THE SALT CONTENT OF CHILLED SLICED MEAT

January 2022

Action on Salt

BACKGROUND

Excessive consumption of salt is internationally recognised to raise blood pressure, which can increase the risk of strokes and cardiovascular disease (CVD) [1]. High blood pressure is the third largest risk factor for premature death and disability in the UK [2], and so, the need for reducing salt intake is all the more pressing.

The recommended salt intake in the UK is no more than 6g a day for an adult [3], however, the latest figures show we are eating on average 40% more than this (8.4g/day) [4]. The majority of our salt intake comes from packaged and prepared foods, which cannot be removed by the consumer. This includes processed meat, with data from the most recent National Diet and Nutrition Survey [5] highlighting meat and processed meat products as the second key contributor of salt intake in the UK (26%).

Evidence shows that eating red and processed meat in excess can increase your risk of colorectal cancer [6], which is the third and second common cause of cancer worldwide in men and women, respectively. Processed meat is also often high in fat, saturated fat and salt, all of which can increase the risk of CVD and type 2 diabetes. Daily meat consumption in the UK has reduced by approximately 17% in the last decade [7], but is still significantly less than the recommended 30% reduction as recommended by the National Food Strategy to meet health, climate and nature commitments [8].

A salt reduction programme has been in place in the UK since the early 2000's as an effective method to improve population health [9]. The UK strategy pays greater focus on industry efforts to slowly and unobtrusively reduce the salt content of foods people buy, allowing taste preferences to adjust and minimising impact on sales. Voluntary salt reduction targets have been put in place since 2006, for retailers, manufacturers, and the out of home sector to work towards covering around 80 categories of food. Various iterations have since been published to encourage companies to gradually reduce the salt content of the food they produce. The latest set of targets were published in September 2020, to be achieved by 2024 [10].

Targets set for processed meat categories have not changed since they were initially set in 2006, due to failures by the food industry to reduce salt content over time (Table 1).

Table 1. 2024 Salt targets for meat products

Main Salt Target Category	Sub-categories	Salt Target 2024	Previous Salt Targets		
			2017	2012	2010
1. Meat Products	1.2 Ham/other cured meats Includes hams, cured pork loin and shoulder, corned beef etc.	1.63g salt (average p)	1.63g salt (average p)	1.63g salt (average p)	1.63g salt
	1.5.1 Whole muscle Includes all chilled, frozen and canned whole muscle e.g. beef, lamb, chicken, turkey etc.	0.68g salt (maximum)	0.68g salt (maximum)	0.75g salt (maximum)	no target
	1.5.2 Reformed whole muscle Includes all reformed whole muscle e.g. beef, lamb, chicken, turkey etc.	0.9g salt or (maximum)	0.9g salt (maximum)	1g salt (maximum)	no target
	1.5.3 Comminuted[1] or chopped reformed meat - Includes all comminuted or chopped reformed and shaped uncured meats e.g. beef, lamb, chicken, turkey etc.	1.35g salt (maximum)	1.35g salt (maximum)	1.5g salt (maximum)	no target

[1] Meat which has been cut into smaller pieces and contain a mixture of meat and nonmeat ingredients

Progress in this category of food has been slow, as documented in Public Health England's (PHE) second progress report on the 2017 targets [11], with most of the reductions being made solely by the retailers (Table 2).

Table 2. Proportion (%) of products at or below the maximum targets

		Manufacturers		Retailers		Manufacturers and Retailers Combined	
Category	Sub-category	2017	2018	2017	2018	2017	2018
1. Meat Products	1.5.1 Whole muscle	19	18	47	59	41	51
	1.5.2 Reformed whole muscle	6	3	4	12	4	9
	1.5.3 Comminuted or chopped reformed meat	8	11	55	71	23	34

AIM

The purpose of this report is to investigate the salt content within chilled sliced meat, and to assess manufacturer and retailer progress in meeting the 2024 salt reduction targets.

