

The Salt Partnership

2015–2018

Progress and achievements

Report



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Preface

According to the World Health Organization (WHO), reducing the population salt intake is one of the most cost-effective public health initiatives. This was the goal of the “Salt Action Plan 2014-2018”, launched by the Norwegian Directorate of Health in spring 2014, more precisely a 15% reduction in the population salt intake by 2018 and a 30% reduction by 2025. A committed partnership between health authorities, the food industry and the hotel, restaurant and catering industry is key to achieving a reduced salt content in foods and served dishes.

The Salt Partnership between the food industry, the hotel, restaurant and catering industry, trade organisations, research groups, interest groups and the health authorities was established in autumn 2015. The aim of this partnership is to encourage a reduction of salt in foods and served dishes and raise public awareness of salt and health. The Salt Partnership was incorporated into the Partnership for a healthier diet (Letter of intent for facilitating a healthier diet) from December 2016, and it has been decided that it will continue during the period 2019-2021.

This report presents the achievements of the Salt Partnership 2015-2018 and provides a basis for continuing the work for the next period. The report was prepared by an editorial team set up by the Salt Partnership Steering Committee.

Oslo, June 2019

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Summary

The Salt Partnership is a collaboration between the food industry, the hotel, restaurant and catering industry, trade organisations and, research groups, interest groups and health authorities which began in October 2015. By the end of the partnership in 2018, there were 91 participants.

The primary objective of the Salt Partnership was to initiate a process to reduce salt in foods and served dishes and raise general awareness of salt and health in order to contribute to a 15% reduction in the salt intake, to 8.5g per day, by 2018. Each partner has contributed to achieving this common goal in different ways. A collective and gradual reduction is necessary to alter the taste threshold for salt.

Recommended salt targets for 100 different food categories were set to establish specific goals and monitor the salt content in different food groups over time. Changes in declared salt values were monitored using the Tradesolution product database for approximately 7,000 product lines from 2016 to 2018. This database includes all foods on the Norwegian market, whether the producers and suppliers are members of the Salt Partnership or not. The monitoring method was an important delivery for the partnership.

During the partnership period, the food industry partners have gradually reduced the salt content in their own products, with the salt targets as a key guiding principle. These targets are not limited to the partnership period.

The hotel, restaurant and catering industry carried out a collaborative pilot project to collect data on the procurement of salt and the salt content in products. A "Salt School" was created to raise awareness of the importance of salt for our health and of ways to reduce the salt content in served dishes. The participants carried out various salt reduction initiatives.

The health authorities and NGOs carried out various campaigns and other media initiatives to raise general salt and health awareness, and research groups have contributed with their knowledge regarding technological solutions to reduce salt content in foods.

The Tradesolution database shows that the average salt content in approximately 40% of the food categories are within or below the salt target in 2018. The weighted average, considering the wholesale volume, indicates that approximately 60% of the categories are within or below the salt target. This may indicate that high-volume products in these categories are slightly ahead in the work on salt reduction compared with products with lower sales volumes.

An analysis of the salt content in 200 indicator foods was carried out in parallel to the Salt Partnership, and the results correspond to the Tradesolution results for many of the food categories.

Consumer awareness of salt and health and the salt content in foods is high and remained stable from 2015 to 2018, but there is still a need for a strong emphasis on salt in our communication efforts.

Due to a lack of consumer or dietary surveys after 2010-2012, we have no data on the general population salt intake in 2018. Hence, we are not able to present an overall assessment of whether the main objective has been achieved.

The evaluation from the partnership members indicates that the work was motivated by a desire to make a joint effort to improve public health and by an equal partnership between the industry, health authorities, research groups and interest groups producing results rapidly. The partners wish to continue their cooperation and partnership for the period 2019-2021. New targets for further reduction of the salt content in foods and served dishes are being established for this period.

1. Background

1.1 Salt and health

The link between salt intake, high blood pressure and the risk of cardiovascular disease is well documented. An increase in the risk of cancer (including stomach cancer) has also been linked to salt, as well as to salted and salt-preserved foods (Nordic Council of Ministers, 2014).

The WHO action plan (WHO, 2013) for the prevention and control of noncommunicable diseases (NCD) includes global targets for reductions in noncommunicable diseases and relevant risk factors. One of these targets is a 30% reduction in the salt intake by 2025, which was incorporated into the Norwegian NCD strategy (2013-2017) (Helse- og omsorgsdepartementet, 2013).

Salt (NaCl) consists of sodium and chloride, and these are nutrients which are necessary to regulate the body's fluid and electrolyte balance, metabolism, nerve impulses and muscle contractions. About 1.5g of salt per day is considered sufficient to meet the sodium need of most adults with a normal level of physical activity in the Norwegian climate (Nordic Council of Ministers, 2014).

The Directorate of Health recommends a gradual reduction in the average sodium intake to a quantity equivalent to 5g of salt (NaCl) per person per day in the long term. The short term recommended level for the general diet, and for planning purposes, is 6g of salt per day (equivalent to 2.3g of sodium per day) (Helsedirektoratet, 2014b).

1.2 Salt intake and dietary sources of salt

The estimated salt intake in Norway is considerably higher than the recommended intake. Salt intake estimates are based on data from the national dietary survey for adults Norkost 3 (2010-11), where the average salt intake from food was estimated at 6.3g per day for women and 9g per day for men. The Norkost 3 estimates show that at least 80% of men and more than 50% of women consume more than 6g of salt per day (Helsedirektoratet, 2012). No systematic data was collected on salt added during cooking or at the table. Taking this into account, the salt intake of the Norwegian population is estimated to be approximately 10g per day for men and slightly less for women, with substantial individual variations.

The Norkost 3 and Statistics Norway surveys of consumer expenditure from 2012 also provide data on dietary sources of salt (Helsedirektoratet, 2018b). These surveys indicate that about 75% of the average salt intake comes from industrially processed foods and food consumed at catering establishments. Meat products, bread, sauces, powders, spices, fish products, cheese and edible fats are the main sources of salt.

1.3 The Salt Partnership: Action on salt reduction

Over the last 30 years, the Norwegian health authorities have taken part in different dialogues with the food industry about salt reduction. Producers have also been working actively to reduce the salt content in their products over a long period of time. The Nordic Keyhole label was introduced in 2009 to encourage product development towards more products with reduced salt content (see the [Regulation on voluntary labelling of foods with the Keyhole](#)) (Helse- og omsorgsdepartementet, 2015).

In addition to provide salty flavour in foods, salt is also a preservative which increases the shelf-life of products. This is important in terms of food safety and reduced food waste. Salt also has important functional and processing properties which are necessary to ensure product quality. The Salt Partnership research groups have been working with the food industry to research technical issues regarding salt reduction in foods, partly through the projects SALTO and "*En sunnere matpakke*" ("A healthier packed lunch").

In spring 2014, the Directorate of Health launched the [Salt Action Plan 2014-2018](#) in order to reduce the population salt intake (Helsedirektoratet, 2014b). The goal of this action plan is a 15% reduction in the general salt intake by 2018 and a 30% reduction by 2025. Based on the action plan, the Minister of Health and Care Services' food industry group chose salt reduction as the topic for their meeting in spring 2014, where the minister wanted the food industry to commit to a goal for salt reduction in foods. At a subsequent seminar organised by the food industry, the industry itself expressed a desire to set up a salt partnership in Norway, similar to those in Denmark (Fødevarestyrelsen) and England (CASH, 1996). In autumn 2014, the food industry presented a memo on a joint initiative to reduce the salt intake by 15% by 2018 to the Minister of Health and Care Services' food industry group (Helse- og omsorgsdepartementet, 2014a).

In November 2014, the Directorate of Health invited various interest groups from the food industry, the hotel, restaurant and catering industry, research groups, trade organisations and associations and interest organisations to work together to reduce the salt content in foods and served dishes, and to raise general awareness of salt and health. The task of setting up a collaboration agreement for the Salt Partnership aiming to reduce the salt content in foods and served dishes began in early 2015. A steering committee was set up, led by the Directorate of Health with the participation of partners.

2. The Salt Partnership 2015-2018

2.1 The Salt Partnership: Purpose and organisation

The Salt Partnership 2015-2018 came into force in October 2015. It is a collaboration between the food industry, the hotel, restaurant and catering industry, research groups, interest organisations and health authorities. The collaboration agreement on the Salt Partnership was signed by the Director General of Health for the Directorate of Health, and by the management of the contracting parties (Helsedirektoratet, 2014a).

The principal objective of the Salt Partnership is to implement the process of reducing salt in foods and served dishes in order to achieve a 15% reduction in the population salt intake (to 8.5g/day) by 2018 and 30% (to 7.0g/day) by 2025.

When the Salt Partnership was launched in October 2015, 53 participants signed the agreement. From October 2015 to December 2018, the number of participants increased to 91 (Appendix 1), whereof 25 joined through the Partnership for a healthier diet between the Norwegian health authorities and food industry (Section 2.4).

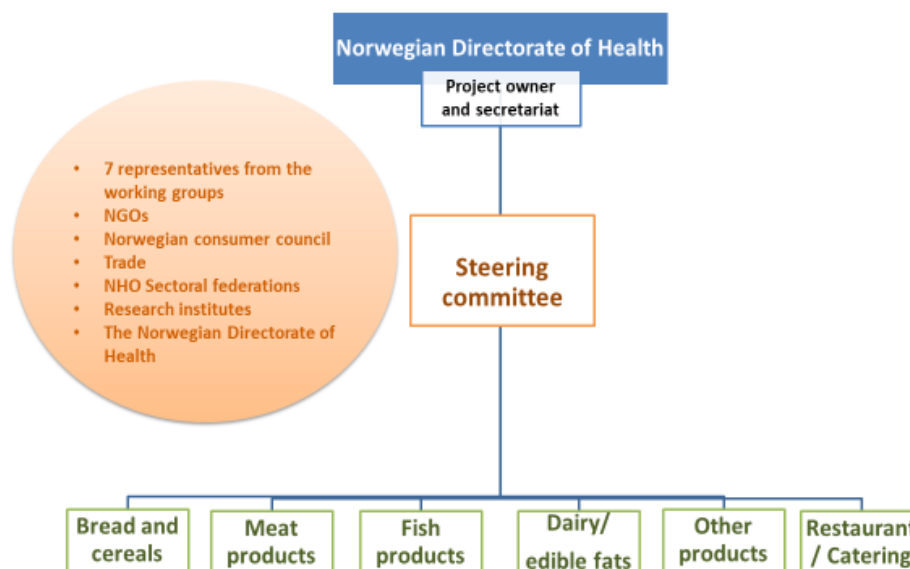


Figure 1. Organisation of the Salt Partnership.

The parties are equal partners who are committed through an agreement. The work has been organised through a steering committee, led by the Directorate of Health as the project owner, and six working groups: Bread and cereals, Meat products, Fish products, Dairy and edible fats, Other products and Restaurant and catering (Figure 1). The management levels are: Steering committee, working group

chairs and participants of each sector. The working groups were made up of partners from the industry and trade, the hotel, restaurant and catering industry, trade and industry organisations and research groups. Each group appointed a chair to represent the group on the steering committee and organise the work through separate working groups representing the five food groups. In addition to these chairs, the steering committee consisted of two representatives from the hotel, restaurant and catering industry, two from interest groups, one from research groups, one trade representative, one from business and industry organizations, and two from the Directorate of Health. The Directorate of Health also performed the role of secretariat.

The steering committee has been responsible for the progress and for achieving the objectives of the Salt Partnership, including the implementation of a common monitoring and reporting system.

Annual reports on the work of the steering committee and the working groups were prepared for 2016 (Helsedirektoratet, 2017) and 2017 (Helsedirektoratet, 2018a). In 2016, WHO launched SHAKE the salt habit, a salt reduction programme based on experiences from salt reduction efforts worldwide (WHO, 2016). The programme consists of a set of recommended tools (SHAKE) with an overarching framework, including political commitment, the leadership of government agencies, a cross-sectorial partnership and the influence of decision-makers. The organisation of the Salt Partnership is largely consistent with the recommendations of the SHAKE programme.

