

LITERATURE LIST

Report summaries from the Swedish government commission to reduce food loss and waste 2017- 2019

October 2020



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Halved food loss and food waste in sight 2030.

Final report on government commission to reduce food loss and waste 2017- 2019

February 2020

Summary

The Swedish Food Agency, the Swedish Board of Agriculture and the Swedish Environmental Protection Agency have received two government assignments to work on the reduction of food loss and food waste. This report marks the conclusion of the most recent assignment that was carried out during 2017–2019. The assignment is part of the fulfilment of global sustainability goal 12.3 concerning food loss and food waste in Agenda 2030: By 2030, halve per capita global food waste at the retail and consumer levels and reduce food losses along production and supply chains, including post-harvest losses.

Food loss and food waste consists of products intended for use as food, but which for various reasons have not been used for human consumption. There are many reasons for the occurrence of food loss and food waste, and to reduce them therefore necessitates a wide range of measures in different parts of the food supply system. A large number of initiatives have been launched in Sweden, and there are great opportunities for development. Sweden's involvement in the EU Platform on Food Losses and Food Waste strengthens the work of both Sweden and Europe on food loss and food waste.

In June 2018, the *More to do more* action plan was submitted to the Government, an action plan for Sweden's work to reduce food loss and food waste by 2030. It has been drawn up together with the parties affected and is an action plan for the entire food industry. Some measures are the responsibility of the authorities, but many of the measures require commitment from and implementation by other stakeholders. The action plan has been well received by the parties affected, and there is good dialogue with the industry.

The action plan identified four strategically crucial key issues that form the prerequisites for successful implementation. The work on these key issues is in ongoing, and the current situation is as follows:

- A proposal for a national goal is under preparation and there have been developments in terms of follow-up and measurement.
- A voluntary agreement has been initiated between the industry and the Government.
- Measures have been introduced to help the consumer to do the right thing.
- Research and innovation exist to some degree aimed at reducing food loss and food waste.

The table below provides an overview of the current situation for the 42 measures. We hope they will become progressively greener as work continues towards 2030. The full text of the measures is found in the national action plan.



7 measures have been implemented or are making good progress towards 2030



32 measures are in progress but need to be scaled up or intensified



2 measures have yet to be started

Goals and measurements	1.	Preparation of national milestone target & follow-up	Green
	2.	Follow-up methods; Consensus in the supply chain	Yellow
	3.	Industry stakeholders follow up the work through	Yellow
Collaboration and dialogue	4.	Dialogue authorities/stakeholders	Green
	5.	Dialogue on the opportunities from digitisation	Yellow
	6.	Formalised collaboration between industry stakeholders throughout the food supply chain. Facilitates the implementation of other measures	Yellow
	7.	Dialogue and collaboration on primary products	Green
	8.	Dialogue with regional/local stakeholders. Food loss and food waste is included in regional growth work/food	Green
	9.	Industry rules introduced for price campaigns encouraging waste	Red
Knowledge enhancement, behavioural change and attitudes	10.	The authorities push the issue & produce factual/consumer info.	Yellow
	11.	Recurring common information initiative directed at consumers	Yellow
	12.	Knowledge enhancement in the public meals sector	Green
	13.	Advisor training in the handling of primary products	Yellow
	14.	Vibrant public debate about food loss and food waste	Green
	15.	Industry stakeholders inform consumers & facilitate consumer action to reduce food loss and food waste	Yellow
	16.	Municipalities inform citizens about actions to reduce food waste	Yellow
	17.	Calm mealtime environment in healthcare, schools, and social care so that food is eaten up. Adequate	Yellow
	18.	Using school mealtimes in the teaching is made possible by scheduling school lunches	Yellow

	19.	The curriculum includes statement on the importance of school lunches	
	20.	Industry associations support members and provide good examples	
	21.	Training of restaurant staff includes preventive food loss and food waste measures	
	22.	Acceptance and marketing options are increased for Class II fruit and vegetable products	
Regulations and application	23.	Companies are assisted in new export markets for products that cannot be marketed in Sweden.	
	24.	The potential for private standards to contribute to reduced food loss and food waste is investigated and	
	25.	Work on regulations, international trading standards for fruit and vegetables and the private specifications of trade supply chains that affect food loss and food waste	
	26.	Investigate the possibilities for food not suitable for human consumption to be used to a greater extent for	
	27.	Official control authorities utilise the flexibility of the food legislation and increase knowledge of how regulations are interpreted in order to contribute to reduced food loss and food waste	
	28.	Industry guidelines motivate companies to contribute to reduced food loss and food waste	
	29.	Guidance/support for municipalities to work on prevention of food loss and food waste	
Date labelling, durability and refrigeration chain	30.	Use-by date labelling is only used when needed	
	31.	For date labelling, aspects of minimising food loss and food waste are taken into consideration	
	32.	Purchasers set relevant requirements for the remaining durability in incoming deliveries	
	33.	Refrigerated products are labelled with optimum storage temperature, which is then maintained throughout the refrigeration chain	
Forecasting, logistics and handling	34.	Online information is produced on handling of fruit and	
	35.	Collaboration in the industry for logistics chains optimising reduction of food loss and food waste	
	36.	Streamline the flow of food through the food supply	

