FOR INFO

12 September 2022

The European Commission’s Joint Research Centre publishes the results of four scientific studies related to food information to consumers

(updates in red)

Dear all,

On 9 September 2022, the **Joint Research Center (JRC) of the European Commission** **published** four reports related to food information to consumers. The [**four scientific studies**](https://joint-research-centre.ec.europa.eu/jrc-news/evidence-food-information-empowering-consumers-make-healthy-and-sustainable-choices-2022-09-09_en) **synthesise the current evidence on front-of-pack nutrition labelling, origin labelling and food information through other means than on labels** **and analyse what is currently present on the market as regards the labelling of alcoholic beverages**.

As a reminder, in May 2020 the JRC published a [scientific literature review](https://publications.jrc.ec.europa.eu/repository/handle/JRC113586) on front-of-pack nutrition labelling schemes ([**FCP/INCO/020/20E**](https://members.fooddrinkeurope.eu/publishe.nsf/Document.xsp?action=openDocument&documentId=8C4DFE9CAA6E4979C125857000319061)). The report published today provides an update of the former publication regarding the effects of front-of-pack nutrition labelling (FOPNL) schemes on consumers' understanding, food purchases, diet and health, as well as food reformulation.

The findings from the four studies will contribute to the evidence base informing the impact assessment for the ongoing revision of Regulation EU No 1169/2011 on food information to consumers. These findings will also support the preparatory work for the upcoming proposal of the European Commission for a legislative framework for sustainable food systems (FSFS) and for a sustainability labelling framework to inform about the nutritional, climate, environmental and social aspects of food products.

A summary (prepared by FoodDrinkEurope Secretariat) of the main findings can be found below. The studies will be discussed at the next meeting of the INCO Expert Group on 26 September 2022.

Kind regards,

The Secretariat

**Joint Research Center report “Front-of-pack nutrition labelling schemes: an update of the evidence” (2022) - Summary prepared by FoodDrinkEurope Secretariat**

Aim of the study:

1. Update the previous literature review with recent evidence, published since 31 May 2018, on the effect of FOPNL on:
   * consumer awareness, acceptance, understanding, food purchases; diet and health; food reformulation and innovation;
   * the understanding by and impact of the various FOPNL schemes on lower socio-economic groups.
2. Collect relevant scientific publications published after 1990, focusing on the following aspects:
   * The effects of FOPNL schemes on consumer understanding and impacts on consumer behaviour with regard to:
     1. the effect of the reference quantities used in a FOPNL scheme (100 g/ml or portions/servings);
     2. the impact of a voluntary vs. mandatory implementation;
     3. the combined presence of different types of FOPNL;
     4. the combination of FOPNL with nutrition and health claims;
     5. highly processed vs. single-ingredient products, as well as traditional products and products with protected geographical indications.

