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VALORIZATION OF MEAT WASTE FROM RETAIL STORES

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ABSTRACT

The aim of this study was to test if, and how, a retail meat waste prevention measure could work in reality. A retail store cooperated, by selling meat that otherwise would be wasted, with a catering company that purchased and used the meat for cooking. Together they managed to save 35 kg meat during 8 weeks in May-June 2012. The measure proved to work in reality and was estimated to have a large potential to save meat, if fully implemented in the whole retail sector. Freezing of the meat was a key success factor, for logistic reasons. Not all types of meat can be saved this way, due to current authority regulations of the food sector.

INTRODUCTION

The Swedish University of Agricultural Sciences coordinated a three year research project “Reduced food wastage in retail stores - measures and their impact on economy and environment”, where 6 stores from the retail chain Willys were studied. Results from this project indicated that an average store wasted ca. 3 tonnes of meat per year, during 2010-2012. Since meat has a high environmental burden (de Vries and de Boer, 2010) and represents a high economic and nutritional value, prevention of meat waste is an urgent matter. The aim of this sub-project was to test if, and how, a meat waste prevention measure could work in reality. How much meat could be saved? Were there any practical circumstances to take into account?

The meat waste prevention measure chosen was a possible future routine, where packages of fresh meat were saved from being discarded and instead sold to a cooking facility for food purposes. Making lunches in their own in-store kitchen of unsold retail food, close to its Best before day, is already a reality in a supermarket in southern Sweden (ICA, 2013). However, the Willys chain does not have any in-store kitchens, why an external solution is necessary.

The test thus takes a starting point by the involvement of a catering company as a possible receiver of the meat from the appointed Willys store. Since the catering company, Happy Food, has an ecofriendly profile (marketing organic and locally produced catering food), its manager Lena Hägg was willing to accept the offer to cooperate in this project. During the test period, May - June 2012, Happy Food would get access to cheaper meat, but also get more work due to extra transports and additional kitchen work. The catering company agreed to buy the meat at a favorable price and for environmental reasons. Happy Food was awarded

the Environmental Award of the year at the Swedish Retail Gala 2012, for its environmental engagement and contributing to retail food waste prevention (Fri Köpenskap, 2013).

MATERIALS AND METHODS

Description of the set up procedure

Three stores were personally contacted; one agreed to take part of the test. Due to transport logistics in combination with low volumes, the first intention to pick up the meat twice a week was abandoned. Instead, a system with storage of meat in the store freezer for pick up once a month was developed. Due to legal restrictions, food marked with “expire day” is not allowed to be sold after that day, regardless of being frozen or not (Swedish national food agency, 2013). As regards to warm grilled chicken, this may not be sold after 4 hours of warming, and it is not allowed to be sold as a refrigerated good after that, since that would require a new label, which is not allowed. Happy Food prefers to buy organically produced meat, but agreed to also accept conventional Swedish meat. These constraints led to the conclusion that only Swedish meat cuts, marked with Best before day, could be included in the test.

Description of the participating retail store

The retail store orders and receives fresh meat several days per week. The monthly meat department turn-over for an average project store, calculated over 6 stores during three years (2010-2012), is about 19 tonnes, and the corresponding waste is about 250 kg. The test store is the only one selling warm grilled chicken, which makes that part of the results less general. The store is situated in the north-eastern perimeter of the city of Uppsala, Sweden.

Description of the participating catering company

Happy Food produces ca. 800 meals per day, most of which is sold as lunches to pre-schools and schools. They also do catering events as well as sell warm lunches and cold lunch boxes through their drive-in facility. The monthly purchases of meat, always of Swedish origin and often organically produced, is about 1800 kg, of which ca. 600 kg are cuts of pork or beef (Lena Hägg, pers. comm.). The catering company is situated in the south-eastern part of the city of Uppsala, Sweden; 6 km from the retail store. The company has its own pick-up cars, and delivers food all over Uppsala, on a daily basis.

Description of the tested meat saving routine

Meat packages that were about to reach their Best-before-day the next morning, were culled from the shelves on the evening before. The meat had otherwise been discarded on the next morning, before the store open. The packages were placed in the freezer of the store, after being noted on a list, keeping track of amount, normal price and reduced price. At two occasions, 25 May and 29 June, the catering company came and picked the meat up, whereas the list was sent to the researchers.

Description of the test evaluation

The amount of transferred meat, divided as pork and beef, was recorded and then compared with the retail store’s registered in-store waste for the same period. The latter data came from the wastage data base in the main project (www.slu.se/foodwastage). Telephone interviews were done with both managers to follow up their experiences.

