

# Waste is a verb, **not a noun**

**Dr Ingrid Strid** lifts the lid on the realities of food waste within the retail sector, detailing her report which has revealed how food wastage occurs, and what is being done to stem the prevailing trend

**Why is there such a lack of knowledge, especially validated knowledge, about how to avoid food wastage?**

The environmental focus of the food supply chain has for a long time been on producing food items with a minimum of resources and emissions, but has neglected the utilisation of the end-product. Food wastage as a research area is thus fairly new, accelerating from 2008 when the UK consultancy company, Waste & Resources Action Programme (WRAP), published a report on food waste in UK households. The methodology for assessing food waste prevention is not yet fully developed and research efforts have not yet penetrated a great number publications.

**What are the primary causes of food wastage? Is it mainly caused by human error and does this mean that education and refined processes of due diligence might offer a solution?**

There are two primary causes of food waste: food is lost due to insufficient protection (packaging, chilled transports, preservatives, etc.) in the distribution chain, especially in poorer countries; and food is rejected due to bad consumption planning, fear of best-before dates, extreme demand for freshness, etc., especially in richer countries. If this is caused by human error, who else should we blame but ourselves? As long as the raw material is alive, like a living lettuce plant or a live pig, the organism takes responsibility for not degrading via its immune system. But the moment after we kill the animal or cut off the desired plant part, the degrading microorganisms can start to do their job. Humans have a responsibility for the food from this moment until it reaches the mouth. In poorer countries, more investments in food protection is necessary, whereas in richer countries, education might very well be an instrument to cultivate more respectful

attitudes towards food. Another option would be to make the food more expensive. Perhaps this would teach people the hard way to take better care of their food.

**Can you shine a light on the environmental impact of agricultural products?**

The environmental impact of agricultural products from 'cradle to grave' is typically dominated by the primary production taking place at the farms. The latter phases of food production, such as the processes taking place at the dairies, bakeries and retail stores, as well as during distribution, usually add a relatively small share of the environmental impact. This means that the damage has already occurred when you hold a piece of food in your hand in a retail store. Another important fact to keep in mind is that animal-derived food almost always has a higher environmental impact than vegetables.

**How have you contributed to progressing research on the actual amounts of food loss in retail stores and the variation between individual stores?**

We have just finished a report on food wastage in six Swedish retail stores. In this, we have published data on variation over the year (52 weekly data points), for each studied department of the stores (fruits & vegetables, dairy, cheese, deli and meat) and for each store. The results are both in kilogrammes (or rather tonnes) and in terms of percentages of the delivered quantity. The report is based on each store's recorded in-store waste, and has given a sound first overview. We are also close to submitting a scientific article, which will describe and quantify the pre-store, and the recorded and unrecorded (but observed by us via manual control weighting of the waste) in-store food losses. This article also includes a top 10 list of the most wasted food products by



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mass and percentage. Seeing this list the first time was highly rewarding!

**What have been the most significant findings in your research thus far? How can this be translated into advice and legislation to reduce food waste and improve sustainability in the future?**

The project's most significant findings so far would be of two kinds: the first consists of the facts and figures of the flows of goods, leading to the insight that approximately two to three times as much fruit and vegetables are wasted as a result of the quality check that takes place at delivery, as is wasted from the store shelves. The second finding is that food waste prevention measures seem difficult for the store staff to describe. The implication of this last finding is that prevention measures will be difficult to transfer to other stores, since there is no defined package of tips and tricks. I do believe that these findings can be translated into practical advice. One suggestion is that individual stores keep better documentation of tested waste reduction measures, facilitating communication with other stores within the same company.



# Less is more

Supermarket offers such as 'two for one' deals are often alluring to the everyday consumer, yet a lot of the food often goes to waste – much to the detriment of our environment. A Swedish consortium is delving into this emerging field of research to provide practical recommendations

**THE FOOD PRODUCTION** life cycle causes various types of damage to our environment. Food is a product and a process that can contribute to environmental pollution and degradation as well as loss of biodiversity, and it also drives changes in our economic and political spheres. Based on the pressure our food system places on the environment and society, one can say the most damaging phase of the food lifecycle is therefore the last: if food is lost or rejected in the final phases, then every step to get it to this point has been in vain. Stronger, more resilient and sustainable approaches to food are necessary in supermarkets, restaurants and households to reduce waste, improve products, and contribute to more environmentally-friendly food patterns.

A team of researchers in Sweden have recently broached this emerging field of research and embarked on a project to address the final phase in the food chain lifecycle. Titled 'Reduced Food Wastage in Retail Stores – measures and their impact on economy and environment', and led by Dr Ingrid Strid of the Swedish University of Agricultural Sciences, the project is set to establish new food waste reduction measures. Throughout the duration of the three-year project (2010-13) the team will work with their cooperative partner, the Axfood Group, to analyse the retail waste of fruit and vegetables, dairy products, deli products and fresh meat. The outputs of the research will suggest a number of practically implemented measures for food wastage at the retail level, and generate knowledge of its effects on the environment and the store economy.

