



# The Food Loss and Waste Prevention Unit of the Municipality of Halandri

**Good practice for Sustainable Food Systems in a circular economy perspective**

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## ✓ The Food Loss and Waste Prevention Unit of the Municipality of Halandri

#HalandriMunicipality

#Greece

#Foodwaste

#NoToWaste

#FoodConnections



Halandri, Greece



Public administration-led



## THE CHALLENGE

In Greece, 524 kg of municipal solid waste is annually generated per inhabitant. Only 21% of this waste is recycled and/or composted (EUROSTAT 2021). Food waste is collected separately in brown bins or collected with the common waste as mixed waste. According to the provisions of the National Laws (Law N° 4042/2012 and Law N° 4819/2021) and the National Waste Management Plan, each municipality is responsible to collect, handle and transport the municipal waste generated in its prefecture. Mixed waste is transported to waste treatment plants or to sanitary landfills while food waste is collected as a separate stream that can be transported to treatment plants to produce compost.

For the past 8 years, the Municipality of Halandri has tried to overcome the challenge of the lack of food waste management and valorization alternatives through the incentives of the former chairman of the city council, currently the advisor of Recycling: Prof. G. Lyberatos (NTUA Prof. of School of Chemical Engineering, Institute of Chemical Engineering Sciences). In 2016, Prof. Lyberatos applied for funding and Halandri Municipality was accepted as a partner of the HORIZON project Waste4Think. Currently, the Municipality is participating in three projects HORIZON 2020 FoodRUs, HORIZON ToNoWaste and ERASMUS+ Food Connections projects, that concern food loss and waste prevention. Halandri is closely following the solutions and practices developed in these projects in order to adapt them to the local context.

## THE CONCEPT

The Halandri Municipality has founded a Food Loss and Waste Prevention Unit (hereafter referred to as the “Unit”) to organize the fight against food waste in a systematic manner. The Unit’s strategy is to i) establish close collaboration with the relevant actors selling food and consuming it, ii) to define the current baseline, and iii) to develop food waste prevention strategies. Other long-term aims of the Unit include: biowaste valorization, increasing food donations and saving food from vegetable open markets.



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### THE PRACTICE - TOOL

In order to develop an action plan, the Unit first performed a literature review, several stakeholders' meetings, and meetings with the vice mayors.

Monitoring food waste helps the participants realize the amount of food wasted and enables the Municipality to assess the opportunities (hotspots) for food waste reduction. Hence, the first phase of the Unit's action course was the establishment of monitoring procedures to assess the amounts of food waste generated and the extent to which this is avoidable (baseline definition). The monitoring was carried out by volunteers, shops, and social structures in three different ways: conduction of surveys, diaries, and waste composition analysis.



Figure 1. The cook of the fifth public preschool of the Municipality of Halandri while measuring unavoidable food waste during the research of the Food Loss and Waste Prevention Unit of Halandri

Following the monitoring procedure, a strategy was developed for each type of stakeholders to help reduce their food waste. Continuous monitoring of food waste generated at household levels and the publication of the results helps involve and sensitize more and more citizens. A list of recommendations for reducing food waste via improved food management at household level (shopping, storage, cooking, serving, and wasting) has been prepared and shared with Halandri's citizens. Nurseries have implemented several ways of reducing food waste using techniques such as improved meal selections, improved serving practices and educational interventions with the pupils (aged from 11 months to 4 years old). Analogous procedures are discussed for helping HORECA and retail shops reduce their food waste.

The second phase of the Unit's action was focused on communication campaigns. Campaigns using the website of the Municipality and its social media have therefore been launched in addition to presentations in 7 different schools and the distribution of printed brochures to citizens.