RESULTS

The results of the test are illustrated in Figure 1. A total of 35 kg of meat, divided as 23 kg beef and 12 kg pork, was transferred from the retail store to the catering company during the 8 week test period. This corresponds to 27 % of the Swedish meat cuts wasted over the same period, i.e. the meat type available for the study, but only 10 % of the total wastage for the meat department. Note that all meat wastage was not possible to save; 44 % of the present store's wastage could not be taken care off, due to authority regulations. These applied to products marked with Expire day [minced meat, fresh chicken and intestinal food, etc.] and to grilled chicken sold in packages. The remaining 56 % was from a regulation aspect possible to sell. Thus, if this waste prevention measure would be applied to other kitchens in the future, not restricted to Swedish meat, the blue, red and green sectors of Figure 1, would be possible to save. This would give approximately 100 kg of meat cuts per month, divided roughly as 50% beef and 50% pork.

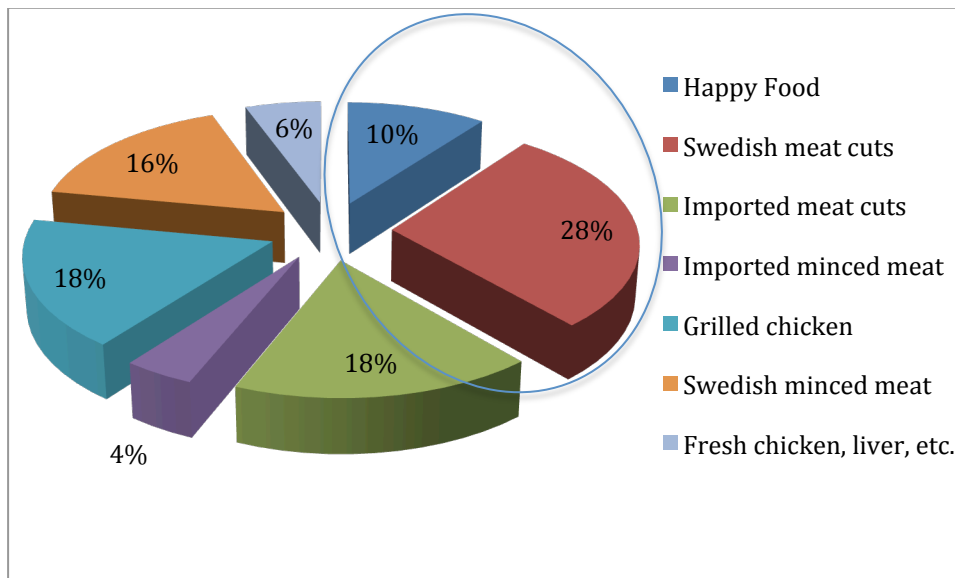


Figure 1. Total wastage from the meat department of the retail store during the test period, of which 10 % was sold to Happy Food. This amount corresponds to 27 % of the meat available for the test, visualized by the encircled sectors.

The manager of the meat department at the participating retail store, Marie Jansson, was in general satisfied with the experiment, referring to a “good feeling” and that this principally was a good idea. However, she also experienced some unclarities regarding the price agreement, giving rise to negative feelings, and did not appreciate the extra time required for administrative work. On the question, “Why did you not manage to save more of the meat [only 35 kg out of possible 130 kg]?”, she answered that this was probably due to lack of communication with the rest of the staff. Other staff members were not informed properly or were not certain about the new routine.

The manager of the catering company, Lena Hägg, was also satisfied with the experiment as such. But, also she experienced problems related to the price agreement. The two pick-ups were done with separate transports, but she believed it would be possible to coordinate the pick-up transports with ordinary deliveries in the future. Another possible improvement

would be to increase the amounts, since the present amounts were considered too small, leading to a possible solution where several retail stores cooperate with one cooking facility. She also concluded that if it was possible for the stores to sell frozen minced meat, this would be a perfect product for them to use in their cooking. What could be more troublesome, though, were some negative customer reactions, such as “Are you selling old food?” and “We want to buy this cheaper”. However, Lena Hägg managed to answer these with correct information, taking some of the worries away, and she believes that these potential obstacles would be possible to overcome.

DISCUSSION

The tested waste prevention measure, selling meat close to its best before day to a nearby kitchen for use as food, proved to be realizable in all stages from idea to actual cooking. The logistic chain worked, but can be further improved. Ca. 18 kg meat per month was saved during the test period, however with a potential of 100 kg meat per month, if the measure becomes fully implemented. Based on data from the annual report of Axfood, the company group owning the retail chain, there were ca. 160 Willys stores (of the equivalent size) 2012, representing 11% of the Swedish food market (Axfood, 2013). Using these figures to scale up the results to the whole Swedish retail sector, give that the measure has the potential to save 1800 tonnes of meat from being discarded. Freezing of the meat appeared to be a key factor, since this made it possible to cut down transports to a realistic level. Also, customer attitudes will be a key factor to handle, in order to avoid negative reactions. The measure can however be regarded as an end-of-pipe solution to the meat waste problem, not targeting the root of the problem, which involves a mismatch of orders and sales, i.e. ordering more than what is possible to sell. As such it should strive for not taking the focus off the main problem, but instead be a measure limiting the damages while searching for solutions to the main problem.

CONCLUSIONS

The conclusion is that this retail meat waste prevention measure has the potential to work in reality and could potentially have a large effect on saved amounts of meat.

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