2.2 Salt targets in foods - salt lists

The working groups prepared suggestions for recommended salt targets for different food categories based on the food industry's memo "A joint effort to reduce the salt intake by 15% by 2018" (Helse- og omsorgsdepartementet, 2014b). The salt targets were divided into categories, referring to the salt criteria for food groups in the "Regulation on voluntary labelling of foods with the Keyhole" (Helse- og omsorgsdepartementet, 2015), and to the salt list goals in Denmark (*Fødevarestyrelsen*) and England (CASH, 1996). The suggestions for recommended salt targets in the Salt Partnership, so-called salt lists, were assessed and approved by the steering committee before the partnership agreement entered into force. The recommended salt targets represent the average salt content in each food category, based on high-volume products, and allow for variations as many of the categories are broad. The salt lists include a total of 100 food categories (main and sub-categories) with one salt target in each category (Table 1). The complete salt list is presented in the appendix to the collaboration agreement.

Table 1. Overview of food categories and number of salt targets in the salt lists (Appendix 2).

Categories	Number of categories and salt targets
Bread and cereal products	8 main categories, 12 salt targets
Meat products	12 main categories, 14 salt targets
Fish products	8 main categories, 15 salt targets
Dairy and edible fats	2 main categories, 12 salt targets
Other foods	8 main categories, 47 salt targets

2.3 The Salt Partnership: Input

The partnership had four main areas of collaboration and input:

Reduction of salt content in foods

The parties in the food industry shall work towards achieving a salt content at category level that is equal to or lower than the salt targets stated for the various food categories.

Reduction of salt content in served dishes (canteens, restaurants, kiosks, service stations, convenience stores)

The parties shall aim to build employee competence and increase consumer awareness.

Sharing knowledge and expertise

The parties shall work towards increased awareness and knowledge of the importance of salt for public health amongst consumers, healthcare personnel, food producers and suppliers, and other providers of nutritional information, and to promote research on salt reduction and product development.

Monitoring the partnership efforts

The parties shall develop and implement a universal system for monitoring the salt content in food categories, drinks and meals. The partnership shall also monitor the level of knowledge, attitudes and demands for low-salt foods in the industry and the population.

The roles and contributions of the Salt Partnership parties are described in the collaboration agreement, but they are in short:

Food industry and trade

- participate in the preparation of recommended salt targets
- monitor and report data in Tradesolution (TS)
- develop products and meal solutions with lower salt content

Business and industry organizations¹

- recruit new partners
- coordinate work and share information and knowledge among members
- follow up work processes, including a monitoring methodology

Hotel, restaurant and catering industry

- establish salt content requirements in connection with purchases/tenders and for served dishes
- follow up awareness on salt reduction among chefs and others who prepare/offer food
- market products, menus, etc. with a lower salt content

¹ Food Drink Norway (NHO Mat og Drikke), Norwegian Federation of Service Industries and Retail Trade (NHO Handel og Service), Norwegian Hospitality Association (NHO Reiseliv), Animalia, Norwegian Seafood Federation (Sjømat Norge), Norwegian Information Office for Bread and Grain (Opplysningskontoret for brød og korn), The Meat and Poultry Industry's National Association (Kjøtt- og fjørfebransjens Landsforbund, KLF), Norwegian Seafood Association (Sjømatbedriftene) and the Enterprise Federation of Norway (Virke)

NCD Alliance²

- provide input to the work process
- provide guidance to consumers regarding the effects of salt on our health, help spread the Directorate of Health's salt campaigns in social media and carry out communication activities

Norwegian Consumer Council

- provide input to the work process
- contribute to the preparation and follow-up of a universal system for monitoring the salt targets

Research groups³

- provide knowledge about salt reduction in product development
- transfer competencies through seminars promoting salt reduction
- lend expertise to working groups

Directorate of Health

- chair the work and perform the role of secretariat
- monitor public awareness and knowledge of salt and the development of salt content in foods, and contribute to the monitoring of the population salt intake
- spread information about salt and health to the public through campaigns and media
- raise awareness of the Salt Partnership on a Nordic and international level

During the partnership period, the steering committee has followed up and coordinated work related to:

- Monitoring salt content in foods. In June 2016, the steering committee set up a working group consisting of representatives from the Directorate of Health, the sectoral federations of the Confederation of Norwegian Enterprise (NHO), the trade and the food industry to assess the available underlying salt content data from the Tradesolution (TS) database.
- Adjusting the salt targets (two categories for bread and cereal products and fish products, and one category for edible fats).
- Monitoring salt reduction in the hotel, restaurant and catering industry.
- Applying for network support funding to exchange experiences and build competence on salt reduction in foods (SaltNett) from the Research Council of Norway. SaltNett aims to act as a knowledge platform for the food industry, health authorities, research groups, and other industry and interest organisations.
- Benefit-risk assessment of the use of KCl as a salt substitute.
- A Salt Partnership newsletter for all partners.
- Evaluating a continuation of the Salt Partnership after 2018.

2.4 The Salt Partnership and the Partnership for a healthier diet

In 2016, the health authorities and the food industry signed the Partnership for a healthier diet. One of the main priorities is a reduction in the salt intake, as well as a reduction in the intake of added sugar and saturated fats, and an increase in the intake of fruits, berries and vegetables, whole grain foods,

²Norwegian Association for Public Health (Nasjonalforeningen for folkehelsen), the Norwegian Cancer Society (Kreftforeningen), Norwegian Heart and Lung Patient Organisation (Landsforeningen for hjerte- og lungesyke) and the Norwegian Diabetes Association (Diabetesforbundet)

³ Nibio, Nofima, SINTEF Fisheries and Aquaculture AS (SINTEF Fiskeri og havbruk)

and fish and seafood in the population (Helse- og omsorgsdepartementet, 2016). The Salt Partnership constitutes the salt reduction efforts in the Partnership for a healthier diet, and is unlike the other priorities, a three-party cooperation. Thirty-one of the participants in the Salt Partnership are not affiliated to the Partnership for a healthier diet.

3. Database

The work and achievements of the Salt Partnership have been assessed using several data sources:

- *monitoring of the salt content in foods through the Tradesolution database system*
- *reports from the hotel, restaurant and catering industry on their initiatives*
- *mapping of the parties' experiences of their participation in the Salt Partnership*
- *survey on consumer knowledge of salt and health*

In addition to the above sources, the results of an analysis of the salt content in selected foods in Norway from 2014 to 2018 were considered.

3.1 Monitoring the salt content in foods

The Food Information Regulation of December 2014 (based on Regulation (EU) No 1169/2011) stipulates requirements for nutrition labelling. From December 2016, it is mandatory to declare any sodium content in products as salt (Departementene, 2014), whereas previously, declaring salt content in foods was voluntary in Norway. Declared salt content values in foods may be based on analysed or estimated data from several sources, such as official food product tables, the salt content in raw materials and ingredients, and/or analyses of sodium content.

Tradesolution⁴

The Tradesolution (TS) product database for the grocery market and the hotel, restaurant and catering market was chosen as a monitoring system, since anyone selling food products must register the nutrient content of their products in this database, including salt. Developing the best methodology possible for monitoring salt content through TS has been a work in progress for the partnership since 2015. The quality of the TS data depends on the producers updating the nutrient content of their products as soon as changes are made.

To get an indication of the actual impact of salt reduction in foods on the population salt intake, there was an attempt to weight salt content relative to sales volume using data from Nielsen Norge. However, it turned out that linking data from these two databases was not possible. Instead, TS volume data at wholesale level was used to calculate the weighted average salt content in the food categories. Not all foods sold in grocery stores come from a wholesaler. For certain foods, such as fresh bread and some of the chains' own brands, sales volume reports from producers and the trade were considered.

⁴ Tradesolution AS is an industry-owned company which, among other things, provides the EPD product database for the grocery market and the hotel, restaurant and catering market. The product database is used to exchange basic data between suppliers, wholesalers, chains and other users.

Differences in the subdivision of product groups in the salt lists and the TS database is a major challenge. The salt lists include a total of 100 food categories (main and sub-category levels), with separate salt targets. The TS data combines these food categories to a total of 39 categories, corresponding more or less to the main categories in the salt lists. Among the 39 categories, there are 22 categories with one salt target, and 5 categories with two salt targets. The other categories include between 3 and 16 sub-categories in the salt lists, with different salt targets. TS data can be used to assess the extent to which the salt list targets have been reached for the 27 categories with one or two salt targets, and to monitor trends in salt levels from 2016 to 2018.

This is considered adequate to monitor salt content trends in foods, since these categories represent major dietary sources of salt. It is also an indication of changes that could have an impact on the population salt intake. For categories with several and divergent salt targets, such as “Other Foods”, with 47 salt targets, the TS data are not suitable for assessing the extent to which the salt targets have been reached for each category, but they can provide an indication of salt content trends over time.

The first TS data extraction was carried out in July 2016, followed by three further extractions in October 2016, October 2017 and October 2018. The data in the two first extractions were coincident, and the first extraction was chosen as the initial measuring point, to obtain data as early in the period as possible. The October 2016 extraction is not included in the report. Weighted average values are available for the third and fourth extractions. The data extractions for 2018 include around 9,000 products.

The TS data in this report are based on the average salt content in 70% of the main products in terms of wholesale volume. This constitutes approximately 7,000 product lines. The number of products, average and weighted average salt content, guideline salt targets, and number of products within the salt targets are shown for each category (Appendix 3).

Many food manufacturers made an effort to reduce salt contents before 2016, hence the first TS data extraction does not represent a zero-point for measuring salt reduction within the Salt Partnership. The food products in the TS database include both Norwegian and imported products and contain data for products from all businesses within a category, whether they participate in the Salt Partnership or not. There are many Norwegian participants in the Salt Partnership, but very few foreign enterprises have signed the agreement.

Analyses of the salt content in selected Norwegian foods 2014-2018

One of the initiatives of the [Salt Action Plan 2014-2018](#) was to monitor changes in the salt content in foods by monitoring selected indicator foods during the entire period. On behalf of the Norwegian Directorate of Health and the Norwegian Food Safety Authority, the Institute of Marine Research (*Havforskningsinstituttet*) carried out the project “Analyses of the salt content in selected Norwegian foods 2014- 2018” (Havforskningsinstituttet, 2019). This is a collaborative project between the Institute of Marine Research, the Norwegian Directorate of Health and the Norwegian Food Safety Authority. The aim was to obtain analytic data for sodium (salt) in order to monitor salt content trends in selected foods over time, and to provide data for the food product table. The sodium concentrations that were

analysed in foods were multiplied by 2.5 to convert to salt. The method has a measurement uncertainty of $\pm 15\%$.

The Norwegian Directorate of Health chose a sample of approximately 200 foods as a set of indicator foods during the period 2014-2018. The following selection of food categories was based on the largest dietary sources of salt: Bread and cereal products, meat products, fish products, dairy and edible fats, ready meals and sauces and mayonnaise-based salads. The selection of indicator foods within these categories aimed to cover high-volume products, various brands, the retailers' own brands, low price products and some foods with a reduced fat content.

This analysis project is not part of the monitoring carried out by the Salt Partnership, or the performance assessment, but provides supplementary information about the salt content trends in food groups over time.

In order to assess changes in salt content over time, this report only includes products that were analysed in 2014-15 and in 2018, for categories with more than six products. The findings are compared with the salt targets, as supplementary information to the TS data extractions. The total selection of foods in each category was used as a starting point.

3.2 Hotel, restaurant and catering industry – reporting system

TS does not include sales data for the hotel, restaurant and catering industry. A reporting template for qualitative indicators was developed to follow up the impact of the salt reduction efforts (Appendix 4). A process to develop a reporting system for quantitative indicators has been initiated, but the results will not be available until the next agreement period.

3.3 Mapping the partners' experiences with the Salt Partnership

Fafo⁵ was commissioned to assess the partners' opinions, perceptions and experiences of the Salt Partnership 2015-2018. Two different web-based questionnaires were sent electronically to all participants who had signed the agreement; one to 53 producers and trade organization participants, the other to the 34 remaining participants. The questionnaire for the producers included questions about the development of new products, optimization of existing products and use of the salt lists. The other questionnaire included questions about salt content in connection with procurement, recruiting partners and building competence. The purpose of the survey was to assess the motivation for joining the partnership, the actions on salt reduction and ambitions for continuing the partnership (Fafo, 2019).