	37.	Better technical equipment can reduce damage during harvesting and transport	
Contracts and procurement	38.	Fair trading practices are discussed and applied for reduced food loss and food waste	
	39.	Setting requirements and work methods in the procurement process within healthcare, schools, and social care, which can minimise food loss and food waste	
	40.	Competence development for prevention of food loss and food waste in procurement	
Investigation,	41.	R&D supports the implementation of the action plan's	
		Done/Inapplicable	
Motivational measures	42.	Time-limited financial support for municipal mass catering/canteens – requires special funding	

The finding is that activity is ongoing within most of the action plan's measures. However, in order to achieve the target 12.3 of Agenda 2030, more parties need be active within more measures – more need to do more. Everyone who comes into contact with food needs to contribute to reducing food loss and food waste. With the action plan being well received, the conditions are there for the work to succeed. This means that we can draw closer to a circular economy with benefits for the environment and resource usage. It results in reduced costs for both food supply chain companies as well as public sector bodies and consumers. It also results in better opportunities for global food supply.

From here onwards it is important that a voluntary agreement between the industry and the Government is reached, that the work on follow-up and measurement continues to be developed, that more is done to help the consumer to do the right thing, and that supportive research is funded.

Swedish food waste: An overview

There is an English summary in the Swedish food waste data report *Matavfall i Sverige. Uppkomst och behandling 2018* (2020):

[The Swedish Environmental Protection Agency Website](#)

Increased feed use from surplus food and production residues

February 2020

Summary

From a resource perspective, the best thing to do is to prevent food loss and waste and to use everything produced by the food chain as efficiently as possible. If products intended for food cannot be eaten by humans, it is more resource efficient for surplus food and production residues to be used as feed than to end up as waste in one form or another. Some may find the legislation governing the area complicated as several different laws apply. In general, it is easier to find uses for vegetable surplus food and production residue than for surplus containing animal products, due to the risk of disease transmission associated with the latter.

At present, we have comprehensive but incomplete follow-up of where food loss and waste end up, and development of follow-up methods have been identified as one of four crucial points in Sweden's efforts to reduce food loss and waste. Also, we have no official data on quantities of by-products produced by the food chain, nor of how such by-products are used. We believe that better follow-up in these areas would create opportunities to use more from the food chain as feed.

Most food waste arises in households. In order to prevent disease transmission, and because of the varied content, we currently do not see any possibility for food waste from households to be used as feed. The same goes for waste from other kitchens such as restaurants and caterers. The food industry is probably the one with the best chance of promoting more surplus food and production residues to be used as feed. For retailers, this could be more difficult since it is often required to carefully divide vegetable and animal food content, and also because many products are packaged.

Industry organizations and many companies are active in reducing food waste and in working to increase resource efficiency, but more need to see opportunities and work for this. Today, initiatives for feed use are often through contacts between companies. More information, logistics and mediation can contribute to increased use of surplus food and production residues as feed.

Interesting new technologies are studied to make use of food waste and production residues using insects, fungi or other technologies, and provided that the regulatory requirements are fully complied with, such solutions could increase resource efficiency in the future. We therefore see a need for more research on how contaminants and other substances are transmitted in these processes and how such feed production could be done safely. More knowledge of the environmental footprint for various provisions, such as feed and different forms of waste, would also contribute to a better overall picture and strengthen the resource hierarchy.

In Sweden, food companies that want to market feed must not only familiarize themselves with feed legislation and comply with it, but also receive food control and feed control from different authorities and pay a control fee for both of these checks. We believe that it is necessary to examine whether only one authority could control all legislation in the areas of food, animal by-products, and feed. This could reduce the costs and administrative burden for companies.

Full report in Swedish at the Swedish Board of Agriculture nr 2020:04.