This report aims to highlight successful case studies of where salt content has been reduced successfully, and to provide technical solutions for reducing salt further.

Data Collection

Action on Salt surveyed chilled sliced meat products available from all major retailers with online information; Asda, Co-op, Iceland, Marks & Spencer's, Morrison's, Ocado, Sainsbury's, Tesco and Waitrose. Aldi and Lidl nutrition information was sought directly from the retailer as they do not provide information online. Lidl provided top line summary tables, which could not be incorporated in the full dataset, but was used when comparisons between retailers were made. All data was shared and verified with the companies.

Salt content per 100g and per portion was collected between June and August 2021 online via retailers' and manufacturers' websites, and all data was shared with manufacturers and retailers for verification. Duplicates of the same product with different sized packaging were removed.

In addition to nutrition information, the product description and full ingredients list was recorded.

Inclusion Criteria:

- Ready to eat cooked sliced meat (ham, chicken, turkey, beef)
- Cured and uncured products
- Prepacked and from the chilled aisles
- Products currently showing as available for purchase online

Exclusion Criteria:

- Whole meat products e.g., leg of ham, chorizo rings
- Sandwich fillers
- Non-sliced meat products e.g., pate, chicken drumsticks
- Unpackaged products or meat from the deli counter
- Sausages including hot dogs/frankfurters
- Bacon
- Ambient/frozen meats
- Platters/selection of meats (duplicates of singular packaged products)
- Products that are out of stock or discontinued/currently unavailable online

Data Analysis

The average salt content per 100g and per portion was calculated and then compared to the UK front of pack colour-coded labelling criteria [12]. Any differences between supermarket own-brand and branded products were also assessed.

Industry progress towards achieving the maximum salt reduction targets for 2024 were also measured. There are a number of salt targets which some chilled sliced meats fall under (see Table 1), and their terminology and subsequent interpretations leave some room for error. Following various discussions with key stakeholders, we have approached the category definitions as such:

1.2 – Ham and Other Cured Meat	Most hams and cured meat including corned beef. Does not include charcuterie meat, or dry cured and traditionally cured hams as these are exempt from the UK salt targets
1.5.2 - Reformed Cooked Meat	This is interpreted by industry as 'formed' products from multiple sources of the same muscle e.g., multiple chicken breasts to form a final product
1.5.1 - Whole Muscle	Whereby the product is derived entirely from one muscle e.g., 100% cooked chicken breast, topside beef
1.5.3 – Reformed Meat	Products from various cuts of the animal e.g., chopped/minced cooked chicken

Products were categorised into the most appropriate salt targets based on their product name and 'legal title' found within the product description and verified by the food companies. Their success in complying with their relevant target was then assessed.

RESULTS

- ***Two thirds (65%) of all chilled sliced meat are high in salt (i.e. >1.5g/100g)***
- ***There is a 23-fold difference in salt content across all chilled sliced meat, with products ranging from 0.26 - 6.0g salt/100g***
- ***One third (35%) of products fail to achieve their respective salt targets***
- ***Retailers lead in compliance with the salt targets, with manufacturers lagging far behind***

A total of 555 products were included in this survey, from 38 companies (10 retailer, 28 branded), the vast majority of which (83%) were retailer own labels.

The average salt content of all products surveyed was 2.09g/100g, with nearly two thirds (65%) considered high in salt (>1.5g/100g) and only 4 products considered low (Table 3).

Table 3. Distribution of front of pack colour coding for salt

Front of Pack Colour	Number of Products	Percentage
Red (>1.5g/100g)	362	65%
Amber (0.3-1.5g/100g)	189	34%
Green (≤0.3g/100g)	4	1%

The data was split into 4 sub-categories: ham, beef, poultry and charcuterie (i.e., continental meats) (Table 4). Charcuterie products were the saltiest amongst the 4 broad categories, followed by ham, beef and poultry.