3.4 Mapping consumer awareness and attitudes

Each year from 2015 to 2018, the Norwegian Directorate of Health spread information about salt and health to the public through campaigns and the press. The aim of this communication effort was to increase awareness and knowledge of the consequences of a high salt intake on our health, the main

⁵ Independent social research foundation that develops knowledge of the conditions for participation in working life, union life, society and politics, of the links between politics and living conditions, and of democracy, development and value creation

sources of salt in our diet and measures to reduce our own salt intake. A further goal was to contribute to an increased demand for low-salt products.

Opinion carries out an annual consumer survey on behalf of the Norwegian Directorate of Health to monitor trends in the general awareness of dietary recommendations, the Keyhole label, as well as salt and health. Ipsos MMI carries out the biennial "*Norske Spisefakta*" survey, covering among other things how concerned consumers are about salt. The Opinion surveys from 2015 to 2018 and the "*Norske Spisefakta*" surveys from 2015 and 2017 constitute the basis for the results that were presented concerning trends in consumer awareness and attitudes with regards to salt. The data is presented in an abridged version of "*Utviklingen i norsk kosthold*" ("Trends in Norwegian diets") (Helsedirektoratet, 2018b).

3.5 Population salt intake

"Norkost 3" (2010-11) is the most recent national dietary survey in Norway, with estimates of the average salt intake for women and men. The next dietary survey among adults is scheduled for 2021.

Statistics Norway (SSB) is developing a new methodology for future consumer surveys on food consumption, which will also include data on salt from food and beverages. These surveys will replace the previous consumer surveys carried out by SSB. It is not yet clear when new data will become available. The most recent consumer survey data are from 2012.

Measuring sodium excretion in urine over 24 hours is considered the most accurate method of measuring salt intake (Cappuccio, 2019). This was carried out on a random sample of approximately 500 people in the survey "Tromsø 7" (2015-2016). The preliminary results indicate daily salt intake levels of approximately 10g in men and 7.5g in women, confirming the estimates from "Norkost 3" carried out at the start of the Salt Partnership (approximately 10g per day for men and slightly less for women) (FHI, 2017). A new survey, "Tromsøundersøkelsen" ("the Tromsø Survey") is planned for 2020-2021.

The new survey data will make it possible to assess more accurately the trends and changes in the population salt intake.

4. Results

This chapter mainly looks at trends in the salt content in foods based on Tradesolution (TS) data extraction. The hotel, restaurant and catering industry reports on their procedures and salt reduction efforts. Results from the report "Analysis of salt content in selected Norwegian foods 2014-2018" provide supplementary data to describe salt content trends over time. The Fafo mapping describes the perceptions and experiences that the partners have of the Salt Partnership (Fafo, 2019). The results of consumer surveys conducted by Opinion and Ipsos MMI provide data on public awareness of and attitudes on salt and health.

4.1 Salt content in foods based on Tradesolution

Data extractions from the TS database in 2016, 2017 and 2018 show the number of products, average and weighted average salt content, and the number of products within and outside of the salt targets for 38 food categories (Appendix 3), covering the 100 categories included in the salt lists (Appendix 2). For a few food groups, the first data was extracted in 2017, which counts as the first measurement. The data extractions from 2016 and 2018 show average values, while the extractions from 2017 and 2018 also show weighted average values based on wholesale volume.

For the 27 TS categories with one or two salt targets in the salt lists (bread and cereal products, meat products, fish products, soft, medium-hard and hard cheeses, and edible fats), average salt content figures for 2016 and 2018 are presented relative to the salt targets, as for the weighted average values for 2017 and 2018. In the figures, the salt target is set to 100 percent. For categories with multiple salt targets, only figures with average values for 2016 and 2018 are presented.

The figures show trends over time. A limit of $\pm 5\%$ is set to describe changes in average salt content over time. The tables show the proportion of products (%) in the categories with one salt target that are within this target (at or below the absolute value) in 2018.

The following subchapters (4.1.1–4.1.5) present and comment on results for salt content trends for each main food category.

Bread and cereal products

The salt lists contain eight main categories in the "Bread and cereal products" group, with twelve salt targets. Seven categories have one salt target, whereas the category "Breakfast cereals and other cereals" has five and is therefore not included in the below figures.

As Figure 2 shows, the average salt content is lower in 2018 than in 2016 for two of the categories in this group, and higher for one category.

The average salt content is at or below the salt target in three out of seven categories in 2018 (Figure 2), while the weighted average is at or below the salt target in four out of seven categories (Figure 3).

The average for the category “Fresh bread” is 12% above the salt target in 2018, while the weighted average is 7% above. The fact that the weighted average is lower suggests that fresh bread sold in high volumes has a lower salt content than bread with lower sales volumes.

The “Shelf-stable bread products” category is also above the salt target in 2018, but with a decrease from 2016 and 2017 to 2018 for both average and weighted average values. The average and weighted average for “Flour and cake mixes” are below the salt target in 2018, but the average and weighted average show an increase from 2017 to 2018.

Data extractions for 2016 and 2017 for “Fresh bread” and “Bread and crispbread with fillings” are not included in the figures, because the number of products registered in the TS database was substantially lower in 2016 and 2017 than in 2018. “Directly delivered fresh bread” was not included in the database until 2018. For “Bread and crispbread with fillings”, only 11 products were registered in 2016, compared with 148 in 2018.

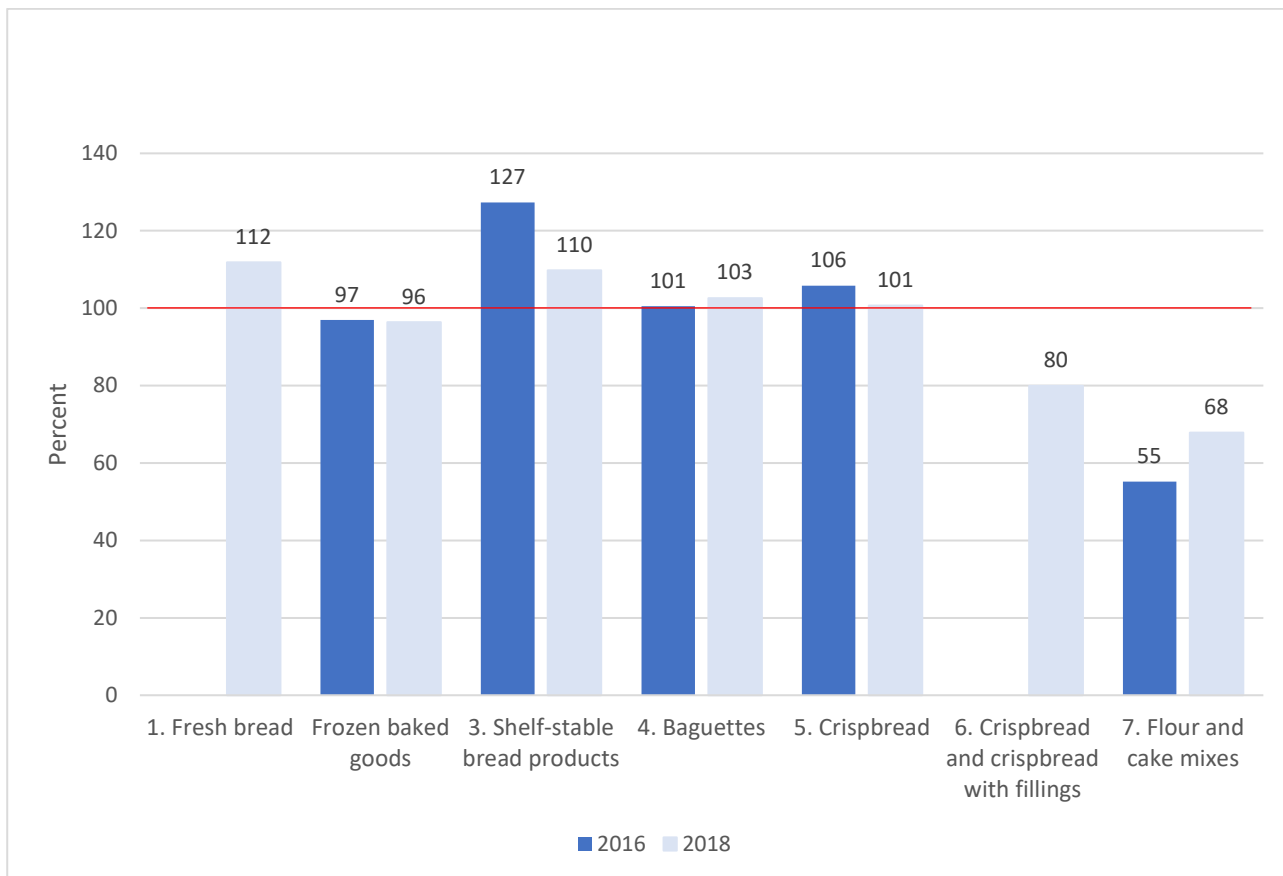


Figure 2. Average salt content as a percentage of the salt targets in the “Bread and cereal products” group in 2016 and 2018. The salt target is set to 100%.

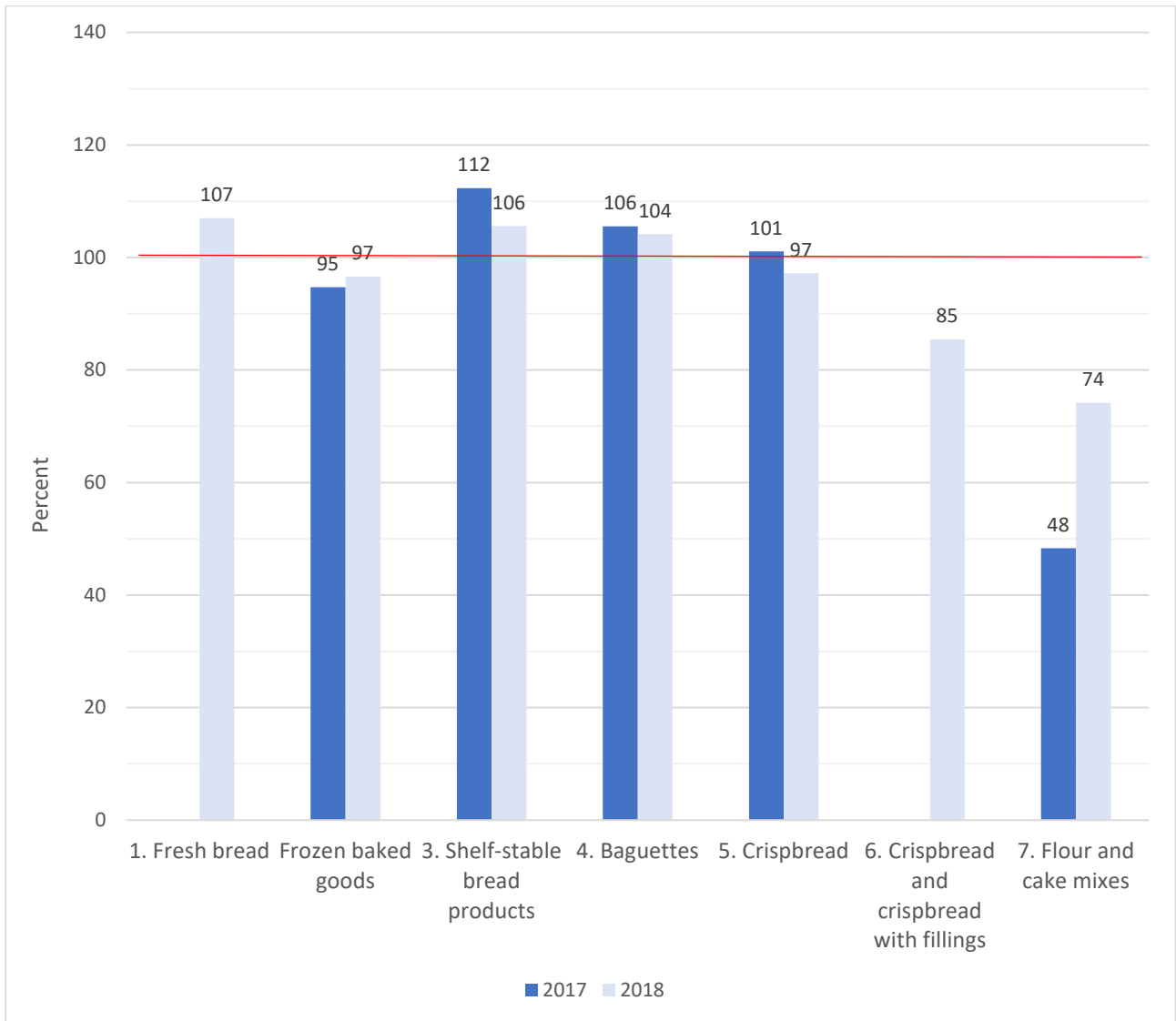


Figure 3. Weighted (volume) average salt content as a percentage of the salt targets in the “Bread and cereal products” group in 2017 and 2018. The salt target is set to 100 percent.