[The Swedish Board of Agriculture Webshop](#)

More to do more - Action plan for food loss and food waste reduction by 2030

June 2018

Summary

Food loss and food waste is widespread both in Sweden and around the world, resulting in unnecessary environmental damage, financial loss and eventually poorer ability to provide a growing world population with food.

In February 2017 the government assigned the Swedish National Food Agency together with the Swedish Board of Agriculture and the Swedish Environmental Protection Agency to continue work to reduce Sweden's food loss and food waste between 2017 and 2019. The first stage of the assignment is to, in close collaboration with relevant players, develop an action plan for how Sweden can work with long-term measures to reduce food loss and food waste. The measures are to contribute to fulfilment of global sustainability goal 12.3 concerning food loss and food waste in the United Nations' Agenda 2030.

The input to the action plan consisted of experiences from the previous government's assignment on food loss and food waste during 2013-2015, three new surveys, other documents and publications in the field, and a process of meetings, contacts, and input from stakeholders. The agencies and the Ministry of Enterprise and Innovation held a kick-off in October 2017 with a discussion on how we will work in the long term in Sweden and an opportunity to provide input to the action plan. Use has also been made of other countries' experiences of cooperation to prevent food loss and food waste. Input has been received from players in for example primary production, processing, retail, restaurants and public catering, procurement, consumer matters, education, regional and municipal work, and research. On many issues there is a consensus between agencies, industry players and others.

Many players are already working to reduce food loss and food waste and initiatives to prevent food loss and food waste are often profitable. But more players need to become active and there are more measures where action is needed. There are several reasons behind food loss and food waste and several different measures are required in different parts of the food supply chain to attain the goal. A basis is often lacking for assessing the impact and consequences of various measures, which may result in difficulties in prioritising between different measures. The area is undergoing development, where different solutions need to be tested and experiences gathered from other countries' work.

The action plan contains 42 proposed measures and specified needs as regards investigation, research and innovation. The action plan has nine action areas:

1. Goals and measurements
2. Collaboration and dialogue
3. Knowledge increase, behavioural change and attitudes
4. Regulations and application
5. Date labelling, durability and refrigeration chain
6. Forecasting, logistics and handling

7. Contracts and procurement
8. Motivational measures
9. Investigation, research and innovation

During the course of the work, four points were identified as prerequisites for a successful effort. The points are in no particular order and all four are closely interlinked to each other:

- **A national goal and the development of monitoring methods.**

The work on the action plan shows that a clear national goal from the government/parliament is crucial for private and public players. A national goal creates a focus on the issue and provides motivation, commitment and legitimacy to work on the issue among the players concerned. Designated players for various measurements are also crucial for further work.
- **Active collaboration between industry players in the food supply chain.**

A greater effect from the players' contributions can be attained by forms for coordination being established. An organised binding collaboration leads to gains through being able to find common measures within parts of the chain and taking action that does not send the food loss or food waste further up or down the chain.
- **Changes in consumer behaviour.**

Contributions from many different players together create opportunities to bring about behavioural changes among consumers, who account for the bulk of the food waste. Consumers' awareness and motivation need to increase along with other measures such as helping different consumer groups make choices that minimise food waste in different situations related to buying, handling and making use of leftover food.
- **Investigation, research and innovation.**

Efforts that support the implementation of the action plan. More knowledge needs to be collected and developed in different issues related to food loss and food waste, not least concerning different measures' effectiveness. Knowledge of how consumer behaviour that reduces food loss and food waste is accomplished is a matter of urgency. Interaction is often needed between different areas of expertise to find solutions.

The action plan is a tool and a step forward in the work to prevent food loss and food waste, but should not be seen as a static document. A key part of the future work is a continuing dialogue between the players concerned on the action plan's priorities. As the work progresses, new needs for action will be identified as well as experiences and solutions on the basis of implemented measures' effectiveness. The work also needs to be synchronised with the EU's work on food loss and food waste. Action and measures need to be adapted in a flexible manner over the period up to 2030, when the global goal is to have been attained; a mid-term follow-up can be made in 2024. A crucial fact is that everyone who deals with food matters has a responsibility to integrate food loss and food waste issues in their work, to work in the long term, and to do as much as they can for the goal to be attained.

Proposed measures

Below follows a list of 42 proposed measures broken down into measures where the *main* ownership to drive the work can be taken by the Swedish National Food Agency, the Swedish Board of Agriculture and the Swedish Environmental Protection Agency, along with other players. Many of the food loss and food waste issues, however, need to be solved in *interaction* between different players. For the measures to be able to be implemented, resources need to be allocated both by the government and by trade and industry. All the measures need to be begun as soon as possible. The proposals are not arranged in any particular order. They are numbered according to the order in which they appear in the chapters of the action plan.

