

LAB University of Applied Sciences
Faculty of Tourism and Hospitality
Degree Programme in Hospitality and Tourism Management

Dao Ngoc Linh

**Sustainable Practices in Sourcing and Waste
Management of Restaurant Kampusravintolat Oy,
Finland**

Thesis 2020

Abstract

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Sustainable Practices in Sourcing and Waste Management of Restaurant

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Instructors: Mr. Jukka Moilanen, Senior Lecturer, LAB University of Applied Sciences

Ms. Virpi Ristimäki, Head of Department, LAB University of Applied Sciences

Problems with the food system turn out to be the central of many other climatic, social, and economical challenges in our society. In order to understand unsolved issues of Finland's food service, the thesis focuses on studying two main topics, which are sourcing and waste management. Kampusravintolat Oy, a catering company located in Lappeenranta, Finland, was taken as the main case. Current ways of handling procurement and waste management at Kampusravintolat were analyzed. Throughout the thesis, practical solutions were recommended to each reported issue, which mainly regards the restaurant's dependence on plastic packaging and the amount of generated food waste.

The theoretical part explored the definition of food origin, the recycling of plastic packaging, and food waste worldwide and in Finland. The information was gathered from books, websites, articles, and previous studies on topics of sustainable nutrition, green business, and food system. Data of customer waste and total number of visited customers at Kampusravintolat during the span of 3 months was provided by the restaurant's manager, Anni Varis. The empirical part was carried out by delivering an online questionnaire in Finnish to 18 staff members of Kampusravintolat.

The results of the study show that staff members have strong interest and own concrete knowledge on the topic of food origin. The procurement appears transparent to the majority of staff members. In Kampusravintolat, there are clear methods to record different food waste groups, though the methods and results are not available to every staff members. The recycling of plastic packaging is recognized as an unsolved issue of the restaurant and of Finland's food service as a whole. Regarding this topic, staff possess different level of understanding. Nevertheless, potential in reducing the dependence on plastic packaging exists and is analyzed.

Keywords: food origin, food waste, plastic packaging recycling.

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Appendix 1: Survey questionnaires: Kestävän kehityksen käytännöt Kampusravintolat Oy:ssä (Sustainable practices in Kampusravintolat Oy)

1 Introduction

The thesis focuses on studying how two tasks, which are raw material procurement and waste management, are done inside Kampusravintolat Oy. Kampusravintolat Oy is a Finnish catering company located inside the Green Campus, Lappeenranta, Finland, where the author studies. The company mainly caters to lecturers, students, and staff of the campus. Since the beginning days in 2015, Kampusravintolat has been coming up with many great initiatives to improve its operation's sustainability, including the usage of digital scale and the active sales of leftovers. Analyzing Kampusravintolat helps the author gain a better understanding of Finland's food service. Finland's food service is standardized, therefore, Kampusravintolat's unsolved problems are many times similar to the industry's, for example, how the recycling of plastic packaging is currently not implemented. In the thesis, great initiatives of the restaurant are recognized, issues in waste management were spotted, and practical solutions were recommended for each problem.

1.1 Main objectives

The thesis aims to assess the level of interest and understandings of restaurant staff on important topics of food origin, food waste, and packaging waste. In addition, it studies how the food waste data has been helping Kampusravintolat in their effort of reducing food waste. The clarity of information within the restaurant could be seen from the certainty in staff's responses. Finally, the thesis hopes to raise proper attention of restaurant staff regarding these matters at their workplace.

In the thesis's context, food sourcing refers to food origin and Kampusravintolat's food selection, while waste management refers to the handling of food waste and packaging waste. Further practical solutions that could be taken in the near future are clearly provided by the author.

1.2 Research method

As the author writes about the sustainable practices in Kampusravintolat Oy, she considers it is best to obtain opinions, perceptions, and knowledge regarding

these matters from restaurant staff. The author conducted one meeting with the restaurant manager, Anni Varis, to deliver the idea and discussed how the survey can be sent to staff.

Direct opinions of 18 Kampusravintolat staff members were collected through an online questionnaire. All staff are female, and work under a permanent contract. The majority of staff (nearly 56%) are from 25 to 35 years old. There are 5 staff members whose age is over 46 years. Half of the population has been working at Kampusravintolat from 1 to 3 years. Two staff members have been at the company for more than 5 years, and only one has been working for less than 6 months

The questionnaire is conducted in Finnish, which is the staff's mother tongue. The survey's language was checked by 2 native speakers before being delivered. The total number of respondents represents 60% of total population. There are 20 questions in total, of which 90% are either single or multiple choice questions.

The questionnaire is divided clearly into 3 parts. The first part consists of preliminary questions. The age group and the length of working were initially expected to help the author spot any possible correlations between these factors and their attitudes towards different environmental issues. The second part deals with staff's awareness of food origin, at work and during individual shopping. The third part deals with staff's understanding of current food waste measurement, and the recycling of different packaging materials, especially plastic packaging.

All respondents were submitted through Survicate during February 2020. The results were discussed according to the survey's order throughout this written report. The author goes through all the questions, except for question number 9 regarding the frequency of food delivery, as the information turns out to be irrelevant, and question number 16 on the thoughts of staff on the benefits of food waste tracking, as all the answers were provided and do not give further insights.

The thesis will be informative to staff of Kampusravintolat and the company as a whole, and to anyone who works, or manages restaurants in Finland, as well as people who are interested in and wish to learn more about these topics.

2 About Kampusravintolat

Kampusravintolat Oy is a Finnish catering company, whose premises locate in Lappeenranta, Finland. Its name is literally translated into campus restaurants. The company caters food to teachers and students of the LAB-university of Applied Sciences (LAB-amk) and Lappeenranta-Lahti University of Technology (LUT).

LAB-UAS and LUT buildings are located in the same area. The buildings are joint, allowing staff to easily access or deliver foodstuffs to other premises. In LAB-UAS building, there is Skinnarila restaurant, while in LUT building there is LUT-Bufferet. Both Skinnarila restaurant and LUT-Bufferet belong to Kampusravintolat, and they provide daily lunch (from Monday to Friday) to people in the campus.

On an average day, LUT-Bufferet receives around 1,550 guests, and Skinnarila restaurant receives around 470 guests. This is calculated based on the provided data of November 2019. The number of customers visiting LUT-Bufferet is usually twice or three times that of Skinnarila restaurant.

Kampusravintolat also serve a la carte meals with higher range of price in its Grilli restaurant. The thesis would not consider this premise, as there are differences in sizes, food types, opening hours, and many other factors, compared to the other 2 premises.

2.1 Kampusravintolat's service type

Kampusravintolat is a cafeteria. Customers serve themselves by loading food and drinks (still water, milk, sour milk, juice, and sometimes homemade ale) along the counter onto their trays. They pay at the counter before eating. Complimentary home-baked breads are included in the lunch price.

Customers are allowed to come back and take more if they are still hungry. This way, Kampusravintolat is also a buffet restaurant. However, there are certain differences that distinguish the restaurant from other typical buffet restaurants:

First is the limited eating time of customers. The majority of customers are students, lecturers, and sometimes workers from surrounding areas. They

usually have for themselves around 30 minutes, until they head to the next classes, or working shifts. On the contrary, common buffet restaurants welcome leisurely eaters, who set out longer time to relax and enjoy the food. Due to this, the amount of food consumed per customer in Kampusravintolat could be better calculated.

Second is the cheap meal prices. KELA is the Social Insurance Institution of Finland. This government agency pay a subsidy of 1.94 euros per meal per day for students owning KELA card. Students with KELA card are supposed to pay the rest of around 2.6 euros for Kampusravintolat. The card is provided for all degree and exchange students. Affordable price is one factor that encourages customers, especially students, to frequently have meals during rush hours at the campus. Thus, Kampusravintolat could expect a consistent number of customers everyday, unlike other restaurants, whose customer numbers are harder to be predicted.

2.2 Lunch offer at Kampusravintolat

The restaurants provide a fair share of meat-based and plant-based meals. Special diets and allergies could be prepared upon request. This action of the restaurants indicates that there are not many diverse requests of diets in addition to fixed options that are offered on the day.

The author agrees that limiting the number of meals is a sustainable move. Besides the salad bar and vegetable soups options (Salaatti + eväs/kasviskeitto), customers can choose among other 4 to 5 dishes daily. Following are the screenshots of menus from Skinnarila Ravintola and LUT-Bufferet for Monday 10 Feb. 2020 and Tuesday 11 Feb. 2020:

10.2. – 14.2.2020

Lunch 10.30 – 13.30	Student			
	(with Kela-benefit)	Student	Staff	Guest
Monday				
Mushroom soup L, *	1,80	3,74	4,60	5,20
Beef pasta G, L, M, *	2,20	4,14	5,70	7,50
Rainbow trout and potato cream casserole G, L, *	2,60	4,54	5,70	7,50
Broad bean and cabbage casserole L, M, VE, *	2,20	4,14	5,70	7,50
Salaatti + eväs	2,20	4,14	5,70	7,50
Salaatti + eväs ja kasviskeitto	2,60	4,54	5,70	7,50
Tuesday				
Thai carrot puree soup G, L, M, VE, *	1,80	3,74	4,60	5,20
Chicken and lentil soup G, L, M, *	2,20	4,14	5,70	7,50
Italian meat balls (beef, pork) L, M	2,60	4,54	5,70	7,50
Vegetable stew Harira G, L, M, VE, *	2,20	4,14	5,70	7,50
Salaatti + eväs	2,20	4,14	5,70	7,50
Salaatti + eväs ja kasviskeitto	2,60	4,54	5,70	7,50

Figure 1. Skinnarila restaurant menu (Kampusravintolat 2020)

10.2. – 14.2.2020

	Opiskelija			
	Kela-tuki	Opiskelija	Henkilö-kunta	Vieras
Monday				
Leek and potato puree soup G, L, *	1,80	3,74	4,60	5,20
Fruity chicken curry G, L, *	2,20	4,14	5,70	7,50
Beef stew Burgund G, L, M, *	2,60	4,54	5,70	7,50
Beetroot and lentil stew G, L, M, VE, *	2,20	4,14	5,70	7,50
Salaatti + eväs	2,20	4,14	5,70	7,50
Salaatti + eväs ja kasviskeitto	2,60	4,54	5,70	7,50
Rainbow trout Russian style G, L	4,20	6,14	7,30	9,50
Grill: Closed	4,95	6,89	8,50	11,00
Tuesday				
Barley porridge L, *, Juice soup G, L, M, *	1,80	3,74	4,60	5,20
Oven cooked fish with mustard G, L, *	2,20	4,14	5,70	7,50
Italian meat balls (beef, pork) L, M	2,60	4,54	5,70	7,50
Seitan wok L, M, VE, *	2,20	4,14	5,70	7,50
Salaatti + eväs	2,20	4,14	5,70	7,50
Salaatti + eväs ja kasviskeitto	2,60	4,54	5,70	7,50
Chicken Habanero G, L, M, *	4,20	6,14	7,30	9,50
Grill: Sweet potatoes stuffed with chicken and avocado/feta and avocado G, L	4,95	6,89	8,50	11,00

Figure 2. LUT-Bufferet menu (Kampusravintolat 2020)

Options are diverse. However, it could be seen that there are certain similarities in raw ingredients that are shared by both premises. For instance, on Monday, both restaurants use ground beef, rainbow trout, and potatoes, on Tuesday, both use chickens and meat balls.

There is a tendency of overlapping proteins. The author considers this to be another great practice of *Kampusravintolat*. By planning to work on the same raw ingredients throughout both premises in a day, it is easier to calculate the total amount for ordering. The possibility that customers would favor one option over the other, which may result from the broad range of differences in used ingredients, is avoided. The chance that all ingredients are utilized, instead of wasted, is as well higher.

In conclusion, limitation in raw ingredients and options helps the restaurants to cut back in food loss.

3 Sourcing raw ingredients

Walking into a grocery store in Finland, customers find themselves among goods transported from all corners of the world: cucumbers from Finland, or Spain, rice from Italy, bananas from Costa Rica, avocados from Peru, and the list goes on. What customers would purchase matters.

Cucumbers from Finland are domestic products, but farmers might have used a lot of energy for heating greenhouse. Imported cucumbers from Spain may travel a long way to arrive in Finland, but they must have grown under natural conditions, of sunlight and rainfall. The decisions are not easy to make, it requires knowledge and transparency from many sides.