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### THE PRACTICE - TOOL

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Moreover, to increase its outreach, the Unit became a member of the Alliance for reducing food waste in Greece that involves stakeholders from all sectors involved in the food value chain. It also is in close contact and collaboration with NGOs and volunteer organizations that share the same scope. For more information about the Alliance, please read the "Boroume and Alliance for the reduction of Food Waste in Greece" [Best Practice document.\[1\]](#)

### ACTORS

- The Municipality of Halandri
- The Waste Management services of the Municipality
- The School of Chemical Engineering of the National technical University of Athens
- The stakeholders of the Food Loss and Waste Prevention Unit:
  - Food retailers
  - Restaurants
  - Public nurseries
  - Public schools
  - NGOs
  - Charitable organizations
  - The residents of Halandri

### GEOGRAPHIC COVERAGE

The center of the geographical coverage is the Municipality of Halandri. However, the practice of the Food Loss and Waste Prevention Unit is promoting food waste prevention, sustainable food, and surplus food in the greater region of Attica and Central Greece.



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### REGULATORY ASPECTS



The following laws and national plans regulate the prevention and reduction of food losses and waste. Please note that the regulations mentioned in the first two points also detail the measurement and monitoring schemes established for food losses and waste and for the management of food surplus:

- The National Law 4819/2021 on the integrated waste management plan with reference to biodegradable waste, food waste and food surplus as distinctive categories. The Law has been active since July 2021 and consists of the most recent legislative actions of the Greek state on food waste. In addition, it incorporates the EU Directives 2018/851 and 2018/852 as well as the Directive 2008/98/EC of the European Parliament.
- The National Strategic Plan for Waste Prevention and the National Program for Prevention and Reduction of Food Loss.
- The National Circular Economy Strategy of 2021 incorporates the targets and directions of the national law 4819/2021 and includes guidelines of food packaging and its disposal according to the Directive 94/62/EC.

In addition, the following regulations and plans condition the donation of food in Greece:

- Since February 2014, food donations have been regulated by the Article 46§1 of Law N° 4238/2014. Food donations alongside with donations of other goods such as medicines, clothes, apart from those subject to specific VAT, are exempted from VAT when they are donated to Greek non-profit legal entities with proven social aim. The items should be distributed solely for the convenience or comfort of vulnerable social groups.
- The National Waste Prevention Program (2021-2030) aims to implement financial incentives such as tax reliefs and VAT exemption (The Council of Ministers, 2022). However, the actual financial incentives are not detailed in the program. In addition, article 20 of Law 4819/2021 provides guidelines for food donation: free redistribution of food is allowed when given for a charitable goal (EEA, 2021b). Such food donations may benefit from a 20% reduction of taxes according to the EU guideline 2017/C 361/01 on food donations.



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# VOLUMES / OUTCOME / IMPACT GENERATED/ QUANTIFICATION

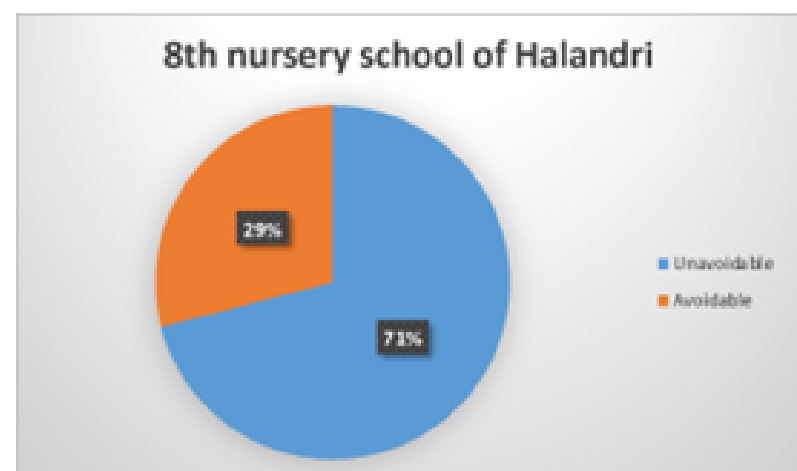
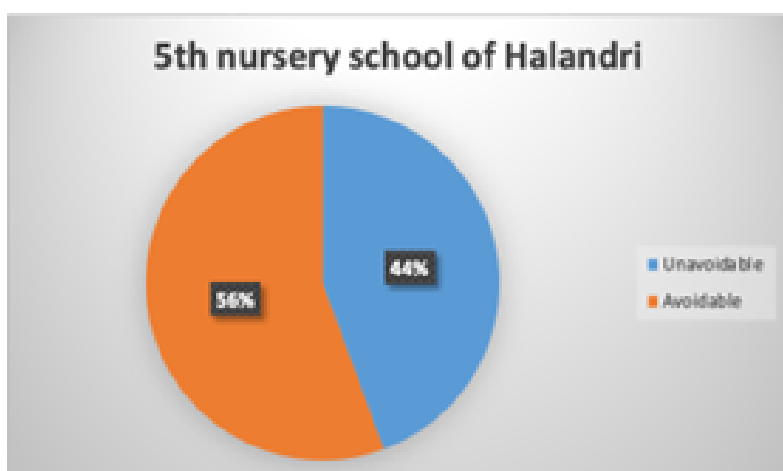


