



Norwegian Supermarkets and Food Waste

– Prevention and Redistribution Strategies

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NORWEGIAN SUPERMARKETS AND FOOD WASTE: Prevention and redistribution strategies

ABSTRACT

In the last few years, Norwegian supermarkets have set in place different strategies to reduce food waste. These include more efficient internal practices but also the promotion of food with short shelf life at a reduced price, and the redistribution of surplus food to charity. Unfortunately, our research shows that while 98 % of Norwegian supermarkets have a designated area of the store to promote food with short shelf life for up to a 50 % discount, only 48 % of the supermarkets donates its surplus to charity. The most active supermarkets donating surplus food to charity are KIWI (90 % of the stores) and REMA 1000 (80 % of the stores), while less than 20 % of the smaller supermarkets like JOKER or MATKROKEN donate their surplus to charity. When looking at the situation nationally, we found that supermarkets in Kristiansand and Tromsø are among the ones donating the most, while in Oslo only 20 % of the supermarkets are currently donating its surplus to charity. Although most store managers report that the reason they don't donate surplus food is because they don't have anything left at the end of the day, our research found evidence that food waste containers outside supermarkets still have a lot of edible food in them. The results of this study show that more transparency and collaboration between supermarkets and charity organizations is needed. While a voluntary approach has shown some success, inconsistencies between and within supermarket chains might require a legislative approach to support and encourage a more successful approach towards food waste reduction in the supply value chain.



INTRODUCTION

Norway has a lot of oil, fjords and...supermarkets! Almost 4000, actually, which puts Norway among the European leaders for number of supermarkets per capita (Kjuus & Magnus, 2015). While most of the food sold at these supermarkets gets sold or finds its way to charity, a lot of it becomes food waste. Together, these 4000 supermarkets generate 60,000 tons of edible food waste every year which adds up to annual emissions of up to 150,000 tons of CO₂ and financial losses of more than 3 billion NOK a year (Hanssen and Stensgård, 2016)

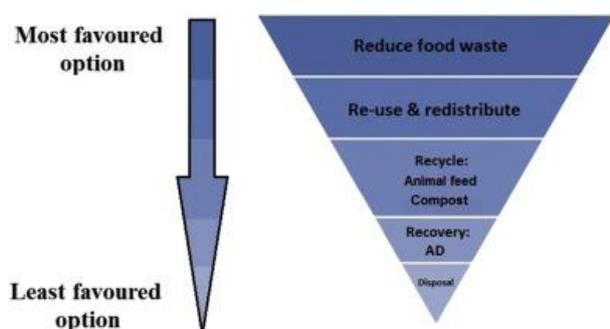


Figure 1: Food waste hierarchy

The Food waste hierarchy (fig. 1) provides and prioritizes options for dealing with food surplus, avoidable and unavoidable food waste. The most favorable options are presented in the top, while the least favorable options, in the bottom. The hierarchy suggests that the best strategy to reduce food waste, is to avoid food waste creation in the first place (Papargyropoulou, et. Al, 2014). This

can be practiced by, for example, developing packaging, practices or labeling that extend the shelf life of food. If surplus food cannot be prevented, the hierarchy states that it should be redistributed to new consumption channels, preferably to charity. These two first strategies of the hierarchy, correspond with food waste prevention, that is, trying to use the food for its original purpose of human consumption before it becomes food waste. The last three strategies, correspond to food waste management, that means options to deal with food waste once it is generated and can no longer be used for human consumption. These options include using food waste to feed animals, produce energy (anaerobic digestion) or fertilizer (compost) (Papargyropoulou, et. Al, 2014).



SCOPE AND METHODS

On this report, we will describe and discuss the main aspects of food waste prevention at Norwegian supermarkets. For this purpose, we have used a Master thesis from the University of Life Sciences from 2015 as a starting point in our research. The study includes the experiences of 53 Norwegian charity organizations that successfully receive and use surplus food donations from local supermarkets (Capodistrias, 2015). We also performed a survey to 100 supermarkets where we asked them about their food waste prevention strategies and analyzed evidence of the contents of food waste containers of 7 supermarkets spread around the country.

The study from 2015 included 53 charities receiving food donations from 129 supermarkets. The charities are located in 10 of the largest Norwegian urban centers: Bergen, Drammen, Fredrikstad, Kristiansand, Moss, Sandefjord, Skien, Stavanger, Trondheim and Tromsø and were visited during 2014/2015 (Capodistrias, 2015)

The supermarkets in the survey represent the 10 largest supermarket chains in the country: Bunnpris, Extra, Joker, Kiwi, Matkroken, Mega, Meny, Prix, Rema 1000 and Spar. The stores were contacted by phone randomly and are also located in 10 of the largest urban centers, only that this time, Moss was replaced by Oslo. The surveys were conducted between March and April 2017.