Table 2 shows an overview of the proportion of products in each category of bread and cereal products that are within or above the salt target, as indicated by the TS data extraction in 2018. In four categories, more than 60% of the products are within the salt target. The “Bread and crispbread with fillings” group has the highest proportion of products within the salt target (84%), and “Fresh bread” has the lowest proportion (34%).

Table 2. Bread and cereal products. Number of products and proportion of products within the recommended salt targets in 2018 in categories with one salt target.

	Number 2018	Salt target g/100g	Proportion within the salt target, percent
1. Fresh bread	573	0.9	34
2. Frozen baked goods	229	1.1	63
3. Shelf-stable bread products	109	1.1	61
4. Baguettes	61	1.2	46
5. Crispbread	156	1.1	41
6. Bread and crispbread with fillings	148	1.3	84
7. Flour and cake mixes	222	0.9	75
8. Breakfast cereals and other cereals	129	0.3/0.7/0.6/0.3	*
Total	1627	-	-

* There are four salt targets in this category, so it is not possible to show the proportion of products that are above or below the salt targets

Norwegians eat a lot of bread, so bread and cereal products are one of the main dietary sources of salt in Norway. The average salt content is within the salt target in three of the seven categories in the “Bread and cereal products” group in 2018. According to the industry, efforts to reduce the salt content in products started before the first TS data extraction. Since bread is a major dietary source of salt, an ambitious target of an average salt content of 0.9g/100g was set at the start of the partnership for this category. This salt content is lower than the salt criterion for bread stipulated in the Keyhole Regulation. The primary focus of the working group was to focus on reducing the salt content in the 20 best-selling types of bread in the grocery stores. Although the average salt content for “Fresh bread” is above the recommended salt target, the somewhat lower weighted average indicates that the salt content in these types of bread is below average. The fact that only one third of the products in the “Fresh bread” category meets the salt target indicates a potential for reductions in the other products in this category, since this may suggest that consumers are buying bread with a lower salt content.

Meat products

The salt lists include twelve main categories in the “Meat products” group, with a total of fourteen salt targets. The categories “Salted, spiced, marinated meat” and “Salted and smoked meat” have two salt targets, and the average is used as a reference point, hence a total of 12 categories.

As Figure 4 shows, the average salt content is lower in 2018 than in 2016 for six of the twelve meat categories. Figure 4 also shows that the average salt content is at or below the salt target in five of the twelve categories. The weighted average is below the salt target in seven categories in 2018 as shown

in Figure 5. The categories “Sausages”, “Cold cuts” and “Liver pâté” are just above the target, and “Hamburgers” and “Salted and smoked meat” are considerably above the salt targets.

The average weighted salt content is lower in 2018 than in 2017 for five of the twelve categories (Figure 5). The most significant decreases in weighted average are for “Minced meat” (-59%) and “Cold cuts” (-25%). This suggests that the salt content is below average in high-volume products. For “Minced meat”, the weighted average is well below the salt target, which may indicate that minced meat with no added salt accounts for a high proportion of the volume.

For “Hamburgers”, there is a decrease in the average salt content from 2016 to 2018 (Figure 4), but the weighted average is higher in 2018 than in 2017 (Figure 5). There are also fewer products in the TS data extraction in 2018 (88) than in 2017 (104) (Appendix 2), suggesting that contributions from products with a higher salt content account for a high proportion of the volume.

The category “Salted and smoked meat” is also well above the salt target, but the weighted average is lower in 2018 than in 2017. The “Forcemeat” category remains unchanged.

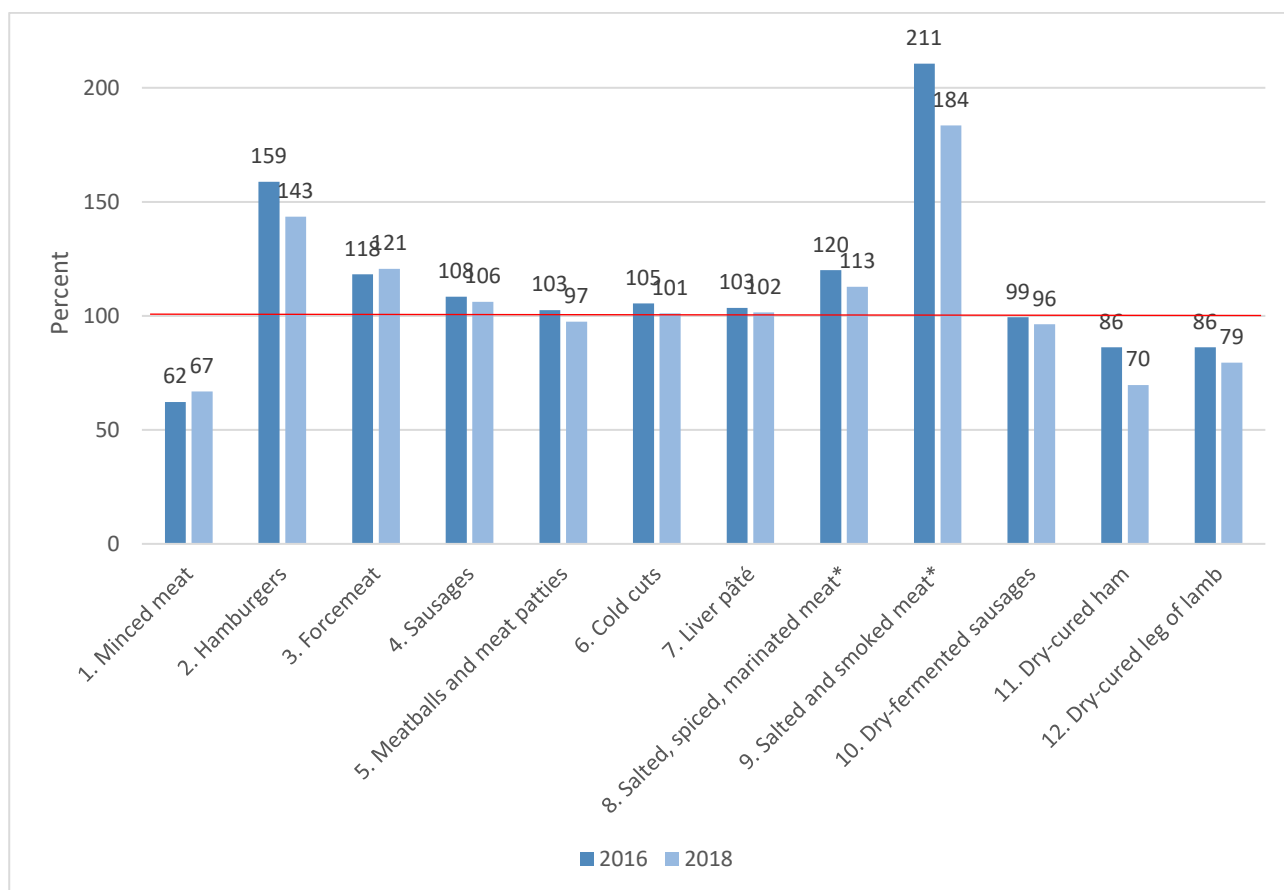


Figure 4. Average salt content as percentage of the salt targets in the “Meat products” group in 2016 and 2018. The salt target is set to 100%. *In these categories, two salt targets have been combined.

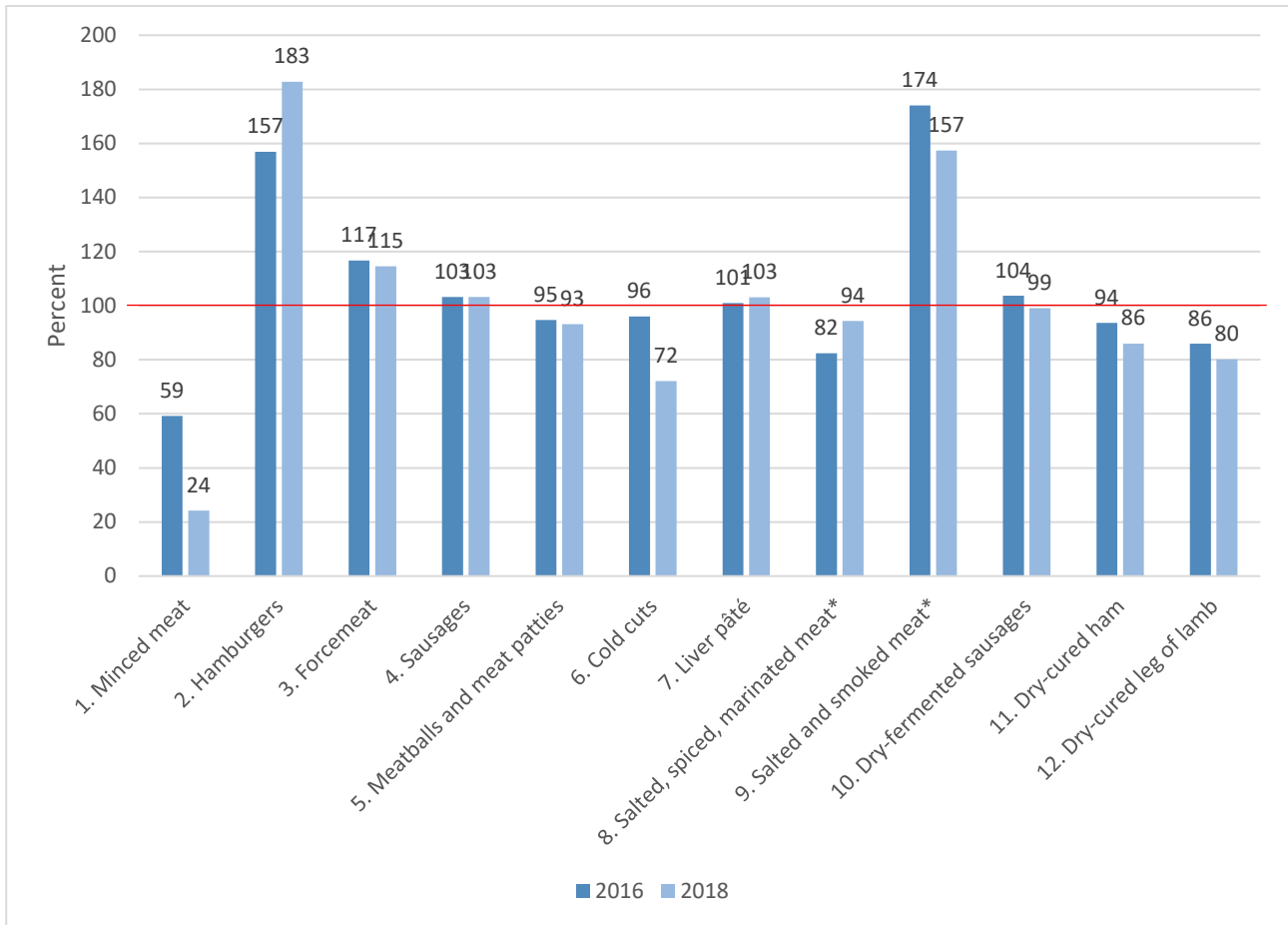


Figure 5. Weighted (volume) average salt content as a percentage of the salt targets in the “Meat products” group in 2017 and 2018. The salt target is set to 100%. *In these categories, two salt targets have been combined.