This part of the thesis confirms which product groups are easy to source domestically, and which are harder from the staff's viewpoint. The clarity and accessibility the answers would show how transparent the sourcing process is within the company, and staff's interest in the topic.

3.1 Footprint of food

The Life Cycle Assessment (LCA) calculates the food's footprint throughout its entire life cycle, which is summed up in 5 stages: cultivation, processing, packaging, transport, and cooking.



Figure 3. Life cycle assessment (BarillaCFN 2016)

There are 3 indicators that make up the total footprint of a foodstuff, they are water footprint, ecological footprint, and carbon footprint.

According to the definitions of BarillaCFN (2016, p.22), the water footprint indicates how much water a foodstuff uses during its life cycle, directly or indirectly, measured by liters or cubic meters. The ecological footprint is the stretch of land (or sea) surface that supports the food growth, as well as absorbs the emissions linked to the production system, measured by meters or global hectares. The carbon footprint is the amount of greenhouse gas (carbon dioxide,

methane, etc.) emissions that a foodstuff emits, measured by CO₂e (CO₂ mass equivalent), a term that demonstrate different greenhouse gases in a common unit.

Those 3 indicators do not so far provide a totally comprehensive picture on the food's environmental impacts, as factors can be varied, for example, uncertainty on the usage of pesticides of a local farm. The impacts during cooking phase are also hard to calculate and are sometimes left out, since they significantly vary.

There is always the urge to support local and seasonal food. While seasonal food is undoubtedly fresh and sustainable, the same can not be said about local produce. In other words, local does not mean sustainable.

Foods that are grown far away generate their impacts during the transport phase, but they may have created really little impact during production phase. In many cases, while transportations (trucks, airplanes) emit high level of CO₂, the amount of goods transported is usually large, resulting in low impact per kilogram of products. (Barilla 2016, p. 46.) When there is such a case, imported foods are more sustainable compared to domestic grown food inside heated greenhouses. In the U.K. it is more environmental-friendly to import bananas from Costa Rica than to grow the fruits themselves. Considering their weather conditions, which most of the time is the most contributing factor to climate change, and other agricultural factors, e.g. needed land area, import is the way to go.

In short, the question is not domestic food or not. The origin of food matters, however, the origin alone can never draw a holistic picture of a food's footprint. Therefore, besides the question of origin, these following questions are also good in helping restaurants or individuals to make wiser choices:

- What is the production method of this food? Which energy resources are largely needed during this production method?

For example: rice is grown using the flooding technique. This technique uses mainly water resources.

- In which phases does the food produce most impacts? Cultivation, transport, cooking phase, or others?

Answers to these questions could be made possible when there is transparency and openness of many sides, the manufacturers', the logistics', and so on.

3.2 Staff's interest in food origin

The author wanted to find out if food origin is the central topic of attention of restaurant staff, who work everyday with food.

Two questions were presented, staff were demanded to report their interest in the food origin at work, and as a regular customer.

Staff's interest in food origin (at work and during individual shopping)				
As a regular customer / As a restaurant worker	>75%	>50%	<50%	0% - 15%
Yes, usually	11 staff members (61%)	2 staff members (11%)	2 staff members	1 staff member (6%)
No	x	1 staff member	1 staff member	x

Figure 4. Staff's interest in food origin (at work and during individual shopping)

As a regular customer, staff members have 4 ranges to rank their interests:

- I try to purchase mostly domestic food (> 75%)
- Sometimes, I prefer domestic food rather than imported products (> 50%)
- Food origin is not the 1st criteria when I shop (< 50%)
- I pay little attention to the origin of food (0% - 15%)

Whereas, while answering the same question as a restaurant worker, staff only needs to answer whether or not they care about the food origin. This is because when shopping for individual grocery, the person owns all the responsibilities. One will naturally dedicate more attention and time to think of the household's preferences, the family's budget, the variety of choices, the health of family members, and other relevant factors. While at work, products are straightly brought to the kitchen and staff are freed from going through all the processes that happen during individual shopping. Thus, the yes/no question. The author believes there is no significant difference if a wider range of answers is provided instead. This also makes it easier for the author to combine information.

As can be seen from the table, as much as 61% of staff cares about food origin when they come into direct contact with ingredients at work, and they also practise purchasing mostly domestic food for their households.

There are few unexpected contraries. Three staff report their uninterest in the food origin when shopping for groceries themselves, however, they pay attention to it at work. The opposite also exists, 1 staff member, who claims to pay attention to food origin when shopping individually (>50%), does not share the same interest at work.

In conclusion, staff's level of interest in where the food comes from is high. The majority confirm that food origin is one important criterion to them when purchasing raw ingredients. Staff are regarded as more responsible when they show their care and knowledge to such relevant topics. There is no noticeable correlation between staff's age, their years of working, and their interest in food origin. One thing to notice is that these answers are based solely on staff's self-assessment.

3.3 Staff's awareness of the food origin

Staff are asked how easily or difficult a product can be obtained from Finnish producers in 2 consecutive questions. Both questions are multiple-choice. Staff are required to separate their answers for both questions. There were 2 staff members who chose every options to both questions.

Seven choices for both questions include:

- Meat (liha)
- Fish (kala)
- Vegetable/ Fruits (kasvikset/ hedelmät)
- Grains group including rice, pasta, except bread (viljaryhmät: riisi, pasta (paitsi leivät)
- Dairy products (maitotuotteet)
- Bakery products including breads, cookies, etc. (leipomotuotteet: leivät, keksit, jne.)
- I do not know (En tiedä)

Fruits are usually not offered by Kampusravintolat, not daily nor in large quantity. Therefore, fruits and vegetables are grouped together. Breads are not included in the grain groups, even though breads belong to the grain groups, theoretically. This is because Kampusravintolat bakes most bakery products themselves, including breads. Thus, it is appropriate in this case to group breads with other bakery products.

These 2 questions are multiple choice. Therefore the number of answers exceeds the total number of respondents. The author compares the number of votes a question got against the total number of respondents, instead of comparing it against the total number of answers.

3.4 Domestic and local products

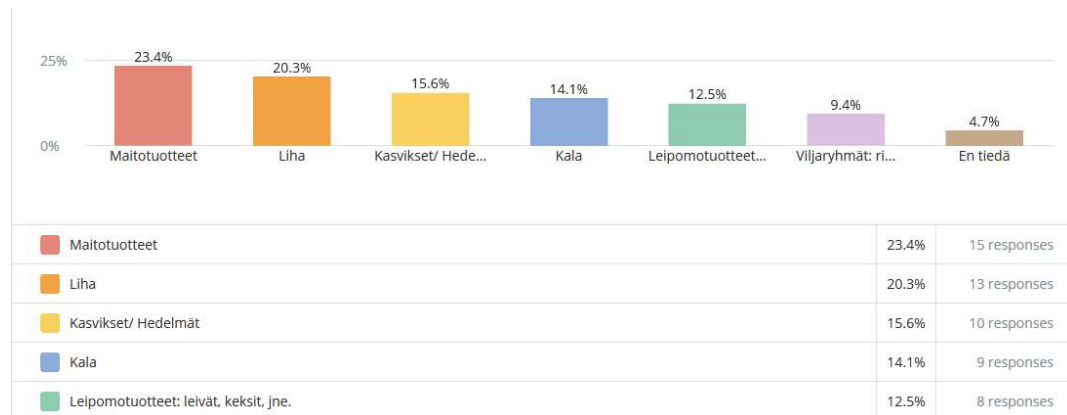


Figure 5. Products that are easy to get from domestic producers or are self-made

As can be seen from the figure, the majority of *dairy products* (of which milk accounts for the largest availability at the restaurant) and *meat* are domestic. In Finland, the milk industry is prosperous, and over 80% of the products of the meat industry are the by-products of the milk industry (Luke 2020). The later part of this thesis writes about the sustainability of dairy and meat products in Finland, compared to their international counterparts. It explains why Kampusravintolat decides that it is not yet necessary to exclude meat from the menu, and at the moment, the author agrees.

There are 83% of responses for *dairy products* and 72% for *meat*, showing a firm awareness of staff on the locality of these products, although these are certainly not common sense to everyone. There are debates and arguments that Finns should give up on red meat, which later leads to many articles where dairy and meat producers defend the sustainability of their produce, and that it is wrong to pose the same accusations on the Finnish dairy and meat industry.

Vegetable and fruits (*kasvikset/ hedelmä*) land at top 3 (56% respondents), following by fish (*kala*) (50% respondents). The author writes about these products in the next part.

3.5 Frequently imported products

Mitä tuotteita on VAIKEA saada kotimaisilta tuottajilta? Valitse sopivat ruudut. Tämä on monivalintakysymys.

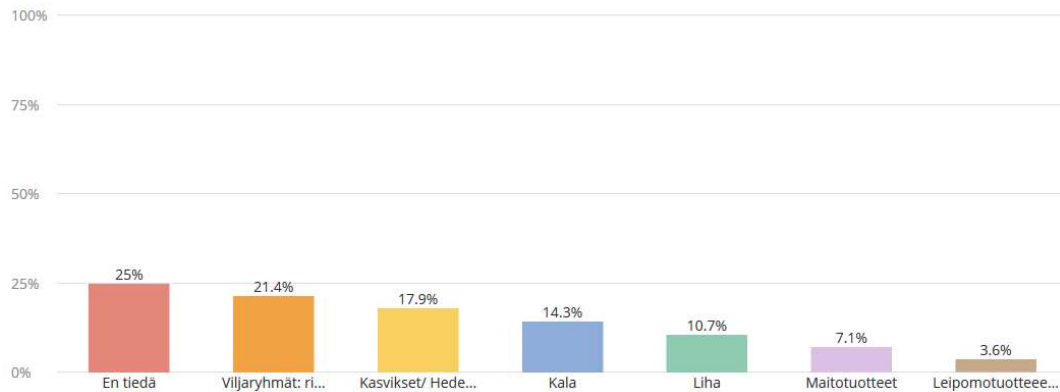


Figure 6. Products that are frequently imported

Figure 6 illustrates responses to the question: *Which products are hard to get from domestic producers?* The question aims to find out which products are recognized by staff as exotic and whether their perspectives reflect actual situations. Knowing which food is hard to get could help change how food is treated and how future menus would be planned.

While there are 64 responses to the earlier question, this question receives less than half responses (30 answers). One staff member chose to just skip the question. Many (44% respondents) chose the option “I do not know” (*En tiedä*), making it the most chosen answer.

The author considers that her way of grouping the answers is not the most ideal, thus it may interfere with how staff choose their answers. For example, the option *grain groups* consist of rice, pasta, cereal, barley, and any products that are made of grains. Not all the foods appearing in the *grain groups* share the same origins. According to Luke’s senior researcher Juha-Matti Katajajuuri (Riitta Mustonen 2019), barley is more sustainable than rice, as barley produces lower carbon emissions than rice. Barley is domestically cultivated, while rice is imported. It is hard to decide when there are such clashes in an answer. If Kampusravintolat works with barley more than rice, it is understandable that staff think of *grain group* as sustainable. In short, the answers are thought to cause staff confusion,

which explains the significant drop in the total number of answers for this question.

There are 2 respondents who chose all 6 options (except *I do not know*) for both questions, reflecting the possibility of knowledge shortages or misunderstandings the questions. Nevertheless, when comparing the 2 figures, certain correlations can be seen.

Grain groups (except breads) arrive at the 2nd position with 33% of responses (6 votes out of 18 staff members). Following is vegetables/ fruits (*kasvikset/ hedelmät*) and fish (*kala*) with less than 30% of received answers. Bakery products (*leipomotuotteet*) only got 1 vote, despite that it does not top in the prior question. *Kampusravintolat* bakes their own bread so this reflects the actual situation.

Vegetables/ Fruits shows a slight overlap. Still, more staff think that these are harder to get from domestic producers. To explain the happening of mixed answers, this option presents 2 food groups, and they differ in the matter. While there is a good range of domestic vegetables on the market, the situation is completely different for fruits.