Whilst retailers dominate the chilled sliced meat category in terms of volume, across the board branded meat products on average have a higher salt content.

Table 4. Average salt content per 100g

Meat Category	Number of Products	Average Salt Content g/100g
Beef	**49**	**1.13**
Brand	4	1.58
Retailer	45	1.09
Charcuterie	**131**	**3.78**
Brand	47	3.97
Retailer	84	3.68
Ham	**268**	**1.89**
Brand	35	1.97
Retailer	233	1.88
Poultry	**107**	**0.97**
Brand	11	1.76
Retailer	96	0.88

The salt content varied from 0.26 - 6.1g/100g salt across all products in this survey, a 23-fold difference. But there was also clear variation within each of the four sub-categories (Table 5), the largest of which could be found in poultry, with a 10-fold difference between the least salty (0.26g/100g) and the saltiest (2.7g/100g) product.

Table 5. Average salt content per 100g and per suggested portion as stated on pack

Meat Category	Average Salt/100g (variation)	Average salt /portion (variation)
Charcuterie	3.80 (1.4-6.1)	0.87 (0.10-2.30)
Ham	1.89 (0.95-3.4)	0.62 (0.16-1.73)
Beef	1.13 (0.39-2.2)	0.35 (0.07-1.10)
Poultry	0.97 (0.26-2.7)	0.33 (0.10-0.71)

Per suggested portion as stated on pack, the average salt content is 0.6g*. Portion sizes however were not consistent across sub-categories and companies, and varied from 3 – 100g, with some offering up as much as 1.73g salt per portion for ham, and 2.3g per portion for charcuterie meats.

* 30% of all products do not provide a portion size

Salt Targets

Out of 555 products included in the survey, only 56% (312) fall within an applicable salt target, with an overall achievement rate of 65%. Table 6 summarises the percentage of products that have achieved their respective salt targets.

Table 6. Average salt content per 100g and percentage of products complying with their respective salt targets

Salt Target Categories	Number of Products	Average salt g/100g (range)	% Achieving salt target
1.2 Ham/other cured meats	178	1.67 (0.95-3.00)	67%[1]
1.5.1 Cooked uncured meat - whole muscle	86	0.77 (0.26-2.7)	63%
1.5.2 Cooked uncured meat - reformed whole muscle	29	1.14 (0.50-1.85)	45%
1.5.3 Cooked uncured meat - Comminuted or chopped reformed meat	19	1.25 (0.71-1.8)	90%
No Target	243	3.06 (1.40-6.9)	-

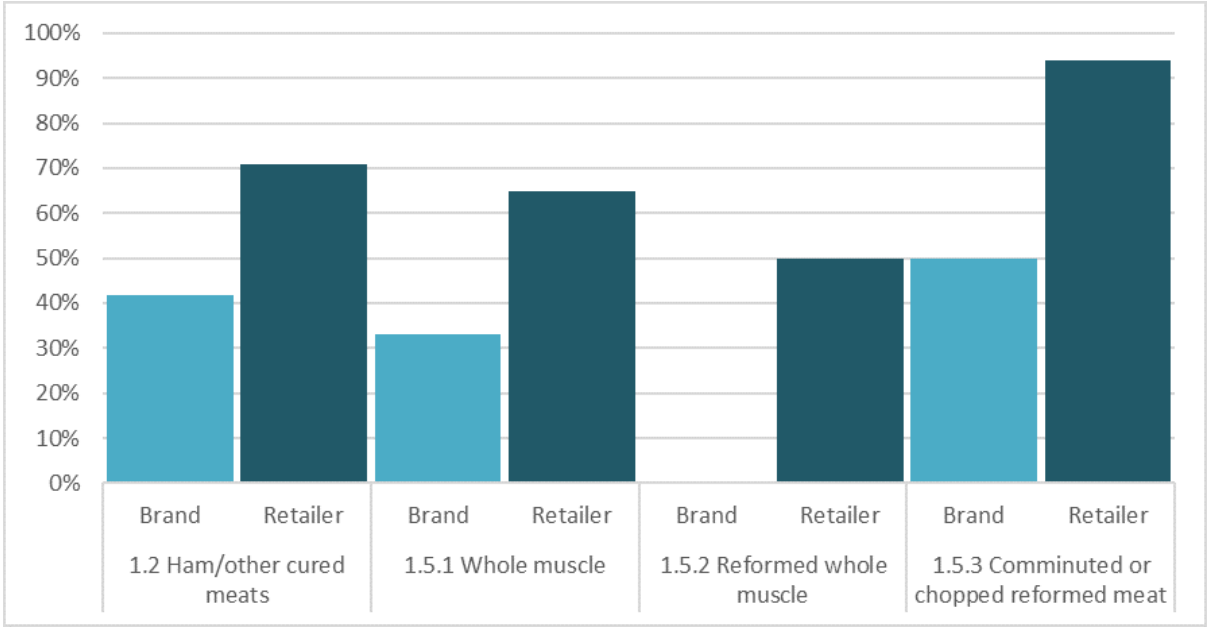
[1] Data values are simple averages and do not take into account sales

