

LOWINFOOD

**Multi-actor design of low-waste food value chains
through the demonstration of innovative solutions
to reduce food loss and waste**

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D5.11 Report on the demonstration – Regusto

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Summary

The deliverable (D5.11) outlines the activities carried out in Task 5.6 “Mobile application to sell restaurants’ surplus food and track the delivered products up to the bin” and the results obtained. In particular, it provides a comprehensive account of the changes and improvements made to the REGUSTO Innovation to align it with the main goals of the LOWINFOOD project.

In accordance with the objective of Task 5.6, which involves monitoring and quantifying food waste generated outside the home, the project implemented two different types of innovations, namely REGUSTO App and REGUSTO Bag, evaluating their potential to solve the food waste problem. Using a QR code affixed to the bag given to consumers by the restaurants, it has been possible to track the FW deriving, whether it is a complete meal to be consumed at home (take-away) or meal leftovers brought home. This tool allows us to understand and analyse the effectiveness of these tools for sustainable and optimal food management.



Introduction to the deliverable

LOWINFOOD is a project committed to co-design, together with actors of the food chain, low-waste value chains by supporting the demonstration of a portfolio of innovations in a set of value chains particularly concerned by food loss and waste (fruits & vegetables, bakery products and fish), as well as in at-home and out-of-home consumption. Each of these value chains corresponds to a single Work Package (WP) of the project.

The innovations are selected among promising solutions that have already been developed and tested by some partners of the consortium, with the aim to provide the necessary demonstration and upscale to allow market replication.

The LOWINFOOD consortium comprises 27 entities, located in 12 different countries, and ranging from universities and research institutes to start-ups, foundations, associations, and companies working in the food sector. During the 52 months of the project, the partners are committed to complete 30 tasks and to deliver 60 outputs (deliverables).

This deliverable, designated as D5.11, provides a comprehensive report of the activities that have been carried out in Task 5.6 and the obtained results.

1. Purpose of the Task

The task being considered in this deliverable is Task 5.6 “Mobile application to sell restaurants’ surplus food and track the delivered products up to the bin”. The Task aims at monitoring and quantifying the food waste generated out-of-home with the support of REGUSTO Innovation. This encompasses both the REGUSTO App, a native mobile application that allows clients to buy meals at a reduced price from restaurants, and the REGUSTO Bag, given to clients by the restaurants. REGUSTO Innovation tackles two aspects of out-of-home food waste: kitchen food waste (KFW) and client food waste (CFW). KFW stands for food waste resulting from the operations inside the kitchens of food services, including spoiled, mould, expired, and improperly prepared or cooked food; CFW means the food waste generated by the clients of food outlets¹². The potential reduction of KFW could be realized by the REGUSTO App in terms of the reduction of over food production; meanwhile, CFW could be reduced by the REGUSTO Bag which will be used by the clients to take away their food leftovers. The approach involves tracking food waste arising from meals taken home using the REGUSTO Bag, which could include complete meals destined for home consumption or leftover portions taken away. Notably, enhancements were made to the REGUSTO Bag to enable post-takeaway and consumption monitoring. This was achieved through the

¹Silvennoinen, K., Heikkilä, L., Katajajuuri, J.-M., & Reinikainen, A., (2015). Food waste volume and origin: Case studies in the Finnish food service sector. *Waste Management*, 46, 140-145.

²Principato, L., Pratesi, C. A., & Secondi, L. (2018). Towards Zero Waste: an Exploratory Study on Restaurant Managers. *International Journal of Hospitality Management*, 74, 130-137.

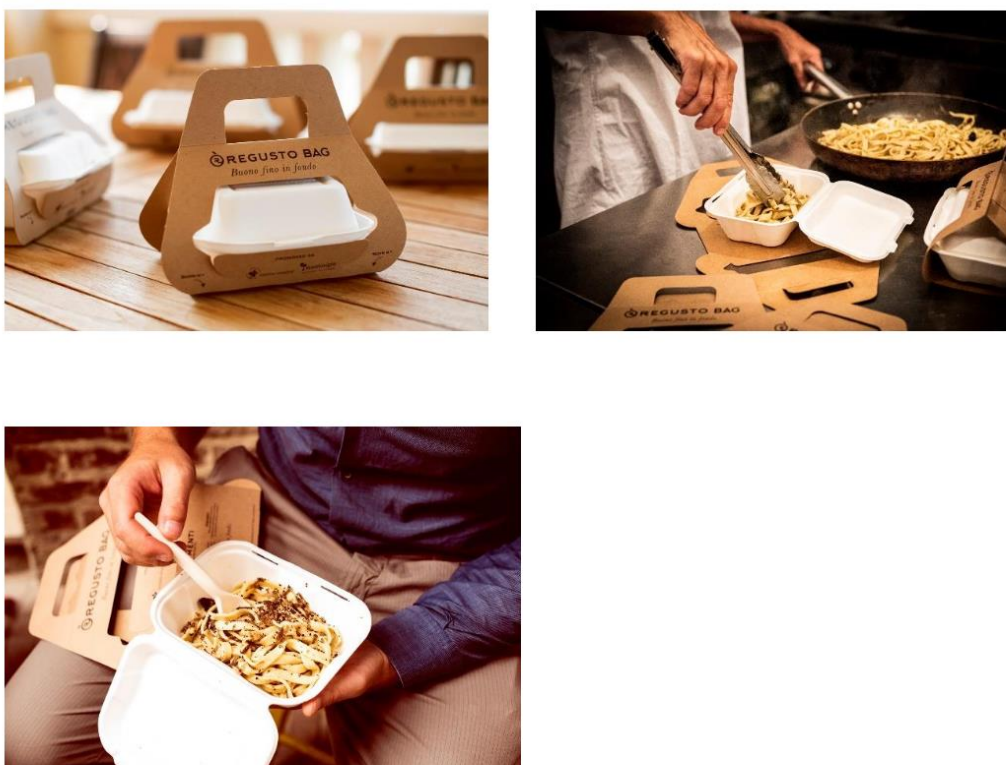
integration of a QR code system linked to a customer survey, thus offering a holistic view of consumption patterns. Furthermore, in collaboration with UNITUS³, a survey catering to the Hotel, Restaurant, and Catering (Ho.Re.Ca.) sector was developed and conducted. The insights gleaned from this survey offer a valuable perspective on the impact of REGUSTO Innovation within this sector.

2. Implementation of REGUSTO Innovation

REGUSTO is a mobile application launched in Italy in 2019 that allows clients to buy meals at reduced prices from restaurants while contributing to the reduction of food waste. This innovative App not only benefits clients but also provides restaurants with the means to sell surplus, freshly prepared meals, ensuring that they don't go to waste.

At the time of collection, the meals purchased are stored within a convenient and ecological box called REGUSTO Bag that innovates the concept of take-out and “doggy” bags, becoming original awareness-raising tools about food waste.

Figure 1- The REGUSTO Bag



³ University of Tuscia (Italy)

During the initial phases of Task 5.6 implementation, the REGUSTO App underwent significant transformations. Simultaneously, the REGUSTO Bag concept was refined through the integration of a QR code linked to a specific customer survey developed by UNITUS. The advancements made in the initial stages of the task have been detailed in Deliverable D5.2, which was submitted on June 30, 2022.

3. Summary of activities

All in all, the project implemented two different types of innovations, namely the REGUSTO App and the REGUSTO Bag, evaluating their potential to solve the food waste problem. As illustrated in the previous deliverable D5.2, a QR code has been realized and distributed to six selected restaurants involved in the project with the ongoing objective of gathering and validating data on at least 500 consumers. While certain restaurants solely adopted the REGUSTO Bag, others embraced both the App and the Bag. The REGUSTO Bags were packed and delivered to every restaurant in the pre-demonstration period. Every restaurant received an initial stock of 300 REGUSTO Bag. The total amount available for each restaurant was over 1.000 REGUSTO Bag. In addition to this, some posters and other materials were realized to communicate the project inside restaurants.

