

Consultation pack for the mechanically separated meat (MSM) guidance

The Food Standards Agency (FSA) is seeking feedback relating to new MSM guidance that is intended to provide support for FBOs following court judgments that clarify how the definition of mechanically separated meat (MSM) should be interpreted and applied

Launch date: 28 February 2024

Respond by: 22 May 2024

This consultation will be of most interest to

- Food Business Operators (FBOs) using mechanical meat separation equipment in their production processes; and those using MSM as an ingredient
- Food Law Enforcement Officers
- Meat Industry Trade Bodies
- Consumers

Purpose of the consultation

The Food Standards Agency (FSA) is seeking feedback relating to new MSM guidance that is intended to provide support for FBOs following court judgments that clarify how the definition of mechanically separated meat (MSM) should be interpreted and applied, with implications for MSM production in England, Wales and Northern Ireland. Feedback is sought specifically on:

- The effectiveness of the MSM Guidance document in providing support in light of the Court Judgments.
- The impacts of FBOs adapting their activities and operations in line with Court judgments.
- Whether there are wider issues around MSM that the FSA, or indeed wider government, should be seeking to address and why.

How to respond

Please respond to the consultation via the [MSM consultation online survey](#). Feedback can also be emailed to meathygiene@food.gov.uk.

Details of the consultation

Introduction

Assimilated Regulation (EC) No 853/2004 in GB / Regulation (EC) No 853/2004 in Northern Ireland (together 'the Regulations') lay down specific hygiene rules for FBOs in relation to food of animal origin. The specific hygiene requirements that must be applied to the preparation and handling of products of animal origin depend on how each product is defined or categorised under the Regulations. It is important to correctly identify a product to ensure that it meets the requirements of food law.

In 2012, the European Commission (EC) disagreed with the FSA's position in allowing a category of meat to be marketed in the UK as desinewed meat (DSM). DSM is not a category recognised in law. The EC's view was that the production of DSM did not comply with EU single market legislation and DSM should instead be categorised as Mechanically Separated Meat (MSM). The EC requested a moratorium – a suspension of an activity – to be placed on the production of DSM. The FSA issued a moratorium reflecting the EC's view which had the effect that products previously marketed as DSM could no longer be produced from bovine, ovine or caprine bones (or bone-in cuts), and could only be produced from poultry and pork if classified and labelled as MSM. MSM must be prepared and handled in accordance with the hygiene rules laid down in the Regulations and, when used as an ingredient in a product for consumers, it must be labelled as distinct from the meat content percentage of that product.

The decision to implement the moratorium attracted a legal challenge. That legal case and subsequent related cases, culminating in a 2022 High Court Judgment, explicitly considered in detail how the definition of MSM must be read and applied.

The Courts have delivered Judgments that collectively clarify how the definition of MSM in the Regulations must be interpreted and applied. It is the responsibility of the FBO to ensure their compliance with food law.

The FSA is consulting on new MSM guidance intended to provide advice and clarification following the Judgments. The definition of MSM is outside the scope of this consultation; views on the Courts' interpretation of the definition of MSM are not being sought. The information obtained from this consultation and survey will be used to:

- review and finalise the Guidance.
- assess economic and other direct impacts of the Court Judgments on stakeholders.
- understand whether there are any wider issues around MSM.

Mechanically separated meat (MSM) guidance

Point 1.14 of Annex I (Definitions) to the Regulations defines MSM as follows: “Mechanically separated meat’ or ‘MSM’ means the product obtained by removing meat from flesh-bearing bones after boning or from poultry carcasses, using mechanical means resulting in the loss or modification of the muscle fibre structure.”

MSM must be produced in line with specific hygiene criteria including but not limited to requirements for raw materials, temperature controls, and testing regimes that are appropriate for the comminuted nature of the product. This ensures that it is safe to be used as an ingredient.

Under assimilated Regulation (EU) No 1169/2011 in GB / Regulation (EU) No 1169/2011 in NI, MSM cannot contribute to the meat content percentage specified on the labelling of products in which it is an ingredient. It is therefore of lesser commercial value than ‘fresh meat’, ‘minced meat’, and ‘meat preparations’, which do contribute to the meat content percentage specified on product labels. Therefore, its classification is highly significant for food businesses and consumers.

An MSM Guidance document has been created to aid understanding of the definition of MSM in the Regulations, as clarified in the Court Judgments. The Guidance is primarily intended to ensure FBOs are aware of the legislative requirements associated with the production of MSM and its use as an ingredient. It replaces the 2012 ‘Guidance on the Moratorium on the production and use of desinewed meat (DSM) in the UK’, which was officially withdrawn on 14 November 2022.

The guidance is primarily aimed at FBOs using mechanical separation equipment in their production processes, and FBOs using MSM as an ingredient. It may also be used by Local

Authorities, FSA Operational teams and Department of Agriculture, Environment and Rural Affairs in Northern Ireland (DAERA) staff to support official controls and ensure consistency of the regulatory approach.

The Guidance applies in England, Wales, and Northern Ireland. Any enquiries relating to establishments located in Scotland should be directed to Food Safety Scotland (FSS).

Draft guidance

[Draft guidance for the consultation on mechanically separated meat \(MSM\) \(accessible version\)](#)

PDF

[View Draft guidance for the consultation on mechanically separated meat \(MSM\) as PDF \(Open in a new window\)](#) (259.8 KB)

Court judgements

The Courts have delivered the following judgments that collectively clarify the definition of MSM set down in Point 1.14 of Annex I to the Regulations:

- [Court of Justice of the European Union Judgment \(Case C-453/13\) of 16.10.2014](#)
- [High Court Judgment \(Case No: CO/6923/2012\) of 23.03.2016](#)
- [Court of Appeal Judgment \(Case No: C1/2016/2112\) of 25.05.2017](#)
- [Supreme Court Judgment \(Case ID UKSC 2017/0110\) of 03.04.2019](#)
- [High Court Judgment \(Case No: CO/4360/2021\) of 05.07.2022](#)

The Courts ruled that the definition of MSM is based on the following three cumulative criteria, to be read in conjunction with one another in determining whether a product is classified as MSM:

- The use of bones from which the intact muscles have already been detached, or of poultry carcasses, to which meat remains attached;
- The use of methods of mechanical separation to recover that meat; and
- The loss or modification of the muscle fibre structure of the meat thus recovered by reason of the use of those processes.

A product that meets all three criteria is classified as MSM. MSM-specific requirements in the Regulations regarding production, hygiene, and storage; and MSM-specific requirements in 'Food Information for Consumers' [assimilated Regulation \(EU\) No 1169/2011](#) in GB / [Regulation \(EU\) No 1169/2011](#) in NI regarding labelling must also be met for final products containing MSM to be placed on the market lawfully.

Impacts

The 2022 High Court judgment drew a series of connected matters that have been the subject of several court cases to a close. Across the cases, the Courts considered the definition of MSM in detail. There has been no change to the Regulations; rather, the Court Judgments collectively clarify how the definition of MSM in the Regulations must be read and applied. The Judgments provide greater certainty and clarity where there was previously ambiguity. This is beneficial to all stakeholders as it helps to ensure a level playing field, provides business and regulator certainty and there is increased consumer trust that the food they buy and eat is safe and what it says it is.

In line with best practice, the FSA has considered the potential costs and benefits that stakeholders including businesses, Local Authorities and consumers, may experience as a result of any changes in practice necessary for businesses to ensure compliance with the Regulations. The FSA has monetised some impacts. The assessed costs are provisional as the FSA is seeking evidence from industry to inform assessment of the total costs and benefits. Any costs to

Operational FSA and DAERA staff will be considered as part of an impact assessment post-consultation.

Impacted businesses

Given the Court Judgments have clarified how the definition of MSM should be read and applied, there may be products that previously (i.e., before the withdrawal of the moratorium in November 2022) were not classified as MSM that now must be. This may affect the production of MSM and the use of MSM as an ingredient in other products. Producers of affected products must comply with legal requirements relating to MSM, including labelling requirements, if they choose to continue to produce them and intend for them to be placed on the market.

To ensure hygiene standards, under food hygiene legislation food business establishments handling food of animal origin which falls under the categories for which Annex III to the Regulations lays down requirements (including 'Section V: minced meat, meat preparations and mechanically separated meat (MSM)') must, with some exceptions, be approved to do so.

In the estimated costs, it is assumed that the number of FBOs that produce MSM is limited to establishments that are approved to undertake meat preparation activities or MSM activities. To estimate the number of FBOs impacted, establishments approved by the FSA or Local Authorities have been included. For businesses that use MSM as an ingredient in other products, we assume that those impacted will be manufacturers of poultry and pork products using MSM that previously (i.e., before the withdrawal of the moratorium in November 2022) was not classified as MSM and therefore was not treated as such. The consultation survey provides stakeholders with the opportunity to share information about other establishments or practices that may be impacted following the Court Judgments.

Impacts on FBOs

Guidance familiarisation cost

It is expected that relevant businesses will face a cost associated with reading and understanding the new Guidance. The total one-off familiarisation cost to FBOs using mechanical meat separation equipment and FBOs using MSM as an ingredient (in England, Wales and Northern Ireland) of reading and understanding the Guidance is estimated to be £3,000 in 2022/23 prices. The estimated one-off cost is a total across all relevant FBOs, not a cost per FBO. See Table 1 for the estimated cost of reading the Guidance and the range used to account for uncertainty.

The central estimate assumes the average prose reading speed of 275 words per minute as well as the length of the new Guidance, we estimate that each business will require 20 minutes to read and understand the Guidance.

To account for uncertainty surrounding the reading time, the FSA has applied sensitivity analysis shown by the maximum estimate of £10,700 in Table 1. Here, the total time taken to read and understand the Guidance is increased to 1 hour, based on an average prose reading speed of 75 words per minute. This assumes that the new MSM Guidance will be interpreted as technical Guidance and therefore more time will be required to understand the content ([footnote 1](#)).

Further information regarding the breakdown of costs and businesses impacted can be found in Annex B.

Table 1. Total cost of time taken to read the guidance ([footnote 2](#))

| Nation | Central estimate | Maximum estimate |
|-------------------------|-------------------------|-------------------------|
| England | £2,600 | £9,400 |
| Wales | £200 | £700 |
| Northern Ireland | £200 | £600 |
| Total | £3,000 | £10,700 |

The FSA expects that supervisors in food businesses using mechanical meat separation equipment to spend time disseminating and explaining the new MSM Guidance to staff, and for time to be spent considering how the business may make any changes necessary to comply with regulatory requirements. This cost has not yet been monetised; information is requested from industry, via the consultation survey, with a view to quantifying the cost.

The FSA assumes that all relevant FBOs using mechanical meat separation equipment will already be complying with the Regulations and approved (unless exemptions apply) by the FSA or their Local Authority.

Impact of industry adapting activities and processes

Relabelling

FBOs using mechanical meat separation equipment that have incorrectly classified MSM products will need to relabel each incorrect product to comply with legislative requirements. The FSA seeks the views of affected parties in the consultation survey on the likely impacts, covering volumes of pre-labelled packaging, the feasibility of relabelling, and any extent to which existing incorrect labels may need to be disposed of. We assume a one-off relabelling cost to FBOs using mechanical meat separation equipment as they move towards compliance, as affected product labels and ingredients lists will only be re-written once. Any further packaging changes would be expected to form the cost of normal day to day running of businesses. The FSA seeks information about the impact on manufacturers regarding products containing MSM ingredients, to understand the cost of relabelling products that are sold to consumers.

The monetised cost of relabelling will be dependent on the length of the implementation period for the finalised Guidance. In the consultation survey, information is requested from relevant FBOs to understand the length of time required to allow FBOs to change processes with minimal waste of existing resources.

Production process changes

To achieve regulatory compliance, some FBOs may take commercial decisions to change production processes. For example, manufacturers may take commercial decisions to reformulate products to maintain product specifications regarding meat content percentages. The costs of commercial decisions for businesses, rather than mandated changes or direct impacts of the Court Judgments, will not be calculated within the analyses.

Some FBOs may need to make operational changes to meet hygiene regulatory requirements of producing MSM. The FSA is seeking information from industry to understand the extent of the

impact this may have on FBOs and the associated cost.

Food waste

The FSA assumes that there should be no food waste costs to businesses as a result of the Court Judgments. The Judgments do not necessitate the removal of any type of product, produced in line with legislative requirements, from the food chain. Products produced in line with the superseded moratorium guidance can be sold before the final version of the new guidance is published, post-consultation.

Monetary value difference between MSM and non-MSM products

There is a monetary value difference between MSM and other types of meat, including meat preparations. There are greater restrictions in terms of the permitted uses of MSM and it cannot count towards the meat content stated on final product labels. Consequently, it is of lesser commercial value. FBOs producing or using any products that must, in light of the Court Judgments, be classified as MSM may experience a fall in demand for those products. However, as MSM produced in line with regulatory requirements is safe to eat and use as an ingredient, it may be that FBOs can mitigate a drop in demand by establishing alternative routes to market.

It is expected that products previously considered to be meat preparations are those most likely to instead be determined to be MSM, in light of the clarity provided by the Courts regarding the definition of MSM. The availability of meat preparations will therefore be reduced unless replacement sources are lined up. The FSA will not quantify the likely differences in demand and/or price value of MSM products. These will be dependent on commercial decisions taken by industry stakeholders on a case-by-case basis, and the market will respond accordingly.

Impact on competent authorities

Familiarisation costs

The FSA assumes that there will be a one-off familiarisation cost for Local Authorities associated with the new Guidance. This cost will be monetised post consultation as part of an impact assessment.

Enforcement impact

There should be no additional impacts for Local Authorities in relation to monitoring and enforcement as no new activity is required. Local Authorities will continue to monitor FBO compliance through their programmed interventions. The FSA assumes that meat establishments will comply with the legislation, including the definition of MSM in the Regulations, and will follow the FSA Guidance. Therefore, enforcement officials are not expected to deal with significant levels of non-compliance.

FBOs that take decisions to switch to MSM activity will require approval from either the FSA or their Local Authority unless exemptions, under Article 4 of the Regulations, apply. In the consultation survey, feedback from industry is sought to understand how many FBOs are likely to apply for new approvals. This cost will be monetised post-consultation as part of an impact assessment.

Impact on consumers

Clarity regarding MSM requires accurate labelling on final product packaging in terms of meat content percentages and the indicated presence of MSM where applicable. This benefits consumers as it gives accurate information about the product. Consumers find MSM acceptable

(Which?, 2011 [\(footnote 3\)](#)), but want it to be clearly labelled to allow them to make informed decisions about what they buy and consume (Which? & the Government Office for Science, 2015) [\(footnote 4\)](#).

Whether, and to what extent, changes will have an impact on purchasing is currently unknown, as we do not have evidence of what products will be affected. We also have little evidence on consumer attitudes and behaviour towards purchasing of products containing MSM or towards meat content of products.

The likelihood of there being an impact on purchasing will be affected by factors that influence purchasing in general. For example, the variety of products available, price and judgement of quality. Price is one of the most important purchasing influences for meat (AHDB, 2018 [\(footnote 5\)](#)). The price of meat and meat products that the consumer is willing to pay is related to the consumer's judgement of the quality of the product. These quality judgments are subjective (Araújo et al, 2022 [\(footnote 6\)](#)) and will therefore vary between consumers and circumstances (e.g., meal type, type of meat/meat product). If the price does not reflect the quality as judged by the consumer, then the consumer may decide not to purchase.

Quality judgements of meat are partly affected by perceptions of 'healthiness' and processing quality (Becker, 2000 [\(footnote 7\)](#)) - two factors which are negatively associated with MSM once it has been explained to consumers. When MSM is described to consumers they associate it with processed products, and many consumers consider processed products generally to be 'unhealthy', regardless of whether an individual product is or not (Which? & the Government Office for Science, 2015 [\(footnote 8\)](#)). Providing MSM information on processed meat products may therefore be less likely to lead to changes in judgement of quality (as the product is already processed), compared to if consumers assume that a food is not processed and see that MSM is included in it. In addition, quality is affected by experience - if consumers have enjoyed the product in the past this may outweigh any new information. Initial negative reactions to mechanically separated poultry meat dissipated when consumers realised that it was probably already used in some processed foods they had eaten in the past (Which? and Government Office for Science, 2015 [\(footnote 9\)](#)).

Likelihood of changes to purchasing will also be affected by consumer awareness of the information (MSM labelling and meat content percentage) - which could be low. Product choice is habitual and consumers tend to avoid making multiple comparisons between products within a category; they spend only a very brief amount of time attending to labels (Osman and Jenkins, 2021 [\(footnote 10\)](#)). Even if consumers do engage with the labelling they are often unfamiliar with the term 'mechanically separated meat' (Which?, 2011 [\(footnote 11\)](#)). Meat content percentages may be used in decision-making (if seen) as this information is perceived to be key information that is included in meat labelling (Which, 2011 [\(footnote 12\)](#)). However, it is not known to what extent consumers use this information to inform their purchase decision.

Engagement and consultation process

This consultation seeks to gather views of stakeholders i.e., industry, enforcement authorities, trade bodies, consumers, and other interested parties, inviting opinions in relation to publication of new guidance regarding the definition of MSM following Court Judgments on the matter.

Stakeholder engagement

Industry

Industry representatives have been engaged in this matter (i.e., how MSM is defined) since before the 2012 Court case listed in this document. The 2012 moratorium on desinewed meat, the introduction of which was challenged (CJEU Case C-453/13; Judgment delivered October

2014), was the subject of a House of Commons Environment, Food and Rural Affairs Report (published July 2014) which considered oral and written evidence from the FSA and from industry stakeholders in weighing the merits and impacts of introducing the moratorium. The matter has been the subject of various related Court cases between 2012-2022 and the FSA and industry stakeholders have engaged on the issue throughout, to varying degrees.

In November 2022, the FSA issued a letter to Industry informing that new MSM guidance would be drafted and consulted on. At that time, key industry stakeholders were members of a Technical Working Group jointly led by the FSA and Industry trade association representatives. This had been established following the July 2022 High Court Judgment as a forum to discuss the effects of the relevant Judgments with the Court action having concluded.

In June 2023, a draft of the MSM Guidance was sent to Industry members of that group with feedback invited. The following month, a key industry stakeholder meeting was held to discuss that feedback. We are now publicly consulting on the guidance document.

Local Authorities

Local Authorities were informed in November 2022 that new MSM guidance would be drafted and consulted on. Throughout the development of the guidance and the consultation, the FSA has contacted Local Authorities in writing and directly in meetings, encouraging participation in the consultation and suggesting a focus on highlighting any support requirements.

Post-consultation period

When the 12-week consultation is closed, responses will be analysed, and an FSA summary of the responses to the consultation will be published. Feedback is sought on the guidance document which will be reviewed as necessary. Information is sought regarding the impacts of FBOs adapting activities and processes in line with Court Judgments. That information will be considered in the context of the FSA's implementation of the Guidance. There will be further stakeholder engagement prior to the Guidance being finalised and published.

Responses

Responses are required by 17:00 on 22 May 2024. Please state in your response whether you are responding as a private individual or on behalf of an organisation/company, including details of any stakeholders your organisation represents.

Please respond to the consultation via the [online MSM consultation survey](#). Feedback can also be emailed to meathygiene@food.gov.uk.

When the consultation period closes, the responses received will be collated, analysed, and subsequently published on www.food.gov.uk.

For information on how the FSA handles your personal data, please refer to the [Consultation privacy notice](#).

Further information

If you require a more accessible format of this document, please send details to meathygiene@food.gov.uk and your request will be considered.

This consultation has been prepared in accordance with [HM Government consultation principles](#).

Thank you on behalf of the Food Standards Agency for participating in this public consultation.

Meat Hygiene Policy

Food Policy Division

Annex A: Legislation

[Assimilated Regulation \(EC\) No. 853/2004](#) laying down specific hygiene rules for food of animal origin.

[Regulation \(EC\) No. 853/2004](#) (applicable in NI) laying down specific hygiene rules for food of animal origin (as amended).

Annex B: Breakdown of impact from Guidance familiarisation costs

This annex shows a breakdown of the familiarisation cost to businesses for reading and understanding the Guidance. This is a breakdown of the estimated costs shown in Table 1.

The estimated cost to FBOs using mechanical meat separation equipment of reading and understanding the Guidance is £600 (see Table 2).

Table 2: Estimated familiarisation costs for FBOs using mechanical meat separation equipment by nation with applied sensitivity analysis

| Nation | Central estimate | Maximum estimate |
|------------------|------------------|------------------|
| England | £500 | £1,800 |
| Wales | £40 | £200 |
| Northern Ireland | £30 | £100 |
| Total | £600 | £2,100 |

It is assumed that all FBOs using mechanical meat separation equipment for MSM activity and 10% of those using it for meat preparation activity will need to read the Guidance ([footnote 13](#)).

This equates to 125 meat establishments in total that use mechanical meat separation equipment across England, Wales, and Northern Ireland and will be required to read the Guidance (see Table 3) ([footnote 14](#)).

Table 3: Number of FBOs using mechanical meat separation equipment that are expected to read the Guidance

| Nation | FBOs using mechanical meat separation equipment for the purpose of MSM activity only | FBOs using mechanical meat separation equipment for the purpose of meat preparations only | FBOs using mechanical meat separation equipment for the purpose of both MSM and meat preparations activity | Total |
|------------------|--|---|--|-------|
| England | 2 | 89 | 17 | 108 |
| Wales | 0 | 7 | 3 | 10 |
| Northern Ireland | 0 | 6 | 1 | 7 |
| Total | 2 | 102 | 21 | 125 |

For FBOs categorised as using mechanical meat separation equipment, we assume that 1 supervisor per establishment will be reading and understanding the Guidance. The median hourly wage of a supervisor is £17.08, including a 22% uplift to account for overheads ([footnote 15](#)) ([footnote 16](#)). Assuming the average prose reading speed of 275 words per minute as well as the length of the new Guidance, we estimate that it will take a supervisor at each establishment approximately 20 minutes to read and understand the Guidance.

In line with standard practise, to account for uncertainty, the FSA has also calculated a maximum estimate around the time that it will take supervisors to read the Guidance. In the sensitivity analysis, the average prose reading speed is lower at 75 words per minute. This results in a total reading time of 1 hour and thus a maximum estimate cost of £2,100 across all relevant FBOs using mechanical meat separation equipment to read and understand the Guidance (see Table 2). This assumes that the new MSM Guidance will be interpreted as technical Guidance and therefore more time will be required to understand the content ([footnote 17](#)).

Assuming that all businesses using MSM as an ingredient will need to read and understand the Guidance, using the Inter-Departmental Business Register (IDBR) dataset it is estimated that 505 such businesses will need to do so (see Table 4) ([footnote 18](#)) ([footnote 19](#)). The FSA estimates the total cost across all businesses using MSM as an ingredient, in England, Wales and Northern Ireland, of reading and understanding the new Guidance to be £2,300 (see Table 5).

Table 4: Number of FBOs using MSM as an ingredient that are expected to read the Guidance

| Nation | Micro sized FBOs | Small sized FBOs | Medium sized FBOs | Large sized FBOs |
|---------|------------------|------------------|-------------------|------------------|
| England | 260 | 130 | 40 | 15 |

| Nation | Micro sized FBOs | Small sized FBOs | Medium sized FBOs | Large sized FBOs |
|------------------|------------------|------------------|-------------------|------------------|
| Wales | 20 | 5 | 5 | 0 |
| Northern Ireland | 20 | 10 | 0 | 0 |
| Total | 300 | 145 | 45 | 15 |

In line with the estimates for FBOs using mechanical meat separation equipment, we assume that 1 supervisor per manufacturer will be reading and understanding the Guidance. The median hourly wage of a supervisor is £17.08, including a 22% uplift to account for overheads ([footnote 20](#)) ([footnote 21](#)). Considering an average prose reading speed of 275 words per minute and the length of relevant documents, we estimate that it will take each manufacturer approximately 20 minutes to read and understand the Guidance.

In line with the costs to FBOs using mechanical separation meat equipment, sensitivity analysis has been applied calculating a maximum estimate of £8,600, whereby the reading time is increased to 1 hour (see Table 5).

Table 5: Estimated familiarisation costs for FBOs using MSM as an ingredient by nation with applied sensitivity analysis

| Nation | Central estimate | Maximum estimate |
|------------------|------------------|------------------|
| England | £2,100 | £7,600 |
| Wales | £100 | £500 |
| Northern Ireland | £100 | £500 |
| Total | £2,300 | £8,600 |

1. This assumption is tested within the consultation survey; FBOs can advise whether they believe the new Guidance is technical or not.
2. All figures are rounded, totals across tables may differ by minor amount due to rounding.
3. Which? (2011) Research on meat products, including attitudes to MSM and de-sinewed meat [Unpublished].

4. Which? and Government Office for Science (2015) Public Dialogue on food system challenges and possible solutions.
5. AHDB (2018) The meat shopper journey.
6. Araújo,D., Araújo,W. Patarata,L and Fraqueza, M (2022) Understanding the main factors that influence consumer quality perception and attitude towards meat and processed meat products. Meat Science, Volume 193.
7. Becker, T (2000) Consumer perception of fresh meat quality: A framework for analysis. British Food Journal 102(3):158-176
8. Which? and Government Office for Science (2015) Public Dialogue on food system challenges and possible solutions.
9. Which? and Government Office for Science (2015) Public Dialogue on food system challenges and possible solutions.
10. Osman, M and Jenkins, S (2021) Consumer responses to food labelling: A rapid evidence review.
11. Which? (2011) Research on meat products, including attitudes to MSM and de-sinewed meat [Unpublished]
12. Which? (2011) Research on meat products, including attitudes to MSM and de-sinewed meat [Unpublished]
13. Food Standards Agency has assumed that 10% of food business operators using mechanical meat separation equipment for the purpose of meat preparation activity will need to read the new Guidance as it is relevant to them. This assumption will be tested as part of the consultation survey.
14. The number of FBOs using mechanical separation meat equipment is taken from the FSA list of [Approved food establishments](#) as of August 2023. This includes establishments that are approved by either the FSA or their Local Authority and are categorised as handling MSM.
15. Wage rates taken from the [ONS' 2022 Annual Survey of Hours and Earnings \(ASHE\), table 14.6a](#).
16. A 22% uplift to account for non-wage labour costs has been applied in line with [RPC guidance](#).

17. This assumption is tested within the consultation survey; FBOs can advise whether they believe the new Guidance is technical or not.
18. [ONS Inter-Departmental Business Register \(2022\)](#).
19. Food business operators using MSM as an ingredient are calculated from the “Production of meat and poultry meat products” category from the IDBR dataset. In the absence of a breakdown for this category, it should be noted that the number of businesses in this category include manufacturers of all meat products and is not limited to the manufacturers of just poultry and pork. Therefore, this is an overestimate.
20. Wage rates taken from the [ONS' 2022 Annual Survey of Hours and Earnings \(ASHE\), table 14.6a](#).
21. A 22% uplift to account for non-wage labour costs has been applied in line with [RPC guidance](#).