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| **Aspect considered by the study** | **Conclusions from the 2020 JRC report** | **Conclusions from the 2022 JRC report** |
| **§ 5.2: Evidence on consumers’ attention to FOP nutrition labels** | 1. FOP nutrition labels generally receive more attention than more detailed BOP nutrition information; 2. Colour increases attention to FOP schemes, as long as contrast between the label and the package is achieved and the label is clear and big enough to be easily legible; 3. Attention is greater when the type of label and its location on the package does not change; 4. Attention to the nutritional information is higher if there is less other information on the food package. | The conclusions drawn in the JRC report on FOPNL (2020) remain unchallenged. Conclusion 1 is strengthened by new evidence that suggests including colours in FOPNL stimulates attention paid to the labels. |
| **§ 5.3: Evidence on consumers’ preferences and acceptance regarding FOP nutrition**  **labels** | 1. Most people seem to appreciate FOP nutrition labels. 2. Older adults and people with overweight/obesity are more likely to report a need for a FOP nutrition label. 3. Self-reported acceptance of FOP nutrition labels does not automatically entail that the label will be effective. However, if labels are not accepted, their message may be ignored even though they are noticed. 4. FOPNL schemes that use colours, are typically preferred to monochrome ones. The limited evidence, mostly coming from focus group studies, supports the idea that consumers prefer evaluative FOPNL schemes. 5. When comparing different FOPNL schemes, different studies show a preference for different schemes, where the most preferred label tends to be the one implemented in the country where the study is conducted. | The report largely confirms these past findings by providing additional evidence for the wide acceptance of FOP nutrition labels by consumers. With respect to conclusion 2, some, but not all the studies reviewed also suggest that consumers’ support and preference for FOP nutrition labels depends on their individual-level characteristics, including socio-demographic characteristics (like gender and region) and dietary habits or preferences. Nevertheless, the findings reviewed here suggest that it is sugar-conscious, health-conscious individuals with a high level of physical activity, and dieters, who report higher preference for FOP nutrition labels, while both respondents with overweight and those that consumed higher amounts of sugar-containing products appear more strongly opposed to their adoption.  Conclusion 3 is further supported by evidence that self-reported preference for and self-reported use of FOP. nutrition labels for making food choices are not always commensurate.  Conclusion 4 remains unchallenged with all reviewed studies suggesting consumer preference for coloured and directive FOP nutrition labels.  With respect to Conclusion 5, several studies do not reveal any clear preferences for specific FOP nutrition labels. |
| **§ 5.4: Evidence on consumers’ understanding of FOP nutrition labels** | 1. Evaluative (interpretative) FOP schemes help consumers gauge the nutritional value of products better than reductive schemes. 2. Short, simple labels achieve the best objective understanding. 3. The majority of laboratory and field studies suggest that evaluative schemes that use colour coding with or without a graded indicator help consumers to identify nutritious products, although there are indications that consumers can get confused when they have to integrate a mix of greens, ambers, and reds on the same label. 4. The Traffic Light scheme and the Nutri-Score generally seem to lead to a high level of understanding and this is probably because the colour coding and grading reduce the complexity of decision-making. 5. Three studies were reported in 2018 on the effect of reference quantities (Gregori et al., 2014; Raats et al., 2015; Vanderlee et al., 2012), and it was concluded that FOP schemes providing nutrition information ‘per 100 g’ seem to achieve better objective understanding than FOP schemes based on portions. However, the impact of the reference was suggested to depend on the task to be completed. | With the literature reviewed for this update, most conclusions above remain unchallenged. Additional insights can be added to Conclusion 5, i.e. the effect of reference quantities of consumer understanding. The reviewed studies indicate that salient, consistent and simple reference quantities are preferred and that consumers generally understand nutritional information better when it requires less “mental math” to process the information (see p. 56 of the report). |