NB. The above salt targets include other meat products which have not been analysed in this report. The percentage of chilled sliced meat achieving the salt target is not reflective of industry progress towards the salt targets as a whole.

69% VS. 37% Retailers lead food industry in salt target compliance

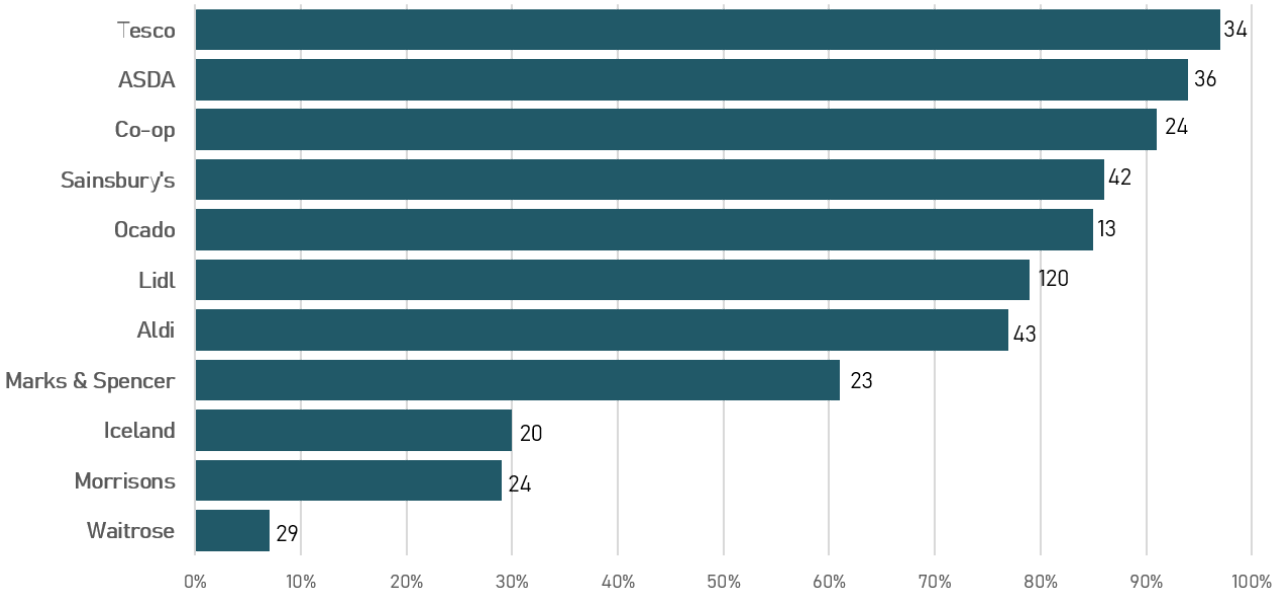
Retailers are leading in progress towards salt reduction and are on average lower in salt for each salt target (Figure 1). It's clear there is an uneven playing field within the sector, with over two thirds (69%) of retailer products achieving their respective salt targets, compared to 37% of branded products.