Figure 2 - REGUSTO Bag inside restaurant partners with the QR Code



Figure 3 – REGUSTO Bag inside restaurants partners with the QR Code



In accordance with the aim of Task 5.6, analysis and continuous monitoring of food waste levels were conducted before, during, and following the implementation of the REGUSTO Innovation. With this aim, two surveys were carried out. These included two for the Ho.Re.Ca. sector (participants and management) and another one for clients.

3.1 Survey implementation for the Ho.Re.Ca. Sector

The implementation of the survey for the Ho.Re.Ca. (Hotel, Restaurant, and Catering) sector, involving participating restaurant partners in Task 5.6, was carried out in three distinct phases: pre-demonstration, implementation and post-demonstration. The pre-demonstration survey, which served as the baseline assessment, was conducted before REGUSTO Innovation's introduction and took place from March 2022. In addition to the general restaurant business information, such as business type, size and monthly revenue, the pre-demonstration survey focused on gauging awareness and attitudes towards food waste. Additionally, it has collected figures about each restaurant's food production and food waste status before the implementation of the project.

The post-demonstration survey was conducted between June and the end of July 2023, coinciding with the end of the data collection from clients. Its purpose was to gather insights regarding the objective of reducing food waste through the implementation of REGUSTO Innovation. This survey targeted operational and managerial staff within the restaurants, aiming to measure the potential change that might happen in those restaurants after the implementation of the project and highlight the meaningful insights of the innovative implementation and the potential challenges.

Description of the surveys

The surveys (Appendix A) consist of 4 sections: background of the restaurant and interviewee, food waste-relevant questions during pre-demonstration and post-demonstration phases, and overall feedback on the usage of REGUSTO App and the survey experience. The questions of the surveys include both single and/or multiple choices and free text responses, enabling us to gather data for qualitative and quantitative analysis.

Description of the participating restaurants

Among 6 restaurants enrolled in the project from the beginning, 1 was not able to complete the project implementation for various reasons. As a result, the survey implementation was successfully carried out by the remaining 5 restaurants that participated in the project from May 2022 to July 2023, spanning a period of 15 months.

These restaurants are located in two adjacent regions of Italy, Lazio and Umbria. Among them, two are situated in Perugia city, hosting a population exceeding 100,000 residents. The remaining establishments are found in smaller to medium-sized towns, accommodating populations ranging from 10,000 to 100,000. These diverse restaurants encompass a wide range of culinary offerings, including meat, seafood, vegetables, and pizza. Additionally, half of the participating establishments operate typical Italian bars, akin to cafés, offering simple drinks and food selections. In terms of establishment age, four of them commenced their operations within the last decade. Conversely, one restaurant boasts a significantly longer history, dating back to 1978. Concerning their business scale, the majority employ between 5 to 20 members who facilitate operations, including dine-in service for 30 to 130 seats approximately. All of them report annual revenues surpassing 50,000 euros, with three of them achieving an annual turnover exceeding 150,000 euros.

Although there isn't a wide geographical diversity, the 5 restaurant partners selected represent various Ho.Re.Ca. business types in Italy concerning cuisine, years of operation, and business scale. Consequently, the feedback provided by these partners regarding the REGUSTO App holds substantial value and serves as a representative perspective.



3.2 Survey implementation for the clients

Regarding the clients surveys, the implementation started in May 2022. By the end of July 2023, the entire implementation period, including the collection of survey data, was successfully finalized.

Description of the survey questionnaire

All data was collected through the utilization of the QR code inserted to the REGUSTO Bags, which were used for takeaway activities by the clients. By scanning the QR code by smartphone, the clients would be invited to complete the questionnaire (Appendix B) at the end of their meals.

In the questionnaire, participants were asked to provide information both before and after consuming meals from the REGUSTO Bag. This process involved participants reporting their estimated food consumption in grams and indicating the time taken for consuming the food from the REGUSTO Bag. This data collection process aimed to gather insights into food wastage patterns and to evaluate the effectiveness of the REGUSTO Innovation. In addition, participants were given the option to upload photos showcasing any unconsumed food items. This visual input allowed for a direct comparison of the food consumption proportions attributed to the use of REGUSTO Bags. It is noteworthy that starting from November 25, 2022, the inclusion of a photograph as a survey response became mandatory.

Table 1– Information about clients

Dining scenarios	Restaurant type, Restaurant service, Transportation method, Meal type, Food type, Using purpose of doggy bags, Food in doggy bags (grams), Doggy bag food consumption time, Number of consumers dining, weekday, month
Attitudes and behaviours about food waste	Food waste disposal practice, Rating of cost saving by doggy bags, Cost saved by doggy bags
Social-demographic information	Gender, Age, Area of residence, Region, Profession, Income, Education, Number of family members, Children status in the family

*Figure 4 - Pictures taken and uploaded by the client via the QR code
(left) picture taken after the meal with the use of the REGUSTO Bag; (right) picture taken after a while



Challenges during survey implementation

During the survey implementation with the participating restaurants, various challenges were encountered. These challenges encompassed the impact of the pandemic, the seasonal closures of the restaurants, and the intricacies associated with obtaining a substantial quantity of client responses while maintaining high-quality standards. In response to these diverse obstacles, a series of proactive measures were undertaken:

- Adjust the survey implementation timeline with the restaurants according to the updated COVID restrictions and seasonal opening and closer plans.
- Leverage extra incentives with Amazon vouchers to encourage consumer participation and the completion of questionnaires with uploaded pictures. Unfortunately, due to university internal regulations, the acquisition of Amazon vouchers as an additional incentive for clients could not be facilitated.
- Collaborate with the restaurant partner to launch the promotional campaign on-site for the purpose of LOWINFOOD project promotion and dissemination of the REGUSTO Bags and questionnaires.

The implementation timeline was extended for select restaurants until the conclusion of July 2023. This strategic extension aimed to recover the time lost during the pandemic and seasonal closures, allowing for a more comprehensive data collection period. Moreover, a successful weekend event was launched in conjunction with a restaurant partner at Tibidabo Beach in Tarquinia, Lazio.

The event was co-organized by UNITUS, REGUSTO, and the restaurant partner, Tibidabo Beach Tarquinia (Figure 8 & 9). The REGUSTO Bags and various gadgets with LOWINFOOD and Tibidabo Beach Tarquinia logos were distributed to the restaurant clients who used them to take away their food leftovers after the meals, meanwhile, participated in our survey by submitting questionnaire answers and uploaded pictures after the meals and at their homes. Furthermore, media interviews were undertaken and published during the weekend event by the local media⁴⁵.

Figure 5 - Promotional online poster of Tibidabo Beach event



⁴ Article published by On Tuscia: https://www.ontuscia.it/novita/lowinfood-il-progetto-europeo-contro-gli-sprechi-alimentari-370409?fbclid=IwAR1_MyEoymlRiQtDrmNOzzH2SvrMjB27inXeKIZF0s86if7a6NCZjlkQfXE

⁵ Article published by Tuscia Times: <https://www.tusciatimes.eu/tarquinia-lido-grande-successo-delliniziativa-progetto-europeo-contro-gli-sprechi-alimentari-lowinfood-video/>

Figure 6 - REGUSTO Bag with event gadgets taken by the participating clients



General outcomes of the survey implemented for the whole period

Overall, a total of 580 survey responses and 54 client-uploaded photographs were obtained. These contributions were provided by residents hailing from 23 distinct cities spanning 7 regions within Italy. Notably, within this group, 3 respondents were foreign residents. The participating restaurants represent different restaurant businesses (burger, pizzeria, restaurant) and food offering types. Of these establishments, 2 exclusively offer dine-in services. Food types ranged from pizza and sandwiches to main courses and desserts, and the restaurants cater for all 3 main meals in a day, plus aperitifs.

Data cleaning and correction were undertaken, and in situations where critical data points required for data analysis were absent, the corresponding observations were eliminated. Consequently, a final total of 574 observations remained, forming the basis for our subsequent analysis.

Most of the variables collected were categorical, as shown in the table above. Additionally, the relationship between REGUSTO Bag food consumption, the quantity of food contained within REGUSTO Bags, and the residual food post-meal consumption was determined. As

per reference to the previous literature,⁶⁷⁸ binary logistic regression model was used to unfold the potential influence on clients' food waste. In the sample dataset, 73% of the respondents reported zero food waste, while 27% reported a different percentage of post-consumption food waste. Therefore, the event of whether all food in the REGUSTO bags was consumed was set as the dependent variable in the model (1=all consumed, 0=with post-consumption food waste). Meanwhile, the categorical and numerical variables mentioned in the table above were included in the model.