| **§ 5.5: Effects of FOPNL on purchasing** | 1. Experimental studies looking at the intention to purchase show that FOPNL, especially colour-coded labels, can improve the nutritional quality of food choices and shopping baskets. 2. The limited evidence on actual shopping behaviour suggests a small effect of FOPNL on ‘on-the spot’ purchasing. A possible reason is that real-time purchasing decisions are influenced by a multitude of other factors (price, taste, habit, cognitive depletion, etc.) which may be difficult to isolate, making evidence on actual shopping behaviour difficult to obtain. 3. Some real-life studies confirm that evaluative FOP schemes can improve the nutritional quality of people’s actual food choices; evaluative FOP schemes with colour coding and/or with colour coding in combination with a grading indicator appear most promising. 4. FOP nutrition labels are effective in supporting health-conscious consumers. 5. For optimal effectiveness, FOP nutrition labels should be combined with appropriate education and promotion campaigns. 6. The type of FOPNL scheme may influence the effect on purchasing behaviour depending on the type of consumer. Evaluative labels may require less complex processing than reductive labels. | The report provides updates to Conclusion 1 by adding evidence on the way different FOP schemes are more effective in different outcomes. Some FOP schemes (Warning Labels) seem to decrease unhealthy choice to a stronger degree, whereas others (Traffic Light/Multi Traffic Light, Health Star Rating and Nutri-Score, and to a lesser extent RIs/GDA) seem to work better at improving overall healthiness of choices.  Strengthening Conclusion 2, the update covers a larger number of empirical studies, in real shopping contexts. The effect of FOP nutrition labels on improving the nutritional quality of the shopping basket in real-life contexts was substantially lower than what was found in laboratory settings. In this regard, the report notes that the limited evidence on actual shopping behaviour from real-life supermarket studies and sales data analyses suggests that the impact of FOPNL on ‘on-the-spot’ purchasing seems to be smaller in magnitude compared with what is observed in experimental studies (p. 106 of the report).  Adding to Conclusion 4, a difference of FOPNL impact on purchasing was also observed depending on whether the food category was considered healthy or hedonic; effects of FOPNL were more pronounced in the case of healthy/utilitarian foods but were more difficult to achieve for hedonic foods (for more details on this point see p. 84 of the report).  Conclusion 5 is further strengthened with additional research showing that familiarity with the FOPNL scheme, especially when already in use in the country evaluated, seems to influence the impact of FOPNL on purchasing.  The overall findings on the impact of FOPNL schemes on actual purchasing behaviour indicate that there may be an overall positive effect of FOPNL on intention to purchase, somewhat confirmed in observational studies. Further research is needed to systematically identify the real-life conditions under which FOP nutrition labels may affect consumers’ behaviour towards making overall healthier food choices. |
| **§ 5.6: Attention, preferences, understanding of FOPNL and effect on purchasing**  **behaviour in different population groups** | 1. There is consistent evidence showing that label use is associated with certain consumer characteristics: women are more likely to read nutrition labels compared to men; higher income and higher education level are positively associated with understanding and use of nutritional information; and better nutrition knowledge and understanding of diet-disease relationships as well as general interest in healthier eating habits are positively related with label use. There is no clear evidence about the association of age and nutrition label use. 2. Generally, older adults and those with lower income and/or education and nutritional knowledge struggle the most to interpret FOP nutrition labels correctly. 3. Poorly educated consumers seem to favour simpler, evaluative FOP nutrition labels. 4. Evidence suggests that the traffic-lights and Nutri-Score schemes are particularly effective among consumers of lower socio-economic status in helping them identify the healthier option. | On the basis of the literature reviewed for this report, the following conclusion can be added:   1. Presence of FOP nutrition labels, especially directive and semi-directive labels can result in healthier choices for children and adolescents.   In general, the rest of the conclusions drawn in the previous report on FOPNL remain unchallenged. |
| **§ 5.7: Effects of the implementation of different labelling aspects on consumer**  **understanding, preferences, and impact on consumer behaviour** | Not evaluated in the 2020 study. | The following conclusions can be drawn:   1. The use of different reference quantities can influence behaviour; clarity, granularity, and consumers’ expectations about nutritional value play a role and can influence (intended) consumption. This underlines the conclusion drawn in 3.4.1.1 that salient, consistent and simple reference quantities are preferred and that consumers generally understand nutritional information better when it requires less “mental math” to process the information. 2. Regarding voluntary or mandatory labelling, the limited evidence suggests that mandatory labelling may be beneficial for consumers’ understanding of labels, and that consumers prefer a mandatory implementation. 