Typical Finnish vegetables that are available are tomatoes, cucumbers, eggplants, potatoes of many kinds, onions, red onions, fresh herbs (basil, coriander, etc.), mushrooms, cabbages, and the list continues. These products usually have alternatives from Spain at nearly 50% cheaper in price. On the other hand, most fruits are imported from far away countries to Finland: Costa Rica bananas, Egypt oranges, Moroccan mandarins, Peruvian avocados, Italian apples, these are hardly grown in extreme weather of Finland. However, this does not mean that consuming fruits is extremely unsustainable.

According to Professor Reay (Weston 2019), a climate scientist from the University of Edinburgh, calculating food miles does not provide an overall picture of a product group's global impact. Again, food's footprint spreads across its entire life cycle. In the UK, it is said that bananas from the Dominican Republic, oranges and apples from Brazil, are among the most environmental-friendly products that local consumers can buy. (Weston 2019.) This can be well referred

to Finnish customers, too. Costa Rica, Egypt, Peru are frequent suppliers to Europe when it comes to fruits. And there are sustainable suppliers from these countries that should be supported continually, e.g. Chiquita bananas from Costa Rica.

Economic factor can play an important role in people's perception too. Even when there is availability of domestic products, when the locals choose to purchase imported alternatives instead because of many factors including price, it is understandable if people still consider that it is complicated to support domestic products. Finnish meat and milk is produced sustainably and economically, thus there is every reason why customers choose them. On the other hand, when it comes to vegetables, fruits, and fish, most of the time domestic options of these products are more expensive. While Kampusravintolat claims that it prefers domestic meat, the same thing is not said about fish, vegetables, or fruits. In the case of milk, it is obvious to customers as milk is left outside so customers can pour themselves, therefore the author supposed that no further claims regarding origin is needed.

3.6 The sustainability of rice

The author is interested in the consumption of rice in Finland. Rice is somehow a foreign staple to the natives, but are used quite often. This part will try to justify Finnish main rice suppliers, the product's sustainability, and some alternative options.

As a matter of fact, Finland imports rice from various countries, namely Italy and Spain- the producers of 80% of rice in Europe, Thailand and India. White, basmati, and jasmine are typical rice that are sold in Finland. The rice is packaged by Finnish companies. The product inevitably travels thousands of miles to be on shelves of the supermarket.

According to the nutritional balance (Ravintotaseen ennakko) (Maaseudun tulevaisuus 2019), Finland's consumption of rice has increased by 15 percent from 5.2 kilos per capita in 2010, to 6 kilos in 2018. Finnish use rice in traditional dishes such as rice porridge (riisipuuro), Karelian pies with rice fillings

(Karjalanpiirakka). Many exotic restaurants in the country serving Indian, Nepalese, Asian cuisines, etc. boost the consumption figure of the country too.

How the rice is grown is no less important. The most common practice is flooding the rice paddies. The practice contributes to rice's methane emission rather large. Farmers use pesticides and sprays to keep their paddies healthy, which pollutes the environment, too. As a single product, rice contributes 1.5% of total global greenhouse emissions. (World Resources Institute 2014.) According to ricepedia (n.d.), many researchers worry about rice security in the future. Rice production would have to cope up with rice field reduction, water shortages, and the uncertainty of climate change (ricepedia n.d.).

Rice has been in a long time a staple food for people. Fortunately, for more than 10 years recently, there are pilot projects testing on new and more sustainable ways of cultivating rice. In the present, there are a couple of moves that Kampusravintolat can do regarding products like rice, a somewhat exotic and unsustainable produce.

Limiting rice's serving waste of rice is the centre of all the solutions. Thus, no resources end up being used for nothing. Serving waste refers to food that is supposed to be consumed by customers but ends up being thrown away. The thesis defines other food waste groups in the latter part *Food waste measurements at Kampusravintolat*. Also in the latter part, the thesis reveals that 50% of total staff reports that side dish, which includes rice, potatoes, pasta is among the most thrown away food groups. This is where the restaurant could definitely pay more attention.

Skills of kitchen staff also play an important role in the combat against food waste. Skills of estimating the proper amount to be cooked, skills of cooking the ingredients well instead of spoiling them, e.g. rice being under- or overcooked. Therefore, finding ways to emit failure in cooking, e.g. by training staff, is the solution here. Cooking more of the alternatives is also a good solution. For example, potatoes or oat porridge are good alternative to rice, rice cultivated in Spain is good alternative to rice being grown in India.

3.7 Finnish meat

Regarding red meat, Kampusravintolat shows their commitment to the use of domestic ingredients. On the main website, the restaurant declares to prefer using Finnish meat.

Red meat has been having a bad reputation as it is concluded to be the cause of many chronic diseases in human. The fact that cattle and poultry are fed with poor, unsuitable mixture of corn, protein supplement, and injected with frequent antibiotics degrade the meat quality of these animals.

The carbon footprint of red meat is enormous. Eighty percent (80%) of the world's land resources is set aside for livestock (FAO 2018). Yet there are no places for cows to freely graze on grass instead of being stuffed in crowded factory farms. Yet there is not enough land to produce food for the world's population, taking the chance of nearly 11% of total world population, or over 820 million people, of leading a normal healthy life (UN News 2019). The inefficiency is there.

Among domestic animal types, beef and dairy cattle are the largest culprits of many environmental problems. Being fed with inappropriate food, the cows release more methane (CH₄) than they usually do, that in turn worsens the greenhouse effect. On the other hand, cows' feces, containing residues of antibiotics and relatively high level of nitrates, possess the possibilities of polluting nearby residential drinking water.

However, there is always potential to cut down greenhouse gas emissions of meat production by livestock producers. One effective solution is feeding the ruminants based on how their digestive systems are designed for, which is dominantly practiced by Finland's meat industry. FAO noted that there is a correlation between efficient use of resources and the reduction of greenhouse gas emissions (FAO 2013).

In Finland, meat production possesses a brighter scene. Asking people to drop red meat here using the same facts and figures resulted from the analyses of factory farms elsewhere besides Finland is irrelevant. Finnish meat is claimed to be produced more environmental-friendly in many ways.

A published article on Ilta-sanomat (2019) features what the researchers have to say regarding criticism around Finnish cattle farming. It could be summarized by a line of Perttu Virkajärvi, researcher of Luke (Natural Resources Institute Finland): *Only two of 11 environmental hazards raised worldwide are significant in Finland.* The two problems are CH₄ emissions and eutrophication (a situation when plants grow densely in a body of water due to the excessive richness within, causing death to the animals because of the lack of oxygen). Eutrophication is said to be a local problem. At the same time, the total amount of emitted CH₄ is equal to only 0.14% of that worldwide. (Ilta-sanomat 2019.)

It can be explained as the farms are less packed. The cows are raised in a more ethical ways, they are let to freely graze on grass. Soy is not fed to cows, thus no arable lands are cleared to grow soy either.



Figure 7. Cows and dairy cows at the Nurmi farm in Finland (Ilta-sanomat 2019)

Also, Luke (2020) informs that over *85% of Finnish beef is produced as a by-product of milk production.* Therefore the input resources are less intensive compared to the production of beef steaks alone.

The production of pork and chicken in Finland also shares the same promising scenarios. Following is a table listing the carbon emissions per carcass weight (CO₂e/kg) of 3 typical meats of Atria, a large meat producer in Finland, and the

comparison to the global meat production's carbon footprint (Atria 2020). The unit CO_{2e} expresses almost every greenhouse gases as an equivalent of CO₂:

Meat types	CO _{2e} /kg of carcass weight	Compared to the international average CO _{2e} /kg
Atria pork	3.8 CO _{2e} /kg	40% less
Atria beef	13.4 CO _{2e} /kg	70% less
Atria chicken	3.2 CO _{2e} /kg	40% less

Figure 8. Carbon footprint of typical meat (Atria 2020)

In conclusion, Finnish meat is produced sustainably. The scale of the problem does not make it a major contributing factor to climate change. However, it is still worth encouraging consumers to reduce their meat intakes, especially the intake of beef, for the sake of their health and the planet's. Otherwise, it is not necessary for Kampusravintolat to eliminate meat entirely from their menus. It is great to see that the restaurant has already been using less carbon-intensive meat, e.g. chicken, pork, minced meat (a mixture of minced beef and pork).

The author recommends Kampusravintolat to keep introducing new plant-based meals to customers. When the kitchen has familiarized themselves enough with cooking different plant-based options and customers have familiarized themselves with seeing and trying new dish, the restaurant can increase the ratio of plant versus meat-based meals to 3:1 during a short time, says, a week of the month. This will slowly introduce customers to more diverse choices and reduce the restaurant's carbon footprint further.

4 Waste Management

The waste operator of Kampusravintola is Lassila & Tikanojan Ltd. (L&T), the company claims their purpose is to bring circular economy into reality. The circular economy is an interesting concept. It is defined to be a process of inventing smarter and more efficient ways to use existing resources. Existing

resources are the indispensable elements of the circular economy. Renting and borrowing are typical actions in circular economy.

The importance of the circular economy in the waste management sector is significant. In a more sustainable world, we do not treat wastes as useless scraps, but as valuable values that could support the creation of various things. Hence, burning plastic and other mixed waste in order to generate energy is not considered recycling, as energy is simply not the original form of the material.

4.1 Packaging waste and food waste

The thesis will be focusing on packaging wastes and food waste (biowaste).

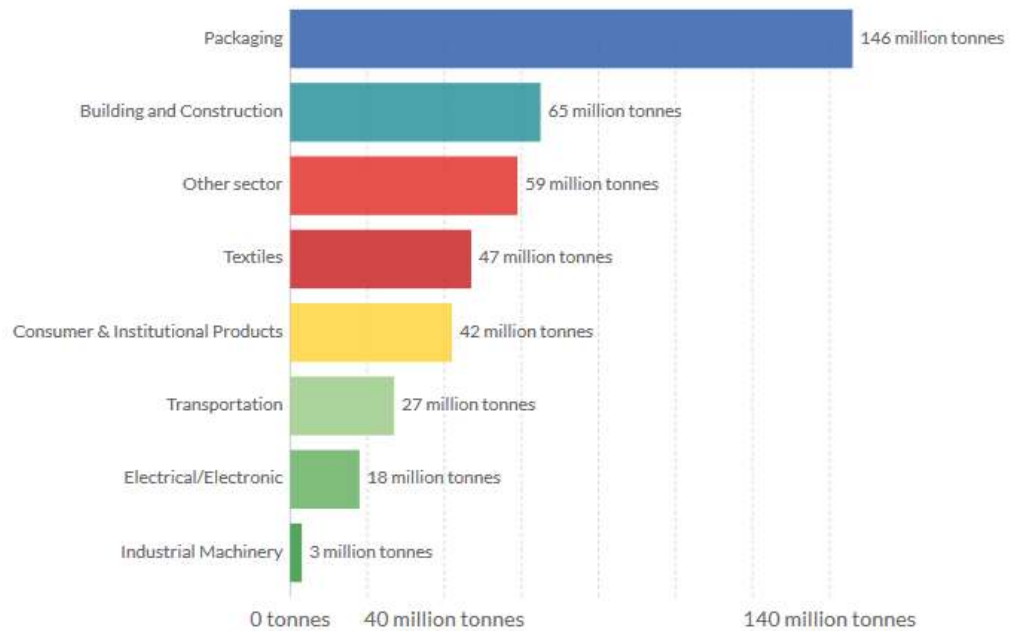
Packaging, especially food packaging, is the most littered plastic globally. How packaging is handled has a large influence on its sustainability. For example, recycled plastic can be more energy saving compared to virgin cardboard.

The concern for food packaging is that they have short lifespan. Food packaging is usually made of soft, thin plastics, think plastic wraps around veggies, or candy wraps. Therefore, they are often used only once and thrown away without being sorted carefully, as a result they are hardly being recycled afterwards.

The figure below shows what kinds of plastic are often littered around the world in 2015, we can clearly see that packaging tops the chart, and its amount is more than half compared to the second category (in million tons).

Primary plastic production by industrial sector, 2015

Primary global plastic production by industrial sector allocation, measured in tonnes per year.



Source: Geyer et al. (2017)

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Figure 9. Primary plastic production by industrial sector (Our world in data 2015)

Therefore, it is essential to find out whether or not Kampusravintolat sort their waste, especially plastic packaging. From studying waste management at Kampusravintolat, the current scenario of waste management in Finland's food service is as well revealed. Following, further solutions and thoughts are given by the author.