As of July 2023, the outcomes of the Food Loss and Waste Prevention Unit of the Municipality of Halandri, are the following:

- 1 plogging (*jogging and picking up trash at the same time*) event, 1 radio interview of Prof. Lyberatos, 1 brochure on the current status of food waste at household level and some advice on how to address the issue, 1 award at the Greek Green Awards 2023, written interview for the FoodRUs dissemination activity called "Food Warriors", membership at the Alliance for reducing food waste in Greece, 5 press releases, 1 newspaper article, several press disseminations of press releases, 1 newspaper article, 7 workshops at schools, 11 stakeholder meetings, 130 businesses involved (retailers and restaurants), 250 citizens actively participating with questionnaires, 22 households and 2 retirement homes filling out diaries. The impact generated is moderately estimated to 10.000 citizens at the Municipality and beyond.

Some of the baseline determination research findings are listed below:

- Nursery schools:
  - The 5th and the 8th public nurseries have participated in food waste monitoring for which avoidable and unavoidable food waste were monitored for a month. Avoidable food waste is determined in the research of the Unit either as plate leftovers from adults' employees or from children. The unavoidable food waste percentage is quite different between the two schools, probably because of the higher number of toddlers in the 8th school. Indeed, it has been noted that a higher number of children leads to more food waste due to the more diverse taste preferences.
  - The findings of the research show that the largest portion of avoidable food waste is generated from plate leftovers. Actions to reduce avoidable food waste may be meal alternatives that will please more toddlers while still containing the same ingredients as the nutritional value of meals and their quantities are strictly regulated by the government to ensure a healthy and balanced children's nutrition. Potential decrease in the portion size (and refill of plates for those who wish extra portions) as well as education on the value of food and the impact of food waste would also lead to a decrease in avoidable food waste.



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Figure 2. Avoidable and unavoidable food waste percentages at two nursery schools of the Municipality of Halandri.

- Restaurants:
  - Research on food waste generated from restaurants lead to the findings that the daily generated food waste is of various origins depending on the restaurant type, e.g. family restaurant, fast food etc. Vegetables (edible and inedible parts which are inevitably discarded) constitute the majority of the food wasted.
  - Another conclusion of the research is that the largest portion of food waste generated in restaurants is unavoidable. The majority of avoidable food waste is generated from plate leftovers (customer) with some small quantities of prepared unsold food that could be donated instead of thrown away.
  - Personnel training is a key factor to prevent food waste.



Figure 3. Results of questionnaire survey at restaurants



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Figure 4. Results of monitoring diaries at restaurants

• Retail shop:

- The research on retail shops led to the conclusion that personnel training is essential to prevent food wasting. Additionally, improved evaluation of unsold and not-preferred goods as well as fiscal measures such as PAYT may also decrease the amount of wasted food.
- Donations’ regulation and related fiscal measures are considered important while separate disposal of food waste in organic waste bins should be also greatly promoted.



Figure 5. Results of questionnaire survey at retail shops



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- Households:
  - The food waste generated at household level constitutes the largest part of the municipal waste according to the Municipality of Halandri. The results of questionnaires show that citizens believe that they generate daily 0,25 kg of food waste, the majority of which is unavoidable and of plant origin. The results were confirmed using monitoring diaries for 15 days and by performing three compositional analyses of a total 244 kg of organic household food waste.
  - Other interesting findings are that the majority of the participants mentioned that they check the expiration date of a packed food product and that they take advantage of offers when purchasing. They believe that food waste consists only of a small percentage of the household food waste and that they do not generate significant food waste quantities, which is proven to be a misconception. They do perceive correctly however, the fact that most food wasted is of plant origin, which is a distinct difference of Greek households from other EU households.

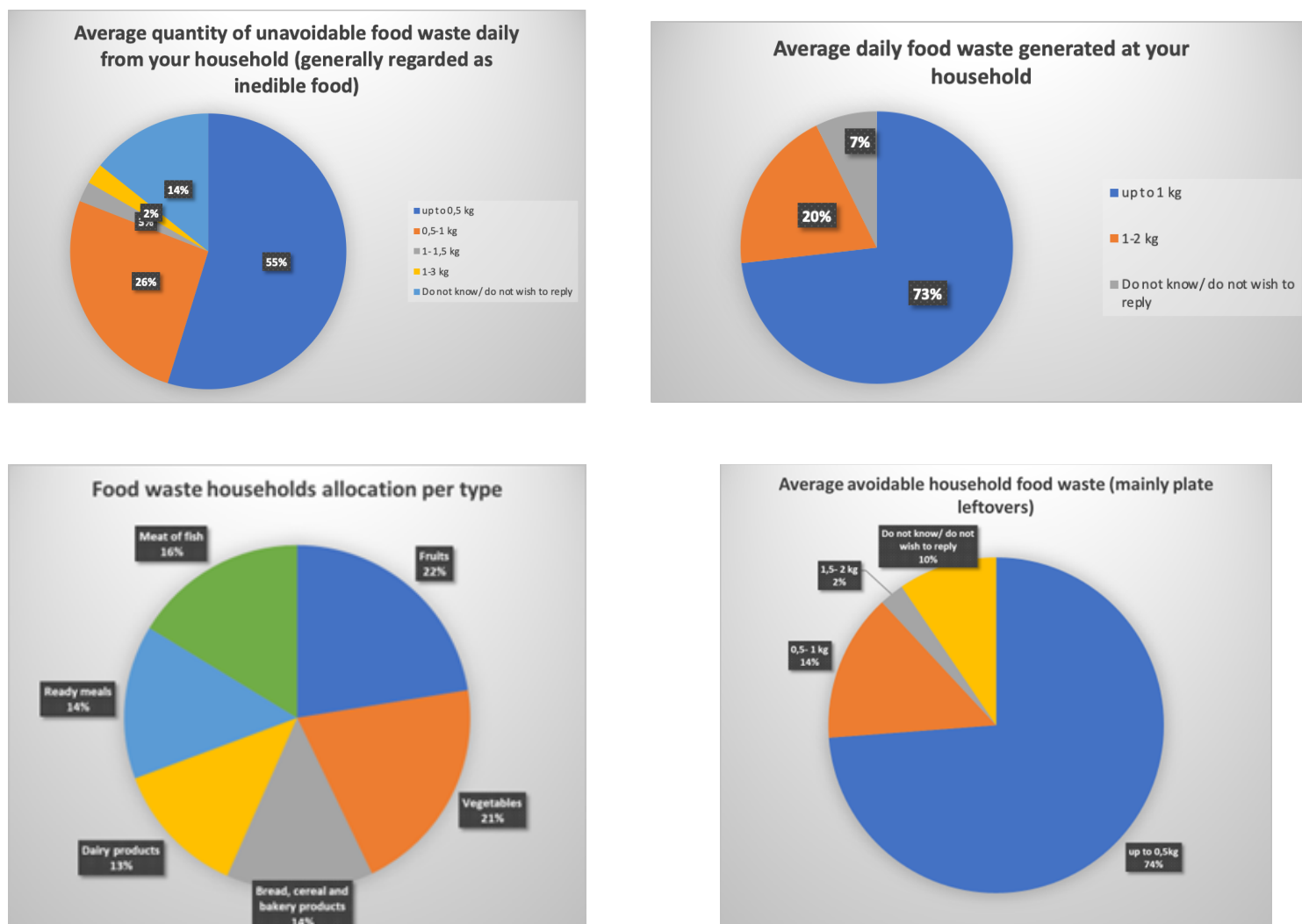


Figure 6. Results of questionnaire survey at households



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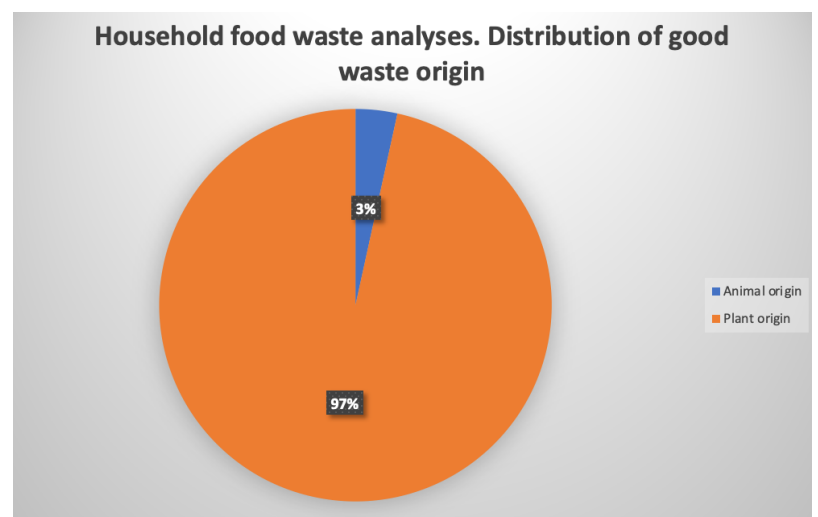
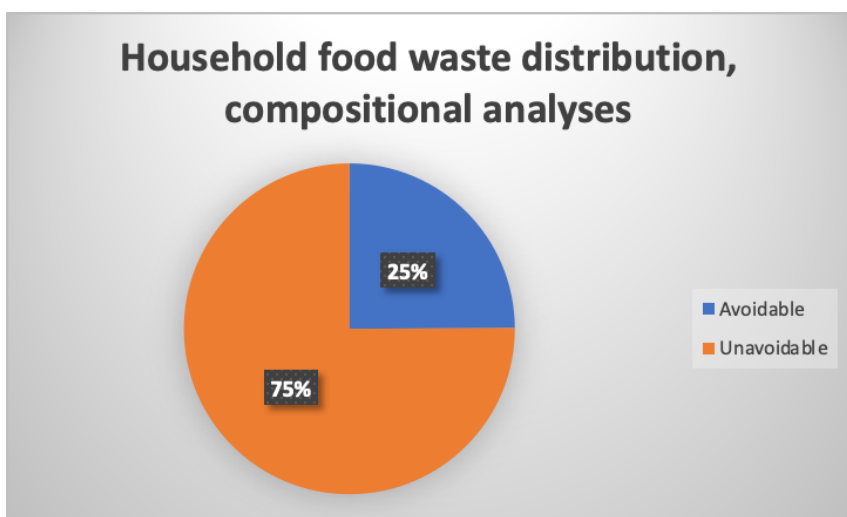
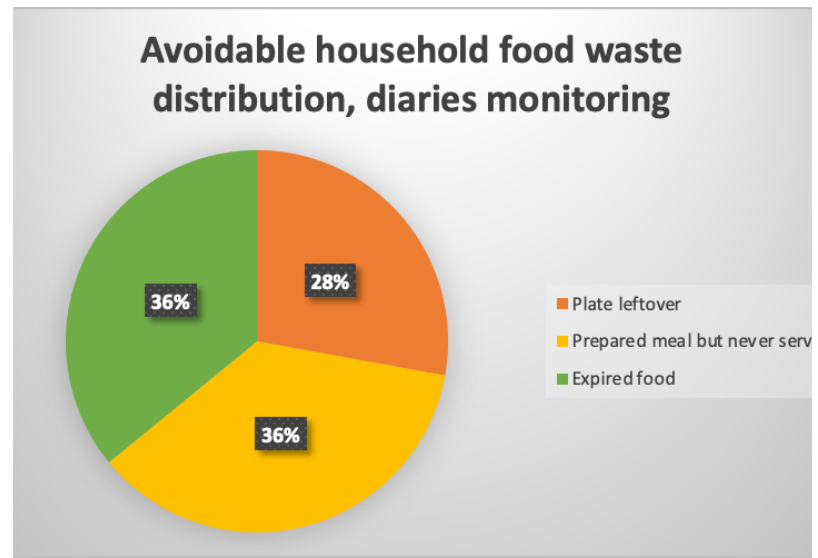
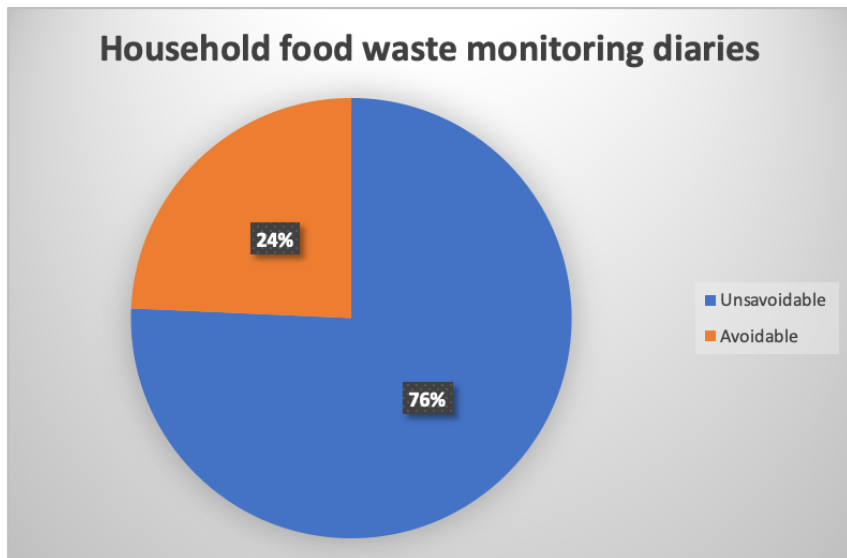