3. Due to the very limited number of studies that address various aspects, no robust conclusions can be drawn regarding the effect of FOP schemes on consumer understanding of and behaviour regarding highly processed compared to single-ingredient products. Please note that in this section of the report (§ 3.7.3) studies on “ultra-processed” foods are referenced. 4. The limited number of studies currently available do not allow to draw robust conclusions on the effect of combining summary labels with more detailed labels. There is some preliminary indication that combinations of summary and nutrient-specific information seem to perform relatively well in some studies regarding consumer preferences, purchase intentions, perceived healthiness, or healthiness of the shopping basket. However, even though too early to draw conclusions, it seems that combined labels do not perform as well as well-performing individual labels (for more details see § 3.7.4 of the report). 5. While the evidence on the effect of adding voluntary claims to FOP nutrition labels on food products is mixed, there seems to be a tendency that voluntary claims and marketing images can interfere with the efficacy of FOP nutrition labels. |
| **§ 5.8: Effects of FOPNL on diet and health** | The 2020 JRC report on FOPNL highlighted that:   1. To date, there is no empirical evidence that unequivocally links the introduction of FOPNL in general or a specific FOP scheme in particular to a healthier diet or better health. This is largely owing to the inherent difficulty of proving such causal links and the extensive research effort required. 2. Modelled scenarios of replacing commonly consumed foods with more nutritious options, as identified by FOP nutrition labels that are based on nutrient profile models, indicate potential changes in nutrient intakes. These changes are largely beneficial and become more pronounced with more ambitious scenarios. 3. FOP nutrition labels that make the health goal more salient in consumers’ minds when shopping might help improve food choices and overall diets. However, this may have to be balanced against the risk of decreasing consumers’ liking of products perceived as healthy and thus of inferior taste. | In general, the conclusions drawn in the previous report on FOPNL remain unchallenged.  Additional insights can be added to Conclusion 1 as online and offline choice experiments show that the presence of FOP nutrition labels can have a positive impact on consumer’s dietary intake.  Strengthening Conclusion 2, the modelling studies included in the 2022 report support that the adoption of FOPNL schemes, and in particular evaluative schemes, positively influences the nutritional intake and health outcomes of the population.  Conclusion 3 is strengthened by new evidence suggesting that the presence of evaluative FOPNL schemes is associated with positive changes in the nutritional content of the foods and beverages that consumers select.  More research is needed in order to precisely identify the effect of FOPNL schemes on the overall diet and, eventually, on health. Despite new evidence becoming available since the previous report, it remains difficult to draw conclusions regarding the exact effect of FOP nutrition labels on diet and health given the lack of available real-life evidence and given the difficulty to set up studies to generate such evidence.  Please note that in § 3.8 studies that evaluated FOP schemes against the NOVA classification for “ultra-processing” are referenced (see p. 154 of the report). |
| **§ 5.9: Effects of FOPNL on reformulation/innovation, and other supply chain**  **behaviour** | Based on the literature reviewed up to May 2018, the 2020 JRC report on FOPNL concluded that:   1. Most of the evidence that FOP nutrition labels actually influence food product composition is based on self-reported data. A few empirical studies support this evidence, but others fail to find any correlation between the nutritional composition of the food and the presence of FOP schemes. More objective data would be needed to conclude about a causal link between the presence of FOP nutrition labels and changes in the formulation of products. 2. Some studies highlight that although reformulation or product innovation may occur, it may only involve nutrients that appear on the FOP nutrition labels or which are considered in underlying nutrient criteria, while reducing the incentive to improve on the others. 3. The available evidence suggests that evaluative FOPNL schemes actually influence food product composition. 4. FOP nutrition labels seem to influence consumers’ perception of producers and retailers adopting them because these would be viewed as more transparent and caring. FOP nutrition labels seem to be present more on private label products than on branded ones. | The 2022 report, on the basis of the recently added literature reviewed, provides updates to Conclusion 1 by adding evidence on food and beverage reformulation that took place after the mandatory implementation of various FOPNL schemes at a national level; energy content of packaged foods and beverages was reduced, while reductions were also observed in the content of nutrients of interest such as sodium and sugars. Effects of FOPNL schemes on reformulation have been better demonstrated in the food products categories with overall lower nutritional quality. |