4.2 The handling of plastic packaging in Kampusravintolat

The environmental impact does not end after the packaging activities are done. It stretches until the packaging is disposed by the end users, including *the disposal process (recycling, energy recovery, & landfill)* (BarillaCFN 2016, p.47).

There are normally 3 ways to handle plastic packaging: landfilling, incinerating, and recycling. Burning (to generate energy) and recycling make better use of plastic waste compared to landfilling.

Landfilling is the cheapest option. It is especially feasible for countries without problems of space limitations, such as America. (EPA n.d.). However, landfilling is the worst option to deal with wastes. Landfills pollute our atmosphere as they release methane. Leaving wastes to rot in the landfill is cheap on its part, however, many times, valuable and potential resources that could have been recycled for good use are wasted. The handling of waste is simply ignored, waste is not sustainably and responsibly catered to.

In small countries like Finland, where there are limited areas for the landfilling option, burning waste for energy is practiced more often. Plastic packaging is burned with other mixed waste. This method is less sustainable than recycling or waste reduction, but more effective in the longer term than treatment and disposal (EPA n.d.). In the end, it is not the most efficient way to deal with plastic waste.

Recycling waste supports the circular economy, this is considered a better method to deal with plastic. Recycling puts usable wastes into new materials, helps cutting extra costs generating from producing new materials, lessening the burden on our environment, creating jobs, and other benefits.

For around a year now, Finland has started to set up special bins for plastic packaging within municipal areas. Sorting plastic packaging did not start at once in every region, but it has slowly gained ground. The author lives in Lappeenranta, a town located in the Lake area, southeast of Finland. Around September 2019, LOAS, the student housing company in the town, had demanded its residents to start sorting plastic packaging, which is made up largely of foodstuff packaging. In metropolitan areas, the movement has already rolled since April 2019. Back then, there was the *I love Muovi* (I love plastic) campaign of Yle, it contributed a large part in increasing people's awareness regarding the matter.

The movement started well as 1 year later, Mikko Koivuniemi from Fortum (Yle 2020), an energy company, reported that they receive more plastic than they had ever expected, resulting in one quarter of all the collected waste to be shipped over Sweden or Germany to be repurposed. Fortum (Yle 2020) claims that shipping waste abroad is still more environmental-friendly in comparison to

landfilling. To service companies that deal with wastes like L&T, plastic represents large economic opportunities. Recycled plastics are as durable and safe as virgin plastics, they also present 80% less carbon footprint (L&T 2019).

In Finland, so far, there is only 1 plastics recycling facility in Riihimäki. It is ran by Fortum, a state-owned energy company. Through multiple steps, the facility processes plastic waste into plastic pellets, then these are sold to manufacturers in need. The facility is able to handle 20,000 tons of plastic waste at the moment, and the capacity is expected to increase up to 10,000 tons more. (Yle 2020.)

Plastic recycling is happening among residential areas. During 3 following questions, the survey aims to find out how waste classification is done in Kampusravintolat. Is plastic recycling happening among restaurants in Finland?

The recycling of packages made out of metal, glass, and cardboard/ paper is common in Finland. This is also reflected through the responses of Kampusravintolat staff to the question: “Which packaging materials does the restaurant sort to be recycled?”

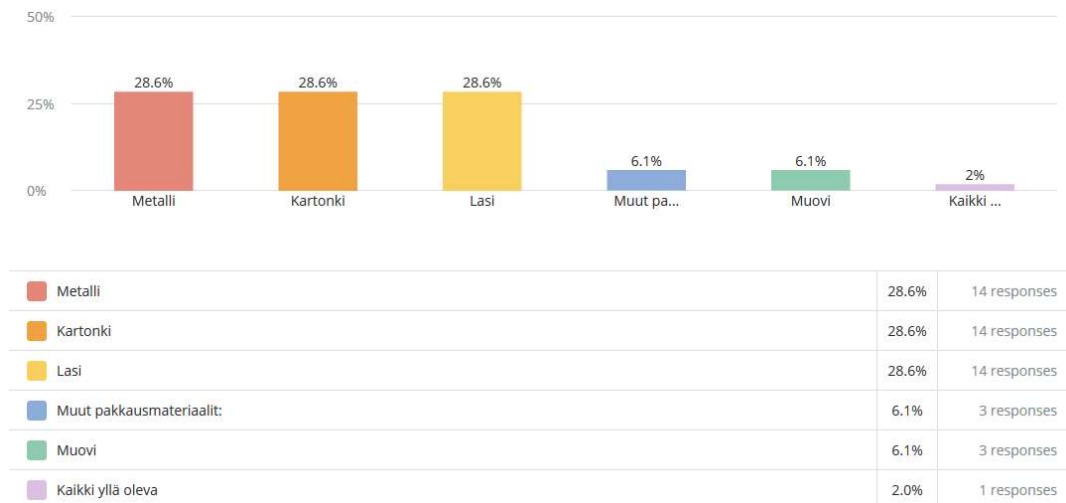


Figure 10. Packaging recycling at Kampusravintolat

The recycling of metal, glass, and cardboard packaging is soundly confirmed as expected, with 88% agreeing. Only 4 respondents (22%) chose the option *plastic*. This indicates that there is no firm practice of plastic packaging recycling inside

the restaurant. The survey confirms further the situation with the question “How often do plastic packaging get sorted for recycling?”

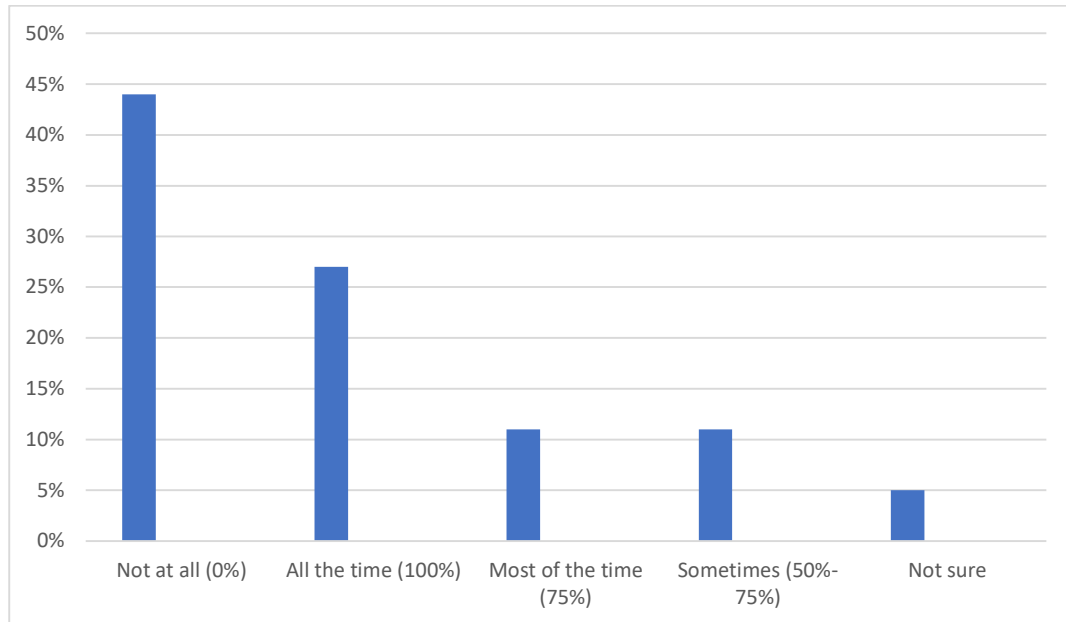


Figure 11. The frequency of plastic recycling at Kampusravintolat

As much as 44% of the total answers confirms that plastic recycling is not practiced at the restaurant, other 27% claims to adhere to plastic recycling all the time (Figure 11).

Out of 18 respondents, 4 answer reports do not make sense. For example, one respondent reports that Kampusravintolat recycle plastic all the time (100%), however in another question that asked *which is/ are the least recycled materials*, plastic is the answer again. These contradictions suggest that half of the population possibly possesses unclear understanding of the matter.

The last question is “Which of the following packaging materials is/ are recycled the least at Kampusravintolat?”. Respondents are asked to choose maximum 2 options. In this questions, 4 staff members skipped to answer. Once again, out of 14 respondents, 64% chose *plastic* as their answer.

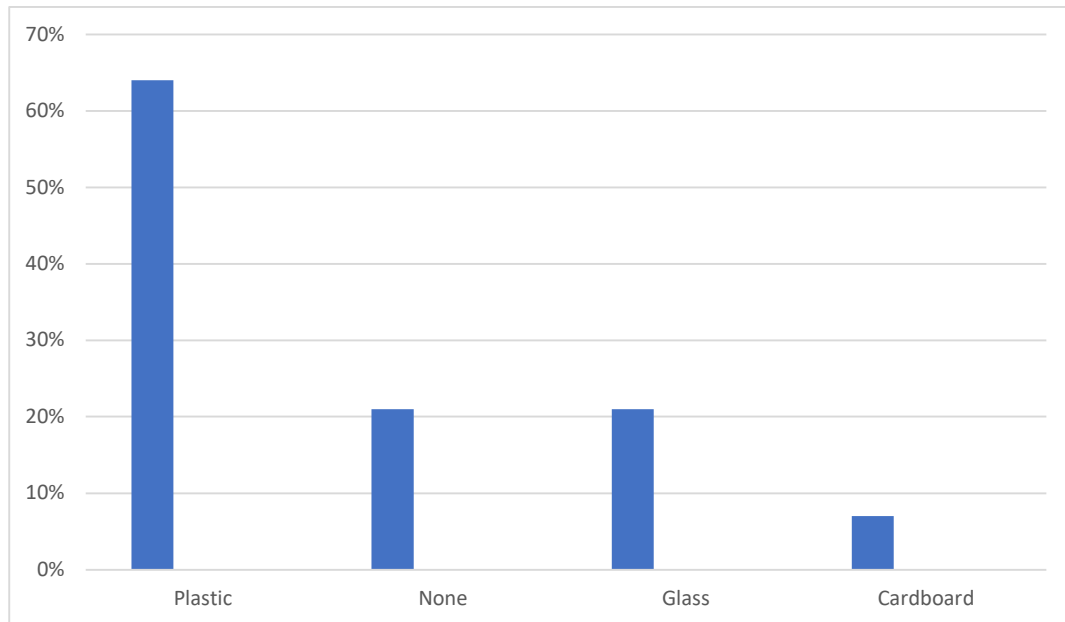


Figure 12. Packaging material that is recycled the least at Kampusravintolat

After 3 continuous questions, despite 22% of error answers, the author concludes that plastic packaging is not sorted out separately by Kampusravintolat. Plastic packaging is simply thrown in the same place with other mixed waste. At the end of their life cycle, they are burned and energy is generated for use, they are also left in the landfill. This has been the common way to handle plastic for a long while in the country, until residents are asked to practise the recycling of plastic in 2019.

The question is, why are not restaurants, like Kampusravintolat, able to sort out their plastic packaging, as residents around the region have been doing? Should Kampusravintolat and other restaurants sort out their plastic packaging, too? Why have not any special bins been provided for plastic packaging in their premises to encourage the act? Is plastic recycling business economical at the moment? One staff member of Kampusravintolat has also expressed her negative feelings regarding the matter in her thesis, which is written about the environmental responsibility of Kampusravintolat (Malinen 2019).

In conclusion, plastic waste recycling is not practised in Kampusravintolat, as well as among many other restaurants in the country. Even when Kampusravintolat

wants to start recycling plastics, there are not yet proper bins provided for use. Recycling plastic is a complicated business, and it involves more than one party.

4.3 The business of plastic recycling

As mentioned earlier, one of the reasons contributing to the hardship of plastic recycling is the lack of facilities. In Finland there is only 1 plastic recycling facility in Riihimäki, which is run under Fortum. It can currently handle around 20,000 tons of plastic. There is already too much plastics sent from households, resulting in one quarter of them being sent to be processed in nearby European countries, namely Sweden and Germany. Will the amount of plastic packaging from restaurants be too much for Finland to handle at the moment? Will the amount be too much that it would eventually become a burden in the receiving country?