4. Achieved results

4.1. Results of the survey implementation for the Ho.Re.Ca. Sector

Each participating restaurant completed 1 pre-implementation and 1 post-implementation survey, therefore overall, a sample size of 10 survey responses was collected to carry out analysis of pre-and-post implementation evaluation for the Ho.Re.Ca. sector. All interviewees from the participating restaurants were involved in the implementation of the REGUSTO App. Most of them are decision-makers (owners, directors, or managers) for their businesses, and only 1 person works in administration. There is not a significant discrepancy of the interviewees' genders, and they are in their late 20s to 50s. Most of them hold a high-school-equivalent education, and 1 graduate with a bachelor's or master's degree. A cumulative score of 4 out of 5 points was obtained for the survey experience.

Comparison of pre-and-post demonstration phases

The comparison made between the period before and after the introduction of the REGUSTO Innovation revealed noteworthy trends. Notably, both awareness of food waste and the commitment to mitigating it exhibited consistent and significant increments. Similarly, a positive food waste reduction by volume (7% to 9%) was achieved in both kitchen operations and among restaurants' clients, although there was no change in food production in the restaurants (Figure 7) according to the measured decrease between the pre-and-post implementation food waste volume estimation reported by the restaurants in the surveys.

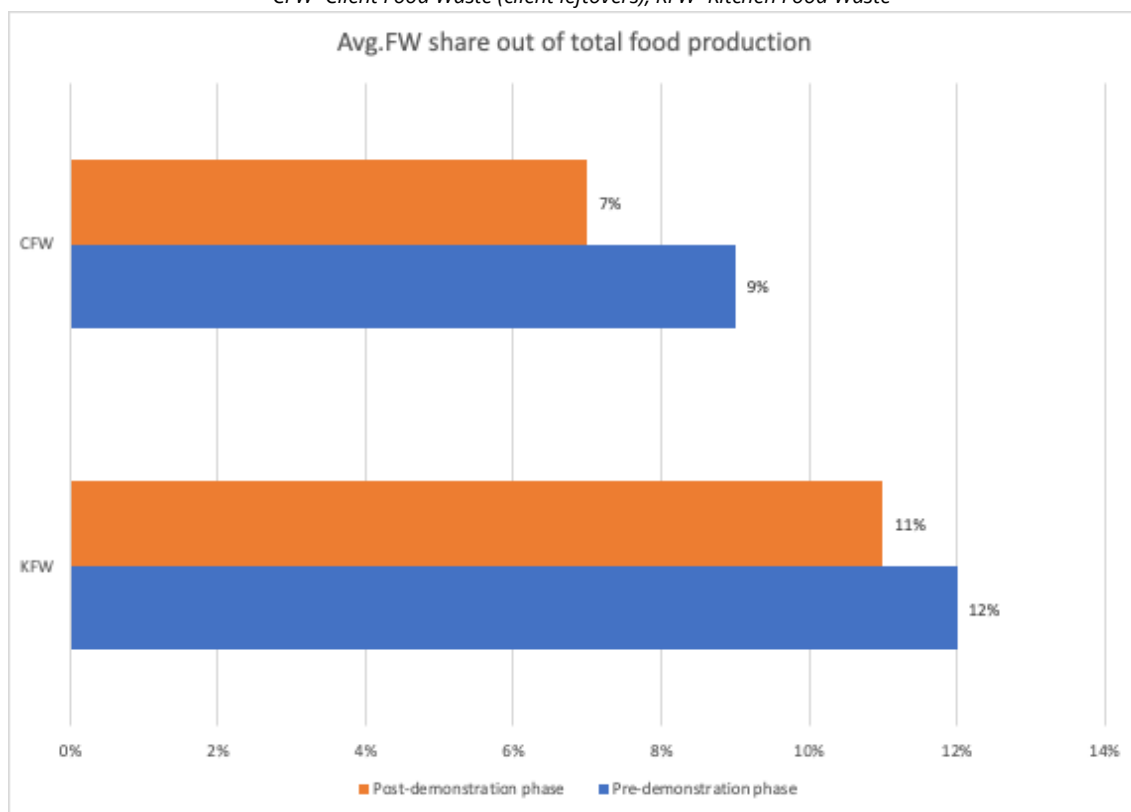
⁶ Ozdemir, A., (2011). Using a binary logistic regression method and GIS for evaluating and mapping the groundwater spring potential in the Sultan Mountains (Aksehir, Turkey). *Journal of Hydrology* 405 (1-2), 123-136.

⁷ Hosmer Jr, D. W., Lemeshow, S., and Sturdivant, R.X. (2013). *Applied logistic regression*. Vol. 398. John Wiley & Sons.

⁸ Kleinbaum, D. G., Klein, M., & Pryor, E. R. (2002). *Logistic regression: A self-learning text* (Vol. 94). New York: Springer.

Figure 7 - Average food waste share of total food production per month

*CFW=Client Food Waste (client leftovers), KFW=Kitchen Food Waste



From the cost perspective, an assessment was conducted on the monthly fixed and variable costs incurred by the restaurants, along with the projected costs associated with the disposal of organic waste. A substantial decrease in organic waste disposal emerged in the survey responses.

In fact, there was no influence of the REGUSTO App on organic waste disposal behaviours. Most restaurants handled organic waste with organic waste bins or unsorted garbage bins, but composting and animal feeding were also mentioned as alternatives.

Use of the REGUSTO App for food waste reduction

REGUSTO App mainly targets the food surplus (or over-preparation) resulting from restaurants' food production. The restaurants listed their food surplus of the day on the App for last-minute ordering with discounted prices, which helped reduce food waste by the restaurants and benefited them by reducing their operation cost and increasing revenue. In the demonstration period, the participating restaurants sold 3 meals per day on average with a price discount rate ranging from 20% to 60%.

The remarkable achievements were not only limited to the reduced operational cost (the reduced organic waste disposal) but also a new business revenue stream from the selling food surplus on the App, as per 3 restaurants. The average new income from the selling activities of food surplus on the App was estimated as 106 euros per month.

The cost and time invested in the innovation implementation were limited. Although there was an implementation cost of 100 euros each reported by 2 restaurants, no extra staff or equipment was needed to manage the innovation implementation, and the tasks were normally covered together by the existing management, waiters, and cooks in the restaurants, and using common technical devices such as smartphones, tablets/iPads, and computers. Each order on the REGUSTO App took a maximum of 7 minutes to complete and on average, most restaurants spent less than 5 hours in a week to handle the activities related to the App.

Furthermore, the innovation also increased the exposure of the restaurants to a wider client audience, and most of them were attracted by the last-minute offer on the REGUSTO App. On average 24 new clients were connected to the participating restaurants from the App and the restaurants had high expectations that those new clients would return in the future (an average expectation score of 4.4 out of 5).