**Joint Research Center report “Consumer understanding of origin labelling on food packaging and its impact on consumer product evaluation and choices: A systematic literature review” (2022) - Summary prepared by FoodDrinkEurope Secretariat**

Aim of the study: to assess consumers’ understanding and use of origin labelling on food packages and its impact on their attitudes, perceptions, consumption and behaviour.

Research questions:

1. Does the origin of a food influence purchase decisions and consumption, and if so, how?
2. Why do consumers find it important to know the origin of the foods they purchase or consume?
3. How do consumers understand and interpret information on the origin of food?

The reviewed papers include empirical studies from 18 of the 27 EU Member States (MS) and from three of the four non-MS that are part of the EU’s single market[[1]](#footnote-1). In addition, there are studies from eight other high-income countries that are members of OECD (UK, USA, Canada, Australia, New Zealand, Japan, Korea, Chile) and from five middle-income countries (Turkey, China, Thailand, Russia, Tunisia). The most researched EU countries are Italy (33 studies), Germany (27), Spain (23), and France (12). Outside the EU, the most researched countries are USA (26), UK (11), and Japan (8).

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| **Research question** | **Main findings** | **Conclusions** |
| **§ 4.1: Whether and how the origin of a food influences purchase decisions and**  **consumption** | Impact of country of origin (COO) on food choices:   * All of the papers using conjoint analysis to study the impact of the COO on food choices report that the COO has a significant impact on consumer responses. * Exceptions to the dominating importance of the COO primarily (but not only) occur when consumers are asked to make trade-offs between COO and desired intrinsic qualities. * However, a number of studies using other methods than conjoint analysis found considerably lower effects on consumer preferences and choices of the COO (see p. 12 of the report for more details). * Most of the mentioned survey-based studies created an artificial focus on the COO, either by asking questions focusing on this factor or by including the COO among few factors that are varied in a conjoint analysis. A few studies using methods that do not specifically focus attention to the COO suggest that this artificial focus might have inflated the COO effect in some studies (see p. 12 of the report for more details). * A few studies investigated how it influences the effect of COO labelling if other extrinsic qualities are labelled as well, such as organic, carbon footprint, environmentally friendly, quality assurance labels, or a premium brand name. These studies generally report that the COO is less important when other credence characteristics are labelled as well, suggesting that consumers make partly overlapping inferences from the different labels (see p. 13 of the report for more details). * Some studies include demographic or attitudinal variables to capture some of the heterogeneity in the relative importance for consumers of various product attributes. As regards demographic variables, the most consistent findings across studies are a significant, positive impact on preference for domestic origin of female gender and age. Income and education did not appear to make any systematic difference for the impact of origin information on consumer choice.   Impact of region of origin (ROO) on food choices:   * Studies that include both domestic and local in addition to foreign origin generally find a positive consumer value of local on top of domestic. | Information about both country of origin and region of origin is generally found to have a substantial influence on consumers’ (hypothetical) food choices. Furthermore, consumers generally prefer domestic food products to imported, products from the local area or region to other domestic, and PDO or PGI certified to uncertified origin.  Still, the importance of origin information and the preference for local or domestic vary between countries and regions. Especially, a lower preference for domestic is generally found in developing countries. With regard to European countries, the reviewed research suggests that the preference for local origin is stronger in the south than in the rest of Europe and that this preference is boosted if the local produce is PDO or PGI certified (which is most common in southern Europe).  The origin effect also appears to differ between products, but without a clear pattern as to which products or types of products benefit more or less from origin information. However, there is some indication that the origin becomes less important when trade-offs have to be made with important intrinsic product attributes, such as freshness, colour (of tomatoes), or marbling (of a steak). Also, the effect of origin labelling is generally lower in the presence of other quality cues on the product, such as organic, eco-, or quality assurance labels. |
| **§ 4.2: Why consumers find it important to know the origin of the foods they**  **purchase or consume** | Impact of country of origin (COO) on food choices:   * That consumer ethnocentrism is an important source of the very common domestic country bias is well documented in prior research (consumer ethnocentrism refers to the ethnocentric belief held by consumers in a country, the in-group, that it is not appropriate, and possibly even immoral, to buy products from other countries, the outgroup). * Another, well-documented reason why consumers want origin information is the perception that products from different origins differ in desired qualities and safety and therefore the origin can be used as a reliable cue to product quality and safety. * A couple of studies found that the importance of the COO and in particular the value of domestic origin increases with the consumer’s environmental concern. Other studies confirm that consumers infer environmental friendliness from origin information (see p. 19 of the report for more details).   Impact of region of origin (ROO) on food choices:   * The reviewed research suggests that consumers infer many of the same qualities from ROO information on food products as they do from COO information, and that these inferences are the main reason why information about the narrower, local or regional origin of food products is important to consumers. | Research investigating why consumers find it important to know the origin of food products they buy unanimously point at feelings of patriotic duty or ethnocentrism as well as a widespread use of origin information as a cue to desired credence or experience qualities.  According to the reviewed research, most consumers in all studied countries believe that domestic food products are safer, healthier, fresher, tastier, more environmentally friendly, etc. than imported. Consumers also distinguish between foreign origins in these respects, generally believing that food products from countries that are more like their home country are better and more trustworthy than products from more distant, unfamiliar, or less developed countries. Most consumers also appear to infer that food products from their local area or region are better than products from other areas, in much the same way as domestic products are perceived as better than imported. These perceptions seem to be boosted by PGI or PDO labelling of local food, especially among consumers in the south of Europe. |
| **§ 4.3: How consumers understand and interpret information on the origin of food** | * Ethnocentric biases are the most common source of erroneous consumer inferences from origin information. * Another common misperception concerns the climate impact of specific food products, often associated with the distance to the COO, rather than how products are transported (see p. 21 of the report for more details). * In addition, many consumers do not understand, or tend to misunderstand origin labelling. Producers sometimes, knowingly or unknowingly, take advantage of consumers’ misunderstandings (see p. 22 of the report for more details). * Several studies investigated consumer knowledge of the origin of food products they had just bought or often buy, and some studies investigated consumer knowledge and recognition of various origin labels, including EU’s quality labels (especially PDO and PGI). Most of these studies report low origin and label knowledge among consumers. * As all the origin-related perceptions and evaluations discussed earlier, measures of the level of trust in food from different origins and trust in different origin labels are also influenced by ethnocentric biases. Notably, studies find that consumers generally trust domestic and local producers and products more. * In terms of demographics, it seems that especially age, education and perhaps income are related to origin label knowledge. | Research indicates that consumers can easily misinterpret and are often not aware of the rules and regulations behind official origin or quality labels. Many studies also find a low knowledge and awareness of origin-based quality labels, such as EU’s PDO and PGI labels.  In addition, the reviewed research documents that consumer inferences from origin information are strongly influenced by ethnocentrism. Consumers primarily use origin information to identify domestic and local produce, to which they generally attribute superiority on both, extrinsic and intrinsic attributes. Consumers also tend to rely on the distance to the COO to estimate the climate impact of specific products, and they tend to trust local producers and products more. However, when consumers are incepted in the store or at the check-out counter and asked about the origin of products in the shopping cart, usually most of them are not able to tell, which suggests that in practice they pay less attention to the origin of food products than they say when asked in a survey.  Still, knowledge of labels is related to interest in origin information and the origin of food products, which are driven by the consumer’s beliefs and inferences about what differentiates products from different origins. Origin and origin labelling knowledge appears to increase with education and also with age, income and social status to a certain level. Some research suggests that women in general know more than men about these topics, perhaps because they still do most of the food shopping. |
| **§ 5.3: Implications** | * The findings regarding common consumer misunderstanding, misinterpretation and lack of knowledge of origin information, including EU’s origin-based quality certifications, suggest a need for more and better information about and consumer education on these matters. In addition, it seems worthwhile to investigate ways of making this information more accessible to the average consumer. This suggests that, in addition to informing and educating consumers about the existence of the various origin labels, it is necessary to teach them why and in which ways this information is relevant to them, that is, what are the personal and societal benefits that the labelling helps the consumer obtain. * Note also that the EU Court of Justice and others deemed campaigns promoting domestic and local products “solely by reason of their national origin” and not based on their particular properties (not compliant with article 34 of the Treaty on the Functioning of the European Union. These campaigns partly play into consumer ethnocentrism, which is pervasive across studied countries according to this review, and significantly contributes to preferences for domestic/local food products. Hence, in order to attenuate the effect of ethnocentrism on consumer choices, it may be advisable for EU and Member States to communicate more actively that food safety standards are harmonized and that food safety and product quality have to live up to the same, high standards all over the EU. | |

In terms of research gaps, the authors note a lack of studies digging deeper into consumer lack of knowledge and understanding of origin information, and, in particular into causes and possible solutions. They also note that research on the level of trust in and origin information is also sparse and identified a need for research that disentangles the role of consumer ethnocentrism from other reasons why consumers are interested in origin information. For instance, based on current research it is not possible to disentangle the role of environmental concern from ethnocentrism as reasons why consumers are interested in origin information.

**Joint Research Center report “Provision of ingredient, energy and full nutrition information on alcoholic beverages” (2022) - Summary prepared by FoodDrinkEurope Secretariat**

The study consists of a market analysis to assess, from the consumer point of view, the current level of provision of information on ingredients and nutrition on alcoholic beverages sold off-trade (e.g. in supermarkets, shops, e-commerce etc as opposed to settings where alcohol is sold and consumed).

The categories of alcoholic beverages analysed were:

* Beer products.
* Spirits.
* Wine products.
* Flavoured Alcoholic Drinks or Ready-to Drink (RTDs) products.
* Ciders and perries.

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| **Type of information** | **Findings** |
| **Information on ingredients** | 87.5% of beers throughout the EU markets researched provided it, in contrast to only 2% of wines. Ciders and perries were close to the 50% mark, and Ready-to Drink were not far (46.9% and 43.4% providing ingredient information, respectively). Twenty-one percent (21.2%) of spirits products presented ingredient information. |
| **Nutritional information** | In the case of Ready-to Drink products, nutritional information was found on 15.1% of newly launched or relaunched products, and in 8.5% of sampled products. In the case of beers, nutrient information was present in 9.4% of newly launched and re-launched products, and in 7.7% of sampled products; and for ciders/perries the information was present in 5.4% of new/re-launches while in 3.1% of sampled products. In both spirits and wines nutritional information was rarely present, whether on newly launched/re-launched products (0.9% of spirits, 0.2% of wines) or on the products analysed via store checks (0.2% of spirits, 0.1% of wines). |
| **Presence of energy content as the single nutritional information provided on**  **the labels** | Beers carried this information on 16.1% of new/re-launched products, while 43.1% of sampled beers provided energy content as the single nutrition-related information. Similarly, 16.5% of newly or relaunched ciders and perries carried energy only information, whereas 39.1% of sampled products did so. As for Ready-to Drink products, 7.7% of new/re-launched products carried energy only information, compared to 30.4% of sampled products. Only 0.9% of new/re-launched spirits provided ‘energy only’ information, but sampled spirits in store checks showed a higher percentage, with 16.6% of spirits carrying such information. In the case of wines, 0.5% of new/re-launches versus 2.3% of sampled products displayed energy content as the single nutritional information. |

**Joint Research Center report “Literature review on means of food information provision other than packaging labels” (2022) - Summary prepared by FoodDrinkEurope Secretariat**

Aim of the study: to address three main questions regarding consumers’ reactions to other means of food information provision identifying:

1. the type of means of food information provision that consumers use apart from packaging labels;
2. the type of means of food information provision apart from packaging labels that consumers want;
3. the impact of different means of food information provision on consumers’ attitudes and behaviors.

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| **Type of source of food information** | **Main findings and conclusions** |
| **§ 4: Online means: mobile food applications, grocery stores’ webpages, blogs and social media, website links, QR codes and barcodes, augmented reality tools, include blockchain technology providing traceability information** | * Use of information delivered through online means is low except for mobile food applications where participants were asked to use the app in the setting of the study. * Attitudes towards the analyzed online means are generally positive, and in some cases influence intentions to use these means. An exception is the case of QR codes that are not always appreciated by consumers and intentions to use them, and actual use are low in certain context. QR codes’ use is notably low when consumers are required to scan them using their own devices. * Labels providing a website link for alcohol products are not particularly appreciated by consumers. * Online means may influence food knowledge. * Regarding information on alcohol products, results suggest that consumers want to have access to alcohol nutrition information directly on the label and not through online links placed on labels. * Although there are few articles studying behavioral effects of online means, there is a potential for online means to influence consumers’ behavior, in particular when direct access to food information is warranted. Future research is needed to assess the impact of these means when consumers have to spontaneously use them in the marketplace (in comparison to when use is part of the study outset). * Future work should also compare online means to more traditional ways to provide food information, such as labels. |
| **§ 5: Menu labels** | * Overall, menu labels seem to be an effective measure to influence consumers’ behavior in the marketplace with small but significant effects on consequential outcomes such as food purchases with improvement in nutritional quality of products purchased and/or reduction in the number of calories purchased. * The literature also documents a small reduction in Body Mass Index in places where calorie labeling mandates were implemented. Although these effects are small, they provide evidence of effectiveness of this measure in the field. |
| **§ 6: Shelf labels[[2]](#footnote-2)** | * The overview of articles on shelf labels provides limited evidence on whether consumers use or want shelf labels providing food information. * Overall, the majority of the articles (n=15) showed small but significant effects of shelf-labels on food purchase, with either an increase of healthy food purchases and/or a decrease of unhealthy food purchases. It is noteworthy, however, that one study also documented an increase in sales of unhealthy food items after shelf-labels display, probably due to enhanced products’ salience. |
| **§ 7: Other means** | * Taken together, articles on POS signage in grocery stores provide initial evidence that graphic health warning signs can reduce sugary drink consumption. One study also provides indication that POS signs can be used to promote healthy products |
| **§ 8: Accessibility of food information to visually impaired individuals** | * Taken together, the literature focusing on visually impaired consumers show that their levels of internet use for shopping are generally equivalent to those of non-disabled individuals. They have, however, an important demand for adapted food-related information online. Online shopping seems to be a prevalent activity for visually impaired individuals and allows them to feel independent if access to product information is available. * Results also show that visually impaired individuals have a hard time shopping in-store and that there is need to provide specific tools, such as food information in Braille, to allow access to food information inside grocery stores and restaurant. |
| **§ 9: Implications** | There are four main public policy implications of this review:   1. The analysis of the articles suggests that it is premature to adopt an exclusive display of food information using digital means. There is limited scientific evidence on how digital means are used by consumers in the marketplace or on their behavioral effects. Therefore, if the objective is to improve accessibility of food information enabling consumers to make informed food choices, digital means do not seem to be the best option. 2. Food information directly available at the marketplace through menu labels, shelf labels, or POS signs seem to be better alternatives to facilitate consumers’ choices of healthy diets in comparison to online means. They render information accessible at the point of sale and sometimes influence behavior even when self-reported use is low, a finding that suggests these means may operate outside of consumers’ awareness. 3. Providing food information only through digital means seems risky because it may permit access only to consumers who use mobile devices and are also motivated to scan QR codes or open weblinks, while restricting access from others. 4. Improving accessibility of food information to visually impaired individuals may be done by providing product information online that can be processed with automatic screen readers and by providing food information in Braille in the marketplace. |

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1. The EU and associated countries not being researched in the period covered by this review are Austria, Bulgaria, Croatia, Cyprus, Czech Republic, Estonia, Latvia, Luxembourg, Malta and Iceland. [↑](#footnote-ref-1)
2. Please note that most of the shelf labeling systems discussed in this review have been developed at a voluntary basis by the grocery industry, in particular in the U.S. and Canada. [↑](#footnote-ref-2)