There has not yet been enough demand for recycled plastics, this can be said about the recycled plastics in Finland. Situations might be completely different in other countries, e.g. the U.K., where price for recycled plastic has become more expensive compared to the costs of making virgin plastic, partly due to the rising demand for recycled plastics. There has not been obvious economical incentives out of plastic recycling yet, once again informed by Fortum. CEO of Suomen Uusiomuovi (roughly translated into *Finnish Recycled Plastic*), Vesa Soini also used to predict that it may take a decade before plastic recycling business starts to pay off. The CEO mentioned that the true costs of collecting plastics from numerous places can build up. In the past, China used to be one large consumer of recycled plastic, but since its restriction on the import of waste-based materials regarding the quality, price for recycled plastic has dropped down sharply all over Europe. (Yle 2017.)

Due to the lack of technology, only a small share of plastic can be recycled and reborn. At the moment, dirty plastics, black plastics, and other types only find their way in the landfill. The most common plastic to be recycled are clean and uniform plastics. According to many articles published at the main website of L&T, the company is developing a line called *Muovinaattori*, or *Plasticbot* that allowed the recycling of more challenging plastic types.

According to a published article on Yle (2017), besides the lack of facilities to handle plastic of all kinds, there are 2 other obstacles to face before plastic recycling could be a profitable business: there should be more usages for recycled plastics, which is mentioned earlier, and the quality is supposed to be improved. Stepping into the new decade, we have been seeing more products that are made of recycled plastic: phone cases, shoes, toothpaste tubes, and other common facilities. The demand for recycling plastics around Europe and specifically in Finland may rise in the near future.

4.4 Solutions: Reducing the usage of plastic packaging

So far, plastic recycling is not yet implemented in restaurants. Fortunately, there are many other feasible ways to avoid virgin plastic. In the 3Rs, which are solutions to help decrease the waste amount produced: Reduce - Reuse - Recycle, the most effective way is not recycling.

What restaurants and households have in common is that both throw away an enormous amount of plastic, and most of them are foodstuff packaging. It is not yet easy and anywhere near possible to imagine the food industry completely without plastic. Foodstuffs are precious and perishable, and plastic has always been a perfect, durable, protective packaging.

Even though the production of packaging materials (plastic, glass, paper, etc.) requires tremendously large resources, the footprint is to be bore only by packaging manufacturers, theoretically, not the food producers, nor the end users. However, everybody shares their responsibility in their packaging choice. A customer is responsible for the plastic bag s/he buys, that responsibility does not belong to the plastic bag producer solely, it is as simple as that.

Among a variety of foodstuffs, vegetables and fruits can often be delivered in different ways. Vegetables and fruits come in their own coating, therefore it is not always necessarily to pack them in plastic bags for the sake of hygienic purpose. They are different from products like fresh meat, which should always be kept tight in vacuum plastic bags. Thus, changes in packaging can start from products like vegetables and fruits. At a small restaurant called Nolla in Helsinki,

vegetables are delivered in plastic transport boxes, therefore no single use plastic or paper is exhausted.

Staff were asked *In which packaging are vegetable products delivered to the kitchen?* Among 3 options: cardboard boxes (pahvilaatikot), plastic bags (muovipakkaukset), and plastic transport boxes (muoviset kuljetuslaatikot), staff are asked to choose maximum 2 options, which are used most frequently, if possible. The author asked staff to choose all 3 options if there are no significant differences in the amount of usage.

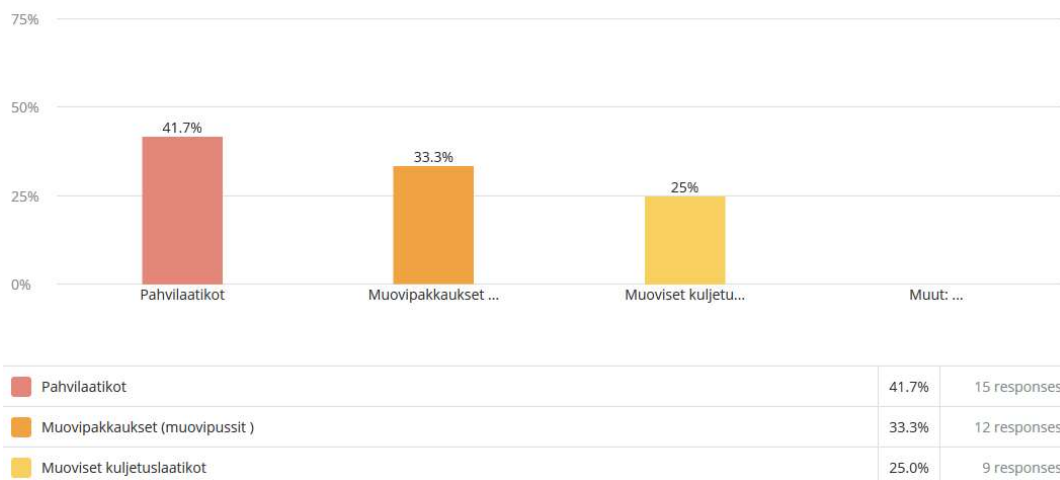


Figure 13. Vegetable delivery at Kampusravintolat



Figure 14. Vegetables inside plastic bags (Foodie 2020)

Figure 15. Cardboard boxes for Chiquita bananas (andnowuknow 2016)

Currently, among 3 choices, cardboard boxes are used most frequently with 83% votes. Cardboard boxes are normally provided by the suppliers, e.g. Chiquita bananas inside the company's cardboard boxes, just like how suppliers provide their products on the supermarket shelves. Along with transport plastic box, cardboard box is also a sustainable choice, considering their longer lifespan and recyclable feature, compared to plastic packaging.

In a general context, it is hard to tell if plastic or cardboard is a more sustainable material. Virgin cardboard requires more water and energy resources during the production and transport phase (Better Meets Reality 2019). However, virgin cardboard breaks down much quicker in the nature compared to virgin plastic. Cardboard emits methane when they rot down in the landfill (Better Meets Reality 2019), but they do not pollute the ocean or threat animal and human's life with their long existence, like plastic. In the sourcing phase, cardboard is made of renewable resources. During the end of the lifecycle, cardboard has higher chance to be recycled and reused. In Finland, cardboards are extensively recycled. Recycled cardboard consumes less water and promotes responsibly forestry (The University of Melbourne n.d.). Thus, the author believes it is an environmental-friendly material.

Transport plastic box is not commonly used by restaurants for goods delivery. In small-scale restaurants, goods are as well bought in individual packages, which are usually made of thin plastics, based on the author's experience of working in 2 decent-sized restaurants in Helsinki. In big-scale restaurants such as Kampusravintolat, a larger amount of goods are often delivered in cardboards and plastics, as being confirmed in the survey.

The author is inspired with how Nolla (Helsinki, Finland), a small fine dining restaurant with the zero waste concept, deals with their everyday deliveries. As can be seen in the picture, vegetables are delivered in their own coatings, without any fragile plastic wraps on the outside. The biggest difference between Nolla restaurant and Kampusravintolat might be the size of their suppliers. Nolla purchases raw ingredients from local farmers, while Kampusravintolat works solely with Kesko, a leading Finnish trading company.



Figure 16. Nolla 2019. A delivery day at Nolla restaurant (Nolla 2019)

In the picture, Nolla reveals 3 local suppliers, which are Helsieni (Helmushroom), Omapelto (own field), and Svarfvars. These are all located in Helsinki. The latter 2 suppliers declared to work closely and support local farmers, or grow the products organically themselves. Helsieni has 2 mushroom farms right in Helsinki. Omapelto has in total 6 hectares of cultivating farm inside the area, and it demands their customers to stick to available and limited produce during a specific harvest season. The fairly small size of these companies and their commitment to produce organic and quality food differs them from factory farms. They focus on products and do not involve in the packaging phase, meaning they do not decide in which packages their products have to be. The author thinks that this makes it easier for customers like Nolla to decide on their own delivery packages.



Figure 17. The Helsieni mushroom farm (Helsieni 2020)

However, the author does not declare that Kesko is not environmental friendly. The company is indeed the opposite, as it has been chosen for 5 years in a row among 100 most responsible companies (Kesko 2020).

Kampusravintolat serves nearly 2,500 to 3,000 guests everyday, at the moment it is the best that they source their food from Kesko. Local and small sized company would possibly not be able to meet the restaurant's demand at the moment. Plus, Kampusravintolat locates in Lappeenranta, the driving distance between the town and Helsinki is 224 kilometers, thus Kesko is a more logical choice as it also locates in Lappeenranta.

Kesko does not produce food, it merely centralizes food from different companies into one place. Food that are transported to Kesko, or any trading companies, will often need to be packaged. However, Kampusravintolat still has and is able to find more ways to cut back their packaging footprint.

Firstly, the restaurant could keep having vegetables and fruits delivered in recycled cardboard boxes, and choose to have vegetables and fruits delivered this way as often as possible. In K retailers across Finland, the majority of

common fruits and vegetables are often seen to come in their own coatings, therefore such requests could be made to Kesko by the restaurant.

Secondly, the author suggests to keep looking out for local products from Kesko. K Group, to which Kesko belongs, claims itself to be the largest local food seller in Finland. In 2018, they reported that the selections of local products are somewhere up to 8%. (Kesko 2019b.) When demanding local produce, Kampusravintolat might have a say on their preferred packages, besides virgin plastic bags. Local producers are reachable, so such requests would have chance to access them. It might be very flexible how local products would be delivered, and should be.

Thirdly, Kampusravintolat could support brands that show efforts in reducing their plastic use in packages. For example, Pirkka, a K-group's own brand, has cut plastic on their mini tomato packages, or switched to cardboard for its spices products (Kesko 2019a).



Figure 18. New packages. 46% less plastics (Kesko 2019a)

Few other brands have also started to cut down plastics from packages. The sign “X% vähemmän muovia” (X% less plastics) could be spotted across grocery stores. Whenever the new products make sense financially, Kampusravintolat could consider purchasing. The suggestion here is to keep looking out for new innovations and offers. More solutions are predicted to be delivered in the future.



Figure 19. Jauheliha. Minced meat (Foodie 2020)

Above are the pictures of the same products of minced beef 10% (Naudan jauheliha 10%). On the left we have Kotimaista product that is sold at 8.54 euros/kg, on the right there is Atria product that is sold at 8.73 euros/kg.

Atria product is packed with 50% less plastics compared to the brand's traditional packages, which eventually leads to 30% less in the product's carbon footprint. According to Atria's Packaging Development Manager Aaro Mäkimmattila, the new package also lengthens the meat's shelf life, thus preventing possible food waste. Atria's new package was rewarded by WPO (World Packaging Organization) in 2018 as well as at K-Ruoka award (K-Food award) in 2017. (Atria 2020.) With such little difference in price of the same product, the author assumes that while economic factor is important to Kampusravintolat, it is still possible for Kampusravintolat to switch.

4.5 Food waste measurements at Kampusravintolat

Food waste is usually divided into 3 categories: kitchen waste, serving waste, and customer waste.

Kitchen waste is food loss during preparation phase and storing phase. Many times, kitchen waste is raw and inedible, e.g. vegetable coatings, vegetable roots.

Serving waste, or line waste, is food that is supposed to be sold to customers but ends up not, and being thrown away instead. Regarding what has been mentioned in the thesis's "Footprint of food", this food has consumed energy in all 5 phases, just to end up being thrown away. This waste is often targeted to be minimized, as it also directly influences the restaurant's economy.

Finally, customer waste is food thrown away by customers. Economically, the food had already been paid for. Carbon footprint wise, this food has also consumed energy through 5 cycles.

Among the above, Kampusravintolat measures all, except for kitchen waste during preparation phase. In other words, Kampusravintolat measures storage waste, serving waste, and customer waste.

The author assumes that because these losses are usually inedible, they might be considered unavoidable or unimportant to be minimized. While the author agrees, there are still ways to use the waste during preparation phase for the good of the restaurant. One solution is composting. However, the idea of composting would not be explored further in the thesis, due to the author's shortage of knowledge.

4.6 Measurement of storage and serving waste in Kampusravintolat

More than half of the staff (55.6%) confirmed that the restaurants measure storage and serving waste digitally (using Excel) everyday. Over one-fourth said that the restaurant measures the loss data, but they do not clearly know about the method. Other 3 responses said that these are measured weekly.