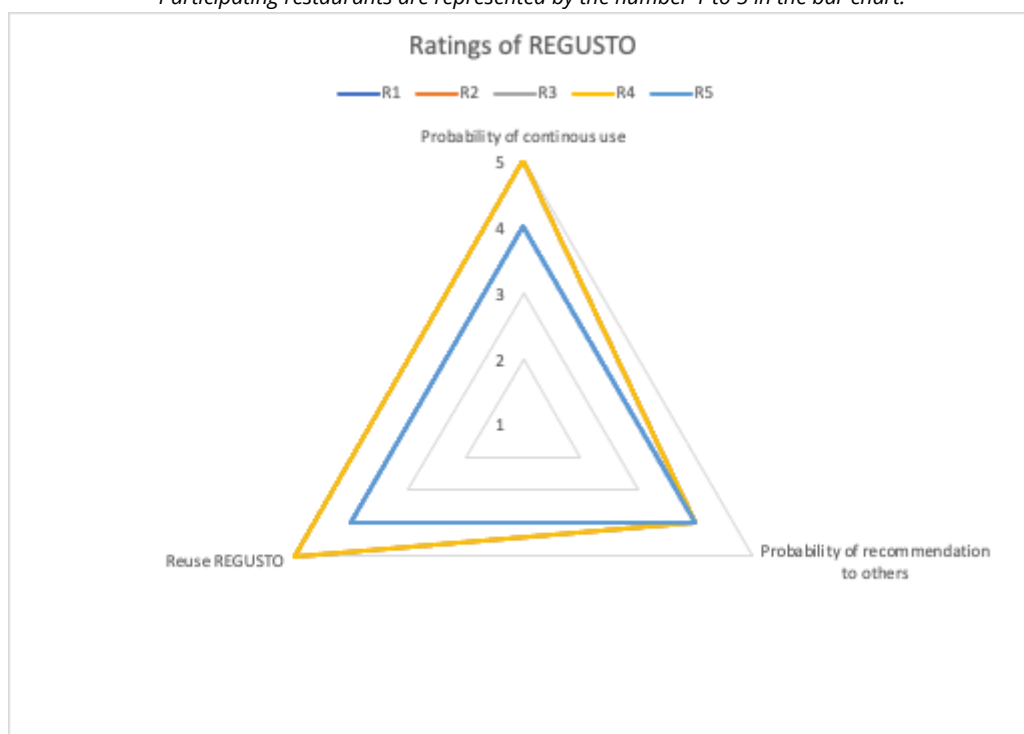
Opinions on REGUSTO Innovation

Given the figures reflected by the participating restaurants, an overall positive response is anticipated regarding the introduction and subsequent implementation of the innovation within an authentic business setting. The outcomes are indicative of a favourable reception, leading to its endorsement.

On average, the REGUSTO App received 4.6 scores (out of 5) and an all-above-4 rating for continuous use and recommendation to others (Figure 8). The innovation offered a good user interface and features which resulted in high satisfaction from both managers and kitchen staff. Most users never contact REGUSTO's customer service, and in the case of the reported problems, the problem-solving was reported as quite responsive.

Figure 8 – Ratings of REGUSTO

* Participating restaurants are represented by the number 1 to 5 in the bar chart.



The restaurants believed REGUSTO Innovation was effective in helping them reduce food waste in their restaurants (average rate = 4.75) and that it was useful to their businesses (average rate = 4.5). As mentioned at the beginning, it significantly increased the awareness about food waste among the involved persons, however, since it was more a practical application than the knowledge-based campaign, limited skills and knowledge about the food supply (value) chain would be shared with the users through the App.

Finally, the implementation of the REGUSTO App might bring in extra benefits more than food waste and cost reduction as said by the interviewees and approved by the above analysis on the costs and earnings. We also received a comment from the participating restaurant which suggested the additional delivery feature. In terms of the profound influence in reducing food waste by restaurants and clients, the exposure of the purpose of this project to a bigger audience was suggested and supported by the restaurant as well.

4.2. Results of the survey implementation for the clients

Overall, we achieved over 96% and 93% client (user) satisfaction rates for the REGUSTO project experience and survey respectively, which backed up the data collected and the results. The participating clients were aged from 13 to 65 years old with an average age of 30. Females (52%) were almost equal to the combined number of males and consumers who did not specify their genders. Almost all participants were Italians (more than 99%) from 21 cities and 5 regions, however, the majority were from Perugia and Assisi of the Umbria region. Most of them had standard employment in the format of fixed-time or permanent (30.6% and 27.4% respectively), followed by students (22.3%), job seekers (14.3%), self-employed and retired. 52.1% of the participants held a Bachelor's or Master's degree, and another 40.4% had an education background up to short-circle tertiary education; a PhD or equivalent higher education was minor (7.5%). Most individuals (83%) had a monthly income of up to 1500 euros, and 91% of them were from a small-size family (2 to 4 family members). 61.6% of the participants had no child or chose not to specify.

We further categorised the participating restaurants by 3 business types. The pizzeria was the most popular (38%) followed by burger stores (32%) and restaurants (30%). Most people dined out for dinners (63%), meanwhile, the top 3 food categories ended up in the REGUSTO Bag were pizza (28%), second main dish (25%), and dessert (20%). The primary method to reach the restaurants was driving (66%), however, 21% walked to the places. Most people dined alone (51%) or shared a meal with a small group of people (2 to 3 persons; 42%).

Quantitative results collected by the REGUSTO App

In the whole implementation period, we observed an average of 457 grams of food taken away with the REGUSTO Bag; the minimum volume weight was 50 grams and the maximum weight was 700 grams. Many people (80%) consumed the food in their REGUSTO Bags within 6 to 12 hours.

In total 262,343 grams of food was taken away from the participating restaurants thanks to the REGUSTO Bags. This amount meant the food saved potentially from the restaurants. 73% of clients (417 clients) reported 0 food waste from a REGUSTO Bag and 3% (18 clients) were not able to consume any food but wasted it all in the end. The food consumed by the clients at the last stage weighed more than 231,279 grams (on the other side 30,956 grams, equal to 11.8% of the total grams taken away was wasted). With a REGUSTO Bag, clients could use it for their food leftovers after a meal in the restaurant (plate waste), or for last-minute orders (food surplus) via the REGUSTO App. Therefore, two groups divided by the using purpose of a REGUSTO Bag were investigated separately. The recorded plate waste from clients amounted to 8,643 grams, resulting in an escalated final waste rate of 23.6% for this specific group. This data is presented comprehensively in the table below.

Table 2- Food saved from the restaurants and wasted at post-consumption (in grams and percentages)

	Plate waste	Last-minute order (food surplus)	Total
Food saved from the restaurants	8,643 gr	253,700 gr	262,343 gr
Food wasted at post-consumption	2,038 gr (23.6%)	29,025 gr (11.4%)	30,956 gr (11.8%)

Among the answers we received, most plate waste was a result of over-ordering in restaurants by clients (71%) and the reason why clients still wasted some portions of food after using the REGUSTO Bags was mainly their personal preference for other food than the leftovers (65%).

Insights into clients' behaviours with statistical analysis

In the statistical analysis conducted, an exploration was undertaken to assess various potential factors that could impact clients' behaviours concerning food waste.

Table 3- Potential factors of clients' food-wasting behaviours

Dining scenarios	Restaurant type, Food in doggy bags (grams), Number of consumers dining, weekday, month
Attitudes and behaviours about food waste	Food waste disposal practice, Rating of cost saving by doggy bags
Social-demographic information	Gender, Profession, Income, Children status in the family

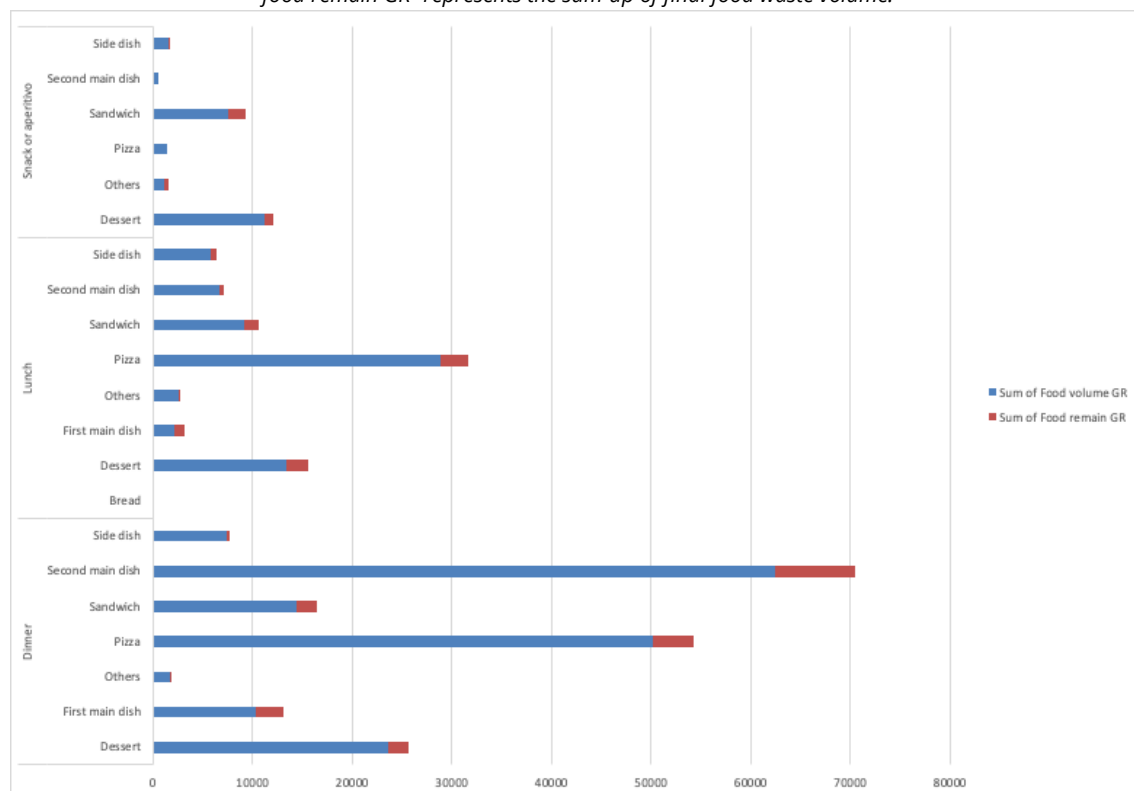
Factors related to dining scenarios:

As per Figure 9, dinners contributed to the highest volumes of wasted food (19,410 gr); meanwhile, the second main course (8,522 gr) and pizza (6,741 gr) were the most wasted food type in terms of volume weight (almost 50% of the total food waste in grams). From the perspective of food waste in percentage, however, it happened more often that people

wasted food from their snacks or aperitifs (13%). Among different food types, people threw away the first main dishes (29%) more often, especially at lunches (40%). We could assume that REGUSTO Bags performed differently among different meal and food types.

Figure 9 - Volumes of REGUSTO Bag food and final food waste by restaurant meal and food types

**Volume is measured in grams. "Sum of food volume GR" represents the sum-up of REGUSTO Bag food volume; "Sum of food remain GR" represents the sum-up of final food waste volume.*



Statistically, clients tended to give up food taken away from pizzerias more likely compared to burger stores and restaurants. Combining the findings that over-ordering was the usual reason for food waste, we assumed there might be a problem of too big portion from pizzerias.

Food waste happened more likely when a smaller amount of food was brought away by a Regusto Bag. We considered it relevant to similar findings about the number of clients who shared the food together. A higher chance that food would not be wasted happens when a dining table was filled by more people. The possible estimation could be the influence of feeling shame by wasting food in front of others, no matter if it was in a restaurant or enjoying takeaway food at home. Another possible estimation could be simply more people, more consumption.

Different days or months might affect the likelihood of clients' food waste. As per our analysis, Tuesdays and July among other weekdays and months were related to a higher chance of food waste; on the contrary, May and November were related to a lower chance, although all correlations seem mild.

Factors related to clients' attitudes and behaviours about food waste:

Education about food waste plays an important role in motivating clients' behaviours in reducing food waste. In our dataset, 43% of the clients threw away their food in the organic bins, and 35% of them did home composting. We obtained the statistical result that the clients who used to dispose of their food waste in organic waste bins were less likely to waste food. This echoes the previous study about household food waste behaviour in EU countries⁹.

Interestingly, we found out that when clients perceived that REGUSTO Bags could save money for themselves, they tended not to waste food. In the sample group, 68% of them did believe the REGUSTO Innovation benefited them by saving some costs. This could be a meaningful hint for policymakers and shareholders to further investigate the potential benefit of cost-saving to the clients and how much cost could be saved; therefore, leverage it to motivate the people.

Factors related to social-demographic information:

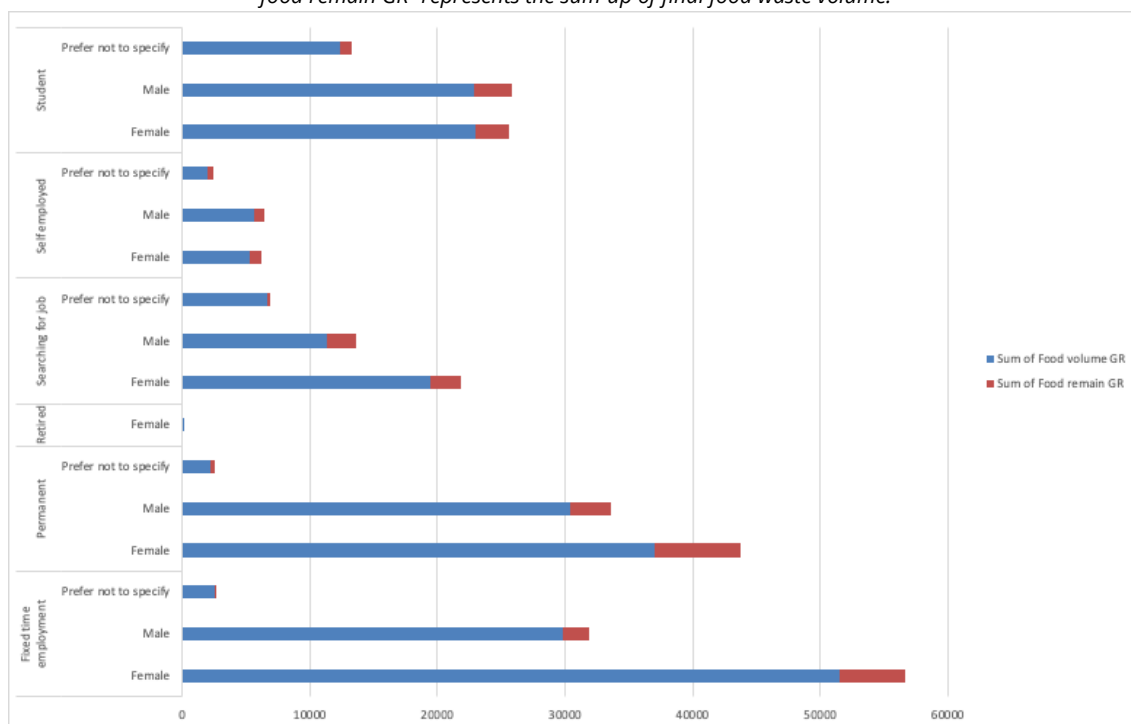
By calculating the food waste in weight, female clients practised a slightly higher food waste rate (13%) than males (11%). However, statistically, male clients were more likely to waste food.

Working class (fixed-time employment and permanent employment) dined out more often and therefore contributed to the highest REGUSTO Bag food volume (153,490 gr) and wasted food volume (17,608 gr) (Figure 10).

⁹ Secondi, L., Principato, L., & Laureti, T. (2015). Household food waste behavior in EU-27 countries: A multilevel analysis. *Food Policy*, 56, 25-40. ISSN 0306-9192

Figure 10 - Volume of REGUSTO Bag food and food waste by professions and genders.

*Volume is measured in grams. "Sum of food volume GR" represents the sum-up of REGUSTO Bag food volume; "Sum of food remain GR" represents the sum-up of final food waste volume.



However, from the perspective of food waste in percentage, we saw higher percentages in the groups of people who were self-employed (16%), worked in permanent positions (15%), and were searching for jobs (13%). Furthermore, when we considered the gender difference, the group with no specification of their genders in the self-employed group had the highest waste rate (24%), followed by the male job seekers (20%). These figures were partially aligned with our statistical findings regarding people's professions.

Statistical results showed that students, self-employed, and people working in permanent positions tended to waste food more easily. On the other side, it seemed difficult for individuals or families with children to control their food waste behaviours. This was also aligned with the descriptive results which showed that those with at least 1 child had a higher percentage of food waste (16%).

5. Conclusion

In conclusion, this report offers a thorough account of the modifications and improvements implemented in the REGUSTO Innovation to align it with the overarching objectives of the LOWINFOOD project. Furthermore, it outlines the tasks conducted within Task 5.6 and presents the achieved outcomes.

The successful integration of the REGUSTO Innovation within the context of the LOWINFOOD project's objectives stands out as a notable achievement.

