



Market study on date marking and other information provided on food labels and food waste prevention

Executive Summary

Written by ICF in association with Anthesis, Brook Lyndhurst and WRAP

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Executive Summary

Introduction

European law (Regulation (EU) No 1169/2011 on Food Information to Consumers (the "FIC Regulation")) requires that most pre-packed foods display a date mark and accompanying wording that explains whether the date signals a threshold in the product's safety ("use by") or its quality ("best before"). The date mark is intended for use by consumers but also informs food chain operations, examples being retailers' stock management and food redistribution systems.

This study has been carried out to help inform actions of the European Union (EU) to prevent food waste, as part of the Circular Economy Action Plan. The study examined the practical application of EU date labelling legislation and its implications for food waste prevention.

The study's objectives were to:

- investigate food business operators' and national competent authorities' understanding and practices regarding information provided on food labels, especially date marking;
- assess the possible impact of these practices on food waste; and, in doing so,
- support the work of DG SANTE on date marking in relation to food waste prevention and, in particular, its dialogue with all actors on this issue.

The study was contracted to ICF by the Directorate-General for Health and Food Safety (SANTE) of the European Commission. ICF worked in close collaboration with Anthesis and was supported by experts from Brook Lyndhurst and the Waste and Resources Action Programme (UK).

Method

The study involved:

- desk research on the use of date labels and their links to food waste in the supply chain and in the home, including a review of EU food waste data to identify the main categories of foods contributing to food waste;
- market research in the form of a survey that used a 'mystery shopping' format in which products of ten pre-defined types were purchased from selected stores in eight Member States (Germany, Greece, Hungary, the Netherlands, Poland, Slovakia, Spain and Sweden). In this survey:
 - the eight Member States were selected to capture the variation in purchasing patterns across the EU;
 - the product types selected were: pre-prepared fruit/ vegetables, pre-packed sliced bread, chilled fish, sliced ham, fresh milk, yoghurts, hard cheese, chilled fresh juice, pre-prepared chilled pasta, and sauce (ketchup);
 - the main factors in the selection of the product types were: the food category's overall contribution to EU-28 avoidable food waste; evidence of use of different types of date mark for the same product type; extent to which consumers may take into account date marks when deciding whether or not to discard particular products; and relevant issues identified for the products relating to open life guidance, storage for optimal product life, and home freezing advice;
 - 2,296 products from 1,058 brands were purchased in 109 store visits. Detailed specifications prepared for each product enabled comparisons in date marking and information practices to be made between products across different brands, retailers, and Member States.

- semi-structured telephone interviews with 39 Food Business Operators (FBOs) and 19 National Competent Authorities (NCAs) in the countries targeted by the market survey, plus 16 EU-level organisations representing food industry sectors, consumers and food bank operators. These interviews focused mainly on stakeholders' understanding of the FIC Regulation and its application.

Findings from the desk research

Fruit and vegetables account for the highest proportion of avoidable food waste in the EU-28 across the manufacturing/processing, retail, food service, and household sectors: 16.2 million tonnes per year (Mt/yr), i.e., 33% of total avoidable food waste. This category is followed by bakery products (10.5Mt/yr, 21%); meat, including fish and poultry (4.8Mt/yr, 10%); and dairy products (4.7Mt/yr, 10%). No other category contributed more than 4.2Mt/yr or 8% of the total. Annual EU-28 food waste attributable to date marking issues was estimated at 6.9 Mt/yr - 8.9 Mt/yr across the manufacturing/ processing, retail and household sectors. This represents 5%, 55%¹ and 9.5-12% of the food waste from those three sectors, respectively. It was not possible to include the food service sector on the basis of data reviewed or to provide a breakdown by food product category. The value of 8.9 Mt/yr for food waste attributable to date marking issues approximates to 10% of the estimate for total food waste in the EU-28 (88 Mt/yr).

The over-arching conclusion from the analysis of EU food waste data is that any proposals to reduce food waste by driving improvements to labelling practices should focus on those food product types for which the consumer decision to discard is (already) likely to be informed by reading the on-pack label; and whose contributions to EU food waste is significant. Of food product types used in the market research, the greatest opportunities for prevention of food waste in relation to date marking exist for milk and yoghurts, fresh juices, chilled meat and fish. For other product types, the consumer decision to discard is more likely to be informed by visual cues that indicate a decline in product quality and palatability.

Findings from the stakeholder consultations and market survey

Use and choice of date marks

The interviews showed a high level of awareness among FBOs and NCAs of the FIC Regulation, its requirements, and its intent in distinguishing between "use by" date marks and "best before" date marks. This is consistent with the key finding from the market survey that almost 96% of products sampled displayed a date mark and accompanying wording that were in line with the provisions of the FIC Regulation.

Nonetheless, the market survey found variation in date marking practices within product types and among Member States. Of the ten product types sampled for this study, only sauce, sliced bread, and fresh juice had predominantly the same type of date mark in all eight Member States surveyed. (Along with hard cheese, these were the product types for which more than 80% of products sampled displayed a "best before" date mark.) The other product types tend to display a "use by" date mark in some Member States but a "best before" date mark in others. Examples were even found of otherwise identical products manufactured by international brands displaying a "use by" date in one Member State and a "best before" date in another.

The stakeholder interviews provided insights into the causes of the differences observed among FBOs and across the EU. Interviewees also gave examples of products listed in Annex X of the FIC Regulation (which details food exempt from "best before" labelling obligations) which have a date mark where none is required.

¹ For the retail sector this includes date expiry within stores.

Some **producers** take account of factors beyond the product characteristics when determining how to apply the FIC Regulation with respect to date marks. These include their perceptions of consumer knowledge of date labels. Some producers apply “use by” date marks to products (for which a “best before” date mark would be more appropriate) as a precautionary measure given the uncertainties about consumer handling of food. This is also due to differences in perceptions of what foods are considered to be ‘highly perishable’ in each market as well as retailer preferences for date marking.

Retailers tend to favour a consistent approach to date marking for each product type in each national market but are used to accommodating variation in labelling practice between national markets. The determination of the preferred type of label in each country is influenced by factors that include perceived expectations of consumers and, in some cases, guidance provided by a trade association or the relevant NCA.

Some **NCAs** provide interpretative guidance of date marks based on the FIC Regulation. There is variation among Member States in what this guidance entails. There are also examples of NCAs working to harmonise practices across countries (e.g. among Nordic countries).

Product shelf life/ setting of expiry date

FBOs are responsible for the determination of products’ shelf life, as well as the choice of date mark, other than for eggs and poultry meat. The remaining shelf life (as measured by the gap between the date of purchase and the “use by” or “best before” date on the product) of products purchased in the market research was assessed. None of the 10 product types showed a statistically significant difference between the remaining life of products carrying “use by” and those carrying “best before” date marks. This suggests that date marks were being used interchangeably.

Interviews with FBOs and NCAs suggest that the declared shelf life is normally determined by safety and quality considerations (as informed by microbiological or sensory testing), and previous experience of a product or similar products. For some FBOs the product life testing also takes account of the variations among countries in retailers’ storage temperatures.

The interviews identified examples of retailers and suppliers working together to improve shelf life. FBOs prioritise food safety – and tend to act cautiously to take account of differences in storage conditions within the food supply chain and the ‘worst case’ scenarios for consumer or retail behaviour (e.g. chilled foods being stored in ambient conditions). This suggests that greater harmonisation might bring further benefits in allowing FBOs to extend shelf life safely and reduce buffers, taking account of varying storage conditions.

Concern about consumer perceptions of products can prevent firms from exploiting the potential for extension of shelf life provided by improved storage technology. For example, some products which have traditionally been sold as chilled products can now be safely stored at ambient temperatures (for example, fruit juice and certain cheeses). Producers may resist setting a longer shelf life for fear of undermining a product’s association with freshness and quality.

NCAs are generally not involved in providing technical guidance on product testing or setting shelf lives. The main reason given by NCAs for not providing such guidance is that setting the date is the producers’ responsibility (as only they can fully understand product formulation and issues of food quality and safety) and so the producers should continue to be accountable for the date setting choices that they make.

On-pack storage advice and open-life instructions

The market survey found a wide range of storage advice on the sampled products, particularly in relation to the appropriate storage temperature for chilled products (which was expressed either as a maximum temperature or a temperature range). The

quoted storage temperatures tended to be lower than the standard maximum retail temperatures identified by interviewees as the norm for the relevant market. The storage advice in the same product group was often found to vary or even be contradictory across different markets, potentially leading to consumer confusion.

There was variation in prevalence of advice on open life. Such advice was provided on majority of fresh juice and pre-prepared chilled pasta products. It was least common on yoghurt, tomato sauce, hard cheese and sliced bread.

Interviewees acknowledged the lack of consistency in storage advice and open life advice. There was no consensus on what constituted good quality, non-mandatory advice on open life for consumers. The discussions suggested that FBOs' concern to avoid customer complaints and adjustments for factors such as consumer knowledge, and uncertainty about the conditions in which the product might be stored, led them to use formulations such as 'consume immediately' as a precautionary measure.

Legibility and layout of date mark and on-pack information

Fieldworkers reported difficulty in reading date marks and/or the wording on 11% of the products sampled. The main problems were that the text was too small, the layout was unhelpful and the print quality was poor. For example, 20% of pre-prepared chilled pasta products had a date mark or associated wording that was unclear, as did 16% of sliced ham products and 13% of sliced bread. No interviewees mentioned specific problems with making dates legible, despite the difficulties faced during the fieldwork.

The market research found that the date wording and date mark were alongside one another on some packaging and appeared separately on others. In the latter case, the FIC Regulation requires the date wording to state where the date mark is displayed on the packaging (e.g., "best before: see date on cap" rather than just "best before:"). FBOs explained this variation by reference to historic practices in each market that governed the location of the date mark for certain product groups as well as limitations due to product format. FBOs did not see the separate location of date mark and date wording as a problem for consumer understanding; when asked, they stated that such layouts were standard and something that consumers were accustomed to.

Enforcement of compliance with FIC Regulation and guidance

Most NCAs considered that the choice of date mark is the responsibility of FBOs and so not a matter for them to enforce. However, some NCAs and other actors (e.g. trade associations) actively tried to shift date marking practices when these have the potential to increase food waste. Examples are: attempts to harmonise storage conditions across the chilled food chain; support for stakeholder or cross-industry dialogue; guidance clarifying interpretation of "best before" or "use by"; and studies on consumers' understanding of date labels.

Donation of food past the "best before" date

Interviews revealed a wide range of practices and legal frameworks governing the donation of food that has passed its "best before" date. Although allowed under EU rules, some Member States discourage or forbid this practice (e.g. Poland) while others encourage it (e.g. Italy). The local infrastructure for food distribution, including food banks and charity organisations, also influences FBOs' practices.

Possible further exemptions to date marking under FIC Regulation Annex X

Annex X of the FIC Regulation lists food products that are not required to display a "best before" date mark. There was no consensus among those consulted on whether further exemptions in the FIC Regulation, based on evidence of consumer behaviour in relation to date marking, would be helpful in reducing food waste. Consumer expectations relating to the presence of information and a date mark played a part in this feedback.

Conclusions

Based on the study's findings, the authors conclude that avoidable food waste linked to date marking is likely to be reduced where:

- a date mark is present, its meaning is clear and it is legible;
- consumers have a good understanding of date labelling (notably the distinction between "use by" – as an indicator of safety – and "best before" – as an indicator of quality);
- "use by" dates are used only where there is a safety-based rationale for doing so, consistent with the FIC Regulation;
- the product life stated on the packaging is consistent with the findings of safety and quality tests, and is not shortened unnecessarily by other considerations, such as product marketing;
- storage and open life guidance are consistent with the findings of safety and quality tests;
- there is a level of consistency in storage of food at retail and guidance for consumers regarding the temperatures at which products should be stored in the home.

Recommendations

The study makes the following recommendations.

1. Technical guidance and support for dialogue within the supply chain would help to steer FBOs towards best practice in date labelling

A number of issues identified in the research could be addressed by producing technical guidance and by giving support to dialogue within the supply chain. Such guidance, which is likely to be specific to food product categories, should be developed by a multi-stakeholder group and could be coordinated by the Commission through the EU Platform on Food Losses and Food Waste.

- ***Determination of shelf life and guidance on storage and open life advice***

The uncertainty among FBOs as to how best to determine shelf life and guidance on storage and open life could be addressed by technical guidance that takes into account food safety and technology considerations as well as best practice. NCAs, scientific bodies and trade associations could be consulted. Important areas for guidance include the assessment of possible risk to health and the determination of product shelf life and open life, taking account of safety and other factors. Where there are gaps in evidence, support for new research should be considered.

- ***Making a choice between "use by" and "best before" labels***

It would be beneficial to provide technical guidance on when a "best before" date mark could be used instead of a "use by" date mark without compromising product safety and consumer information. At present, local market conditions and inertia among FBOs may be limiting the potential for a consistent approach across Member States, as evidenced by conflicting information given on multilingual labels.

- ***Management of temperatures of chilled food in the retail supply chain***

The differences in management practices in the supply chain for chilled food among Member States that have an effect on producers' decisions about product shelf life could be addressed by guidance or regulations.

2. FBOs should be encouraged to act to address the problem of illegible date marks as a priority

The legibility problems – poor print quality and ink retention, excessively small font size, layout, and colours that could not be distinguished against the background packaging, etc. – should be addressed by FBOs in partnership with retailers, and checked by NCAs as part of their monitoring of compliance with the FIC Regulation. These problems most commonly occurred when date marks were printed onto plastic film and plastic bottles. However, they may also occur when an “overlabel” displaying information, for instance in an additional language, is affixed to food packaging but is damaged.

Supplementary measures targeted at FBOs and the packaging sector that could help to address this problem are: an online resource that illustrates best practice for different packaging formats, considering layout, legibility and compliance with FIC requirements; and consultation with the packaging sector/ trade bodies on minimum ink adherence/ chemical compatibility for printing onto different materials, taking into account product life.

3. Further steps could be taken to help empower consumers to make informed choices

This study did not involve direct consumer research but evidence and perceptions of consumer awareness and behaviours figured prominently in the desk research and in the stakeholder consultations.

- ***Improving coherence and consistency of food information to consumers***

The problem of inconsistent guidance from various sources, national laws and local practices, which may lead to increased food waste in the home or at the point of sale, is especially acute on multilingual packaging where information in one language, including maximum and minimum temperatures, open-life guidance, and even the date wording, may contradict information displayed in another. Thus there appears to be a need for stakeholder dialogue or further European guidance on this topic.

- ***Ensure that any new consumer education campaigns are informed by a synthesis of existing research evidence on consumer behaviour***

There is evidence that many consumers do not fully understand the distinction between “use by” and “best before” labels, and that this can contribute to edible food being discarded; however, stakeholders were divided as to whether there would be merit in changing the terminology. Many interviewees suggested that the European Commission should support consumer education campaigns on food waste prevention. However, before responding to calls for supporting consumer campaigns, it is recommended that relevant existing research evidence is collated and made available to inform the communication strategy. This synthesis could usefully be conducted at an EU level given the variable depth of evidence available in individual Member States.

- ***Research on consumer engagement with date labels and associated guidance in the home would help to inform future policy***

The evidence base on how to inform consumers and influence behaviour so as to avoid unnecessary food waste through use of “best before” and “use by” dates, storage advice and open life advice is comparatively weak. Support for further research in this area would help to inform future policy, including by exploring options to increase the impact of communications via graphic symbols or smart packaging.

4. Support efforts to extend product life

- ***Guidance highlighting measures that increase product life***

There is evidence that discussions about the Minimum Life On Receipt between producers and retailers have helped to improve product life and reduce food waste by

encouraging investment in new technologies, such as innovative packaging and “clean rooms” (i.e., processing areas in which environmental pollutants are kept at very low levels by means of air filtration). NCAs and other stakeholders could highlight good practice or use guidance to encourage FBOs to consider extension of product life for certain foods.

5. Address barriers to safe redistribution of food

This study did not investigate barriers to food redistribution in-depth but the research did suggest scope to clarify the legal position and improve consistency of practice with regard to the sale or redistribution of food that has passed its “best before” date. (This would need to be specific to food product categories.) This recommendation could be considered within the scope of work commissioned by DG SANTE to support food redistribution in the EU.

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