Measures driven by the Swedish National Food Agency, the Swedish Board of Agriculture, and the Swedish Environmental Protection Agency

The authorities do a great deal to facilitate the work that other players need to do to reduce food loss and food waste. Most of the measures in the following have been begun or can to some extent be initiated within the government's assignment for 2017-2019 to reduce food loss and food waste. Several of the measures, however, require additional funding to allow a more substantial effort to be made. Many measures require continuity in activities over time, such as information initiatives directed at consumers in order to bring about changes in consumer behaviour. For Sweden to be able to contribute to the global food loss and food waste goal in Agenda 2030 being achieved, the authorities also need to work with the following measures in a long-term perspective beyond 2019:

1. The Swedish Environmental Protection Agency, the Swedish Board of Agriculture, and the Swedish National Food Agency continue to work to develop a proposal for a national milestone target in the environmental objective system for reduced food loss/ waste by 2030 based on goal 12.3 of Agenda 2030. The underpinning documentation for the milestone target proposal should include an impact analysis, base year, boundaries, follow-up method and division of responsibility for follow-ups.
2. The players concerned agree on how measurements and national monitoring of food loss and food waste in the food supply chain can be designed on the basis of objectives and principles for smart environmental information.
4. The Swedish National Food Agency, the Swedish Board of Agriculture and the Swedish Environmental Protection Agency continue to carry on a dialogue with the players on the development of the work on Sweden's food loss and food waste.
5. The Swedish National Food Agency, the Swedish Board of Agriculture and the Swedish Environmental Protection Agency continue to carry on a dialogue with the players on the opportunities offered by digitisation in the food supply chain, who is responsible for what and how we can deliver benefit to the target groups in an efficient manner.
10. The Swedish National Food Agency, the Swedish Board of Agriculture and the Swedish Environmental Protection Agency continue to drive the question of less food loss and food waste and develop a factual basis in different issues and information for consumers.
11. A recurring common information initiative directed at consumers is launched.
12. An increase is enabled in knowledge of how food waste can be reduced in public meals, for example through knowledge support, analysis of food waste, dialogues and forums.
13. Advisors are given further training in how primary products are handled to minimise food loss and food waste.
23. Companies at which part of their production cannot be sold in the Swedish market should be given help to open new export markets.

24. Private standards' possibilities to contribute to reduced food loss and food waste are investigated and discussed.
25. Work with regulations, international trading standards for fruit and vegetables and trading chains' private specifications that affect food loss and food waste.
26. Investigate opportunities for food that is not used for human consumption to be used for animal feed.
34. Online information with recommendations on handling of fresh fruit and vegetables.
38. To reduce the food loss and food waste, principles for fair trading practices are discussed and made generally known to primary producers, food companies, wholesalers and retail players and form the foundation of business between farmers, growers' associations, wholesalers and retail chains.
41. Time-limited financial support is offered to municipal catering facilities and canteens/restaurants to prevent food loss and food waste, for example by purchasing new equipment, initiatives to increase competence or the introduction of new procedures. *The measure requires special funding.*

Proposed measures that are driven by other players or with shared responsibility

Of the proposed measures below, the proposal to formalise collaboration between industry players is particularly urgent since this will make it easier to implement many other proposed measures. With the coordinating organisation(s) in place by 2019, the prerequisites then exist for an active and effective industry collaboration between 2020 and 2030.

3. Players in the food supply chain follow-up their work on food loss and food waste through regular monitoring of food loss and food waste.
6. A formalised collaboration between the industry players enables the entire food supply chain to work together to reduce food loss and food waste.
7. Continued dialogue between industry players who produce and handle primary products to identify measures, find incentives for reduced food loss and side-flows and develop forms of collaboration and knowledge sharing.
8. National authorities, county administrative boards, the Swedish Association of Local Authorities and Regions, and the Swedish Waste Management and Recycling Association carry on a dialogue with groups/forums regionally and locally to emphasise food loss matters and build up knowledge. The county administrative boards and regions include food loss and food waste in projects linked to the food strategy and in regional growth efforts.
9. Common industry rules regarding price promotions that drive food loss and food waste and phasing out of products.
14. The food loss and food waste issue is kept alive in the public debate.
15. Players in the food industry, restaurants, the retail trade, and industry organisations work actively with consumer information about food loss and food waste and how consumers themselves can influence their own share of the food waste. Efforts are also made to make it easier for the consumer to act food loss and food waste -smart at the moment of purchase.
16. Municipalities actively disseminate information to citizens on how they as consumers can act to reduce their food waste.