Last, the information about the waste containers was provided by anonymous sources who shared with us information about the food contents of the containers of 7 different supermarkets chosen randomly around the country in the first week of May, 2017.



AVOIDING FOOD WASTE

Norwegian supermarkets have in place different strategies to reduce food waste generation. Most of them have intelligent ordering systems that allow store managers to have a good overview of their stock and make orders based on previously registered tendencies of consumption. All of the supermarket chains also have strict transportation and storage guidelines to prevent food spoilage, and some are even exploring innovative label solutions to extend the shelf life of their products; this is the case of REMA 1000 and its intelligent label system KEEP-IT, which monitors the temperature on each individual product, to show more accurate shelf life information; or KIWI's new "Normally usable until" label, that seeks to show consumers that most foods can be eaten safely after their "Best before" date. Other strategies practiced by Norwegian supermarkets include the development of new brands of for example small-sized breads aimed at people living alone, or bags of "ugly" fruits and vegetables sold at a cheaper price. In the last year, reducing the price on food with short shelf life has also become a popular food waste reduction strategy among Norwegian supermarkets. Our research shows that 92 % of Norwegian supermarkets have a designated area of the store where they sell food with short shelf life for up to a 50 % discount. KIWI and REMA 1000 have launched national campaigns to support this strategy, and several social entrepreneurs have joined the initiative by creating tools that makes it easy for consumers to buy food in risk of becoming food waste. That is the case of for example Too Good to Go, an app that allows consumers to buy a bag of grocery leftovers at the end of the day, and Foodlist, an app that helps consumers find good deals on food in risk of becoming food waste.

Despite these efforts, our research has found evidence that supermarkets are still left with a lot of surplus food at the end of the day. Figure 2 shows the detail of food found at 7 random waste containers outside supermarkets around the country during the first week of May.



DATE	SUPERMARKET STORES
01-05-17	2x orange juice 3x coconut cake 3x onions 1 package of packed carrots 1 package of packed potatoes 1 loaf of bread
02-05-17	4x yogurt nuts 1x salami 15x energy bars 2x packages of meat patties
03-05-17	20x bananas 6x broccoli 6x apples 1x grapes 8x loaves of bread 2x packages of hot dogs 4x bell peppers 4x tomatoes
04-05-17	2x bags of potatoes 12x packages of rolled oats 2x oranges
05-05-17	50x ice cream 5 x sushi kit 12x energy bars
06-05-17	10x packages of crab sticks 10x cans of tuna
07-05-17	2x packages of corn flakes 6x turkey filets 8x packages of porridge

Figure 2: Edible food found at supermarkets. One container was checked each day.

During our research on food waste containers, we also found evidence that some of the food discarded at the end of the day, had not been offered at a reduced price at the store during the day. Anonymous sources suggested that certain brands of food agree with supermarkets that their products would not be offered at a reduced price, because they don't want consumers to associate the product with a low-cost product.

REDISTRIBUTING SURPLUS

The second strategy to reduce food waste suggested by the Food waste hierarchy, is to redistribute the surplus food for re-use, preferably charity.

In Norway, 10 % of the population lives in households with persistent low income, and among those described as poor, 6 % suffer from substance abuse, 9 % struggle with alcohol dependency and 16 % of them with psychological distress (NIPH, 2016). More than 60 organizations provide support to these people through their many local chapters spread across the country. Among other charity services, these organizations serve a warm meal or give out a bag of groceries to people in need. The food used to make these meals comes from excess or surplus food donated by producers, wholesalers and supermarkets, sometimes through the Food bank in Oslo, but most of the times through direct redistribution, that is, from donor to charity organization directly.

A Master thesis from the University of Life sciences (Capodistrias, 2015) described the daily routines of charities successfully receiving and using surplus food donated by local supermarkets. The study shows that the food received by the charities is used in different ways; some



organizations prepare meals that they serve at a shelter, others use the food received to run a social café, where people in need can access food at a reduced price, and others give out bags of groceries for free. Most cities have enough charities to have at least one charity food service available every day of the week. The food is picked up from the supermarket by the organization's volunteers who, in average, pick up the food two to three times a week. Very few of the organizations own their own vehicle, so volunteers usually use their own car and get reimbursed for the fuel costs. In some cases, volunteers pick up the food by foot or by bike too. Volunteers are usually separated in groups, with some picking up the food and storing it in the organization, others preparing the food (whether it is cooking or organizing the food into shopping bags) and others assisting in the serving or giving out of the food. Most volunteers only work a couple of hours a week. The study from 2015 reported 500 volunteers working in the redistribution of surplus food in the 10 biggest cities of Norway (except for Oslo), that means that there is an average of 50 volunteers per city, working in the redistribution of surplus food from supermarkets. Once the food is picked up, it is taken directly to the organization where it is further distributed. Most of it is used or given away on the same or next day. The rest is sometimes stored in fridges, although organizations prefer to freeze the food to be able to stretch its shelf life as much as possible. Organizations seldom have food waste themselves, food comes in and out very quickly (Capodistrias, 2015)

