Over selected time period

EUR 0.22

↑ 0% from 2022


Top wasted items - trash event images



Mixed vegetables

08.06.2022, 13:43


10780 gr



Other

04.08.2022, 13:04

6290 gr



Error

30.06.2022, 11:34

4760 gr



Sauce white

10.07.2022, 12:28

3540 gr



Paper

27.05.2022, 07:14

3470 gr



Sauce white

03.07.2022, 11:43

3430 gr



Bell pepper

20.06.2022, 16:24

3260 gr



KITRO

TUI Blu Meltemi, Culinarium

Device: Culinarium

Period: Year

Date: 01/01 - 31/12/2022

Waste type: All



Waste per guest

Over selected time period

9 gr

↑ 0% from 2022



Cost per guest

Over selected time period

EUR 0.03

↑ 0% from 2022

Top wasted items - trash event images



Other

26.06.2022, 18:10


11830 gr



Stock

20.05.2022, 16:48

8870 gr



Stock

12.05.2022, 14:31

8010 gr



Other

19.06.2022, 22:31

7960 gr



Bone

22.07.2022, 18:49

7570 gr



Stock

08.06.2022, 21:49

7100 gr

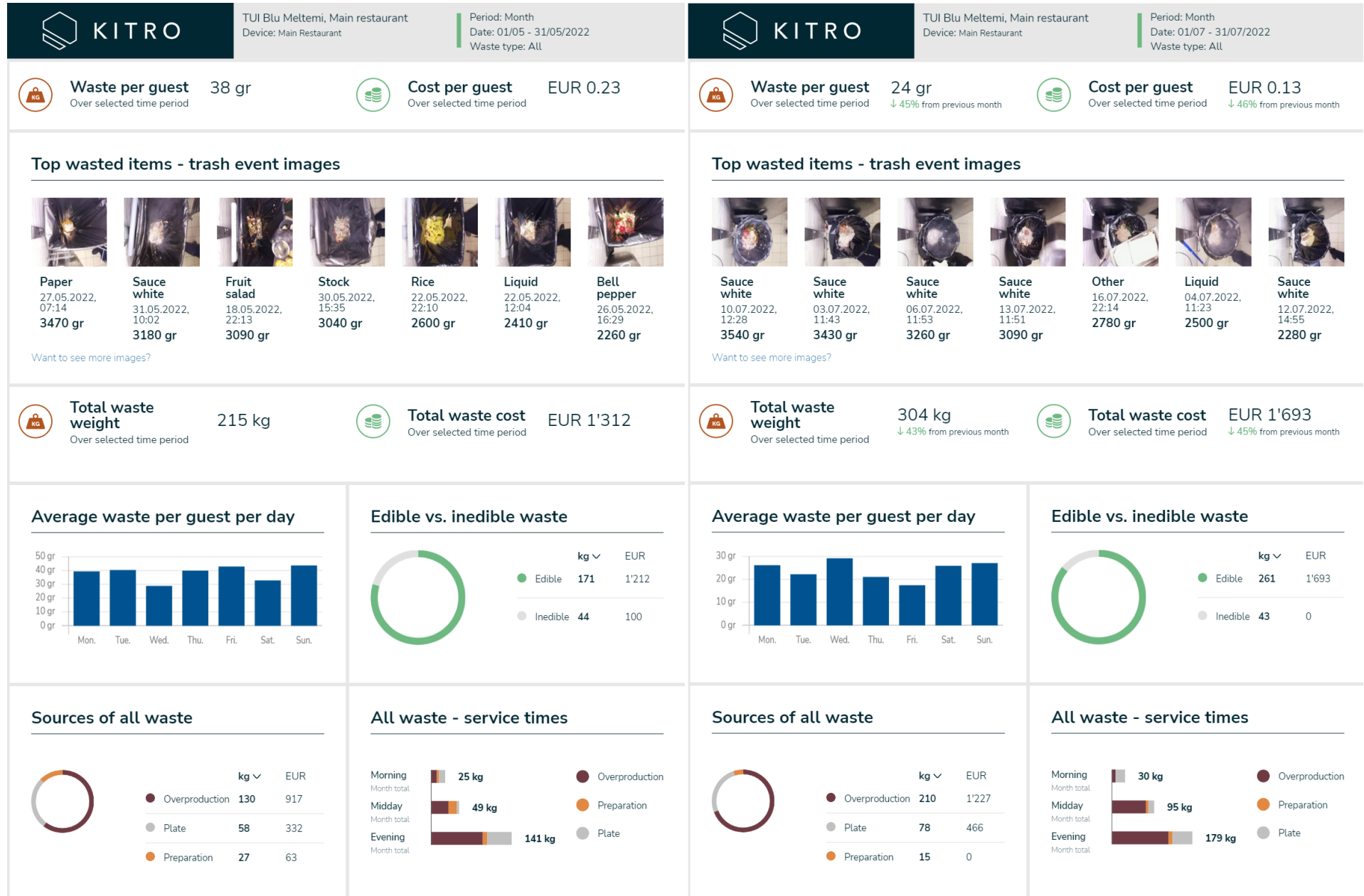


Paper

01.05.2022, 23:16

6780 gr

Main Restaurant Food Waste Comparative Assessment: May vs July 2022

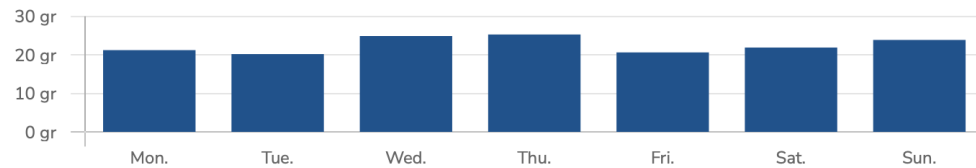


Santorini – TUI BLUE Meltemi

Main restaurant

Average waste per guest per day

gr ☒ EUR



Edible vs. inedible waste

kg ☒ EUR



☒ Edible
☐ Inedible

kg	EUR
1'383	9'753
383	273

Sources of edible waste ⁱ

kg ☒ EUR

 Tip: Hover over segments to see % for different sources



☒ Overproduction
☐ Plate

kg	EUR
1'038	6'942
345	2'810

Edible waste - service times ⁱ

kg ☒ EUR

 Tip: Hover over segments to see data per source

Morning
 Year total

191 kg

Midday
 Year total

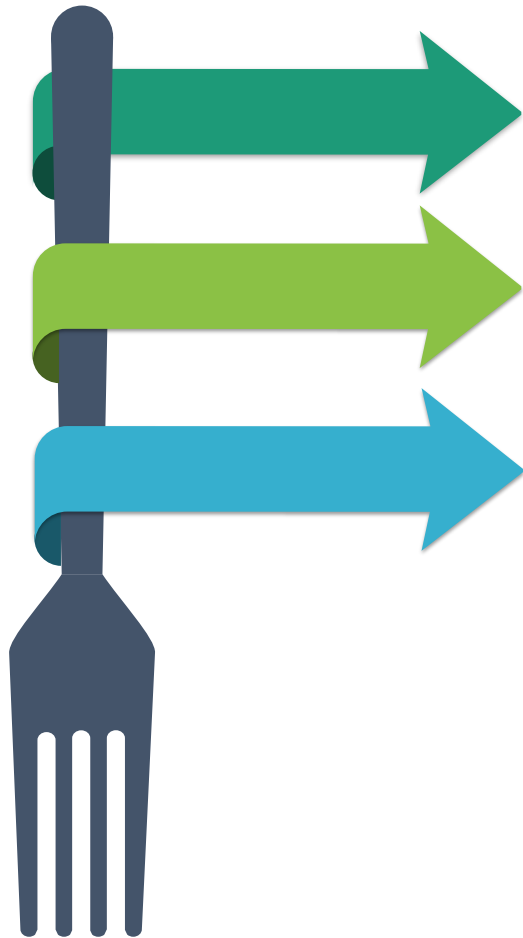
376 kg

Evening
 Year total

815 kg

☒ Overproduction
☐ Preparation
☐ Plate

Strengths and challenges



Plug 'n' play | Easy set up and adaptable to most kitchen bins | It should also be adaptable to bins with lids and foot pedal

User – friendly interface | The kitchen manager can easily input required data and instantly see the analysis of the results

Save resources | It identifies food waste hotspots and helps kitchen managers design and implement tailored actions to reduce food waste and save money | Staff should then be trained accordingly

Thank you for your attention!

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lowinfood.eu



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