In four of the categories, the TS data extraction for 2018 shows that more than 60% of the products are within the salt target (Table 3). The categories with the highest proportion of products within the salt target are “Dry-cured leg of lamb” (100%) and “Dry-cured ham” (produced in Norway) (84%). “Hamburgers” and “Forcemeat” have the lowest proportion of products within the salt target (17% and 14% respectively).

Table 3 Meat products. Number of products and proportion of products within the recommended salt targets in 2018 in categories with one salt target.

	Number 2018	Salt target g/100g	Proportion within the salt target, percent
1. Minced meat	87	0.8	55
2. Hamburgers	88	0.9	17
3. Forcemeat	14	1.6	14
4. Sausages	240	1.7	45
5. Meatballs and meat patties	79	1.7	61
6. Cold cuts	206	1.9	59
7. Liver pâté	56	1.6	59
8. Salted, spiced, marinated meat	83	1.0/1.5	*
9. Salted and smoked meat	213	2.2/2.0	*
10. Dry-fermented sausages (produced in Norway)	248	5	69
11. Dry-cured ham (produced in Norway)	61	8	82
12. Dry-cured leg of lamb	30	9	100
Total	1405		

*There are two salt targets in this category, so it is not possible to show the proportion of products that are above or below the salt targets.

Meat products are a major dietary source of salt. There was a decrease in the average salt content in half of the meat categories from 2016 to 2018. In five out of twelve categories, the average salt content is within the salt targets in 2018. For four of the categories, more than 60% percent of the products are within the salt target. The most significant decrease in the weighted average is for minced meat and cold cuts, and minced meat with no added salt now accounts for a considerable part of the volume. This suggests that high volume products have a lower salt content. Hamburgers and salted/smoked meats are still considerably above the salt target.

Fish products

The salt lists contain eight main categories in the “Fish products” group, with fifteen salt targets. For one of the main categories, no salt target has been set (“Dried and salted fish”), and erroneous entries were discovered in the “Spiced and/or marinated fish” and “Fish toppings and spreads” categories. These three categories are not included in the presentation of the results. For three categories with two salt targets, average values are used as a reference point, which means the “Fish products” group comes up with five categories.

As Figure 6 shows, the average salt content is lower in 2018 than in 2016 for one of the five fish categories. The average salt content is below the salt target for the categories “Fresh and frozen fish products”, “Breaded/battered fish products” and “Shellfish and molluscs” in 2016 and 2018. The category “Lightly salted fish” is considerably above the salt target in 2018 and has increased from 2016 (Figure 6). “Hot and cold smoked fish products” is slightly above the salt target.

Figure 7 shows that all categories are at or below the salt target for weighted average salt content in 2017 and 2018. The weighted average is lower in 2018 in two of the five categories. The weighted average is well below the average for “Lightly salted fish” and “Fresh and frozen fish products”. This suggests that high-volume products have a lower salt content.

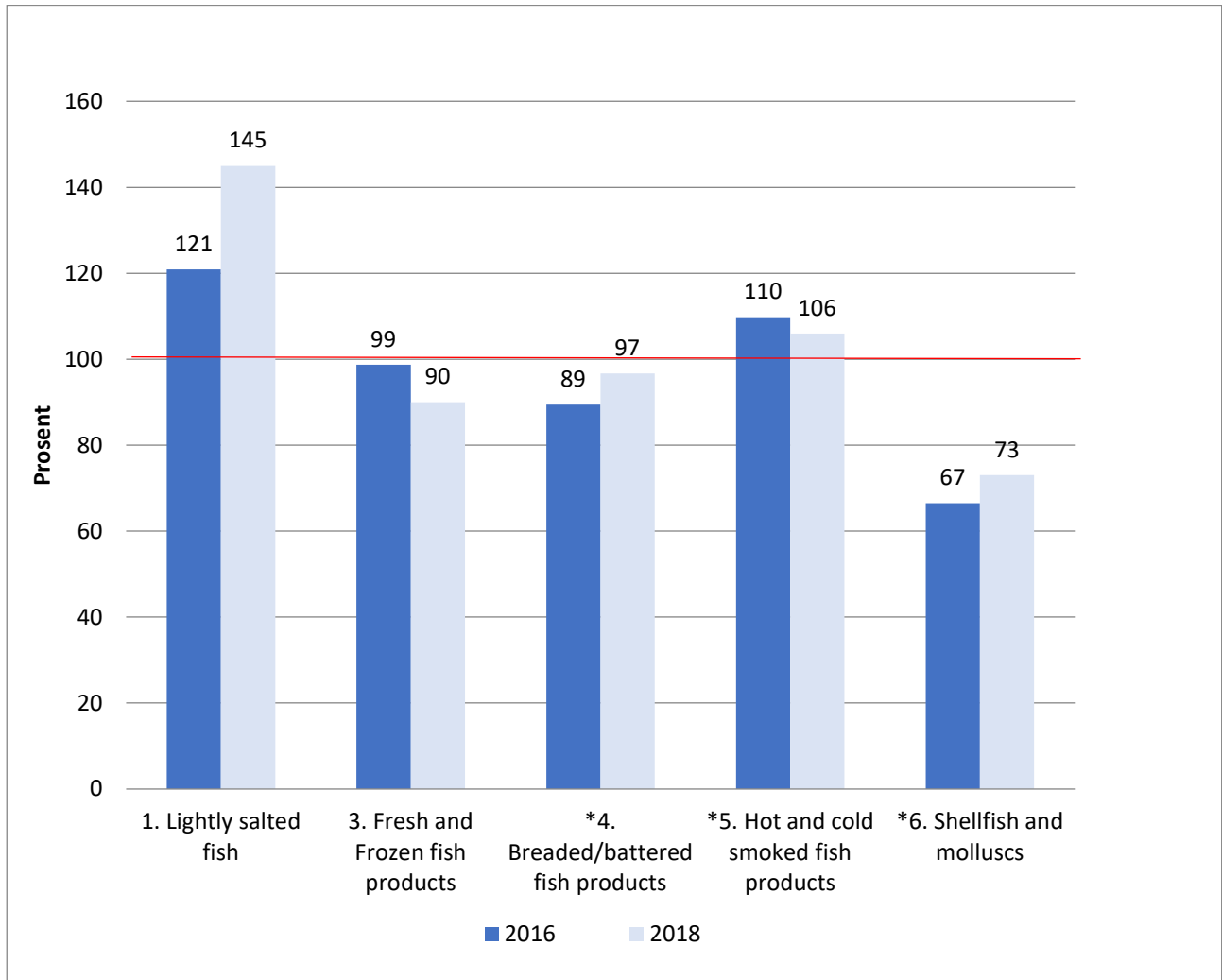


Figure 6. Average salt content as a percentage of the salt targets in the “Fish products” group in 2016 and 2018. The salt targets are set to 100%. *Category with an average of two salt targets.

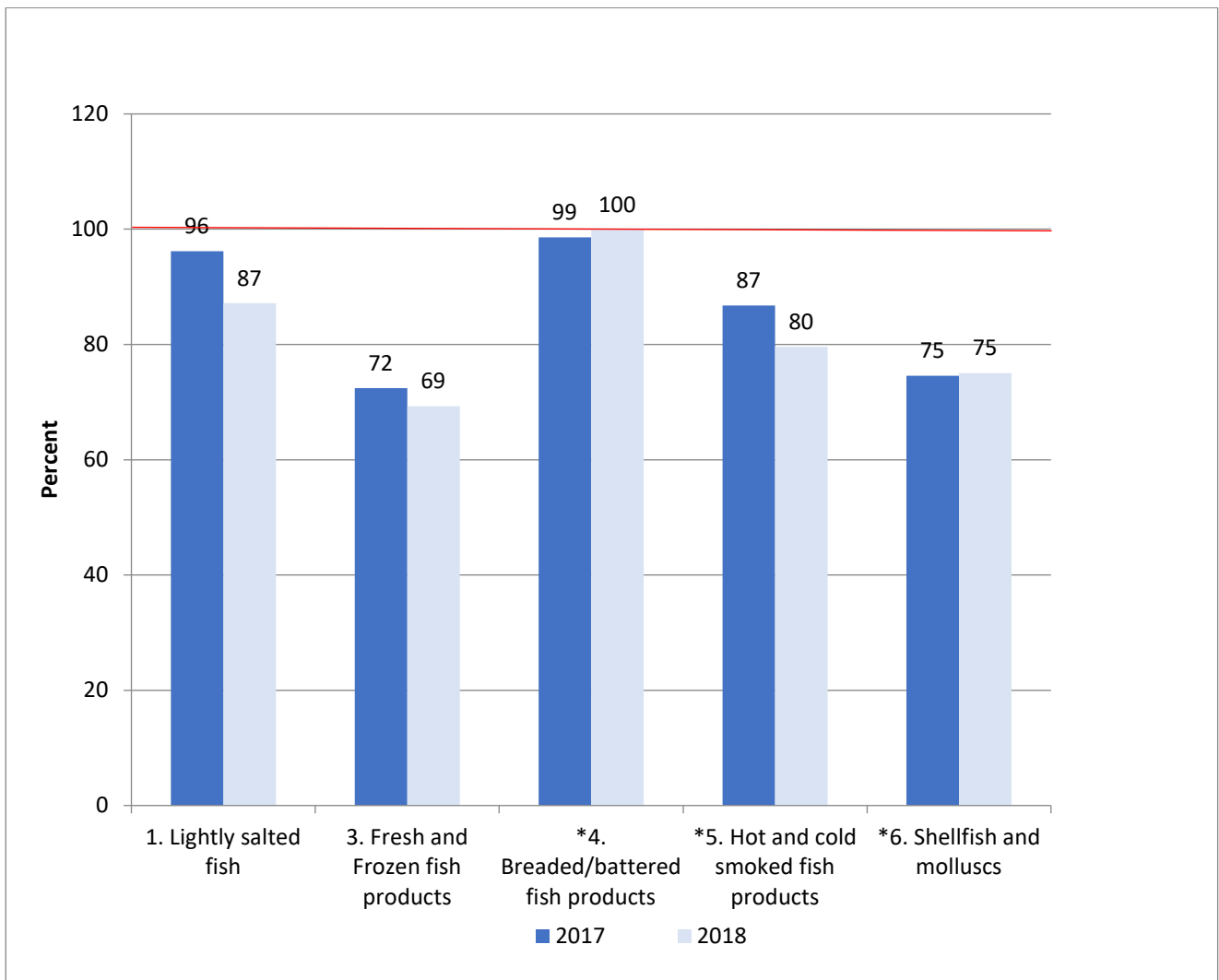


Figure 7. Weighted (volume) average salt content as a percentage of the salt targets in the “Fish products” group in 2017 and 2018. The salt targets are set to 100%. *Category with an average of two salt targets.

In the two fish categories with one salt target, “Lightly salted fish” and “Fresh and frozen fish products”, 48% and 75% of the products respectively were within the salt target in 2018.

Table 4. Fish products. Number of products and proportion of products within the guideline salt targets in 2018 in categories with one salt target.

	Number 2018	Salt target g/100g	Proportion within the salt target, percent
2. Lightly salted fish	31	1.40	48
3. Fresh and frozen fish products	284	1.40	75
4. Breaded/battered fish products	44	0.7/1.0	*
5. Hot and cold smoked fish products	104	3.0/2.0	*
6. Shellfish and molluscs	71	2.4/1.7	*
Total	534		

*There are two salt targets in this category, so it is not possible to show the proportion of products that are above or below the salt targets.

The average salt content is within the salt target in both 2016 and 2018 in three out of five fish categories. There was no major change in the average salt content from 2016 to 2018. For all five categories, the weighted average salt content was within the salt target in 2017 and 2018. The weighted average is lower than the average salt content for the categories “Lightly salted fish”, “Fresh and frozen fish products” and “Hot and cold smoked fish products”. This suggests that high-volume products have a lower salt content.