Figure 1. Proportion (%) of products achieving the respective salt targets, split by retailer and brand



With retailers dominating the market, Figure 2 gives the proportion of own label products meeting their respective salt targets for each supermarket*.

Figure 2. Proportion (%) of retailer products meeting respective salt targets. Total number of products displayed at the end of each bar

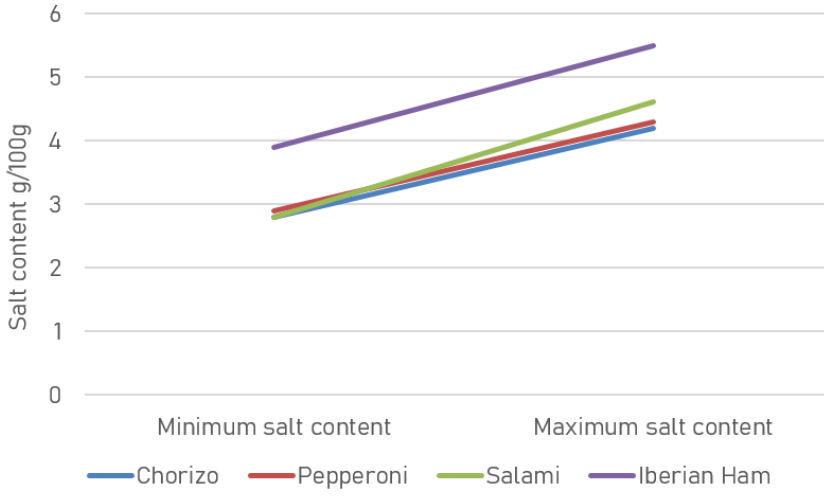


Products Out of Scope for Targets

Many chilled sliced meat products (243) fall out of scope of the salt targets, and yet they are the highest in overall salt content.

Within the ham/other cured meats sub-category, foods that are "Protected Designation of Origin" are exempt as they are outside the jurisdiction of UK food businesses. It is however worth noting the variation present in this sub-category, which includes e.g., salami and chorizo (Figure 3), indicating that salt content can be altered in these products.

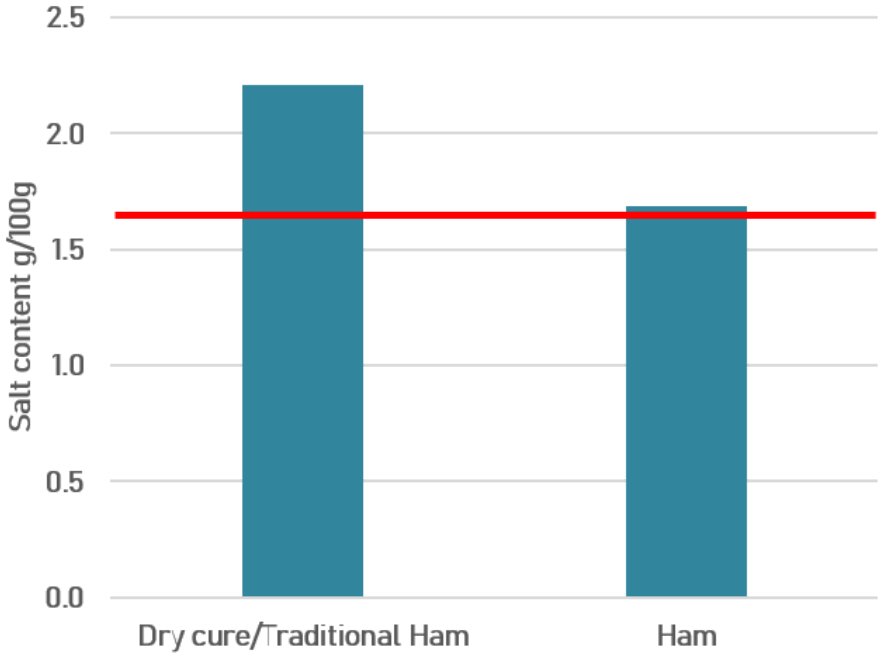
Figure 3. Variation in salt content per 100g for different charcuterie meat categories