Unfortunately, in the last few years there has been a decrease in the amount of surplus food being donated. Our research shows that while 90 % of KIWI stores and 80 % of REMA 1000 stores donate their surplus food to charity, less than 50 % of the stores of smaller chains like Bunnpris, Joker or Matkroken are donating surplus food to charity (Fig. 3)

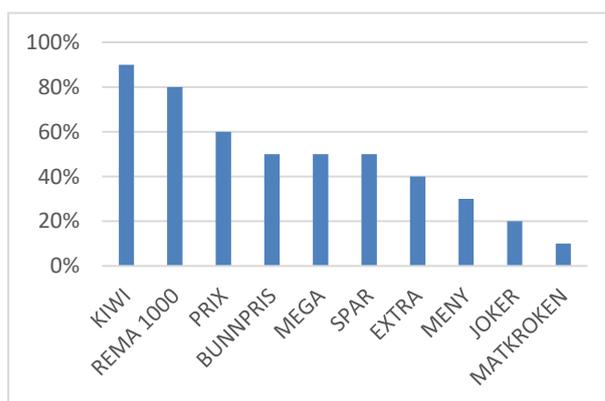


Figure 3: Percentage of donations by supermarket chain

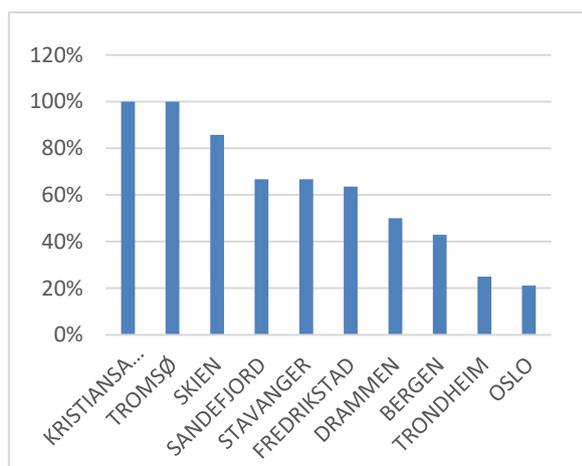


Figure 4: Percentage of donations by city

When looking at the situation by location on Fig. 4, we see that while most of the supermarkets in Kristiansand and Tromsø donates surplus food to charity, only 20 % of the supermarkets in Oslo do it. In more than half of the cities included in the study, we can see that the percentage of supermarkets donating their surplus to charity, barely goes above 50 %.

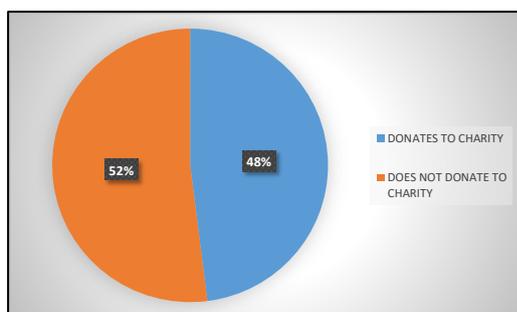


Figure 5: Total percentage of donations by Norwegian supermarkets

When looking at the total sample of supermarkets included in the survey on Fig. 5, only 48 % of them reported donating their surplus food to charity.



DISCUSSION

Our research shows that while the biggest supermarket chains have taken a public commitment to reduce food waste, their efforts have not been enough. Although most supermarket chains have in place internal routines to avoid food waste and most of them also try to sell most of their surplus food to avoid food waste, edible surplus food is still found in their waste containers, and less than half of the supermarkets are donating their surplus food to charity.

In the last year, the main supermarket chains seem to have focused their food waste reduction efforts in two main strategies: On one side, avoiding food waste creation (as mentioned before) and on the other side, sending their surplus food to the Food Bank in Oslo, rather than to local charities. While a lot of surplus food can indeed be rescued from the supermarket's warehouses, this strategy does not address surplus food at store level, since Food banks don't generally receive food from supermarket stores. Different surplus food needs different strategies: The food from producers, wholesalers and distributors is usually a result of overproduction or mislabeling, so usually the quantities are large. While a single charity couldn't use, for example, 300 mislabeled cartons of milk at once, a food bank can receive the 300 mislabeled cartons of milk and re-distribute them among different charities for further consumption. Food from producers, wholesalers and redistributors usually has a longer shelf life than surplus food from supermarkets, allowing enough time for the food to go from the donor to the food bank and eventually to the final consumer.