Dairy and edible fats

The salt lists contain two main categories in the “Dairy and edible fats” group, “Cheese” and “Edible fats”, with a total of 14 salt targets. The first TS data extraction in 2017 only produced data for the two main categories. In 2017, the “Cheese” category was split into two categories: “Soft, medium-hard and hard cheeses” and “Cheeses except soft, medium-hard and hard cheeses” (Appendix 3).

For “Cheeses except soft, medium-hard and hard cheeses”, the following salt list subcategories are included in TS: “Soft unripened cheese”, “Cottage cheese”, “Mould ripened cheese”, “Processed cheeses/processed cheese spreads”, “Sour milk cheese” and “Salad cheeses”. The salt targets for these categories range from 0.4g to 2.5g salt per 100g. Consequently, the TS data cannot be used to assess the extent to which the salt targets in the salt list have been reached for each of these types of cheese.

As Figure 8 shows, the average salt content in the “Cheeses except soft, medium-hard and hard cheeses” category remained unchanged from 2016 to 2018. For “Soft, medium-hard and hard cheeses”, the salt content also remained unchanged from the first TS data extraction in 2017 to the second in 2018 (Appendix 3), and the average salt content was above the salt target in 2018 (Figure 9).

The “Edible fats” category comprises butter and margarine with the same salt targets in the salt list, 1.0g/100g. There was a slight decrease in the average salt content from 2016 to 2018 (Figures 8 and 9), but both average and weighted average are well above the salt target (Figures 9 and 10).

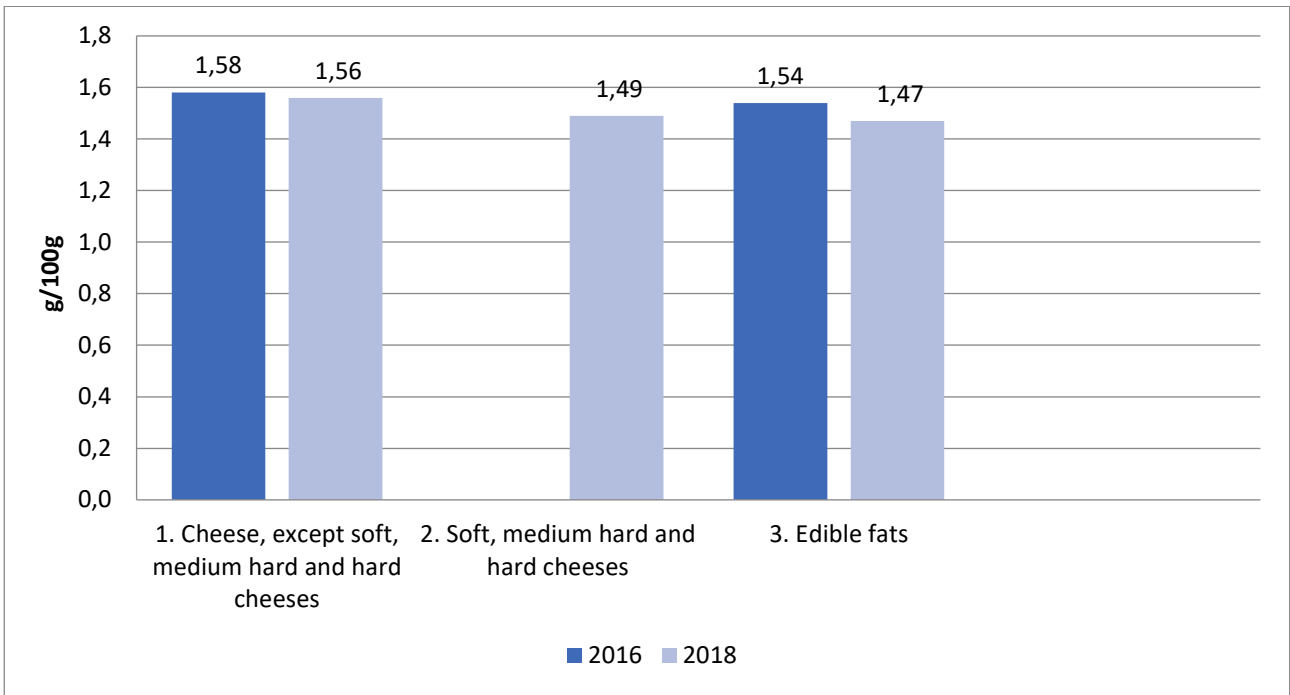


Figure 8. Average salt content per category in the “Dairy and edible fats” group, 2016 and 2018.

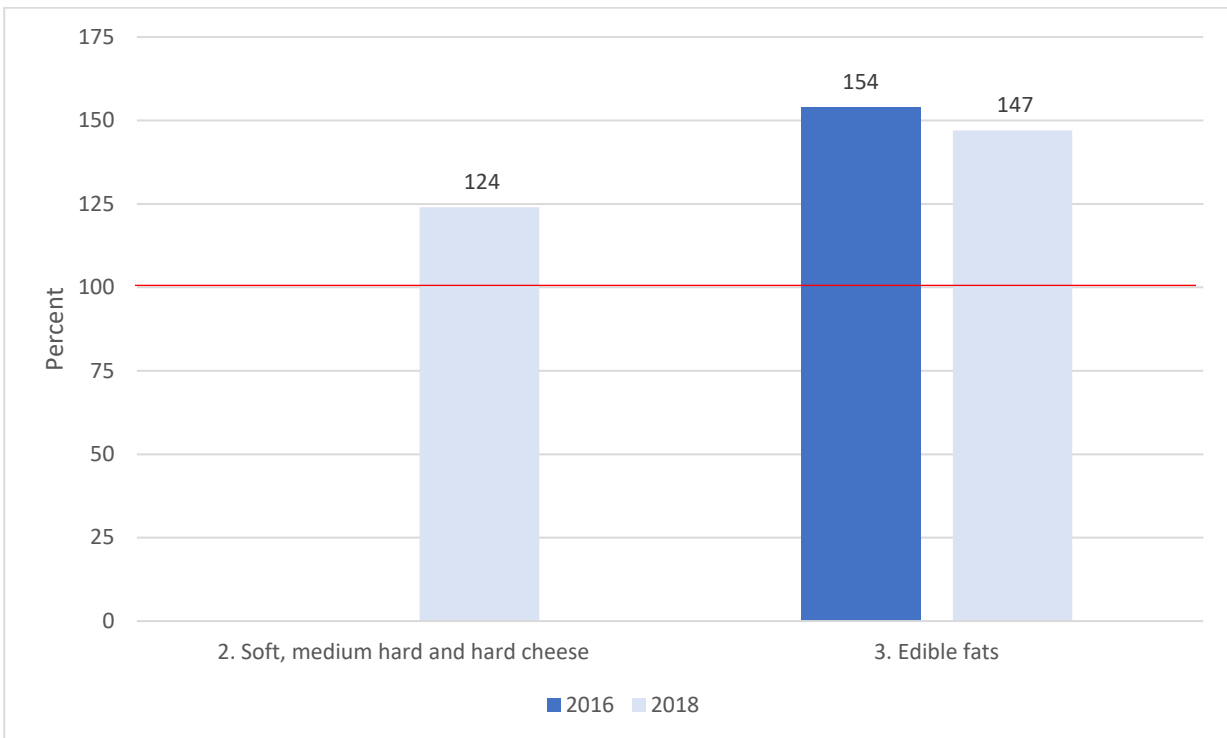


Figure 9. Average salt content in percentage of the salt targets in the “Dairy and edible fats” group in 2016 and 2018. The salt target is set to 100%.

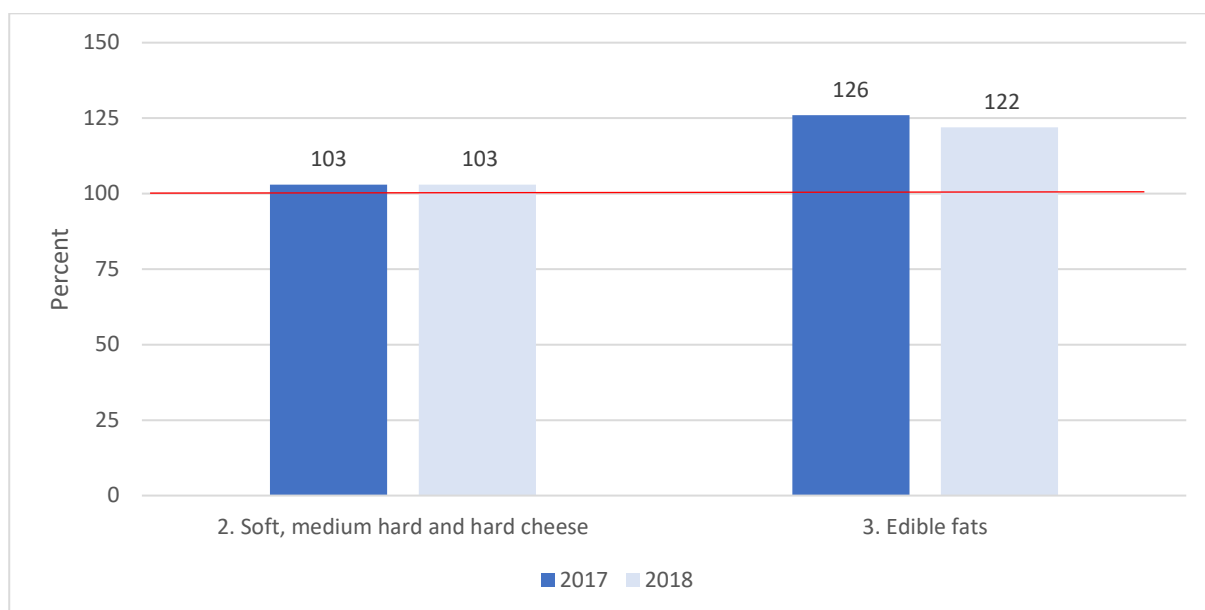


Figure 10. Weighted (volume) average salt content in percentage of the salt targets for “Soft, medium-hard and hard cheeses” and “Edible fats” in 2017 and 2018. The salt target is set to 100%.

In the two categories with one salt target, 32% of the products in the “Edible fats” category and 11% of the products in the “Soft, medium-hard and hard cheeses” category are within the salt target, according to the TS data extraction in 2018 (Table 5).

Table 5. Dairy and edible fats. Number of products, and proportion within the guideline salt targets in 2018 in categories with one salt target.

	Number 2018	Salt target g/100g	Proportion within the salt target, percent
1. Cheeses except soft, medium, medium-hard and hard cheeses	433	0.4 – 2.5	*
2. Edible fats	70	1.00	32
3. Soft, medium-hard and hard cheeses	230	1.20	11
Total	733		

*There are several salt targets in this category, so it is not possible to show the proportion within and above the salt targets.

For both “Edible fats” and “Soft, medium-hard and hard cheeses”, the proportion of products within the salt target is low. The weighted average salt content for “Soft, medium-hard and hard cheeses” is below the average, which indicates that the cheeses with the lowest salt content account for the highest volume. The fact that so few products in the “Soft, medium-hard and hard cheeses” category meet the salt target means there might be a potential for reductions in other products in this category as well, as this may indicate that consumers buy cheeses with a reduced salt content. In the category “Edible fats”, there has been a slight decrease in the average salt content, but it is still well above the salt target. A lower weighted average suggests a lower salt content in high-volume products. The results indicate that there is a potential for reducing the salt content in many products.

Other Foods

The salt lists contain eight main categories in the “Other Foods” group, with a total of 47 salt targets with a wide span. Hence, the TS data can only indicate changes in the average salt content in the main categories from 2016 to 2018, and in the weighted average from 2017 to 2018.

As shown in Figure 11, the average salt content is lower in six of the categories in 2018 than in 2016. The weighted average salt content is lower in two of the eight categories in 2018 than in 2017, and higher in two categories (Figure 12).

The salt lists contain two salt targets for the “Pizza” category, and the average was used to assess goal achievement. The first TS data extraction was carried out in 2017. Both the average salt content and the weighted average salt content in pizza remained unchanged in 2018 compared with 2017 (Appendix 3 and Figure 12).