*Lidl provided top line summary tables and percentage achieving salt targets.

Speciality ham products produced using traditional methods e.g., Wiltshire cured ham and other immersion cured products are also excluded from the 1.63g/100g target for ham, as the curing process is reported to be difficult to control.

Figure 4. Salt content of ham products in and out of scope of the salt targets. Red line denotes the average salt target for ham



Our data once again shows wide variation (1.5 – 3.4g/100g) in salt content within dry cured and traditionally cured hams, indicating that these products can be made with less salt. Its exemption from the targets does however mean that we are left with ham products on store shelves that are unnecessarily high in salt (Figure 4).

Exemptions within this category are likely to affect willingness or drive to explore opportunities to reduce the salt content of these foods. This shows the importance of setting comprehensive targets for all categories of food, and the need for more research and political commitments in favour of health both nationally and internationally.

*Lidl provided top line summary tables and percentage achieving salt targets.

Role of Salt in Meat Products

The role of salt in meat is multi-factorial and has been explained at length elsewhere [13]. To summarise, salt is used in meat products for 3 main reasons:

Processing - The addition of sodium in products such as cooked ham solubilise myofibrillar protein which increases their water-binding capacity. This prevents water loss during cooking and enhances tenderness, viscosity, and juiciness of the product [14,15].

Microbiological and safety – The addition of salt within meat and meat products work to inhibit the growth of pathogenic microorganisms and improve the texture of cooked meats [13]. Crucially, it reduces the water activity of meat which improves the preservation and increases the shelf life. Some products require a higher salt content to inhibit the growth of specific pathogenic bacteria.

Sensory - The presence of salt influences both the taste and colour of the products [13].

Whilst there is some requirement of salt in meat, but as evident in this report there is scope for extensive reductions, with many companies successfully producing meat with less salt.

Salt Reduction Solutions

There are several available strategies and technologies available to manufacturers to produce reduced salt meat products. These vary from gradual reductions in salt added during the production process, to the use of reduced sodium salt replacers, or alternative processing techniques such as high pressure [15-18].

The use of potassium-based salt replacers is acknowledged as the best alternative to salt for this category of food. It has similar processing, microbiological and sensorial functionalities, but does carry an added cost to the manufacturer and often does not offer clean labelling, which many manufacturers strive for. As such, only 7 products currently on the market appear to use potassium chloride as a declared ingredient on pack.

SMART SALT® CASE STUDY – PEPPES PIZZA TOPPINGS, NORWAY

Dr Helen Mitchell, Director of Science, Smart Salt Oy.

Peppes Pizza, which was established in the 1970's, is one of the most popular pizza chains in Norway with over 70 restaurants around the nation. The company have extended their brand into supermarket chains where they sell Peppes Pizza branded ingredients so that it is possible to construct quality pizzas at home. The ingredients include ham, chorizo, pepperoni and meatballs. These commercial products are important case studies because they all use Smart Salt® technology from Finland, based on magnesium chloride and potassium chloride, to reduce sodium/salt in their products by at least 30% without any change in taste, shelf-life or supply chain logistics. This represents a substantial decrease in sodium/salt for cooked sliced meat such as ham and charcuterie with minimal increases in ingredient costs per unit sold (often less than 0.5p/100g final product). Trading Standards in the UK have indicated that "reduced sodium salt" can be used in ingredient listings for this technology, which for some manufacturers, is a preferred labelling option.