## GETTING TO GRIPS WITH FOOD WASTE

Food wastage is commonly defined as that which could have been consumed if handled differently. While the losses that occur along the food chain vary depending on the foodstuff, it is estimated that as much as 10-50 per cent of food falls under this category. As such, reducing the amount of food waste will have major environmental benefits because the same amount of food that is consumed can be produced with fewer resources expended – natural and otherwise. Reassessing food waste procedures is also beneficial to the retail sector in the way of profits and labour. However, for these benefits to be realised, a change in attitude and current beliefs needs to be made: "Suppliers sometimes give discounts for stores that buy a full pallet of bananas, for example. So even if you are responsible for fruit and vegetables and know that you will probably sell 19 boxes of bananas, it is more favourable

to order 20. Suppliers and retail stores need to cooperate and set up common goals to reduce food losses over this interface," explains Strid. In terms of retailers then, the 'Reduced Food Wastage in Retail Stores' project will involve disseminating information about how to reduce waste and why it is beneficial.

The research team utilise a lifecycle assessment methodology in their project. This enables them to trace the energy use and emissions of a product from 'cradle to grave'. Fresh fruit and vegetables, dairy and deli products, and fresh meat are all considered in this study, along with pre-existing research compiled from pilot studies carried out by the group. For example, previous research identified which categories of food had the highest and lowest levels of food waste: dairy products were found to have the lowest average, whereas fresh and processed meats accumulated the highest proportion of food waste. The average amount of waste per week varied greatly throughout the year, and a large amount of fruit and vegetables were wasted before they entered the retail store. Pre-store and in-store waste have been recognised as two distinct categories in the Reduced Food project. While both categories end up in the same waste bin and cannot be distinguished from each other after discard, pre-store waste was identified as being three times more likely to be wasted than in-store waste. These categories were highlighted while compiling the first results of the study, and pave the way for more important insights for the coming parts of the project.

## SUGGESTING SOLUTIONS, DIGESTING THE FACTS

Over the course of the next two years the project team will suggest a range of practically implemented options to reduce food waste in the retail sector. Based on the results of their previous studies, it becomes clear the secret to success will lie in a combination of methods, used by store owners and suppliers alike, and the prioritisation of food waste reduction within retail organisations. The team has already outlined a number of possible measures the retail sector can take, including recording waste and establishing quantitative goals for waste reduction, using display cabinets with doors for fruit and vegetables, and reviewing the design and effects of campaigns.

To help reduce wasted food in the longer term the project team also recommends that the Swedish National Food Administration works in collaboration with retailers, the food industry





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and consumer representatives to develop clear guides on various regulations. For example, the ability to freeze certain foodstuffs approaching their best before date could lower the levels of food lost in the retail sector, but certain food regulations do not currently allow this. Changes to regulations and guidelines about frozen food, donated food, and food used as animal feed could also drastically reduce the amount of food wasted in its final stages.

Another stage of the project is concerned with gathering information about the effects of food waste reduction methods on the environment and economy. In doing so, the team can contribute to the progressing research in this area, offering data on the actual amount of food lost at grocery stores, and the variations between individual stores: “I think that the next phase of the project will be very interesting, when we start to analyse the environmental impact of the wasted food, via life cycle assessment methodology. Wasted meat products will rise in importance – but will they exceed wasted vegetables in terms of environmental impact?” questions Strid. The group can then also recommend how retail waste should be measured and evaluated based on the methodological experiences garnered from the research.

Upon completion, the results of the study will be disseminated to a wide audience, building bridges and connections between the various groups involved in reducing food waste. For the project team these groups come from both the top associations and customer-facing retail stores: “Our advice will be disseminated directly to the retail chain we are working with through their support centre, but also to a wider audience via, for example, the Swedish Association for Retailers,” Strid outlines. “At the end of our research project we will arrange a public seminar in cooperation with the Swedish Society for Nature Conservation, at which point we want to highlight the food wastage issue and present the results from our project.” This dissemination of results will help ensure a more sustainable and responsible approach to the last phase in the food production lifecycle, carried out by the suppliers, retailers and consumers alike.

## INTELLIGENCE

### REDUCED FOOD WASTAGE IN RETAIL STORES – MEASURES AND THE IMPACT ON ECONOMY AND ENVIRONMENT

#### OBJECTIVES

To generate knowledge about the effects on environment and economy of a number of practically implemented measures for reduced food wastage at the retail level in the food chain. The project also aims to generate knowledge on the attitudes of customers and staff about the implemented measures. The final task is to disseminate the results and to highlight the food wastage issue through a public seminar arranged in cooperation with the Swedish Society for Nature Conservation.

#### PARTNERS

The **Axfood group** and its subsidiary **Willy:s**

**The Swedish Society for Nature Conservation**

#### KEY COLLABORATORS

The research team consists of the **Swedish University of Agricultural Sciences**, **Stockholm School of Economics** and **Ideon Agro Food**

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**INGRID STRID** defended her doctorate degree in Agricultural Engineering in 2004. She has worked at the Swedish University of Agricultural Sciences in various capacities since 1997. Whilst coordinating the ‘Reduced waste’ project, she is also involved in two other projects – ‘High Quality Forage to Dairy cows and Low Quality Forage to Biogas’ and ‘By-products from Cereal-based Ethanol Production – Alternative Ways to Utilize their Economic and Energetic Potentials’. She is also supervising a Master’s student estimating the Land use for Swedish male and female diets.