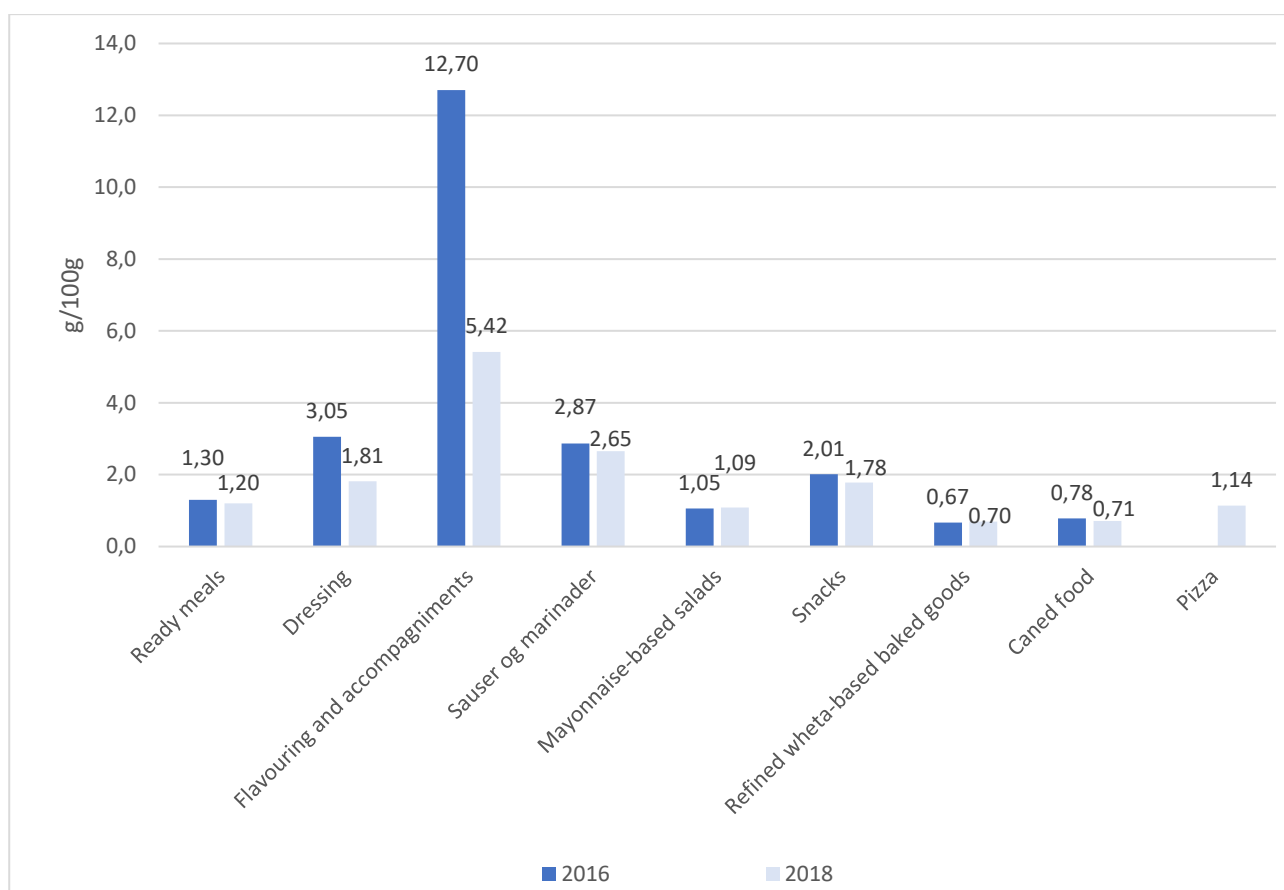


Figure 11. Average salt content in the main categories of the “Other Foods” group, 2016 and 2018. For pizza, the first TS data extraction was carried out in 2017, so no figures are available for 2016.

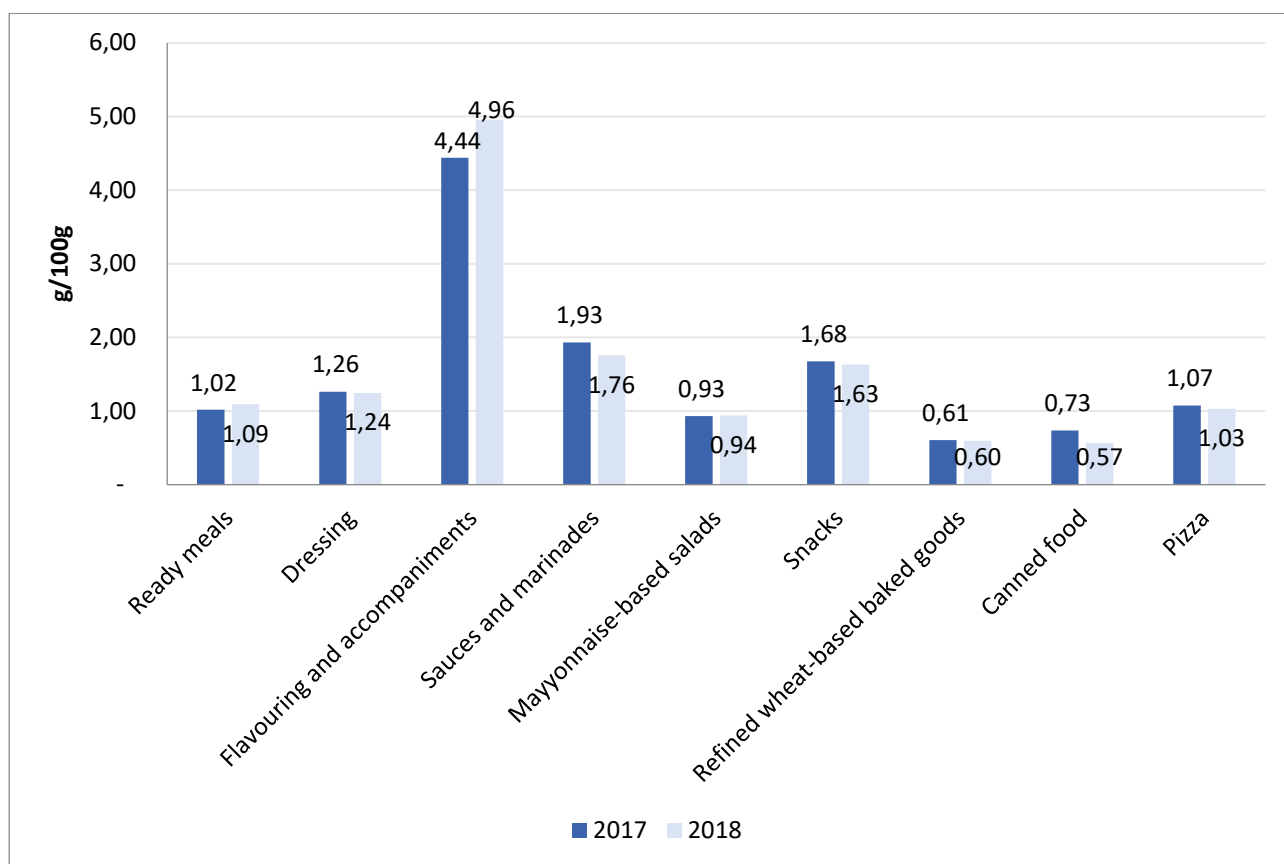


Figure 12. Salt values, weighted average for the main categories in “Other Foods”, 2017 and 2018.

The average salt content has decreased in most of the “Other Foods” categories, which is positive. The recommended salt targets vary greatly within this group, making it difficult to decide the extent to which each category is within or above the salt target.

4.2 Analyses of the salt content in selected foods 2014-2018

The report “*Analysen av saltinnholdet i utvalgte matvarer 2014-2018*” (“Analyses of the salt content in selected foods 2014-2018”) contains analyses of approximately 200 indicator foods from 2014 to 2018 (Havforskningsinstituttet, 2019). Most of these foods were analysed both in 2014-15 and 2018. The report also addresses salt content trends from 2014 to 2018 and compares the results with the recommended salt targets mentioned in the Salt Partnership salt lists.

The results of these analyses are a supplement to the TS data in order to describe salt content trends in selected foods over time and are not part of the monitoring of the Salt Partnership or the assessment of goal achievement. To describe trends for these indicator foods, the average salt content in food categories is included whenever more than six similar products were analysed in 2014-15 and 2018 (Table 6). Changes below 10% are not considered a change. For these food categories, the values in the analyses are also compared with the recommended targets mentioned in the Salt Partnership salt lists, based on all products that were analysed in the categories in 2014-15 and 2018 (Table 7).

The complete report from the Institute of Marine Research includes results for all food categories and products that were part of the analyses.

Bread

Ten types of fresh bread were analysed in 2014-15 and 2018, and the average salt content was slightly lower in 2018. Nine out of a total of fifteen types of fresh bread that were analysed met the salt target in 2018, whereas in 2014-15, the result was two out of fourteen. The results for the fresh bread sample from 2014-15 to 2018 show a positive trend.

Meat products

For the products in the categories “Cold cuts”, “Liver pâté”, “Sausages”, “Meatballs and meat patties” and “Dry-fermented sausages” that were analysed both in 2014-15 and 2018, the average salt content was lower for cold cuts and somewhat lower for liver pâté in 2018. The average salt content in sausages was somewhat higher in 2018, and unchanged for meatballs and meat patties and dry-fermented sausages. For all cold cuts and liver pâtés that were analysed, far more products met the salt target in 2018 than in 2014-15. The results indicate a positive trend for the selection of cold cuts and liver pâtés during the period 2014-15 to 2018.

Ready meals

For the ten products in the dinner and lunch meals category that were analysed both in 2014-15 and 2018, the average salt content was unchanged in 2018. Four out of ten dinner and lunch meals were in line with the salt target in 2018, whereas the result for 2014-15 was three out of thirteen products.

Table 6. Average salt content in selected food categories where more than six of the products were analysed in 2014-15 and 2018. Results of the project “Analyses of salt content in selected foods in Norway 2014-2018”.

Food category	Salt target	Number of products	Average salt content in identical products analysed in 2014-15 and 2018	
			2014 - 15	2018
	g/100g	N	g/100g	g/100g
BREAD AND CEREAL PRODUCTS				
Fresh bread	0.9	10	1.17	1.04
MEAT PRODUCTS				
Cold cuts	1.9	12	2.38	1.89
Liver pâté	1.6	10	1.80	1.56
Sausages	1.7	12	1.90	2.11
Meatballs and meat patties	1.7	10	1.72	1.85
Dry-fermented sausages	5.0	7	5.61	5.14
READY MEALS				
Dinner and lunch meals (dried foods not inc.)	0.8	10	1.00	0.94

Table 7. Number of products meeting the salt target in selected food categories for all analysed products in 2014-15 and 2018. Results of the project "Analyses of salt content in selected foods in Norway 2014-2018".

Food category	Salt target	2014–15		2018	
		Number of products	Meeting salt target	Number of products	Meeting salt target
	g/100g	N	n	n	n
BREAD AND CEREAL PRODUCTS					
Fresh bread	0.9	14	2	15	9
MEAT PRODUCTS					
Cold cuts	1.9	12	2	16	10
Liver pâté	1.6	11	1	12	8
Sausages	1.7	13	4	17	5
Meatballs and meat patties	1.7	13	7	17	7
Dry-fermented sausages	5.0	7	2	7	3
READY MEALS					
Dinner and lunch meals	0.8	13	3	10	4

4.3 The hotel, restaurant and catering industry

During the period 2016-18, the Norwegian Federation of Service Industries and Retail Trade, the Norwegian Hospitality Association's procurement organisation and suppliers and buyers from a relevant participating enterprise worked together on a pilot project to create a report template for the annual collection of data on the procurement of salt and the salt content in foods. Due to significant changes in the operational scope and the concept in 2018, the data for 2018 is not comparable with previous years, so no information regarding trends is available. Consequently, this report does not include figures for the salt consumption trends from the hotel, restaurant and catering industry, and implemented measures are only referred to on a general level.