Commercial Pizza Toppings made with Smart Salt 40*	Original salt levels g/100g	Current salt levels g/100g	Salt Reduction %
Pepperoni	4.5	2.9	36
Meatballs	1.9	1.2	37
Hot chorizo	4.5	2.8	38
Chorizo	4.5	2.9	36
Ham	1.9	1.3	32

*Smart Salt 40 is a 40% reduced sodium salt from Smart Salt Oy (info@smartsalt.fi)

HEALY GROUP CASE STUDY – SALTWELL®

Healy Group are a global supplier of ingredients and raw materials which are designed to help manufacturers add value to their food and drink. Their innovation activities are centred on market trends, in particular those aligned with public health strategies in the UK and Ireland. As such, salt reduction is a growing focus for their development projects and enquiries.

Alongside ingredients used to modulate flavour perception, a principal ingredient solution in this area is Saltwell®. Saltwell is a natural sea salt which is 35% lower in sodium and uniquely sourced from the Atacama Desert in Chile. With a 1:1 swap it can simply achieve an instant sodium reduction whilst still maintaining flavour, functionality (e.g. yields) and safety. It is considered to be “clean label” due to its ingredient declaration of “salt” or “sea salt”.

Since Saltwell’s first introduction into the UK market 4 years ago, its volumes have grown an average of 60% year-on-year. Approximately half of that growth comes from meat applications, proving its functionality, performance and desirability within this sector. Similarly in mainland Europe and the USA volumes and interest continue to grow, with recent launches of a Fuet sausage in Spain and Parma ham in Italy.

There are several case studies showcasing Saltwell’s sensory, functional and safety performance in a range of meat applications such as cooked ham, sausages and continental meats. For example, Texas A&M University trialled Saltwell in reconstituted ham; successfully demonstrating its performance against regular salt in parameters such as yield, sliceability and texture. If of interest, all case studies can be made available upon request from Healy Group.

ENGAGEMENT WITH INDUSTRY

We sought engagement with food companies to identify progress and challenges in reformulation.

The products surveyed were produced by 38 companies. We contacted companies with more than 10 products in production: 11 retailers and 3 branded companies. We asked about efforts to reduce salt content in their products and the successes and challenges they currently face. We received written correspondence from all retailers apart from Iceland and Ocado, and no branded companies. The British Meat Processors Association was also approached for their thoughts on our findings.

While we have been asked to keep most details confidential, we can share some key themes from our correspondence:

- **Food safety is of paramount importance, and reductions in salt must not put customers at risk. This is particularly challenging for certain types of meat in which the curing process is less uniform.**

- **Whilst acknowledging the importance of salt reduction on public health, any reformulation efforts will have an impact on shelf life, at a time when many are tackling food waste.**

- **There are concerns around nitrate and nitrite content in meat products, with growing evidence on its impact on health. Reductions in salt will impact nitrate content, and vice versa, and therefore requires a delicate balance in reformulation.**

- **There were inconsistencies in which products fell under which salt target, and the target definitions lacked clarity, leaving room for error in categorisation.**

We received additional comments from various retailers:

Tesco

A Tesco Spokesperson said:

"The health of our customers is very important to us and we've worked hard to reduce salt across our own brand foods. At Tesco we have been reformulating our products for some time and we will continue to do so without compromising on taste or quality. Our reformulation plan looks at a wide variety of nutrients and ingredients important to supporting a healthy diet, including salt."

Waitrose

Emma Williams, Partner & Health Manager, Waitrose

"We work closely with our suppliers to make continuous nutritional improvements to our products, including the significant reduction of salt across a number of categories, from breakfast cereals, ready meals and sandwiches. In terms of meats, our focus has been on nitrites and we were the first supermarket to reduce nitrites across our entire own-label bacon and gammon range, following a World Health Organisation (WHO) report which recommended limiting these in the diet. We know we have more to do on salt reduction in this area and are actively working to meet the 2024 targets set by Public Health England, making sure any changes do not compromise on taste or quality. Our products have traffic light labelling which is based on realistic portion sizes to allow our customers to make informed choices."

Lidl

Miranda Shelley, Nutrition Team Manager, Lidl GB

"Lidl are continuously reviewing the salt content of its cooked sliced meat to reduce the levels where possible, whilst ensuring the foods are of the highest quality, safe to consume, and with an appropriate shelf life. This category is very challenging to reduce salt given the preservative function it provides, and so a gradual reduction to align with technical developments is often necessary."

Marks & Spencer

Rebecca Brown, Senior Nutritionist, Marks & Spencer

"At M&S, we know that our customers are looking for easy ways to make healthy food choices. We make healthy eating easier through provision of accessible customer information and clear on-pack labelling, including our Eat Well sunflower to signpost healthy choices. This is underpinned by a programme of reformulation to continually improve the nutritional profile of our foods by removing or reducing levels of unnecessary or unwanted ingredients such as saturated fat and salt.

In January 2022, as part of the M&S salt reduction programme, we re-launched 7 products in the M&S British Outdoor Bred cooked sliced meat range achieving an 18% average salt reduction; these products now meet their respective 2024 salt targets set by the UK Department of Health. The reduction in salt was achieved through revising the recipe, whilst maintaining product quality and taste.

We are committed to delivering further salt reductions, not only in our M&S cooked sliced meat ranges, but across all our M&S food ranges to meet the UK Department of Health 2024 salt targets."

Asda

Sophie Rose, Nutritionist, Asda

“Asda is committed to making healthier choices easier for our customers. Currently, almost 750 products carry our Live Better icon. This highlights the healthiest choices in our own-brand ranges, and we are aiming to increase that number to 1,200 by 2024. In 2019 we reduced salt from our chilled cooked meat ranges in line with government targets and we will continue to reformulate to improve the nutritional content of our products – without compromising quality, taste or food safety.”

RECOMMENDATIONS

GOVERNMENT

- Salt targets must be mandated by Government in order to ensure that all manufacturers and retailers meet the current and future targets. Failure to comply should be penalised.
- Regular monitoring and review of the Government's salt reduction strategy is essential to ensure continued progress in salt reduction.
- Industry targets must be clear and not open to misinterpretation. Appropriate resource should be made available to companies struggling to meet salt targets specific to meat.

INDUSTRY

- Explore the use of reduced sodium salt replacers, as supported by Public Health England.
- Expand reformulation efforts to products outside the scope of the current salt targets, for added public health benefit.
- Explore opportunities to procure meats with less salt, to incentivise suppliers and producers to reduce salt in their products.

CONSUMERS

- Read nutrition labels and opt for lower salt options. Use the FoodSwitch UK App [19] to help identify healthier alternatives so that you can swap to a lower salt choice
- Eat less processed meat for improved health. Retailer own brand chicken and turkey products are typically lower in salt compared to ham and charcuterie meats or try smaller portions.
- Demand action from your preferred retailer/food manufacturer and ask for less salt please!

ABOUT US

Action on Salt is a group concerned with salt and its effects on health, supported by 22 expert scientific members. Action on Salt is successfully working to reach a consensus with the food industry and Government over the harmful effects of a high salt diet and bring about a reduction in the amount of salt in processed foods as well as salt added to cooking, and at the table.

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[19] FoodSwitch is a free smartphone app which allows you to scan the carcodes of food and drink products and instantly see whether they are high, medium or low in fat, saturated fat, sugar and salt. It also searches the database for similar but healthier alternative products, making it easier to switch to healthier food choices. For more information visit http://www.foodswitch.co.uk