17. Prerequisites for food served in schools, hospitals and nursing homes to be eaten up are improved through a pleasant and quiet dining environment. This is made possible by adequate time and resources being allocated for meals.
18. Using school meals in the teaching is made possible by scheduling school lunches. This makes it easier to integrate food loss and food waste issues in the teaching.
19. The Swedish National Agency for Education is assigned by the government to include a statement about the importance of school meals in the national curriculum for compulsory schools, pre-school classes and after-school recreation centres. The statement makes clear the importance of school meals to support students' knowledge development in school subjects that connect to a sustainable lifestyle, sustainable development and sustainable consumption, including reduced food loss and food waste.
20. Industry associations and professional organisations provide support to their members regarding measures to reduce food loss and food waste and good practices.
21. Education of restaurant personnel includes education in food's environmental impact and how food loss and food waste can be reduced.
22. Increase acceptance and outlets for class II products (fruit and vegetables).
27. The control authorities for the food supply chain utilise the food legislation's flexibility and increase knowledge of how regulations are interpreted in order to contribute to reduced food loss and food waste.
28. Industry guidelines motivate companies to contribute to reduced food loss and food waste.
29. Guidance/support for municipalities to work to prevent food loss and food waste
30. "Use by" labelling is used only in the case of highly perishable products that may pose an immediate danger to human health after a short period of time.
31. Aspects of minimising food loss and food waste are taken into account when date-labelling.
32. Purchasers in public procurement, restaurants and retail set relevant requirements concerning remaining durability when the product is received by the purchaser.
33. Refrigerated products are labelled with an optimum storage temperature. The optimum temperature is maintained throughout the refrigeration chain.
35. The food industries collaborate to optimise the logistics chains so that food loss and food waste in connection with storage, preservation and transportation can be minimised.
36. Streamline the flow of food through the food supply chain.
37. Better technical equipment can reduce damage to products both at harvest time and during transportation from the field to storage, preservation and packaging.
39. In schools, hospitals and nursing homes, proposals are developed for setting requirements and ways of working in the procurement process that can minimise the amount of food loss and food waste and provide support and competence development in these areas.
40. Competence development measures are taken in procurement to prevent food loss and food waste.
42. Support the implementation of the action plan's proposed measures through action in investigation, research and innovation:

Data, regulatory frameworks and chain-wide case studies

- a) new and supplementary mapping of food loss, food waste and side-flows in primary production and retail
- b) estimate of the proportion of food loss in the food industry at national level based on real-world measurements at processing companies of various kinds
- c) estimate of the proportion of food waste in private households and institutional and commercial kitchens at national level based on real-world measurements, including studies that:
 - identify and calculate factors between food and packaging, napkins and non-edible parts (e.g. bones, tea bags) in sorted waste
 - verify and update conversion factors between, for example, similar kinds of products for increased precision in follow-ups and prioritisations
- d) mapping of regulatory frameworks and guidelines that are not directly related to food but that may have an indirect impact on food loss/food waste/productions losses in the various sections of and the entire food supply chain
- e) surveys of food loss and food waste in case studies covering entire supply chains with the Swedish market as their destination and entire food supply chains, i.e. also including real-world measurements as well as both domestic and foreign data for specific products

Products and market

- f) innovative product development, processing and market development that lead to parts of the foods/ingredients that are not used today being returned to human consumption, such as
 - by-products from slaughter, e.g. blood and trimmed-off parts
 - parts of fruits and vegetables that are not used

Technology and logistics

- g) technological and logistical development in the food supply chain, concerning for example
 - forecasts and planning in interaction between players and parts of the chain
 - gentle handling during harvesting and storage
 - rapid cooling and promotion of optimum and constant temperatures in primary production
 - handling, process lines and temperature control in the processing of raw produce
- h) studies of the impact of transportation on product quality and food loss and food waste, including downstream, such as
 - case studies with real-world measurements for different types of products
 - causes that drive losses and waste, and solutions to the problems identified
- i) development of packaging solutions that contribute to reduced food loss and food waste in the food supply chain as a whole, including primary, secondary and tertiary packaging, such as development in
 - sizes, emptyability and resealability

- better stackability and transportation characteristics
- system perspectives from primary production to end consumer
- j) mapping of existing preservation methods and food preparation methods that contribute to reduced food loss and food waste, by, for example, prolonging durability and storage capability in various parts of the food supply chain, including households, and innovations for the development of new such methods

Causes and opportunities in primary production

- k) mapping/analysis of the correlation between the quality of seeds, plant material, etc. and their influence on food loss and other losses later in the chain and what measures might be taken to improve/ensure seed quality, for example
 - the problems with the quality of seed potato
- l) mapping and analysis and development of solutions that support adaptation of primary production to a changing climate, to reduce losses in primary production and downstream

Causes and opportunities at the manufacturing stage

- m) investment support is established for reduced food loss in the food industry that provides incentives and accelerates systematic improvement efforts at companies
- n) investigation/research in the area of how causes of food loss at small-scale food producers differ from those at large-scale producers
- o) research and innovation in product and market development that support small-scale producers' ability to reduce food loss by taking care of those parts of a product that would otherwise be taken out of the food supply chain
- p) mapping and analysis and development of solutions that support adaptation of processing to a changing climate

Business and logistics systems and temperature reduction at the retail level

- q) mapping of business and logistics systems that drive food loss and food waste, including systems for handling bread and returns
- r) studies and research on price promotions' pros and cons and their significance for food waste in shops and consequential impact upstream and downstream
- s) compilation of existing data on energy consumption, food waste and profitability at lower refrigeration temperatures in shops that provide a basis to encourage shops to reduce refrigeration temperatures

Consumer behaviour

- t) research on mechanisms behind different kinds of consumer behaviour to increase knowledge about how people's decision-making processes are best translated into powerful policy measures, including for example
 - behaviours linked to preferences for cosmetic qualities of various goods, the consumer's handling of fruit and vegetables in shops or that the last product on the shelf is very difficult to sell

- identification of what types of communication activities, “nudges” and “choice editing” work under what conditions
- u) transformation of the above knowledge into innovations that reduce consumer-related food loss and food waste in the food supply chain, including for example
 - development of practical tools (“nudges” and “choice editing”) to moderate behaviours based on the knowledge developed above
 - what kinds of messages have the greatest impact on different target groups and how different types of information can be conveyed to the different players in the food supply chain in the most effective way possible
 - development of tools or packages of measures that include measures to make the change persist longer in order to eventually become normal behaviour

A model for a food sector cooperation to prevent food loss and waste in Sweden

Östfoldforskning - Study for the Swedish National Food Agency

Summary

If the food sector in Sweden is to be able to contribute to the global Agenda 2030 goal to reduce food waste by 50% per person in the retail sector and households, and to reduce food waste along the whole food chain, the trade associations have to work closely together. This can most easily be done through the establishment of a forum and a producer responsibility organisation owned by the trade associations.

The aim of this study has been to evaluate the need for such an organisation and how it can be established and financed. Pros and cons of the proposed solution, which is based on experiences from the Norwegian model established through Matvett AS, are considered and described. The conclusions in the report are based on experiences from other similar organisations in Sweden and abroad.

The study discusses how a business-driven process to establish a producer responsibility organisation can be organised, where three different models can be applicable: I. Negotiated agreements where the Government and the national food sector agree on targets for food waste reduction II. Public voluntary programmes involving relevant public authorities or the government, as well as trade associations and dedicated companies. III. Agreements are made between the business actors in the food sector, without any involvement from the government.

As a basis for further development of the work on the prevention of food waste in Sweden, a brief status for ongoing work is presented, showing many initiatives between business partners as well as networks organised through governmental actions. National data about food waste are available on an aggregated level, but there are still opportunities for better organisation of the work. The present situation in Sweden is, however, much better than in Norway in 2010, when the ForMat project started from a very basic level.

The report gives an overview of the process of establishing, organising and financing the ForMat project in Norway, with lines to the development of the Courtauld agreements in the United Kingdom with WRAP as a coordinating organisation. Other models for collaboration between different sectors and the government, both nationally and internationally, are also described. Three main types of organisation of a collaboration within the food sector and between the sector and the government are described: - A project based collaboration, with a limited time horizon and clear targets. - A partnership model where the food sector itself or in collaboration with the government collaborates, possibly with an external facilitator. - Establishment of a company given the responsibility to coordinate and operate common efforts in the food sector so as to prevent food waste, based on experiences from Matvett AS in Norway.

Three alternative models for how to finance the work are also presented in the report: - A model with annual financial support from the partners in the agreement, i.e. the government with ministries and trade associations involved. This has been the model applied in Norway

and the UK in the initial phase of the collaboration for the prevention of food waste. - A model where the actors pay a fee to a producer responsibility organisation (like Förpacknings- och tidningsinsamlingen AB) based on the amount of waste being generated or some other key factors. The fee is calculated based on the total cost of measures taken to prevent food waste according to common goals, and allocated to the relevant product groups or companies. - A model based on financial support from private funding organisations, where non-profit organisations can apply for and receive support for specific projects or for an initial phase with a limited time frame. This type of finance has been important for Håll Sverige Rent ('Keep Sweden Clean'), and also for some of the food banks that redistribute food to charity organisations that have received funding from such organisations. The main challenge of this type of funding is that too much time is used in order to develop applications.

As part of the project, a number of structured interviews with representatives of food companies as well as trade associations were carried out. All interviewees expressed their concern about how the work on food waste prevention was organised in Sweden, and that there was a need for improved collaboration to achieve the Agenda 2030 goal. Many measures need to be resolved in collaboration between several stakeholders, and the government and the food sector could develop a negotiated agreement. There are several ongoing initiatives that can form the basis for further collaborations, e.g. the Sustainable Food Charter initiated by Livsmedelsföretagen (The Swedish Food Federation) in 2013. The interviewees also expressed their wish to establish a company in Sweden like the Norwegian Matvett AS to coordinate work in the food chain and to coordinate communications with the government.

The interviewees were all clear about the need for good statistics about edible food waste, both amounts and composition of waste through the whole food chain. The statistics should be based on data gathered by companies in the food chain, from the industry, the wholesale and retail sector, the hospitality sector, and with a basis in common methodologies and definitions. The system should include a representative number of companies that register and report data to an independent organisation that manages the data and develops aggregated branch statistics.

Concerning the financing of the coordinated work on food waste prevention, the interviewees outlined a model with joint financial support from the government and the food sector. Support from the business sector could be shared between the trade associations and support through a fee from companies in the food chain. The fee could be differentiated according to size of the companies, and the interviewees considered that the Norwegian or UK model can be transformed to and adjusted to Swedish conditions.

Based on experiences from Norway and the UK as well as from other types of waste management schemes, it is proposed to develop a negotiated agreement between the government and the food sector with clear goals and ambitions regarding food waste prevention. First, the trade associations should establish a company that takes the responsibility for coordinating the work with the government. Second, an interim agreement should be developed and signed, regulating how the work to achieve a final negotiated agreement is to be organised. The interim agreement can be built on the work that was carried out in Norway through Matvett and the government and signed in 2015. For the final agreement, there should be a clear definition of food waste and clear ambitions about goals for reduction as well as measures to achieve these goals. An additional contract can also be developed between single companies and the partners in the negotiated agreement.

A qualitative evaluation of the elements proposed in a negotiated agreement has been made, showing that a model with a negotiated agreement between the government and the food sector is the best solution in a holistic perspective. It is thus recommended by the author that the trade associations take a joint initiative to establish the basic preconditions for an interim

agreement, establish a company to coordinate the work, develop a system for statistics, and develop a final agreement. A lot of experiences can be brought across from Norway and UK to Sweden, making the process smoother and more effective.

Unfair trading practices – a cause of food waste?

Swedish Environmental Protection Agency report 6800

Summary

Prestudy on trade in fruit and vegetables in Sweden

A large amount of food is lost and wasted throughout the entire food chain, from farm to fork in Sweden and globally. Unfair business practices in food trade, so called “Unfair Trading Practices, UTP”, have been discussed intensively at EU level. Among the issues discussed are agreements breached without compensation and that growers carry an unreasonably large part of the economic risk of market changes as well as lacking openness and transparency in trade in agricultural products.

Today, unfair trading practices are being discussed as a contributing factor to food waste and to food grown with the intention of being sold and eaten instead is ploughed down back into the soil, composted or used as animal feed or to produce biogas. Unfair trading practices as a cause of food waste have been documented in reports from the UK organisation Feedback where they examine the trade in fruits and vegetables in a number of developing countries. The conclusion in Feedback’s reports is that the concentration of power to the major retail chains makes it possible to dictate how food is grown, harvested and transported, and forcing past stages to throw good food due to strict cosmetic requirements, or improper cancellations and returns. Growers and suppliers generally, must often bear the financial burden of the waste.

In order to see whether unfair trading practices lead to increased food waste in Sweden when trading Swedish fruit and vegetables, 27 interviews have been conducted covering Swedish growers, growers’ associations, the growers’ association LRF Horticulture (LRF Trädgård) and the retail chains’ purchasing organisations.