Achievements from the Ho.Re.Ca. Sector

The Ho.Re.Ca. sector has witnessed a substantial increase in awareness about food waste and a heightened commitment to its mitigation. This heightened awareness has translated into tangible outcomes, such as a reduction in food waste within restaurant operations (CFW-KFW). Clients have substantially contributed to food waste reduction through decreased plate waste and restaurant food surplus. Economically, the benefits are evident in terms of reduced operational costs for restaurants and an augmented revenue stream from new income sources. Moreover, this innovation has conferred less tangible yet equally valuable rewards: enhanced restaurant exposure to consumers and the attraction of new clients.

Clients Impact and Insights

As mentioned before, clients have substantially contributed to food waste reduction through decreased plate waste and restaurant food surplus. Notably, post-consumption stage food waste differs between plate waste and food surplus; plate waste tends to result higher in post-consumption waste. Among the answers we received, most plate waste was a result of over-ordering in restaurants by clients (71%) and the reason why consumers still wasted some portions of food after using the REGUSTO Bags was mainly their personal preference for other food than the leftovers (65%).

Several factors intersect to influence food waste patterns. Dinners, especially those featuring the second main course and pizza, exhibit the highest food waste volumes. Snacks and aperitifs also witness a considerable tendency for food waste. During lunches, the initial main dishes, and specifically at pizzerias, there is a noticeable occurrence of food waste. Furthermore, there is a notable inclination towards food waste occurring with small quantities of food or meals shared among small groups of diners.

Concerning clients' attitudes and demographics, education and awareness pertaining to waste management play pivotal roles in shaping clients' food waste behaviour. In addition, the inclination of clients towards positive attitudes regarding food waste mitigation and innovation is evident with gender and demographics factors manifesting as contributing factors to food waste tendencies. Notably, females exhibit greater waste tendencies, while males showcase a higher propensity for waste. Among various demographics, students, the

self-employed, those in permanent positions, and job seekers display a heightened tendency to waste. The nuanced challenge lies in addressing food waste behaviours among singles and families with children.

Future Suggestions and Actions

In terms of future suggestions, the following points could be considered from various perspectives:

Outlook on the development and market replication of the innovation

- Replication of the innovation: There is a strong potential to replicate the success of this innovation across more locations and within a wider array of Ho.Re.Ca. establishments. Expanding the implementation level to encompass more regions and establishments could yield significant positive impacts on food waste reduction.

Suggestions for restaurants to prevent and reduce food waste.

- Customised adaptations for restaurants and food types: implementing precise adaptations in restaurants based on their specific type and the nature of their menu items. For instance, offering smaller portions for lunches, initial main dishes, and pizzas.
- Personalized adjustments for individuals: customizing adjustments for different clients' profiles. This includes portion sizes catering to females, families with children, and single diners, along with targeted promotions for various occupational groups.
- Different solutions for plate waste and food surplus: Recognizing the diverse nature of plate waste and food surplus, different strategies may be required for each.
- Mitigating over-ordering behaviours: attentiveness to clients' over-ordering tendencies or portion sizes in restaurants is paramount. Strategies such as nudges to address portion size concerns, offering smaller plate options, or diversifying portion choices could yield favourable results.
- Enhanced awareness campaigns: To further propagate the benefits of these innovations, it's recommended to focus on creating awareness campaigns targeted not only at Ho.Re.Ca. establishments but also at various stakeholders within the sector. Highlighting the innovation's advantages can lead to increased adoption and widespread benefits.

Suggestions for engaging and motivating the restaurant clients.

- Awareness campaigns: It is necessary to engage the public by carrying out educational campaigns about food waste, its impact, food waste mitigation at

Ho.Re.Ca. establishments, the results observed and the challenges to be overcome with the involvement of the restaurant clients.

- Elevating client engagement through effective campaigns and education is crucial. Key focal points of food waste mitigation (for example offering doggy bags) should include the dual aspect of food waste reduction (raising consumer awareness) and the individual cost-saving benefits.



Appendix A: Survey for the Ho.Re.Ca. Sector (Translated in English)



-
-
- ☐
 - ☐
 - ☐
 - ☐
 - ☐
 - ☐
 - ☐

- ☐
- ☐
- ☐

About the person who answers the following questionnaire:

1.8. Please indicate the working position within the restaurant for which you are conducting the questionnaire (e.g. restaurant owner, restaurant director, restaurant manager, etc.):

Working position: _____

1.9. Gender

- ☐ Male
- ☐ Female
- ☐ Non binary
- ☐ Prefer not to specify

1.10. Age: _____

1.11. Level of educational background

- ☐ None or elementary
- ☐ Medium
- ☐ Secondary or superior
- ☐ Short-cycle tertiary
- ☐ Bachelor or master
- ☐ Master (universitario)
- ☐ Doctor or equivalent level

2. BEFORE IMPLEMENTATION OF REGUSTO INNOVATION

2.1. How aware are you of food waste issues? Please indicate the following scale with 1= not at all aware and 5= extremely aware.

Not aware at all	Slightly aware	Aware	Moderately aware	Extremely aware
☐	☐	☐	☐	☐
1	2	3	4	5

2.2. Please indicate your level of agreement for the following statement:

“You and your employees involved in food handling are committed to reducing food waste”.

- ☐ Strongly disagree
- ☐ Disagree
- ☐ Not disagree nor agree

- ☐ Agree
☐ Strongly agree

2.3 Please provide the estimated monthly amount (in kg) of the total food production in your restaurant

Quantity _____ in kg per month

2.4 Please provide the estimated monthly amount (in kg) of the total food waste generated in your restaurant kitchen (kitchen food waste)

Quantity _____ in kg per month

2.4. Please provide the estimated of the percentage of client leftovers that are thrown away in the trash bin each month compared to the food produced (client food waste)

In total _____ %

2.5. Please indicate the average shelf life of food before the introduction of REGUSTO INNOVATION. Please distinguish your responses among the three categories specified in the table.

Fresh product/Fridge	Frozen product	Pantry product
☐ Less than 1 day	☐ Less than 1 day	☐ Less than 1 day
☐ 1-2 days	☐ 1-2 days	☐ 1-2 days
☐ 2-3 days	☐ 2-3 days	☐ 2-3 days
☐ 4-6 days	☐ 4-6 days	☐ 4-6 days
☐ More than 1 week	☐ More than 1 week	☐ More than 1 week

2.6. Please provide the approximate total monthly amount of fixed costs before the introduction of the REGUSTO INNOVATION.

Amount _____ in Euro per month

2.7. Please provide the approximate total monthly amount of variable costs before the introduction of the REGUSTO INNOVATION

Amount _____ in Euro per month

2.8. Please indicate how organic waste is disposed of in your restaurant. If necessary, you can indicate more than one choice.

- ☐ Organic waste
☐ Indifferentiate waste
☐ Compost
☐ Feed to animal

- ☐ Anaerobic digestion
- ☐ Incineration
- ☐ Waste landfill / in sea
- ☐ Ploughed/ not harvested
- ☐ Dump
- ☐ Sewer
- ☐ Other (please specify): _____

2.9. Taking into account the disposal methods indicated in the previous question, please indicate what is the approximate total monthly cost of the organic waste disposal in your restaurant

Amount _____ in Euro per month

3. AFTER THE IMPLEMENTATION OF REGUSTO INNOVATION

3.1. After introducing the REGUSTO APP into your restaurant, how aware are you of food waste issues? Please indicate the following scale with 1= not at all aware and 5= extremely aware.

Not aware at all	Slightly aware	Aware	Moderately aware	Extremely aware
☐	☐	☐	☐	☐
1	2	3	4	5

2.3. Please indicate your level of agreement for the following statement:

“You and your employees involved in food handling are committed to reducing food waste after the introduction of REGUSTO INNOVATION”.

- ☐ Strongly disagree
- ☐ Disagree
- ☐ Not disagree nor agree
- ☐ Agree
- ☐ Strongly agree

3.2. Please provide the estimated monthly amount (in kg) of the total food production in your restaurant

Quantity _____ in kg

3.3. Please provide the estimated monthly amount (in kg) of the total food waste generated in your restaurant kitchen after the introduction of REGUSTO INNOVATION (kitchen food waste)

Quantity_____ in kg

3.4. Please provide the estimated of the percentage of client leftovers that are thrown away in the trash bin each month compared to the food produced after the introduction of REGUSTO INNOVATION (client food waste)

In total_____ %

3.5. Please indicate the average shelf life of food after the introduction of REGUSTO INNOVATION? Please distinguish your response among the three categories specified in the table.