Figure 7. Household food waste results, monitoring with diaries

The comparison of the three different methods employed to study household food waste help us draw interesting conclusions between what the citizens think (questionnaires and diaries) and what is validated in practice by the compositional analysis.

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Method	Daily average food waste (g/inh)	Avoidable (%)	Unavoidable (%)
Compositional analysis	-	25	75
Diary	352	25	75
Questionnaire	250	32	68

Table 1. Data of household food waste, Municipality of Halandri

## BARRIERS TO PRACTICE IMPLEMENTATION

Two main barriers have been identified. First of all, municipalities often face a lack of resources to implement food waste reduction and prevention actions. Second of all, the lack of a detailed regulatory framework governing food surplus donations, especially of prepared food, is a considerable barrier to the practice.

## WINNING ASPECTS OF THE PRACTICE

The Municipality has a central role as the responsible for waste management and as the link between all stakeholders related to food preparation, distribution and consumption. Consequently, it can play a key role in the fight against food waste. Indeed, it can support the monitoring of the quantities of wasted food and it can take initiatives to help reduce food waste.



## The Food Loss and Waste Prevention Unit of the Municipality of Halandri

### CONTACT DETAILS



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### SIMILAR PRACTICES IN OTHER TERRITORIES

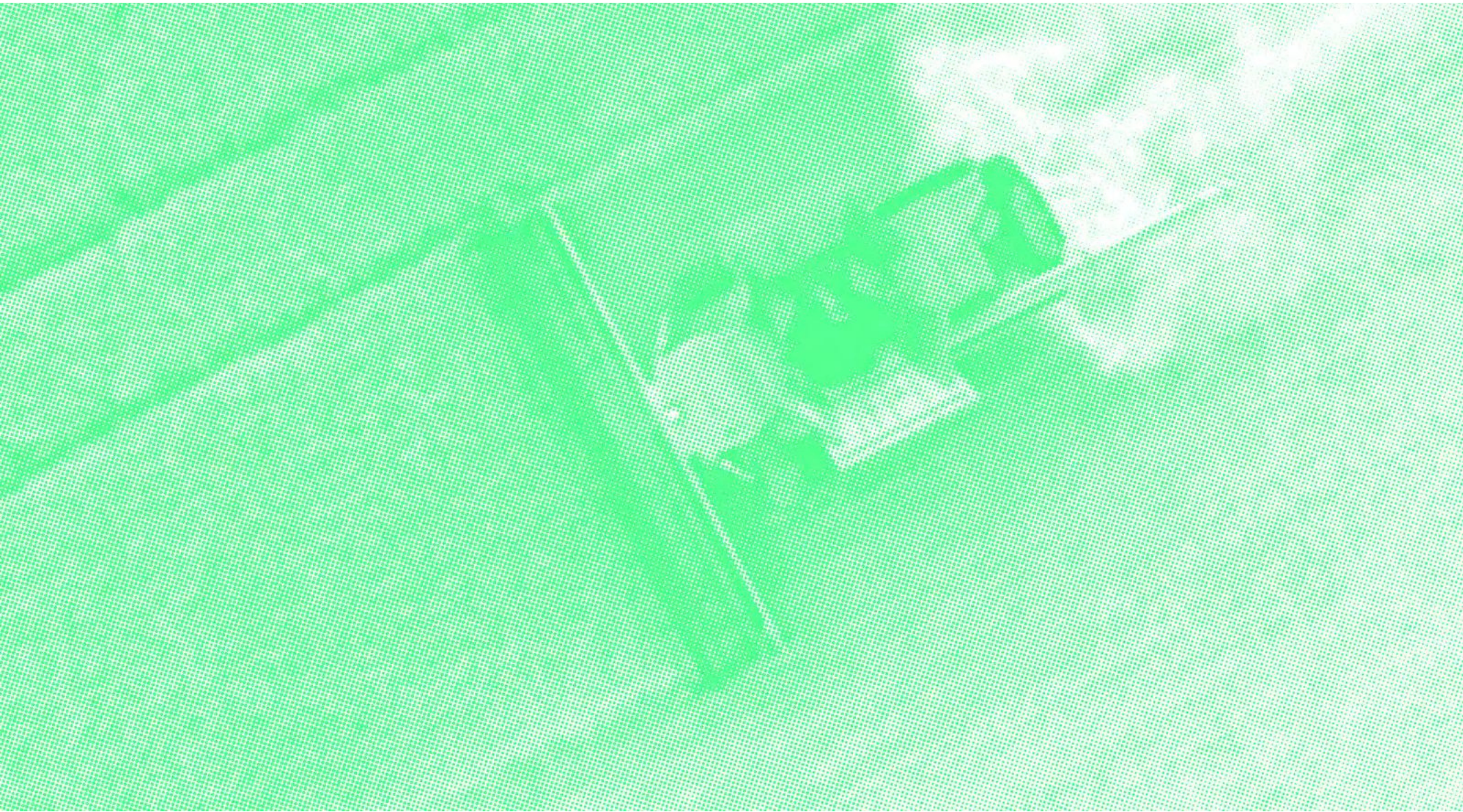


FOODRUS Best Practice 20 - Mouans-Sartoux's food waste strategy

FOODRUS Best Practice 21 - Ghent 'en Garde' Food Policy Council

FOODRUS Best Practice 22 - Bruges' Food Lab





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Circular solutions for resilient food systems