This study is part of a government mission given to the National Food Agency Sweden (Livsmedelsverket) for the years 2017 to 2019. The task given to the National Food Agency Sweden (Livsmedelsverket) is to cooperate with the Swedish Board of Agriculture (Jordbruksverket) and the Swedish Environmental Protection Agency (Naturvårdsverket) in reducing food waste throughout the whole food supply chain. A major part of the mission is the developing of an action plan for all stakeholders along the food supply chain with the aim to reduce food waste in Sweden in the long term. The study is financed by the National Food Administration Sweden and the Swedish Environmental Protection Agency.

There seem not to be any major issues with unfair trading practices connected to increased food waste indicated by the respondents, although there are examples of growers who find that certain business matters and agreements have not been conducted properly. However, there are few that testify any systematically unfair trading practices.

In recent years, better routines have been developed for orders, returns, and complaints between Swedish growers and purchasers. As compared to earlier, the high demand for Swedish produce has contributed to a certain shift of power from the retail purchasers to growers and their sales organisations. However, this does not mean that there is a balance of power between buyers and sellers.

Based on the interviews carried out for this report, the Swedish experience differ from those reported by Feedback and those now being discussed in EU and at international level. Namely, that the main international retail chains exert their strong purchasing power by putting undue pressure on growers and suppliers, and often break contracts and agreements that in turn increase food waste. There are indications that British retail chains are more demanding than the Swedish ones in terms of quality specifications, complaints and returns, and agreements.

When comparing the way of trading in fruit and vegetables with the principles of fair trading practices signed by DLF Sweden and the Swedish Food Retailers Federation, one might find reasons for discussing the way in which trade in fruit and vegetables is carried out. It does not fully comply with the principles of fair business practices in the food sector.

For example, the way of placing based on orders on forecasting instead of binding agreements is something that could be called into question, albeit this business model seems overall established and accepted. Furthermore, rights and liability in the event of changes in the outcome compared to forecasts is not always covered in the agreements if changes are made against forecasts.

Unduly is, according to the principles of fair trading practices, to unilaterally terminate a business relationship without warning or with unreasonably short notice and without a valid reason, e.g. by referring to non-achieved sales targets, which apparently is something that seems to happen at times. Several growers mention an unfair distribution of business risk. This does not comply with the (governing) principles stated that all actors are responsible to carry their own risks and not to transfer them to other parties in an unduly matter. Whether this is the case is something that cannot be determined in this report although what is requested is to find better ways of allocating the risks.

The principles of good business practice and the examples of unfair practices should be widely known among growers and other actors in the food chain, as well as being the basis for discussion when business is initiated and settled between growers, growers' associations, wholesalers and retail chains. Here, a major responsibility rest upon the business partners.

Save the food. Actions/Measures for food waste and loss lowering/reducing behavior changes in the consumer

Report by KTH on behalf of the National Food Administration

Summary

This report presents results from a literature review of different studies and scientific evaluations of behaviour interventions aiming to decrease avoidable food waste, that are directed private consumers. In this report food waste refers to foods that could have been eaten if was handled differently, but that was thrown away. The food waste may appear both in people's homes and when they eat in restaurants. Studies included in our overview contain various types of strategies: E.g. education and information regarding the importance of decreasing food waste; apps and other tools for people to keep track of their food in order to avoid buying food they don't need; apps to share spare food. Restaurants have tested strategies of providing guests with smaller plates. Private individuals can also be encouraged to contribute to reducing food waste in other areas of the food chain, for example by encouraging purchasing of food that is approaching the bestbefore date. Mostly, the evaluations of the behaviour interventions have only been carried out using smaller groups of people. Longitudinal studies of their effects are mostly missing. Nevertheless, the studies of interventions where evaluations exist, indicate a significant effect regarding the decrease of food waste as well as raising households' awareness and encouraging their reflection. On the other hand, many initiatives and strategies formed to decrease food waste are not evaluated at all. Considering environmental, social and economic consequences of food waste, this is problematic. We, thus, suggest that effects of ongoing initiatives, such as selling not-consumed food from restaurants at a lower price should be evaluated in the short span as well as in longitudinal studies. We also suggest that interventions which have been successful in other countries should be tested in Sweden. This includes various tools for keeping track of contents in the fridge as well as tools for sharing left-overs. There is also a need for further understanding how individuals and societal structures may consociate for lowering food waste and a need for evaluating results from food waste intervention campaigns with larger groups of households than what was done so far.