Fresh product/Fridge	Frozen product	Pantry product
☐ Less than 1 day	☐ Less than 1 day	☐ Less than 1 day
☐ 1-2 days	☐ 1-2 days	☐ 1-2 days
☐ 2-3 days	☐ 2-3 days	☐ 2-3 days
☐ 4-6 days	☐ 4-6 days	☐ 4-6 days
☐ More than 1 week	☐ More than 1 week	☐ More than 1 week

Now please provide some information on the costs incurred or avoided after the introduction of REGUSTO INNOVATION and how these costs have affected the restaurant's overall budget

3.6. Please provide the approximate total monthly amount of fixed costs after the introduction of REGUSTO INNOVATION:

Amount_____ in Euro

3.7. Please provide the approximate total monthly amount of variable costs after the introduction of REGUSTO INNOVATION:

Amount_____ in Euro

3.4. Consider your situation after the introduction of REGUSTO INNOVATION, please indicate how organic waste is disposed of in your restaurant. If necessary, you can indicate more than one choice.

- ☐ Organic waste
- ☐ Indifferentiate waste
- ☐ Compost
- ☐ Feed to animal
- ☐ Anaerobic digestion
- ☐ Incineration
- ☐ Waste landfill / in sea
- ☐ Ploughed/ not harvested

- ☐ Dump
☐ Sewer
☐ Other (please specify): _____

3.8. Taking into consideration the disposal methods indicated in the previous question, please indicate the approximate total monthly cost of organic waste disposal in your restaurant, after the introduction of REGUSTO INNOVATION?

Amount _____ in Euro per month

3.9. Please indicate the theoretical costs incurred (divided into fixed cost and variable cost) from the disposal of food which ends up as food waste in the restaurant and by restaurant clients, but sold on REGUSTO

Fixed cost: amount _____ in Euro per month

Variable cost: amount _____ in Euro per month

3.10. There are new revenue stream(s) resulting from the REGUSTO INNOVATION?

- ☐ Yes
☐ No

3.11. If you answered yes to the previous question, please indicate an approximate amount and type of the new income stream(s).

New income stream(s), approximate amount per month: _____ (in Euro)

Type of income stream(s): (please specify) _____

3.12. Are there any avoided costs resulting from the REGUSTO INNOVATION?

- ☐ Yes
☐ No

3.13. If you answered yes to the previous question, please indicate an approximate amount and type of the costs avoided.

Costs avoided, approximate amount per month: _____ (in Euro)

Type of costs avoided: (please specify) _____

3.14. What is the change in monthly balance (due to additional revenue or avoided costs) resulting from the REGUSTO INNOVATION?

In total _____ %

3.15. Please indicate the approximate total cost of implementing the innovation (e.g. additional/new capital investment, labor cost, training, etc.)

Amount _____ in Euro

3.16. There are new subsidies and/or other economic benefits as a result of waste reduction after the REGUSTO INNOVATION?

- ☐ Yes
☐ No

3.17. If you answered yes to the previous question, please indicate in Euros the subsidies and/or other economic benefits received following the reduction of waste (specifying whether they are one-off, periodic, fixed or proportional to the quantity of waste)

Total _____ in Euro

- ☐ One-off
☐ Periodical
☐ Fixed
☐ Proportional to the quantity of waste
☐ Other (please specify)

Please focus on using the REGUSTO application during the training period

3.18. How many discounted meals, on average, are sold daily?

(Open answer) _____

3.21. How much is the selling price difference (price change) between the products discounted and without the innovation? Please indicate a positive difference with “+” (i.e. +5% if the price has increased by 5%) and a negative difference with “-” (i.e. -5% if the price has decreased by 5%)

Difference/Price change: _____ %

Please provide some information on the implementation of the innovation

3.22. Is the person responsible for implementing REGUSTO different from the person who responded to this questionnaire?

- ☐ Yes
☐ No

If you answered yes to the previous question, please answer the question:

3.23. Who in your restaurant takes care of REGUSTO activity/innovation?

Please indicate the following information:

Gender:

- ☐ Male
☐ Female
☐ Non binary
☐ Prefer not to specify

Age: _____

Working position: _____

3.24. Your restaurant needed to hire new staff to deal with the innovation?

- ☐ Yes
☐ No

3.25. Please indicate, by gender, the number of full-time equivalent jobs created for (or lost due to) the implementation of the REGUSTO INNOVATION (if it is only a part of the time of one or more employees, please indicate the change in total working hours)

	Number of the jobs created	Number of the jobs lost	Change in total working hours
Female			
Male			
Non binary			

3.26. Please indicate the list of people who contribute to different tasks related to the innovation (e.g. product transfer, from making contacts to product delivery) and for each person, please indicate gender, company sector and degree of work.

(open answer) _____

3.27. What is the average number (per month) of new buyers/clients you have come into contact with as a result of your involvement in the REGUSTO INNOVATION?

- ☐ Number: _____

☐ Type of buyers (open answer): _____

3.28. Do you believe these new buyers have desire to keep the relationship with your restaurant?

- ☐ Extremely impossible
- ☐ Impossible
- ☐ Not possible nor impossible
- ☐ Possible
- ☐ Extremely possible

3.29. You had to purchase new technological devices to use the REGUSTO INNOVATION?

- ☐ Yes
- ☐ No, we use the devices those are already present

3.30. What type of electronic devices are used for REGUSTO? (More than one choice)

- ☐ Tablet/iPad
- ☐ Computer
- ☐ Smartphone
- ☐ Other (please specify): _____

3.31. You used these devices exclusively for the REGUSTO INNOVATION?

- ☐ Yes
- ☐ No, I also use it for other purposes (please specify other using purposes: _____)

3.32. How long did you use these devices for each single order?

- ☐ Less than 5 minutes
- ☐ 5-7 minutes
- ☐ 8-10 minutes
- ☐ More than 10 minutes

3.33. How many hours per week are dedicated to using REGUSTO INNOVATION?

- ☐ Less than 5 hours
 - ☐ 6-10 hours
 - ☐ 11-25 hours
 - ☐ 25-40 hours
 - ☐ More than 40 hours
 - ☐ Other (please specify): _____
-

4. YOUR SATISFACTION TOWARDS REGUSTO INNOVATION:

4.1. How would you rate your level of satisfaction with REGUSTO INNOVATION?

- ☐ Strongly dissatisfied
- ☐ Dissatisfied
- ☐ Neutral
- ☐ Satisfied
- ☐ Strongly satisfied

4.2. Please indicate your likelihood of continuing to use the REGUSTO APP:

- ☐ Extremely impossible
- ☐ Impossible
- ☐ Neutral
- ☐ Possible
- ☐ Extremely possible

4.3. How much do you plan to promote the use of the APP to your partners/friends, family, etc.?

- ☐ Extremely impossible
- ☐ Impossible
- ☐ Neutral
- ☐ Possible
- ☐ Extremely possible

4.4. How willing would you be to reuse the APP?

- ☐ Extremely impossible
- ☐ Impossible
- ☐ Neutral
- ☐ Possible
- ☐ Extremely possible

4.5. What are the features of the innovation that you would like to change or add?

Please specify in details:

4.6. For each of the following statement, we kindly ask you to indicate your level of satisfaction by selecting the option best represents your opinion (1=Strongly disagree; 5= Strongly agree):

	Strongly disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly agree (5)
The dashboard of the APP is good	☐	☐	☐	☐	☐
I like the characteristics of the innovation	☐	☐	☐	☐	☐
Innovation is easy for managers to use	☐	☐	☐	☐	☐
Innovation is easy to use for kitchen staff	☐	☐	☐	☐	☐

4.7. How difficult was it to start using the REGUSTO INNOVATION? Please consider the scale from 1 to 5 where 1=very difficult and 5=very easy

Very difficult	Difficult	Neutral	Easy	Very easy
☐	☐	☐	☐	☐
1	2	3	4	5

4.8. Considering a week of using the REGUSTO APP in your restaurant: how often have you contacted REGUSTO customer service for problems with the APP/platform?