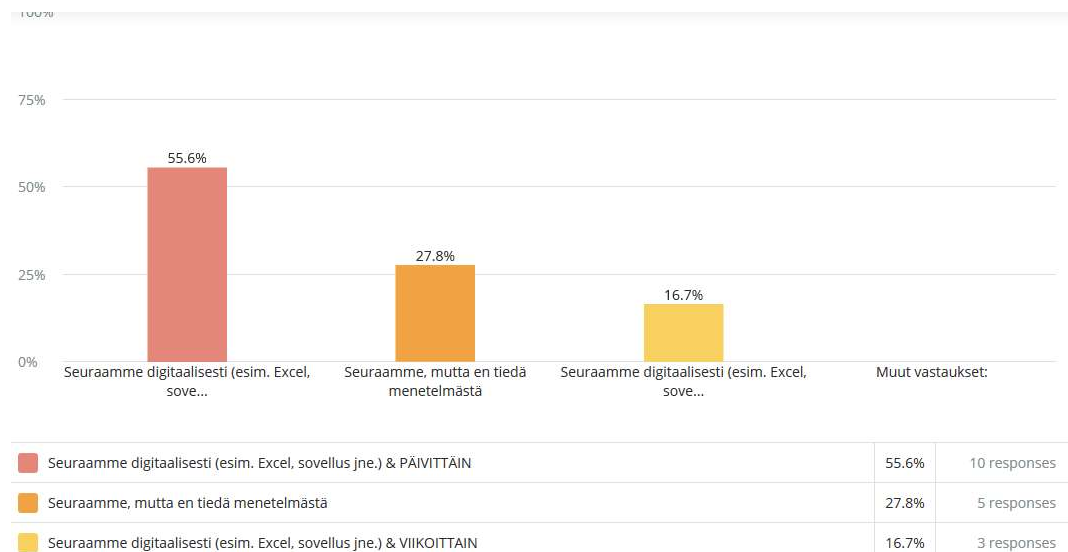


Figure 20. Measurement of storage and serving waste at Kampusravintolat

It could be said that the recording job belongs to few staff members. The availability of data is also not available to all staff. Storage waste does not happen everyday, it is understandable that there possibly are not much data to look through and share with other staff.

On the other hand, serving waste is different, it is certain that there are food losses after the end of every working day, more or less. Kampusravintolat started to record storage and line waste since February 2019. Staff have fair ideas on what distributes to the amount of line waste.

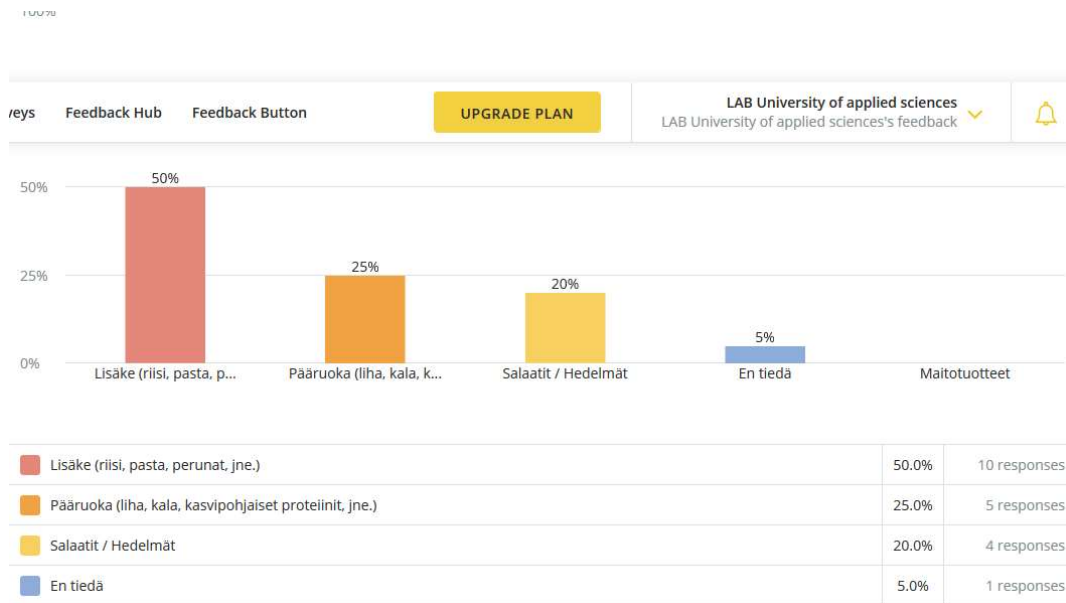


Figure 21. Food groups that are often thrown away

To the question “Which food groups are thrown away most often?”, in which staff are asked to vote for maximum 2 answers, half of the population chooses *side dish* (rice, pasta, potatoes) (lisäke). Only 25% of total votes goes to *main dish* (meat, fish, plant-based protein) (pääruoka) and 20% to salads/ fruits (salaatit/ hedelmä).

Staff’s answers share solid similarities, indicating that staff know and are involved in the matter. Measuring and particularly knowing what kinds of food is often wasted is highly efficient in helping to prevent it in the future.

To the question “If a particular food option is largely lost during the day, will it have an impact on the restaurant’s future food planning”, 61% of staff shows their ignorance regarding the matter. One-third confirms that menu planning is based on the data of bio waste (*Kyllä, ruokasuunnittelu perustuu biojätteen tietoihin*).

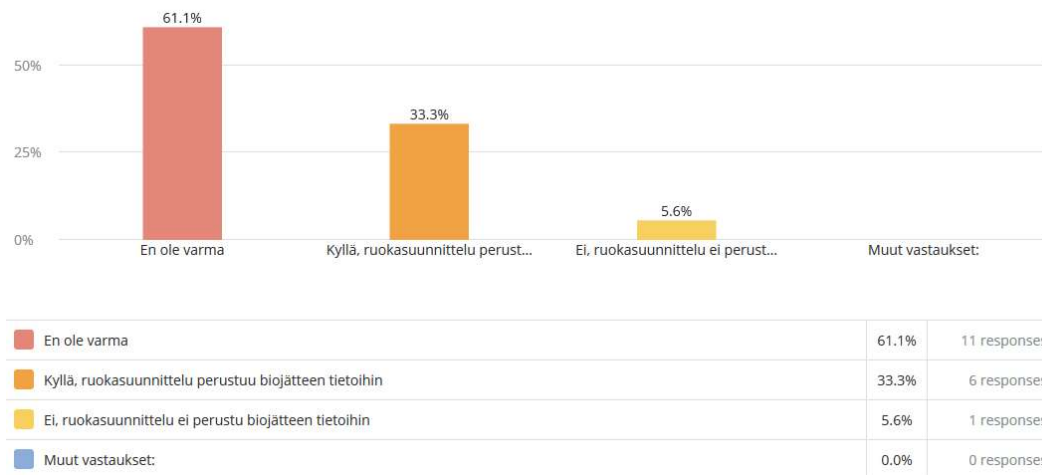


Figure 22. Food waste data and menu planning

Once again, the matter does not concern everyone. The survey suggests that only people who plan the menus take into consideration the food waste data. However, the author highly recommends the food waste data to be widely raised among all kitchen staff.

Menu planning may better be more precise in the amount of food that would be prepared. The proper amount to be prepared will be best based on the serving waste data, which build up over time.

When there is leftover anyway, selling them on ResQ (94%) or saving them for the next working day (78%) are a few solutions that Kampusravintolat frequently uses. Throwing food away (33%) or let staff bring them home (28%) are less frequently practised solutions, according to the survey. One staff shared in the answer that Kampusravintolat also sells leftover to customers at a cheaper price. The author assumes this is a new practice. Instead of selling take-aways on ResQ, regular customers on campus can get access to the food quicker, and at their expense. All sides are benefited.

4.7 Measurement of customer waste in Kampusravintolat

Customer loss is measured with bio digital scales, developed by Biovaaka, a Finnish company whose core product is the bio scales that are used to measure customer waste. When customers finish eating and throw the leftover into the bins, which are attached to Biovaaka, their bio waste is measured right away in grams (g) and the feedback is shown on the digital screen.

The feedback includes the number and how well the customer scores. In both restaurants, the ideal target is set to be less than 27 grams of food waste, which is informed on the digital screen. If customer wastes exceed 27 grams, they are reminded with the color bar yellow, or red.



Figure 23. Your waste (Biovaaka 2020)

Records of data could be accessed on Kampusravintolat's own account at Biovaaka site. The author was provided with food waste data on 11/2019, 12/2019, and 01/2020 of both LUT-Bufferet and Skinnarila restaurant by the restaurant manager, Anni Varis. The exact number of customers visiting both premises on each day of the same period was also provided by Anni Varis.



Figure 24. Food waste in December 2019 of Skinnarila restaurant

This picture shows the total amount of customer waste (kg) at Skinnarila restaurant in December 2019. It is 108.4 kilos customer waste in total, or precisely 108.37 kilos. In December the restaurant was opened for 11 days, which is shown by the graphs in the pictures as well. There were 5,336 customers. On a day, one customer throws away from 16 grams to as much as 32 grams of food. This is shown with the graph in the right-hand corner of the picture. During the whole period, one throws away 20.3 grams of food averagely, which is good according to the 27 grams target set by Kampusravintolat. To be more precise, Kampusravintolat encourages customers to not waste more than 26-27 grams. As a student at Green Campus and a regular customer of Kampusravintolat, the author thinks that the target is reasonable, 27 grams is barely the weight of a light piece of ginger. Few bread crumbs can quickly add up to the number.

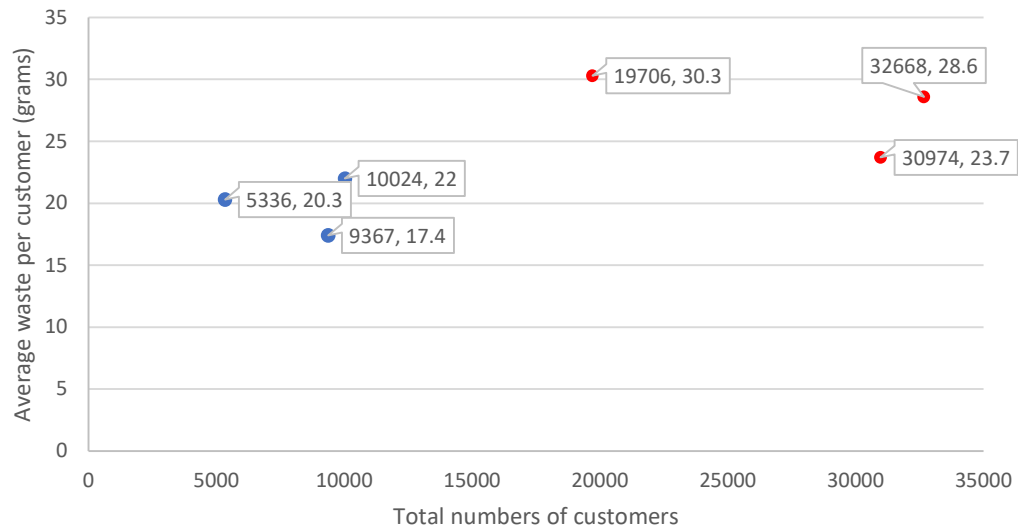


Figure 25. Average food waste per customer in Skinnarila (blue) and in LUT-Bufferet (red)

LUT-Bufferet receives an average of 1,100 to 1,550 guests per day, while Skinnarila restaurant serves a little less than 500 guests per day averagely. Due to this, LUT-Bufferet obviously records larger amount of customer wastes per month.

The graph above reflects the difference of average waste per customer in Skinnarila restaurant and LUT-Bufferet. The author sees that the average waste per customer of LUT-Bufferet (red dots) is always larger than that per customer of Skinnarila restaurant (blue dots). During the last 2 months of 2019, customers in LUT-Bufferet regrettably fail to meet the target. Exception is in January 2020, when LUT-Bufferet received nearly 31 thousands guests and each threw 23.7 grams averagely, which is well below the target. At the same time, recorded customer waste from Skinnarila restaurant is much below the target.

As a customer, the author confirms that both restaurants share the same ways of measuring customer waste, there is not much marketing to remind customers of their waste in either restaurants.

The first factor that may come to play is the diversity of choice. In LUT-Bufferet, there are always 3 to 4 counters full of foods, plus the wide selection of the salad

bars. The bread tables are really well-displayed. The dining hall is larger and brighter. There are different dining zones, people who eat alone or in group easily find their favorite spot. The atmosphere is welcoming. In short, it is often more attractive to a customer to have their meals at LUT-Bufferet. With all that said, customers may have the tendency to take more than what they can actually eat. Plus, it is to be remembered that the eating time is often short. In December 2019, the time of Christmas, when the average waste is the largest (30.3 gram), it may show partly how the enjoyable atmosphere interferes with people's consciousness of their eating behavior. During this month, both restaurants only opened for 11 days, and LUT-Bufferet was having nice and festive decorations in their premises.

The second factor is simply due to the larger number of customers. There may be more customers that often waste food in LUT-Bufferet's population than in that of Skinnarila. When adding up, the average can be larger.

There might be other factors, however, further research looking into customer's behavior is needed for a firm conclusion. From here, the author suggests few ideas that LUT-Bufferet could consider to encourage their customers to be mindful of food waste.

In the area of LUT-Bufferet, there are 2 digital screens. One is right in the center, which is used to show different activities and courses happening around the campus, while the other one is inside the food area, which promotes the restaurant's usage of ResQ. Kampusravintolat may put the data of food waste weekly on these screens (as the picture below).



Figure 26. Notice your waste (Biovaaka 2020)

With more frequent and more impressive exposure of the data, more customers will pay attention and even tell others. Currently, this data is shown once in a while on the Biovaaka screen, where customers spend only few seconds to get rid of the trash. The data shows how well customers perform altogether each week. Relevant information regarding food waste could also be put there.

Secondly, simple notes could be stuck across the counters' ceilings, with different written slogans, e.g. *Finish well your plate*, or *Keep your food waste in check*, or *Be a hero and save the food for others*. Many customers are not aware that the restaurant set the target of food waste to be under 27 grams, including the author. Information should be pushed forward to customers. Cooperation is needed, especially with a large scale problem like food waste.

Thirdly and most importantly, data will inevitably form a pattern over time. The job of Kampusravintolat is to predict the pattern and see what could be done to improve the situation further. If customers tend to take and waste more food during middle days of the month, this is called a pattern. If customers take and waste significantly less during last days before and after many Christmas holidays, this is a pattern. The author only has access to Kampusravintolat's customer waste for 3 months, patterns are hard to predict just yet.



Figure 27. Food waste in December 2019 of LUT-Buffer

Fourthly, Kampusravintolat could look out for interesting apps, campaigns and relevant activities that its suppliers or partners are putting out. For example, Kesko, from where the restaurant orders the ingredients, has introduced an app called “K-Ostokset” (roughly translated into “K-shopping”) during the end of 2019. The app helps customers to calculate their shopping’s carbon footprint.

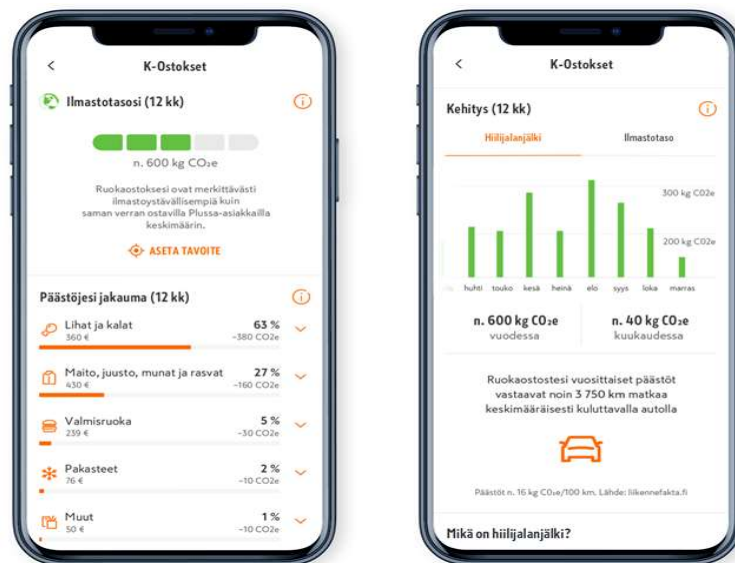


Figure 28. K-Ostokset app (Kesko 2019c)

Currently, a good range of products are on the app with the information of their carbon footprint. Further accuracy of the data is being developed. Nevertheless, such information are helpful to customers. They could be screenshotted and shown on digital screens in the dining areas. These are expected to orient customers to think of their own diet choices, the impact of food waste, and the curiosity for similar information.

In conclusion, regardless of the excess of food waste in LUT-Buffer, customers in Kampusravintolat have performed quite well averagely. Solutions to improve the record is about providing customers with more related information.

4.8 Take-away packaging

When Kampusravintolat sells food to diners through ResQ or cheaper, it does a great job in lessening the amount of food waste, while allows people in need to access food quickly.

As a supplier, it is in the restaurant's responsibility to ensure that they do not use a plastic or Styrofoam box when delivering food. Lessening food waste is an admirable act of the restaurants. The act is even greater if the food are delivered in bio compostable, or reusable packages.

In Kampusravintolat, take-away food is confirmed to be delivered in plastic box. Sometimes staff use Styrofoam box. The author assumes Styrofoam box are used whenever there are shortages on plastic. Paper bags are used. There are no use of disposable cutleries. There is only one out of 16 responses that reports the use of plastic fork, however, this must have been given on request only.

The use of paper bag and no sight of single-used cutleries are great initiatives. The author recommends one solution that could help Kampusravintolat to even eliminate take-away plastic or Styrofoam boxes in the near future.

The solution is considering to switch to reusable boxes (of whichever materials), which will first of all save the restaurant's money on take-away packaging. A New York-based food delivery service called DeliverZero has been shipping food inside reusable plastic boxes since its launch in November 2019. Customers can return these plastic boxes during the next order, or drop them off at office. A small

amount of \$2 is charged per container and is returned when the boxes are returned. A delivery day of DeliverZero looks as follow, and it could look like this for Kampusravintolat, too:



Figure 29. How DeliverZero is taking the waste out of restaurant delivery (Greenmatters 2020)

These boxes can be used up to 1,000 times. Broken ones could be recycled. Customers' food will remain fresher, safer, and the environment maintains its greenness. Kampusravintolat can do the same thing by "lending" customers reusable boxes. As most customers live in Lappeenranta, they could return during their next purchase or ask their friends to return for them. The deposit money would be given back. In addition, Kampusravintolat can encourage customers to bring their own boxes. Customers do not have to return back anything.

5 Conclusions

The majority of 61% of staff show strong interest and care towards the food origin, either at work or during individual shopping. Staff members are well aware of the sustainability of Finland's meat and dairy industry, even though these are the two

industries that often face with heavy criticism for being environmental-unfriendly and cruel from even the locals. Therefore, it is not yet a necessary move to exclude meat from Kampusravintolat's menu entirely. However, encouraging customers to reduce their meat intake is still and should be in the restaurant's interest. At the present, Kampusravintolat has been offering an equal amount of plant-based and meat-based options in their menu, which is a very thoughtful action. The restaurant also dominantly uses less carbon-intensive meat such as chicken, minced meat, and pork. In order to be more innovative with the menus, the author suggests Kampusravintolat to keep introduce and explore new plant based recipes, and to keep familiarizing themselves to different plant based ingredients. In the future, the restaurant could, once in a while, increase the numbers of plant based meals during a certain period. This encourages customers to try and become open-minded with different diets, and helps minimize the restaurant's carbon footprint.

Regarding exotic ingredients, staff members' answers also match with the actual situation. The author suggests Kampusravintolat to actively find alternatives to exotic and frequently-used ingredients, e.g. rice. Paying attention to the matter of food origin and recognizing well terms such as local, seasonal, imported food are considered by the author as important assets to people working in the food service, and Kampusravintolat and its staff members are great examples.

Kampusravintolat has clear methods to measure 3 different food waste groups. Storage and serving waste is measured daily using Excel since the beginning of 2019, while customer waste is measured using the digital scale Biovaaka.

Less than half of all the staff is involved in the job of measuring storage waste, which is understandable as the amount is not accountable and does not happen everyday. The situation is completely different regarding serving waste, where staff shows clear knowledge of the measurement method. Side dish, e.g. pastas, rice, and potatoes is reported to be the food group that got thrown away most frequently.

Even though the job of measurement was done thoroughly, whether or not the data are used to improve or influence the job of menu planning is uncertain. The

author suggests Kampusravintolat to pay attention to the pattern of the data. From here, more precise estimation regarding the amount of food to cook could be provided. Plus, the author suggests that the data of serving waste should be shared to all kitchen staff members, as they are the ones who directly prepare the food.

Customer waste ranges from as little as 17.4 grams, to as much as 30.3 grams per average customer. The author assesses that so far, customers have shown the cooperation and performed fairly well. Still, further education on the topic of food waste to customers is needed. The restaurant could take part in in many ways. Digital screens that are available in the dining areas could be used to provide information, or to show data of weekly food waste. Besides, Kampusravintolat could introduce customers to the food footprint calculating app, which is developed by its supplier Kesko.

Half of the population contradicts with the rest on the matter of plastic recycling. For example, while half claims that plastic packaging are sorted most of the time (75%-100%), the other half reports that plastic packaging are not handled at all. Nevertheless, after 3 continuous questions on the topic, the author concludes firmly that there is no firm practice of plastic recycling on the premises.

The recycling of plastic packaging remains to be an unsolved issue in Kampusravintolat, as well as in the majority of restaurants around Finland. It is important to understand that plastic recycling involves more than the decision and willingness of one single restaurant. For example, it takes the waste operators to provide suitable on-site bins. It takes the country to build more factories to handle plastic packaging. By now, there is only 1 plastic recycling facility in Finland in Riihimäki, and it has already been overloaded with all the plastic packaging recycled by residents around Finland. It takes scientists to confirm that recycled plastics is on demand, and pays off financially. Empty plastic packages would need washing and drying if they were to be recycled. Therefore, unless they will actually be recycled instead of being incinerated or dumped in the landfill, efforts that are taken by Kampusravintolat solely may just lead to more waste of water and labor. In the future when the recycling of plastic packaging is possible in

restaurants like Kampusravintolat, the author believes that it will recycle one more material just fine.

At the moment, the more practical action that Kampusravintolat could consider is to reduce its plastic usage, in the procurement and take-away activities. The author suggests Kampusravintolat to keep an eye out for local products, which are available to order from Kesko, its supplier, and support products that are packed in more sustainable packaging. The restaurant is also encouraged to actively demand how the products would be delivered whenever possible. Regarding take-away packaging, the restaurant is recommended to switch to reusable boxes with an incorporated “lending-borrowing” system to support customers.

Eighteen staff members have shown great efforts by taking time to participate in the survey alone. The author believes that every single one of the respondents has answered with honesty. The author is grateful for the help of the restaurant manager, Anni Varis, and all 18 staff members who had contributed to this thesis.

6 Evaluations

The collected responses have helped answer all relevant questions to the thesis topic. Nevertheless, there are some limitations to the findings, as well as some mistakes that may interfere with the results.

First of all, reasons were not given by two staff members who reported that they do not care or pay little attention to the food origin at work, though the questionnaire did give space for detailed answers and suggest possible reasons to encourage staff in sharing their thoughts. However, the understanding of the majority of staff regarding the food origin is in line with the actual situation. Staff members’ insights significantly help the author in adjusting her own knowledge.

Secondly, there were few contradictions in the answer reports of 4 staff members in question 11 to 13, which explored the practice of plastic recycling in Kampusravintolat. This does not mean that these answer reports are completely invalid, but only in few aforementioned questions where the contradictions

appear. The errors were singled out during the analysis. The results suggest that approximately half of the total population has unclear understanding on the topic of plastic recycling.

One staff member gave a feedback that the questionnaire is hard to understand. The author realized her own mistake in grouping multiple choices in question number 8, which is explained in detail in the part 3.5 “Frequently imported products”. Plus, there might be confusion since 3 questions, numbers 11, 12, 13, were repeated on the matter of plastic packaging recycling. The questionnaires were created in both Finnish and English for the author’s sake of understanding. Even though it was checked few times before being given out, the author learns that even more time should have been spared to finalize such questionnaire.

Staff’s responses reflect strong commitment of Kampusravintolat in collecting food waste data. The restaurant also flexibly combines different methods to combat wasting leftovers. Besides common sustainable practices, e.g. selling food via ResQ, Kampusravintolat keeps coming up with new solutions. Selling leftover food on site is one new method that is practiced recently. In a way, the restaurant shows their effort and creativity in minimizing food waste. Together with Kampusravintolat, customers have been performed fairly good regarding their own food waste.

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Appendix 1: Survey questionnaires: Kestävän kehityksen käytännöt Kampusravintolat Oy:ssä (Sustainable practices in Kampusravintolat Oy)

1. Ikäsi? (Age?)

Alle 25-vuotias (under 25 years old)

25 - 35 vuotias (25 - 35 years old)

36 - 45 vuotias (36 - 45 years old)

46 - 55 vuotias (46 - 55 years old)

yli 55-vuotias (over 55 years old)

2. Sukupuolesi? (Your gender?)

Mies (Male)

Nainen (Female)

Muu: (Other:)

3. Kuinka kauan olet työskennellyt Kampusravintolat Oy: ssä? Jos olet työskennellyt Kampusravintolat Oy: ssä 3 vuotta, valitse vastaukset "1–3 vuotta" "3–5 vuoden" sijasta (How long have you been working for Kampusravintolat Oy? If you have been working at Kampusravintolat Oy for 3 years, please choose the answer "1 to 3 years", instead of "3 to 5 years")

Alle 6 kuukautta (< 6 months)

1 - 3 vuotta (1 - 3 years)

3 - 5 vuotta (3 - 5 years)

Yli 5 vuotta (over 5 years)

4. Olen ... (I am ...)

Vakituisen työntekijä (Permanent employee)

Tilapäinen työntekijä (Temporary employee)

Muu: ... (Others:)

* Raaka-aineiden hankinta (kala, liha, kasvikset, muut ruokaryhmät) (Sourcing raw materials (meaning raw ingredients: fish, meat, vegetables, and other food groups)

5. Kuinka paljon raaka-aineiden alkuperällä on merkitystä vapaa-ajan kulutuskäyttäytymiseen? (In general, as a CONSUMER, are you concerned about WHERE the raw materials come from?)

Kyllä, yritän ostaa lähinnä kotimaisia ruokia (yli 75%) (Yes, I try to purchase mostly domestic food (over 75%))

Kyllä, joskus suosin kotimaisia tuotteita enemmän kuin ulkomaisia (yli 50%) (Yes, sometimes I favor local products better than foreign products (over 50%))

Raaka-aineiden alkuperä ei ole ensimmäinen kriteeri, kun ostan ruokaa (alle 50%) (Food origin is not the first criterion when I purchase food (less than 50%))

En juurikaan kiinnitä huomiota ruuan alkuperään (0% - 15%) (I hardly pay any attention to the food origin (0% - 15%))

Muut vastaukset: (Other comments:)

6. Kiinnitätkö työntekijänä huomiota ruuan alkuperään? (As a staff member, do you yourself pay attention to the origin of the food?)

Kyllä, yleensä (Yes, usually)

Ei. Miksi? Täsmenkää (Liian kiire, ei ole vastuualuettani, tai muita ajatuksia. Ole hyvä, jaa näkemyksesi avoimesti) (No. Why not? Please specify. (Is it too busy in the day? You do not work directly with food?, or other thoughts. Please share your insights openly)

7. Mitä tuotteita on HELPPO saada kotimaisilta tuottajilta tai ITSETEHTY? Tämä on monivalintakysymys. (Seuraavat kysymykset kysyvät päinvastoin, valitse jokaiselle kysymykselle erilaisia vastauksia)

What are the products that are EASY to get from domestic producers or are SELF-MADE? Tick on the suitable boxes. You could choose multiple answers.

(Next question asks the opposite, please choose different answers for this question and the next question)

Liha (Meat)

Kala (Fish)

Kasvikset/ Hedelmät (Vegetables/ Fruits)

Viljaryhmät: riisi, pasta (paitsi leivät) (Grain food groups: rice, pastas (exclude bread))

Maitotuotteet (Dairy products)

Leipomotuotteet: leivät, keksit, jne. (Bakery products)

En tiedä (I do not know)

8. Mitä tuotteita on VAIKEA saada kotimaisilta tuottajilta? Valitse sopivat ruudut.

Tämä on monivalintakysymys (What are the products that are HARD to get from domestic producers? Tick on the suitable boxes. You could choose multiple answers)

Liha (Meat)

Kala (Fish)

Kasvikset/ Hedelmät (Vegetables/ Fruits)

Viljaryhmät: riisi, pasta (paitsi leivät) (Grain food groups: rice, pastas, ... (exclude bread here))

Maitotuotteet (Dairy products)

Leipomotuotteet: leivät, keksit, jne. (Bakery products)

En tiedä (I do not know)

9. Open-ended question: Kuinka monta kertaa viikossa raaka-aineita toimitetaan ravintolaanne? (Esim. Kahdesti viikossa) (How many times per week are raw ingredients delivered to Kampusravintolat? (E.g. twice per week))

10. Kasvistuotteet: Millaisissa pakkauksissa kasvistuotteet saapuvat ravintolaanne? Jos mahdollista, valitse VAIN KORKEINTAAN 2 -vaihtoehtoa, joita käytetään usein. Jos kolmea käytetään ilman suuria eroja, valitse kaikki 3.

Vegetable products: how vegetables are delivered to the kitchen? (If possible, choose MAXIMUM 2 options, which are used most frequent. But if all 3 answers are used without much difference, please choose all 3. This is a multiple choice question.

Muovipakkaukset (muovipussit) (In plastic packaging)

Muoviset kuljetuslaatikot (In plastic delivery containers)

Pahvilaatikot (In cardboard boxes)

Muut: ... (Others:)

* Jätteet (biojäte ja pakkausmateriaalit) (Waste (foodwaste & packaging) management)

11. Mitä PAKKAUSMATERIAALEJA ravintola lajittellaan kierrätettäväksi? Tämä on monivalintakysymys. (Which PACKAGING MATERIALS does the restaurant sort to be recycled? Please tick at the boxes to answer. You could choose multiple answers)

Lasi (Glass)

Kartonki (Cardboard)

Metalli (Metal)

Muovi (Plastic)

Kaikki yllä oleva (All of the above)

Muut pakkausmateriaalit: (Other packaging materials:)

12. Lajitteleeko ravintola Muovipakkaukset erikseen kierrätystä varten? (How often do plastic packaging get sorted for recycling?)

Koko ajan (100%) (All the time (100%))

Suurimman osan ajasta (yli 75%) (Most of the time (75%))

Joskus (50%-75%) (Sometimes (50%))

Ei niin usein (alle 50%) (Not so often (less than 50%))

Ei ollenkaan (0%). Muovipakkaukset sijoitetaan samaan säiliöön muiden sekajätteiden kanssa. (Not at all (0%) Plastic packages are put in the same bin with other mixed waste.)

En ole varma (I am not sure)

Kuinka arvioit vastauksesi? (How did you make the estimation for your answer?)

13. Mitä seuraavista pakkausmateriaaleista Kampusravintoloissa kierrätetään vähiten? Valitse KORKEINTAAN 2 vaihtoehtoa. (Among the following packaging material, which is/are THE LEAST that get recycled? Please choose MAXIMUM 2 options)

Lasi (Glass)

Kartonki (Cardboard)

Metalli (Metal)

Muovi (Plastic)

Ei mikään ylläolevista (None of the above)

Muut materiaalit: (Other materials:)

14. Kampusravintolat seuraa omaa linjasto- ja varastohävikkiään. Miten tämä tapahtuu käytännössä? (It is said that Kampusravintolat starts to keep track of their customer line- and storage waste (linjasto- ja varastohävikki). Could you inform how this is done?)

Seuraamme digitaalisesti (esim. Excel, sovellus jne.) & PÄIVITTÄIN (We keep track digitally (e.g. on Excel, on application, etc.) & DAILY)

Seuraamme digitaalisesti (esim. Excel, sovellus jne.) & VIIKOITTAIN (We keep track digitally (e.g. on Excel, on application, etc.) & WEEKLY)

Seuraamme, mutta en tiedä menetelmästä (We keep track but I do not clearly know about the method)

Muut vastaukset: (Other comments:)

15. Mitä ruokaryhmiä joutuu jätteisiin eniten? Valitse korkeintaan 2 vaihtoehtoa. (Which food groups are thrown away MOST OFTEN? Please choose ONLY 2 answers at maximum)

Pääruoka (liha, kala, kasvipohjaiset proteiinit, jne.) (Main course (meat, fish, plant-based proteins, etc.)

Lisäke (riisi, pasta, perunat, jne.) (Side dish: rice, pastas, potatoes, etc.)

Salaatit / Hedelmät (Salads/ Fruits)

Maitotuotteet (Dairy products)

En tiedä (I do not know)

16. Kampusravintolat seuraa tiheästi varasto-, linjasto- ja asiakashävikkiään. Mitä positiivisia puolia näet tällä olevan? Monivalintakysymys. (What are your thoughts on the benefits of tracking customer line-, storage-, and customer's waste frequently? This is a multiple choice question)

Ruokajätteen seuraaminen on auttanut vähentämään hävikkiä (It is a good reminder for kitchen staff to be mindful when working with food)

Se auttaa ravintolan ruokasuunnittelussa (It helps in meal planning (ruokasuunnittelun)

Lisää henkilöstön tietoisuutta ruokajätteestä (Raise awareness among staff about food waste with real data)

Siitä on taloudellista hyötyä (Managing bio waste would translate into financial gain)

Se osoittaa mistä suurin osa biojätteistä tulee, tukien näin lisäratkaisuja (It indicates where most of the bio wastes are coming from, thus supporting further actions to be taken)

Muut vastaukset: (Other comments:)

17. Arvioiko Kampusravintolat, mitä ruokavaihtoehtoja asiakkaat yleensä syövät PÄIVÄLLÄ/ LOUNAALLA? (Does Kampusravintolat estimate which food options will normally be eaten by customers ON THE DAY?)

Joo. Valmistimme eri asioita eri määriä. (Yes. We prepare things in different amount)

Ei. Valmistimme kaiken tasapuolisesti (No. We prepare everything equally)

Muut kommentit: (jos ravintola valmistaa ruokaa eri määränä, mutta ei yleisenä käytäntönä, tai vastaavasti) (Others: (you can choose this if the restaurant prepare food in different amount but not as a common practice, or likewise)

18. Jos tiettyä ruokavaihtoehtoa joutuu päivän aikana paljon hävikkiin, onko sillä vaikutusta ravintolan tulevaan ruokasuunnitteluun? (If a food option is not largely eaten by customers, would the restaurant change how they prepare their meals NEXT TIME?)

Kyllä, ruokasuunnittelu perustuu biojätteen tietoihin (Yes, the meal planning is based on the data of bio waste)

Ei, ruokasuunnittelu ei perustu biojätteen tietoihin (No, the meal planning is not based on the data of bio waste)

En ole varma (I am not sure)

Muut vastaukset: (Other comments)

19. Mitä tavanomaisia toimia toteutetaan, kun ruokaa ei myydä kokonaan PÄIVÄNÄ/ LOUNAALLA? Voit valita useita vaihtoehtoja. (What are the USUAL ACTIONS that are taken when food are not sold completely ON THE DAY? Multiple options can be chosen)

Ylimääräinen ruoka myydään Res Q: lla (To sell excess food on Res Q)

Pyydämme henkilökuntaa viemään ruokaa kotiin (To have the staff brought food home)

Säästämme ruokaa valmistettavaksi seuraavana työpäivänä (To save food for preparation on the next working day)

Heittämme ruuan pois (To throw food away)

Muut ratkaisut: (Other solutions:)

En tiedä (I do not know)

20. Open-ended question: TAKA-AWAY: millaista pakkausta ravintolassa käytetään? (Ole hyvä ja kirjoita vapaasti kuljetusrasian, -kassin, ja aterimien (kertakäyttöiset haarukat, veitset) materiaalista, jne.)

TAKE-AWAY: Which packages did the restaurant use for take-away? (Please freely write about the materials of take-away containers, take-away bags, cutleries (disposable fork, knives)

21. Jos teillä on kommentteja, ehdotuksia, valituksia, kirjoita kyselyn parantamiseksi. Jos niitä ei ole, voitte vain ohittaa (if you have any comments, suggestions, complaints, please write to help improve the survey. If there are none, you could just skip)