Surplus food from supermarkets is different. It is mostly food with short shelf life, food that is still perfectly safe to eat, but that the supermarket was not able to sell on time and needs to be removed from the shelves to follow internal routines. The time to redistribute this kind of surplus food is limited, rarely enough to go from the supermarket to the food bank and from the food bank to the charity for its final consumption on time. In addition, it is not efficient for a food bank to go around picking up small amounts of surplus food from different supermarkets.



In order to rescue surplus food from becoming food waste, good systems need to be in place. Despite most supermarket chains having reliable ordering systems that consider not just the supermarket's stock but also consumption tendencies, these systems fail to warn the supermarkets when a product is approaching its Best before-day. Instead, the staff at the supermarket finds these products manually, during their regular stock routines. This system is unreliable and leads to a lot of food approaching its best before date not being found by the supermarket staff on time, and ending up in the waste containers without being offered at a discount price first.

An efficient system should also be able to separate between food waste and food donations. At the moment, food donated to charity is registered internally as "food waste". In addition, food waste is only accounted for in economic terms which are then translated to weight values. Unfortunately, this does not give information about the type of food being wasted and makes it hard to evaluate the environmental impact of food waste, since 1 kg of potatoes has a very different climate impact than 1 kg of meat.

While Norwegian supermarkets have been able to set up national campaigns to sell their surplus food for a reduced price, no initiative to support direct donations from supermarket to charity has been put in place from any of the Head Offices of the major supermarket chains yet. The decision of donating to charity is left to each individual store manager. The Head offices of the supermarket chains don't even have a good overview of which stores that donate to local charities, or how much food is being donated through direct redistribution. Evidence from the UK shows that direct redistribution schemes that include the collaboration of supermarket chains with national charities and social entrepreneurs, can increase donation of surplus food by more than 100 %. That is the case of the British supermarket chain TESCO and its "Community Food connection" campaign, which connects surplus food from supermarkets with local charities. Working in partnership with FareShare and FoodCloud, two platforms that facilitate communications and logistics between supermarkets and charities, the campaign has managed to go from 111 stores donating their surplus food in April 2016, to over 1300 stores donating today. This translated to an increase in donations from 2,303 tons to 5,700 tons of surplus food in just the last year.



The contradiction between store managers who say that they don't donate because they don't have any surplus at the end of the day, and the evidence from the waste containers, confirm that more transparency and reliable data is needed. This is not distinctly Norwegian phenomenon. In the last couple of months, both the British Parliament and the European Commission have brought attention to the need for transparency and more reliable data on food waste in the region. More information about why and how food waste occurs is needed in order to make appropriate strategies and goals. If we don't know how much food waste there really is, setting goals and promoting campaigns turn into empty promises.

In the last couple of years, the Norwegian food industry has been discussing a voluntary agreement to reduce food waste along the supply chain. Although these voluntary efforts are important, a report from the British Environment, Food and Rural Affairs Committee, that analyzed the current voluntary efforts of the British Food industry, concluded that voluntary approaches were inadequate and that food businesses "should publicly report data on food waste, contributing to much more transparency."

We believe that in addition to this, all supermarkets should also be connected to a local charity. Our research shows that the voluntary approach has only achieved that 48 % of supermarkets donate surplus food to charity. This suggests that mandatory practices might have to be introduced.

The study from 2015 shows that redistribution of surplus food between supermarkets and charities is possible. The Food waste hierarchy confirms that redistribution it is the best way to reduce food waste when it is no longer possible to avoid it. The experience of TESCO in the UK confirms this too. While Norwegian supermarkets have taken a public commitment to reduce food waste, the evidence collected during the making of this report shows that voluntary efforts are not enough, that Norwegian supermarkets still throws away edible food, and that they don't donate to charity as much as they could.



A legislative framework to increase the amount of surplus food donated by supermarkets might be needed if we are to achieve the Sustainable development goal target 12.3 on food loss and food waste, which aims at halving food waste per capita by 2030. The main supermarket chains and the main charity organizations need to come together to develop a national plan of direct surplus food redistribution. Social entrepreneurs, local municipalities and non-profit organizations should also have a role in designing, coordinating and running efficient systems of direct redistribution that take into consideration the temporal and functional aspect of food, and allow the most sustainable management of food waste.

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