Participants from the hotel, restaurant and catering industry have different meal concepts, so the prerequisites for the type and scope of salt reduction measures differ. An industry mapping of awareness, attitudes and practices of the canteen members was carried out in 2016, and of opportunities and barriers for salt reduction. Based on the results, the hotel, restaurant and catering group developed the "Salt School", a tool that includes a salt test and associated checklists. This tool is published on the Directorate of Health website (*Saltpartnerskapet*). Information about salt reduction and the dissemination and adaptation of the "Salt School" to custom systems were key tasks during the partnership period, as well as an emphasis on portion sizes and the promotion of fruit and vegetables.

The salt content in products from suppliers provides important framework conditions for the salt content in served dishes, and the members have set requirements for reduced salt content in products they intend to purchase. They have also made an effort to build competence and develop new recipes/compositions using less salt, as well as quality assurance of salt quantities and monitoring procedures.

Some have offered customers alternative flavourings and made information about the salt content and total nutritional value of various dishes available.

4.4 Dissemination of knowledge and skills

Three major seminars were held during the period 2015-2018:

- Launch of the Salt Partnership in October 2015, with 110 attendees and 46 partners signing the agreement. The lectures covered general policy (WHO), experiences and examples (Denmark and England), salt and health, as well as reformulation and product development.
- Seminar in November 2016, "Do salt habits die hard?", a collaboration between the Salt Partnership, "A healthier packed lunch" and SaltNett, with approximately 100 attendees. The seminar covered national and international experiences, product development, labelling and salt/sodium analyses.
- Workshop in January 2018, "The efforts of the industry and the hotel, restaurant and catering sector to reduce salt content in foods and meals", a partnership between SaltNett and the Directorate of Health. The workshop was attended by 60 representatives from health authorities and the food industry in Denmark, Sweden and Norway.

The project "*Små dytt*" ("Nudging"), a collaboration between the National Association for Heart and Lung Disease (LHL), the Norwegian University of Life Sciences (NMBU), the Norwegian Institute of Bioeconomy Research (NIBIO) and Animalia (the Norwegian Meat and Poultry Research Centre), was carried out at Feiringklinikken⁶, to look into the potential for nudging interventions in a canteen in order to "nudge" rehabilitation participants and patients with heart disease in a healthier direction. The project resulted in a 22% reduction in salt intake and a 53% increase in vegetable consumption in the intervention group compared with the control group over a four-week period (Dufseth, 2017).

In 2016, the Salt Partnership was granted network funding by the Research Council of Norway (NFR) to examine the use of salt substitutes and to exchange experiences and build competence concerning salt reduction in foods for the period 2016-2018. SaltNett has written a memorandum for the Directorate of Health to lay the groundwork for commissioning an updated risk-benefit analysis of the use of potassium chloride as a salt substitute. The Directorate of Health will present this memorandum to the Norwegian Food Safety Authority in 2019, so that they can assess the need for a risk-benefit assessment of potassium chloride as a salt substitute.

The Directorate of Health has given presentations of the Norwegian Salt Partnership at meetings in the WHO European Salt Action Network (ESAN) in 2016, 2017 and 2018.

4.5 The participants' experiences with the partnership

A survey of the participants' experiences with the Salt Partnership was conducted in January 2019 (Fafo, 2019) in the form of a questionnaire answered by 51 out of 84 participants. The primary motivation for their participation in the partnership is to contribute to improved public health. The food

⁶ Specialist hospital/ cardiac rehabilitation

producers state that the two most important measures they have taken within the Salt Partnership are recipe optimisation and new product development. In both cases, most of the producers followed the salt list recommendations.

Reducing the salt content without compromising the quality of the products and monitoring in order to document salt reduction, were stated as challenges connected to salt reduction initiatives.

Table 8 shows an overview of what the participants are hoping for the future of the Salt Partnership. One suggested measure is competence building to be able to further reduce the salt content in foods without compromising qualities such as taste, shelf-life, quality and consistency. About 67% of the respondents said that they would like to continue with the work groups, and 50% would like to take part in national networks where you can share experiences.

Table 8. The participants' hopes for the future work of the Salt Partnership.

	Producers (n=32)	Others (n=19)	All (n=51)
Continue with sector-specific work groups	17	14	31
Gain competence on reducing the salt content in foods	18	10	28
Workshops/sharing experiences nationally	15	9	24
Workshops/sharing experiences internationally	7	6	13
Consumer behaviour*	-	12	12
Other	4	4	8
Participate in research projects*	-	6	6

* Only included as an alternative for the group "Others".

4.6 Salt PR / salt in the media

There has been relatively little controversy in the media about the correlation between salt intake and health compared with other diet and nutrition issues. The Directorate of Health has found that the press has been quite cooperative, and interest groups have also worked proactively to get salt related articles published. LHL (the National Association for Heart and Lung Diseases) has for example contributed to a series of research articles concerning salt and health, and Nofima had an article published in *Aftenposten* entitled "*Det uerstattelige saltet*" ("The irreplaceable salt") (Ofstad, Grini, Hersleth, & Veiset-Kent, 2015).

Certain aspects of the Directorate of Health's campaign work have been linked to the annual World Salt Awareness Week in March, WASH (World Action on Salt and Health). There have also been numerous joint Nordic communication campaigns, such as "*Se etter saltet/Syna saltet*" ("Look for the salt") (Livsmedelsverket) and the salt test "*Har du gode saltvaner?*" ("Do you have good salt habits?") (Fødevarestyrelsen, 2019).

An analysis carried out in 2017 by Retriever on behalf of the Directorate of Health shows that 169 articles mentioned the Directorate of Health in connection with salt in 2016-2017. 47% of the references

were positive, and only 1% were negative. More than a third of the articles mentioned the Salt Partnership and/or the labelling of salt content in foods. Publicity reached a peak during the first quarter of 2016.

4.7 Consumer awareness and attitudes

Consumer awareness of the impact of high salt intake on our health is high. Around 80% believe that a high-salt diet may increase the risk of high blood pressure and cardiovascular disease. This number has remained stable since 2015 (Opinion on behalf of the Directorate of Health) (Helsedirektoratet, 2018b).

Approximately 90% believe that the general population consumes more than the recommended amount of salt whilst only about 40% believe the same thing about themselves (Figure 13). About 50% wish to reduce their salt intake; more women than men, and more people over the age of 50 than under.

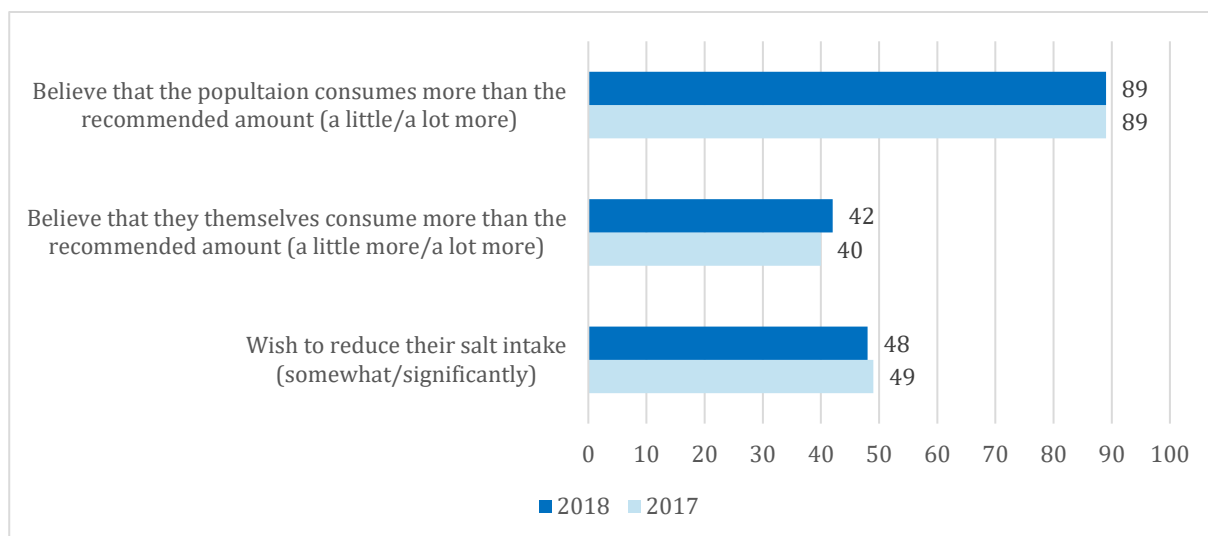


Figure 13. Consumer perception of the salt intake and interest in reducing the salt intake, Opinion 2017-2018 on behalf of the Directorate of Health.

According to the survey “Norske Spisefakta” from 2017, 70% responded that they prefer to avoid consuming too much salt. This number has remained consistently high over the past 15 years, but was lower in 2017 than in 2015 (75%) (Helsedirektoratet, 2018b). Furthermore, 20% of consumers placed a particularly strong emphasis on salt content when buying food for their household, slightly fewer than in 2015 (22%).

5. Summary and Conclusions

The data from Tradesolution in 2018 show that the average salt content meets or is below the target in 11 out of 27 food categories (approximately 40%). In categories with one salt target, just over half of the products meet the target. Compared with 2016, the average salt content was lower in 16 out of 31 categories (approximately 50%) in 2018. This applies to categories in the groups “Bread and cereal”, “Meat” and “Fish”, “Edible fats”, as well as the “Other foods” category, including ready meals, accompaniments and snacks. For some categories, the 2018 average was still significantly above the target.

Weighted averages were calculated in order to relate salt content to sales volumes. The underlying data for 2018 shows that the weighted average salt content is at or below the salt target in 17 out of 27 categories (approximately 60%). The weighted average is below the average in the categories “Fresh bread”, “Minced meat”, “Cold cuts”, “Salted/marinated meat”, “Salted/smoked meat”, “Lightly salted fish”, “Fresh and frozen fish products”, “Hot and cold smoked fish products”, “Cheese” and “Edible fats”. This may indicate that high-volume products in these categories are slightly ahead in the work on salt reduction compared with products with lower sales volumes.

A salt content analysis project covering 200 indicator foods was carried out in parallel with the Salt Partnership. The findings confirm the data from Tradesolution, showing a positive trend with lower salt contents for categories such as “Fresh bread”, “Cold cuts” and “Liver pâté” in 2018 compared with 2014-15. Overall, the results show that more products met the salt target in 2018 than in 2014-15.

Bread and meat products are two of the biggest dietary sources of salt, and reduced salt contents in these categories may have a significant impact on the population salt intake.

For the participants in the hotel, restaurant and catering industry, a collaborative pilot project was carried out from 2016 to 2018 to implement an annual data collection related to salt purchases and salt content in food products. A “Salt School” was established to raise awareness of the importance of salt for our health and how to reduce the salt content in served dishes. The participants carried out various salt reduction initiatives.

Consumer awareness of salt, health and the salt content in foods is high and remained stable during the period 2015-2018, but there is still a need for a strong emphasis on salt in our communication efforts.

The efforts to reduce the salt content in foods have been driven by the partners' desire to contribute to improved public health. The salt targets have been used as a guideline by most partners. However, efforts to reduce salt content is resource-intensive for each individual partner. Producers said that they found it challenging to reduce salt levels without compromising the taste and the consistency of food products. More extensive research is needed on the use of salt substitutes to achieve further reductions in certain categories. The hotel, restaurant and catering industry has identified a need for quality assurance of information about salt content in procurement portals, and for an improved

monitoring of salt in the industry as such, as well as for the individual salt accounts of each partner/chain.

Due to a lack of consumer or dietary surveys after 2010-2012, there are no data on the general population salt intake in 2018. Hence, we are not able to present an overall assessment of whether the main objective, a general reduction in the salt intake to 8.5g per person per day by 2018, has been achieved.

A Fafo survey mapped the partners' experiences with the Salt Partnership, revealing that the work was generated by a desire to make a joint effort to improve public health. An equal partnership between the industry, health authorities, research groups and interest groups was motivating and produced results rapidly. The parties wish to continue their cooperation and partnership for the period 2019-2021. New targets for further reductions in the salt content of foods and served dishes are being established for this period.

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Appendices

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