- ☐ Everyday
- ☐ 3 or 4 times in a week
- ☐ 2 times in a week
- ☐ 1 time in a week
- ☐ Never
- ☐ Other (please specify_____)

4.9. If you contacted REGUSTO customer service, they were able to help you with your problem?

- ☐ Yes, completely

- ☐ Yes, in partial
☐ No, for nothing

4.10. For each of the following statement, we kindly ask you to indicate your level of satisfaction by selecting the best option represents your opinion (1=strongly disagree; 5=strongly agree)

	Strongly disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly agree (5)
The REGUSTO APP is important in my business to reduce food waste	☐	☐	☐	☐	☐
The REGUSTO APP is useful for my business	☐	☐	☐	☐	☐
Technological skills (use of mobile APPs, PC software) are improved thanks to the use of REGUSTO INNOVATION	☐	☐	☐	☐	☐
Technical skills (better understanding how the Food Supply Chain works) are improved by using the REGUSTO INNOVATION	☐	☐	☐	☐	☐

4.11. Please indicate your level of satisfaction with this survey

- ☐ Strongly dissatisfied
☐ Dissatisfied
☐ Neutral
☐ Satisfied
☐ Strongly satisfied

4.12. Comments and suggestions:

Appendix B: Survey for consumers (Translated in English)



Task 5.6

CONSUMER/FAMILY SURVEY QUESTIONNAIRE

I. INFORMATION ABOUT REGUSTO BAG USE

1.1. What is the name and location of the food service (restaurant, bar, café, etc.) that provided you with the Regusto bag?

Name and location (city and region): _____

1.2. What means of transport did you use to get to the restaurant?

- ☐ Walk
- ☐ Bicycle
- ☐ Private car
- ☐ Motorcycle
- ☐ Public (city) bus
- ☐ Metro/Tram
- ☐ Other (please specify)

1.3. What kind of food did the Regusto bag contain? (multiple choices)

- ☐ Aperitivo
- ☐ First dish
- ☐ Second dish
- ☐ Side dish
- ☐ Sandwich
- ☐ Dessert
- ☐ Pizza
- ☐ Other (please specify): _____

1.4. During which meal did you use the Regusto bag?

- ☐ Breakfast
- ☐ Lunch

- ☐ Snack /aperitivo
- ☐ Dinner
- ☐ Other (please specify): _____

1.5.The use of the Regusto bag is for a takeaway or a leftover from a meal consumed in the restaurant?

- ☐ Takeaway
- ☐ Leftover
- ☐ Other (please specify): _____

1.6.If it was used for a food leftover, what was the main reason that caused it? (single choice)

- ☐ Too big portion
- ☐ Not hungry
- ☐ Ordered too much food
- ☐ Don't like the taste of the food
- ☐ Other (please specify): _____

1.7.How much food was in the Regusto bag when it was given to you by the restaurant?

Please take a photo and estimate the amount of food in your Regusto bag before eating. We kindly ask you to take a photo of the Regusto bag from above when you collect it, to frame the entire bag and the food contained inside.

In total _____ grams



1.8.How long did it take for you to consume the food in the Regusto bag from the moment of acquiring the bag?

- ☐ 6 hours
- ☐ 6 to 12 hours
- ☐ 24 hour
- ☐ I did not consume the food in the bag

1.9.After using the Regusto bag, how much food is left in the bag without being consumed?

- ☐ All
- ☐ Around half
- ☐ ¼ of the total
- ☐ Less than ¼ of the total

- ☐ All food has been consumed

1.10. How many people consumed the food in the Regusto bag?

- ☐ 1 person
☐ 2-3 persons
☐ 4-6 persons
☐ More than 6 persons

1.11. In case some of the food was not consumed, please take a photo and estimate the amount of food left in the Regusto bag before throwing it away

In total _____ grams



1.12. In case some of the food was not consumed, what was the reason?

- ☐ I wasn't sure about the hygienic conditions I was keeping it in (food safety reason)
☐ I forgot
☐ I preferred other food
☐ I tried, but the taste was no longer the same
☐ Other (please specify): _____

1.13. How did you dispose the food not consumed from the Regusto bag?

- ☐ Animal feeding
☐ Composting
☐ Anaerobic digestion
☐ Incineration
☐ Land or sea fill
☐ Ploughed/not harvested
☐ Dump
☐ Sewer
☐ Other (please specify): _____

1.14. Please specify whether you (and your family) typically carry out any of the following food waste management practices (multiple choices)

- ☐ Animal/pet feeding
☐ Home composting
☐ Collection of municipal solid waste (waste bin)

- ☐ Collection of municipal solid waste (organic waste bin)
- ☐ Other (please specify): _____

II. CUSTOMER SATISFACTION SECTION

2.1. Indicate the likelihood of continuing to use the Regusto App:

- ☐ Very impossible
- ☐ Impossible
- ☐ Neutural
- ☐ Possible
- ☐ Very possible

2.2. How would you rate your experience with Regusto innovation?

- ☐ Very dissatisfied
- ☐ Dissatisfied
- ☐ Neutrale
- ☐ Satisfied
- ☐ Very satisfied

2.2.1. Please indicate the degree of probability of the following questions considering the scale with 1= very impossible and 5= very possible.

	Very impossible (1)	Impossible (2)	Neutural (3)	Possible (4)	Very possible (5)
How much do you plan to promote the use of this App to your partners/friends, family etc...?	☐	☐	☐	☐	☐
How willing would you be to reuse the App?	☐	☐	☐	☐	☐

Do you think you have saved on food purchasing costs thanks to the Regusto innovation?	☐	☐	☐	☐	☐
--	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------

2.3.If you think you have saved on food purchasing costs thanks to the Regusto innovation, indicate how much, approximately, you think you have saved?

Amount _____ in Euro

2.4.How difficult was it to start using the Regusto innovation? Please consider the following scale with 1= very difficult and 5 = very easy.

Very difficult	Difficult	Neutral	Easy	Very easy
☐	☐	☐	☐	☐
1	2	3	4	5

2.5.Please indicate your satisfaction with the survey

- ☐ Very dissatisfied
- ☐ Dissatisfied
- ☐ Neutral
- ☐ Satisfied
- ☐ Very satisfied

2.6.Comments and suggestions:

III. SOCIO-DEMOGRAPHIC INFORMATION

3.1.Gender

- ☐ Male
- ☐ Female
- ☐ Non binary

☐ Prefer not to specify

3.2. Please indicate your age: _____

3.3. Please indicate your nationality:

- ☐ Italian
☐ Other country in EU (please specify _____)
☐ Other country outside EU (please specify _____)

3.4. Please indicate your residence

- ☐ City _____
☐ Region: _____

3.5. Please indicate your professional status

- ☐ Permanent
☐ Fixed-termed
☐ Self-employed
☐ Searching for a job
☐ Retired
☐ Student
☐ Housewife/houseman
☐ Other (please specify): _____

3.6. Please indicate the appropriate level of your education

- ☐ Elementary school diploma or no education
☐ Middle school diploma
☐ Upper secondary education
☐ Short-cycle tertiary education
☐ Bachelor's or master's degree
☐ (University) Master's degree
☐ Doctor or equivalent level

3.7. Which of the following categories best describes your net monthly personal and household income?

Net monthly personal income	Net monthly household income
☐ Less than 500 euro	☐ Less than 500 euro
☐ 500-1.000 euro	☐ 500-1.000 euro
☐ 1.001-1.500 euro	☐ 1.001-1.500 euro
☐ 1.501-2.000 euro	☐ 1.501-2.000 euro
☐ 2.001-3.000 euro	☐ 2.001-3.000 euro

☐ More than 3.000 euro	☐ More than 3.000 euro
---	---

3.8. Please indicate the number of family members (family size) by including yourself in the calculation.

Open answer _____

3.9. Please indicate if there are children (under 14 years old) in your family and the corresponding age

☐ 1	age:
☐ 2	age:
☐ 3	age:
☐ 4	age:
☐ Other (please specify)	age:

