



Brussels, 20.5.2020
COM(2020) 207 final

**REPORT FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT AND
THE COUNCIL**

**regarding the use of additional forms of expression and presentation of the nutrition
declaration**

TABLE OF CONTENTS

1.	Introduction	2
2.	Historical background	2
3.	EU legal framework on front-of-pack nutrition labelling	3
3.1.	Additional forms of expression and presentation under the FIC Regulation.....	3
3.2.	Other front-of-pack nutrition labelling schemes	4
3.3.	Nutrient profiling	4
4.	Front-of-pack schemes implemented or developed at EU-level	5
4.1.	Different formats of front-of-pack nutrition labelling schemes	5
4.2.	Front-of-pack schemes endorsed or under consideration by Member States and the United Kingdom.....	5
4.3.	Front-of-pack schemes developed by EU private operators	8
5.	Situation at international level	9
6.	Consumer interest, understanding and reaction and impact on health.....	10
7.	Impact on food business operators and on the internal market	13
8.	Positions and points of view	15
8.1.	Council, European Parliament and Committee of the Regions.....	15
8.2.	EU Member States' experts from national competent authorities	16
8.3.	Stakeholders	17
8.4.	International organisations	17
9.	Conclusions	18

1. INTRODUCTION

This report responds to the obligation set for the Commission by Article 35(5) of Regulation (EU) No 1169/2011¹ on the provision of food information to consumers (the FIC Regulation). This provision requires the Commission to submit a report to the European Parliament and the Council on the use of additional forms of expression and presentation of the nutrition declaration, on their effect on the internal market and on the advisability of further harmonisation of those forms. This provision also states that the Commission may accompany the report with proposals to modify the relevant Union provisions.

As from December 2016, the FIC Regulation requires the vast majority of pre-packed foods² to bear a nutrition declaration, often provided on the back of food packaging, to allow consumers to make informed and health-conscious choices. This declaration can be complemented by a voluntary repetition of its main elements in the principal field of vision (known as the 'front-of-pack'), in order to help consumers to see at a glance the essential nutrition information when purchasing foods. For this repetition, other forms of expression and/or presentation (e.g. graphical forms or symbols) can be used on the front-of-pack (FOP) in addition to those contained in the nutrition declaration (e.g. words or numbers).

In the light of the experience gained with these additional forms of expression and/or presentation of the nutrition declaration, the Commission was requested to adopt a report on their use and impact by 13 December 2017. Considering the limited experience in this area in the past years and some recent developments at national level, the adoption of the report was postponed with a view to include the experience with recently introduced schemes. The present report goes beyond the scope of Article 35 of the FIC Regulation (*i.e.*, additional forms of expression and/or presentation repeating the information provided in the nutrition declaration) and includes also schemes that are providing information on the FOP on the overall nutritional quality of foods, since such a differentiation would not be pertinent from a consumer's perspective.

This report presents the main FOP nutrition labelling schemes currently implemented or being developed at EU level, as well as some of the schemes implemented at international level. It also addresses consumer understanding, effectiveness and impacts of FOP schemes. This report builds upon literature reviews and data gathered and analysed by the Joint Research Centre on the topic and extensive consultation carried out by the Commission with national competent authorities and relevant stakeholders.

2. HISTORICAL BACKGROUND

Under the Commission's proposal for a Regulation on food information to consumers laid down in January 2008³, food business operators were supposed to display, on a mandatory basis, details about energy, fat, saturated fat, carbohydrates, sugar and salt on the FOP of pre-packed processed foods. In addition, it was allowed to develop voluntary national schemes to declare these mandatory elements through other presentation formats (e.g. graphical forms).

¹ Regulation (EU) No 1169/2011 of the European Parliament and of the Council of 25 October 2011 on the provision of food information to consumers, OJ L 304, 22.11.2011, p. 18.

² Foods which are exempted from the requirement of the mandatory nutrition declaration are listed in Annex V of Regulation No 1169/2011

³ COM(2008) 40 final, Article 34

The co-legislators decided to keep the FOP labelling concept but to remove its mandatory character. They agreed that, in the absence of a FOP nutritional scheme that would be understandable and acceptable for all EU consumers, this matter should be left to Member States and food business operators to develop their own schemes, adapted to their consumers, provided they comply with certain criteria. The aim was to gather experiences on the functioning of the various schemes in Member States, in order to take a more informed decision on possible further harmonisation at a later stage. Against this background, the FIC Regulation, adopted in 2011, required the Commission to provide the present report on the use and impact of the various schemes and on the advisability of further harmonisation.

Given the increasing rates of overweight and obesity in most EU Member States and a substantial burden of diseases attributable to dietary risks⁴, the interest from public authorities in FOP nutrition labelling has been growing since the adoption of the FIC Regulation. The policy objectives of FOP labelling are typically two-fold: (1) to provide additional information to consumers to inform healthier food choices and (2) to encourage food business operators to reformulate products towards healthier options (Kanter et al., 2018). FOP labelling is therefore increasingly seen as a tool to support strategies⁵ for the prevention of obesity and other diet-related non-communicable diseases. Today, several FOP schemes have been developed and implemented across the EU.

3. EU LEGAL FRAMEWORK ON FRONT-OF-PACK NUTRITION LABELLING

1.1. Additional forms of expression and presentation under the FIC Regulation

The FIC Regulation allows, on a voluntary basis, the repetition of information provided in the nutrition declaration, i.e. the energy value alone or the energy value together with the amounts of fat, saturates, sugars and salt, on the FOP (Article 30(3)). According to Article 35 of the FIC Regulation, additional forms of expression and/or presentation of the nutrition declaration (e.g. graphical forms or symbols) can be used by food business operators or recommended by Member States, provided that they comply with the criteria set out in the Regulation.

These criteria comprise the requirements that the additional forms are based on sound and scientifically valid consumer research and do not mislead the consumer. The forms should be the result of consultation with a wide range of stakeholder groups, must be aimed at facilitating consumer understanding of the contribution or importance of the food to the energy and nutrient content of a diet and should be supported by scientific evidence showing that they are understood by the average consumer. In addition, the forms must be objective

⁴ Weight problems and obesity are increasing at a rapid rate in most of the EU Member States, with estimates of 51.6 % of the EU's population (18 and over) overweight in 2014. Obesity is a serious public health problem, as it significantly increases the risk of chronic diseases such as cardiovascular disease, type-2 diabetes and certain cancers (https://ec.europa.eu/eurostat/statistics-explained/index.php/Overweight_and_obesity_-_BMI_statistics). More generally, it is estimated that in the European Union, over 950,000 deaths and over 16 million years of life lost are attributable to dietary risks due to unhealthy diets (<https://ec.europa.eu/jrc/en/health-knowledge-gateway/societal-impacts/burden>).

⁵ EU Member States are taking various approaches (e.g. reformulation agreements, marketing restrictions of foods high in fat, salt and sugar, public procurement of healthy food, taxing sugary drinks) as part of their strategies on health promotion and disease prevention. The European Commission is supporting Member States in actions on healthy lifestyles and healthy eating through the implementation of the 2007 EU Strategy on Nutrition, Overweight and Obesity-related Health Issues, the 2011 EU Framework for National Initiatives on Selected Nutrients (a 2008 reformulation framework had been agreed to reduce salt) and the EU Action Plan on Childhood Obesity 2014-2020. Promoting healthy lifestyles will help the Member States to reach the Sustainable Development Goals by 2030 and the WHO targets on non-communicable diseases by 2025. (https://ec.europa.eu/health/sites/health/files/nutrition_physical_activity/docs/2019_initiatives_npa_en.pdf)

and non-discriminatory and must not create barriers to the free movement of goods. In case of other forms of expression, they should be based on harmonised reference intakes or generally accepted scientific advice on intakes.

Member States are required to monitor the use of any additional forms of expression and presentation within their territory and submit this information to the Commission. To facilitate this monitoring, Member States can require food business operators, placing on the market in their territory foods bearing such information, to notify them the use of additional forms of expression and/or presentation and to provide them with the relevant justifications regarding the fulfilment of the requirements set in the EU legislation.

1.2. Other front-of-pack nutrition labelling schemes

Some FOP schemes developed by Member States or food business operators do not fall under Article 35 of the FIC Regulation since they do not repeat information provided in the nutrition declaration as such but provide information on the overall nutritional quality of the food (e.g. through a symbol or letter). Such schemes are considered as 'voluntary information' under Article 36 of the FIC Regulation which shall not mislead the consumer, not be ambiguous or confusing for the consumer and shall, where appropriate, be based on the relevant scientific data. At the same time, when such a scheme attributes an overall positive message (for example through a green colour), it also fulfils the legal definition of a "nutrition claim"⁶ as it provides information on the beneficial nutritional quality of a food as defined in Regulation (EC) No 1924/2006 on nutrition and health claims made on foods⁷ (Claims Regulation). According to the Claims Regulation, claims should be based on scientific evidence, shall not be misleading and are only permitted if the average consumer can be expected to understand the beneficial effects expressed by the claim. FOP schemes falling in the scope of the Claims Regulation can only be used in the territory of a Member State if they have been adopted by the Member State in question in accordance with Article 23 of the Claims Regulation outlining the notification procedure to the Commission.

1.3. Nutrient profiling

Nutrient profiling is the categorisation of foods according to their nutritional composition using predefined criteria⁸. It has a variety of applications around the world, for example to regulate food marketing to children. A common use of nutrient profiling is also in FOP nutrition schemes. Most FOP schemes are based on nutrient profiling criteria that may be simple nutrient thresholds, for example to define when a scheme will attribute a green, amber or red colour, or more complex algorithms that result in a summary score. The nutrient profiling criteria can be applicable to all food groups across the board, or be specific to different product groups. As such, nutrient profiling criteria do not appear on labels.

In the EU, the notion of nutrient profiling is also used in the context of nutrition and health claims on food, where "nutrient profiles" are understood as thresholds of nutrients such as fat, salt and sugars above which nutrition and health claims are restricted or prohibited, thus preventing a positive health message on food high in these nutrients. According to the Claims Regulation, the Commission was due to set "nutrient profiles" by 2009, but these profiles have not yet been established given the high controversy of the topic, which was

⁶ A nutrition claim states or suggests that a food has beneficial nutritional properties due to the energy the food provides, the nutrients and other substances the food contains or does not contain (Article 2(2)(4) of Regulation (EC) No 1924/2006)

⁷ Regulation (EC) No 1924/2006 of the European Parliament and of the Council of 20 December 2006 on nutrition and health claims made on foods, OJ L 404, 30.12.2006, p.9.

⁸ <https://www.who.int/nutrition/topics/profiling/en/>

demonstrated by divergent and polarized views in 2009 when the Commission tried to set them. An evaluation of the Claims Regulation is focusing, amongst other issues, on nutrient profiling and more specifically on the question whether setting “nutrient profiles” aiming to avoid attractive claims on too salty, fatty or sweetened foods, are still fit for this purpose or if any alternative could be envisaged to reach the same objectives.

4. FRONT-OF-PACK SCHEMES IMPLEMENTED OR DEVELOPED AT EU-LEVEL

1.4. Different formats of front-of-pack nutrition labelling schemes

In the 1980s, some governments started to develop FOP nutrition labels in the context of strategies for the prevention of obesity and other diet-related non-communicable diseases. In the early 21st century, concomitant with the emerging global obesity epidemic and the greater abundance of processed food in the marketplace, the number of FOP labelling initiatives increased steadily (Kanter et al., 2018). FOP nutrition labelling has been implemented in many different ways and different formats are currently being used around the world. Various typologies have been put forward in the literature to classify these formats into categories according to their main features.

Schemes can be divided into 'nutrient-specific' schemes, providing more or less detailed nutritional information on specific nutrients, and 'summary indicator' schemes that rather provide a synthetic appreciation of the product's overall nutritional quality/healthfulness (Savoie et al., 2013). The 'nutrient-specific' category can be sub-divided into 'numerical' and 'colour-coded' sub-categories. The 'summary indicator' schemes can be sub-divided into 'positive' indicators (endorsement logos) that can be applied only on foods complying with certain nutritional criteria, and 'graded' indicators that are providing global and graded information on the nutritional quality of foods and can be applied on all food products (Julia & Hercberg, 2017).

Another typology relates to the level of 'directiveness' of the scheme, in other words, to what extent the label provides a direct indication whether the product is nutritionally good for the consumer or not (Hodgkins et al., 2012). Another classification includes two categories, 'reductive' schemes (reduced version of the nutrition information contained on the back-of-pack) and 'evaluative' schemes (evaluating the nutrition information for the consumer) (Newman et al., 2014). By definition, all evaluative FOP schemes, be they nutrient-specific or summary indicators, are based on nutrient profiling models.

Table 1 classifies the public schemes (implemented or proposed) and some of the private schemes according to different typologies and provides also information on their developer and where the schemes are used or proposed/announced.

1.5. Front-of-pack schemes endorsed or under consideration by Member States and the United Kingdom⁹



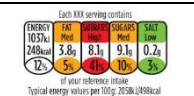





Summary labels - Positive logos

The Keyhole logo, developed by the Swedish National Food Agency and introduced in Sweden in 1989, was the first FOP logo system to be implemented in the EU. The Keyhole is a voluntary free-of-charge label in the form of a symbolic green representation that identifies the healthier choice within 33 defined food groups (e.g. bread, cheese, ready meals), based on nutritional criteria such as the level of fat, sugars, salt, wholegrain or fibre. The logo cannot be used on products that have a low nutritional value, such as salted snacks or soft drinks.

⁹ The United Kingdom withdrew from the European Union and became a third country as of 1 February 2020.

Denmark and **Lithuania** introduced the Keyhole label respectively in 2009 and 2013. The label has also been adopted by non-EU countries (e.g. Norway, Iceland).

Table 1 – Typologies and formats of FOP nutrition labelling schemes implemented/proposed/announced at Member States' and UK level

Taxonomies put forward in the literature				Examples of FOP schemes	Developer	EU Member State	
Nutrient-specific labels	Numerical	Non-directive	Reductive (non-interpretative)	Reference Intakes label		Private	Across the EU
				NutrInform Battery		Public	IT
	Colour-coded	Semi-directive	Evaluative (interpretative)	UK FOP label		Public	UK
				Other 'traffic light' labels		Private (retailers)	PT, ES
Summary labels	Positive (endorsement) logos	Directive	Evaluative (interpretative)	Keyhole		Public	SE, DK, LT
				Heart/Health logos		NGO Public	FI SI HR
				Healthy Choice		Private	CZ, PL Phased out in NL
	Graded indicators			Nutri-Score		Public	FR, BE ES, DE, NL, LU

Finland endorsed the "Heart Symbol - Better choice" in 2000. The criteria for using the symbol (fat, salt, sugar and/or fibre content) are defined for nine main food groups. The right to use the label is granted by experts nominated by the Finnish Heart and Diabetes Associations and is subject to a charge¹⁰.

In **Slovenia**, the 'Protective Food' (also called 'Little Heart') logo was introduced in 1992 by the Society of Cardiovascular Health¹¹ and promoted by the government (Miklavec et al., 2016). It applies to pre-packed foods that meet specified nutrition criteria.

As part of the 2015 national programme 'Healthy Living', the Institute for Public Health of **Croatia**¹² is mandated to grant the right to use the 'Healthy Living' logo on foods that meet specific nutrition criteria¹³.

Summary labels - Graded indicators

In October 2017, **France** adopted the Nutri-Score scheme after a series of experimental and large-scale studies. Nutri-Score, based on the UK Food Standards Agency nutrient profiling model, indicates the overall nutritional quality of a given food item. The label is represented by a scale of five colours, from dark green indicating food products with the highest nutritional quality to dark orange for products with lower nutritional quality, associated with letters from A to E. The algorithm to calculate the nutritional score considers both negative (sugars, saturated fats, salt and calories) and positive elements (protein, fibre, fruits, vegetables, legumes and nuts). Also **Belgium** adopted Nutri-Score (March 2019). In March 2020, **Germany** notified to the Commission a draft national regulation on the use of Nutri-Score. **Spain**¹⁴ (November 2018), the **Netherlands**¹⁵ (November 2019) and **Luxembourg**¹⁶ (February 2020) announced their decision to adopt the scheme.

Nutrient-specific labels

In January 2020, **Italy** notified to the Commission a draft Decree recommending the use of the voluntary front-of-pack scheme 'NutriInform Battery'. The scheme is based on the Reference Intakes label (described below), with an added battery symbol indicating the amounts of energy and nutrients in a single serving as percentage of the daily intake. The scheme is not yet present on the EU market.

In 2013, the **United Kingdom** formally introduced a voluntary FOP scheme, the so-called 'traffic light' scheme, after several years of research and stakeholder consultation. The scheme combines colour-coding and percentage reference intakes¹⁷ and is supported by a guide adopted by the UK authorities¹⁸. It provides information on the content of fat, saturated fat, sugars and salt, and the energy value by serving or portion of the food. Colours are used to classify those nutrients as 'low' (green), 'medium' (amber) or 'high' (red); colour thresholds are

¹⁰ Information provided by the Finnish Ministry of Agriculture (February 2017)

¹¹ Information provided by the Slovenian Ministry of Agriculture, Forestry and Food (February 2017)

¹² Information provided by the Croatian Ministry of Health (February 2017)

¹³ <https://www.hzjz.hr/wp-content/uploads/2015/06/Healthy-Living-Food-criteria.pdf>

¹⁴ <https://www.lamoncloa.gob.es/serviciosdeprensa/notasprensa/sanidad/Paginas/2018/121118-premiosnaos.aspx>

¹⁵ <https://www.rijksoverheid.nl/actueel/nieuws/2019/11/28/nutri-score-wordt-na-aanpassing-het-voedselkeuzelogo-voor-nederland>

¹⁶ https://gouvernement.lu/fr/actualites/toutes_actualites/communiqués/2020/02-fevrier/12-lenert-bilan.html

¹⁷ Reference intakes (RIs) for energy and nutrients are maximum recommended daily intakes

¹⁸ Guide to creating a front of pack (FoP) nutrition label for pre-packed products sold through retail outlet (last updated on 8 November 2016), available at <https://www.gov.uk/government/publications/front-of-pack-nutrition-labelling-guidance>

based on 100 g/ml of food/drinks (for products sold in large portions, portion thresholds apply for the red colour).

1.6. Front-of-pack schemes developed by EU private operators

Nutrient-specific labels

Parallel to the government-endorsed schemes, the association of the European food and drink industry developed the Guideline Daily Amounts (GDA) scheme, later renamed **Reference Intakes label**, which was introduced in 2006. The label provides numerical information on how much energy and nutrients are present in a portion of a food and how much this represents as a percentage of the daily reference intake¹⁹. The scheme is used across the EU (Storcksdieck genannt Bonsmann et al., 2010).

Some retailers (e.g. in Portugal and Spain) developed their own FOP nutrition label based on a **traffic light format** that adds colours to the Reference Intakes label.

In 2017, six multi-national food and drink companies developed the '**Evolved Nutrition Label**' (ENL), building on the Reference Intakes label and adding colours similar to the UK FOP scheme but being more lenient between amber and red for products considered to be consumed in small portions²⁰. In November 2018, the companies communicated their decision to suspend/cease ENL label trials for food.

Summary labels – Positive logos

The '**Healthy Choice**' ('tick') logo, owned by Choices International Foundation, identifies healthier options within food groups. The category-specific criteria are based on the levels of saturated and trans fatty acids, added sugar, salt, dietary fibre and/or energy. The criteria are applicable to all food products, including snacks and soft drinks. Companies paying a membership fee to the national Choices organisation can use the logo on eligible products. The scheme is in operation in the Czech Republic and in Poland. The logo was endorsed by the Dutch government in 2013 but withdrawn in 2017²¹.

¹⁹ Understanding the label. In: Reference Intakes [website], FoodDrinkEurope (<https://referenceintakes.eu/understanding-label.html>)

²⁰ Presentation six companies at EU Platform for action on diet and health, 30 November 2017, available at https://ec.europa.eu/health/sites/health/files/nutrition_physical_activity/docs/ev_20171130_co03_en.pdf.

²¹ Communication Staatscourant Vinkje, 27 October 2017 (available at <https://www.row-minvws.nl/documenten/vergaderstukken/2017/10/27/mededeling-staatscourant-vinkje-row-del-27-oktober-2017>)

5. SITUATION AT INTERNATIONAL LEVEL

Currently more than 40 countries around the globe have some type of nutrition labelling scheme on the front of food packaging in place²².

While most third countries introduced FOP nutrition labels on a voluntary basis, some countries have made FOP labels mandatory. Overall, there is a tendency for countries within the same geographical region to pick similar labels, while adapting certain aspects to national circumstances²³.

Nutrient-specific traffic lights formats have been introduced beyond the UK by only a few countries on voluntary (e.g. South Korea) or mandatory (e.g. Ecuador) basis. India is also considering a mandatory label²⁴.

A number of Asian countries (e.g. Malaysia, Singapore, Thailand) are using **positive healthy choice logos with different formats** and criteria (some are based on the Choices International criteria). Some African (e.g. Nigeria, Zimbabwe) countries have also introduced healthy choice logos.

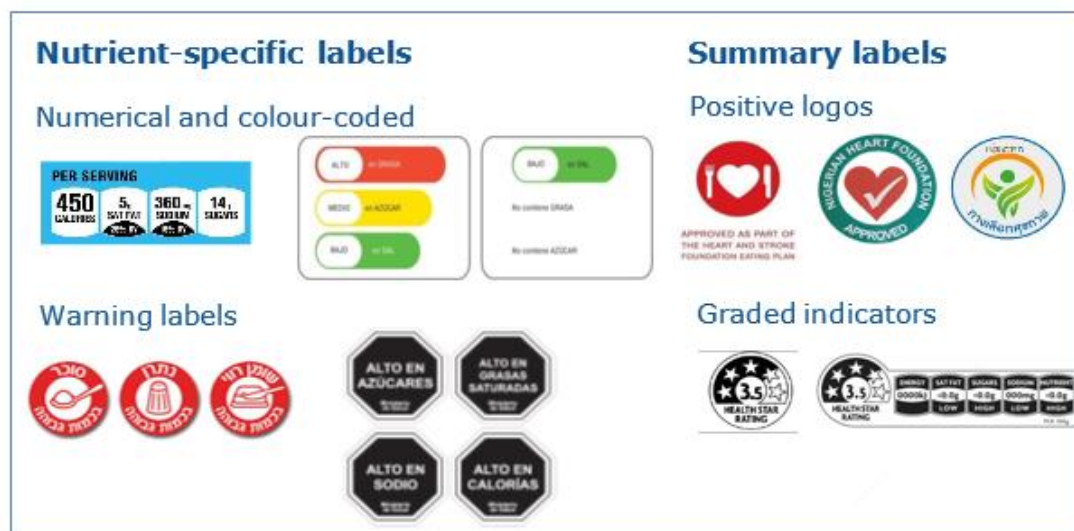
The **graded Health Star Rating scheme** is implemented in Australia and New Zealand and is a voluntary FOP scheme attributing to products from half a star up to five stars depending on the healthfulness defined by negative as well as positive nutrients and other components.

The Chilean **warning system**, introduced in 2016, is a mandatory nutrient-based scheme that denotes products that are high in energy, sugars, saturated fat and/or sodium. Some other South American countries (e.g. Brazil, Peru, Uruguay) as well as Canada and Israel have developed or are developing similar alert schemes.

The food and drink industry developed at international level different variants of the nutrient-specific **Reference Intakes scheme** which are broadly used by companies worldwide.

Figure 1 presents some examples of labels used on the front of food packaging, implemented outside the EU.

Figure 1 – Examples of schemes used at international level



²² Preliminary Regulatory Impact Analysis Report on Nutrition Labeling, ANVISA (Brazil), May 2018

²³ Global Update on Nutrition Labelling - The 2018 edition, EUFIC, July 2018

²⁴ 'Draft Food Safety and Standards (Labelling and Display) Regulations, 2019', notified to the WTO Committee on Technical Barriers to Trade on 7 July 2019

The Codex Alimentarius Guidelines on Nutrition Labelling²⁵ provide only limited guidance on FOP nutrition labelling, being a form of 'supplementary nutrition information'. The guidelines stipulate that this type of nutrition information should be intended to increase the consumer's understanding of the nutritional value of the food and assist consumers in interpreting the nutrient declaration. No specific guidelines on best practices for FOP nutrition labels exist at international level and a variety of labels have been developed. Since the proliferation of labels could create problems for international trade, the Codex Committee on Food Labelling agreed in October 2017 to start new work to develop guidelines on FOP labelling systems for governments wishing to implement this type of labelling, which would help in harmonisation of FOP systems and thus facilitate international trade²⁶. This work is ongoing²⁷.

6. CONSUMER INTEREST, UNDERSTANDING AND REACTION AND IMPACT ON HEALTH

An important policy objective of FOP nutrition labelling is to help consumers to make healthier food choices (Kanter et al., 2018). Most consumers declare indeed that they find FOP labelling helpful (e.g. 71% of respondents in a Dutch consumer survey²⁸ and 78% in a German consumer survey²⁹). Evidence seems to suggest that FOP labels fill an informational gap or an unmet consumer need, with older and overweight/obese people more likely to report a need for a FOP label (Joint Research Centre, 2020).

However, whether people really change their purchasing behaviour in response to the presence of FOP labels depends on a range of factors. To be effective, a FOP label needs to attract attention and then be accepted and understood by the consumers before it can potentially influence their food choices (Grunert & Wills, 2007) and consequently their diet and health.

Consumer attention

Before being able to accept and understand a FOP label, consumers need to pay attention to the labels in the first place. It has been shown that labels on the front of the package receive more attention than labels on the back of the package (Becker et al., 2015). The number of consumers declaring that they look at FOP labels is very high (e.g. 60% in a study with Belgian consumers (Möser et al., 2010)) but it is well-known from the literature that self-reported use of labels is higher than what has been concluded based on observational in-store studies (Grunert et al., 2010).

Several main characteristics can increase attention to FOP nutrition labels. Larger label size helps to capture faster attention. Attention is also higher if there is less other information on the food package and when the type of label and its location on the package do not change. Colour seems to increase attention as long as contrast between the label and the package is achieved. In addition to specific label features, attention to FOP labelling also appears to depend on consumer characteristics such as age, education level, and health motivation.

²⁵ Codex Guidelines on nutrition labelling CAC/GL 2-1985, last revised in 2017

²⁶ Codex Alimentarius Commission, Report of the forty-fourth session of the Codex Committee on Food Labelling (REP18/FL), Paraguay, 16-20 October 2017

²⁷ The 45th Session of the Codex Committee on Food Labelling was held in May 2019.

²⁸ Consumentenbond, Consumer research on food choice logo's, April 2018, available at <https://www.consumentenbond.nl/binaries/content/assets/cbhippowebsite/landingspaginas/acties/weet-wat-je-eet/consumentenonderzoek-voedselkeuzelogos-nl.pdf>

²⁹ Lebensmittelmarkt und Ernährungspolitik 2018, University Göttingen in cooperation with Zühlendorf+Partner, January 2018 (Positive replies to question 'I find traffic light color-labelling on the front of packs helpful')

Signposting in shopping aisles or the provision of an information leaflet can greatly improve attention. (Joint Research Centre, 2020)

Consumer acceptance

If labels are not accepted by the consumer, even though they are noticed, their message will be ignored. Attractiveness and liking seem to be important aspects for acceptability (Ducrot et al., 2015a).

In general, consumers prefer labels with minimal numerical content and using graphics and symbols (Campos et al., 2011), in particular consumers of lower socio-economic status (Méjean et al., 2013). Colour is also clearly identified as a relevant characteristic (Babio et al., 2014). The level of directiveness of the FOP scheme also plays a role: some consumers like directive labels because they allow for a quick decision, but others may react negatively to being told something is ‘healthful’ in the absence of detailed nutritional information (Grunert & Wills, 2007; Hodgkins et al., 2012). **Therefore, some researchers suggest that a scheme combining both directive and non-directive elements can be an effective format** (Hodgkins et al., 2012).

Another important aspect for acceptability is trust. Studies show that if a logo is endorsed by a credible institution, it gives consumers greater confidence and it is better accepted (De la Cruz-Góngora et al., 2017).

In terms of FOP schemes’ acceptability, no clear frontrunner emerges from the literature. Rather, different studies show a preference for different schemes, due perhaps to the specific characteristics of the labels being studied or to cultural differences (Joint Research Centre, 2020).

The relevant literature shows that it is not because a label is the most preferred, that this label leads to the best objective understanding and helps the consumer the best to identify the healthier option (Ducrot et al., 2015b; Grégori et al., 2014).

Consumer understanding

It is clear from the literature that in an experimental setting most FOP nutrition labels have a positive effect on the ability of consumers to identify the healthier option compared to a no label situation (e.g. Cecchini and Warin, 2016; Roseman et al., 2018; Hawley et al., 2013). **The majority of studies suggest that evaluative schemes that use colour-coding, and especially colour-coding combined with a graded indicator according to a recent international study (Egnell et al., 2018c), help consumers of various ages, socio-economic status, and cultural background the most in identifying more healthful products** (Joint Research Centre, 2020; Egnell et al., 2018a; Ducrot et al., 2015a).

When colour-coded nutrient-specific labels are used to decide between the healthfulness of foods, consumers seem to find it more important to avoid reds than choosing greens (Scarborough et al., 2015). Evaluative schemes seem to help consumers to gauge the healthfulness of products better than reductive schemes (Joint Research Centre, 2020) and seem to be more effective than reductive labels when consumers need to compare products that are difficult to compare (Newman et al., 2018).

Impact on purchasing behaviour

Notwithstanding the extensive studies and evidence that FOP schemes increase the understanding of nutrition information, scientific studies that actually test whether FOP labels have any impact on consumers’ food purchasing decisions are much rarer. Most studies

concern surveys or experiments, looking at the intention to purchase in response to FOP labels, rather than at actual shopping behaviour in real situations³⁰.

Studies looking at the intention to purchase show that FOP labels can improve the nutritional quality of food choices and shopping baskets (Joint Research Centre, 2020). Comparative experimental studies give insights into the relative effectiveness of different labels on purchasing behaviour but very few of these studies include comparisons across countries, exploring the effect of cultural differences. Preliminary results from an international study³¹ show that of five FOP labels tested³², the Nutri-Score and traffic light labels produced the most frequent and largest improvements in consumers' food choices towards healthier options across the different countries.

Only few real-life studies on purchasing behaviour are available and evidence about the effect on actual shopping behaviour is difficult to obtain (Joint Research Centre, 2020). A possible reason is that purchasing decisions are influenced by a multitude of factors beyond FOP labels, including price (e.g., discounts), expected tastiness, habits etc. (e.g., Grunert et al., 2010; Boztuğ et al., 2015). Some real-life studies do confirm that evaluative FOP schemes can improve the nutritional quality of food choices; schemes with colour-coding and/or with colour-coding in combination with a graded indicator appear most promising (Joint Research Centre, 2020). Several studies also show that the effect of FOP schemes can be substantial if their introduction is combined with awareness and/or communication campaigns (e.g., Graham et al., 2017; Julia et al., 2016).

There is also evidence showing that FOP schemes are effective in supporting “motivated”, i.e. health-conscious consumers (e.g. Finkelstein et al., 2018, Ni Mhurchu et al., 2018). The type of labelling scheme may influence the effect on purchasing behaviour depending on the type of consumer: evaluative labels seem more effective on hedonically motivated consumers, while reductive schemes might be more effective on health-motivated consumers (Hamlin, 2015; Sanjari et al., 2017).

The food category also seems to affect the FOP labels' effectiveness (Ni Mhurchu et al., 2018; Nikolova and Inman, 2014). For example, consumers are less likely to read labels on ‘unhealthy’ foods because when buying such foods they want to indulge and avoid discouraging information (Talati et al., 2016). FOP schemes may also have unintended effects on purchases. Some studies have identified a change in purchasing behaviour due to the presence of a FOP label but without any association with the food healthfulness indicated by the scheme (Sacks et al., 2009; Hamlin, 2015; Hamlin and McNeill, 2016).

Impact on diet and health

To directly measure whether FOP schemes improve consumers' diet and health in real life, it would be necessary to observe their daily eating choices over the long term, and to assess the effect of FOP schemes on health in a randomized controlled trial over years. Given the difficulty to set up such studies and prove causality, there is not enough empirical evidence to

³⁰ Based on a meta-analysis of several experimental and real-life studies, Cecchini & Warin (2016) computed that FOP labelling would increase the number of people choosing a healthier food option by about 18% on average (ranging from 11% to 29% depending on the scheme).

³¹ FOP-ICE study (Front-Of-Pack International Comparative Experimental) conducted by a scientific consortium from Paris 13 University (France) and Curtin University (Australia). Nationally representative samples recruited in Argentina, Australia, Bulgaria, Canada, Denmark, France, Germany, Mexico, Singapore, Spain, USA, and UK.

³² Nutri-Score, traffic light label, Health Star Rating, Warning symbol and Reference Intakes label

draw conclusions on the impact of FOP label use on the healthfulness of diets and on health itself (Cecchini and Warin, 2016; Hersey et al., 2013; Crocket et al., 2018).

Instead, researchers use modelling approaches to extrapolate effects on purchasing behaviour to overall diet and diet-related health outcomes (Joint Research Centre, 2020). Modelled scenarios of replacing commonly consumed foods with healthier options, as identified by evaluative FOP labels (based on nutrient profiling models), indicate potential reductions in the intake of calories and nutrients of public health concern (e.g. Amcoff et al., 2015; Roodenburg et al., 2013; Cecchini & Warin, 2016).

Some studies looking at associations between the quality of diets (of volunteers) and nutrition-related diseases, suggest that diet quality, evaluated by the dietary index underlying the Nutri-Score scheme, is associated with lower risk of cardio-vascular disease (Adriouch et al., 2016 & 2017), cancer (Deschasaux et al., 2018) and overweight (Julia et al., 2015). Another study, which involved five different FOP labels, concludes that FOP nutrition labels have the potential to help decrease mortality from diet-related non-communicable diseases, with effects depending on the type of label tested and Nutri-Score appearing the most efficient (Egnell et al., 2019).

The literature also points to some potential unintended effects of labelling on the diet. For example, perceiving a food as healthy could increase intake of the food due to less guilt (Chandon and Wansink 2007) and inappropriately large portion sizes may also result if a FOP label fails to signal limited healthfulness of the food (Egnell et al., 2018b).

Other effects on the consumer

Studies have shown that FOP schemes can increase the willingness of consumers to pay for healthier products (Joint Research Centre, 2020). According to Crosetto et al. (2018), nutritional improvements of the shopping basket, when shopping for labelled healthier products, may come at an economic cost, but low-income households seemed the least affected in terms of cost of nutritional improvements of the shopping basket.

Consumer confusion and loss of trust is another aspect to consider. Literature reviews show the extent to which consumer confusion about labelling schemes constitutes a major obstacle to their adoption and effective use (Cowburn & Stockley, 2005; Grunert & Wills, 2007). Consumer confusion might increase due to the coexistence of a range of FOP label formats in the market place (Harbaugh et al., 2011; Draper et al., 2013; Malam et al., 2009). Confusion might also emerge from the fact that voluntary schemes do not require FOP labels on all packages, which may bias consumer perceptions towards products with FOP labels that are equally, or potentially less, healthful than products with no labels (Talati et al., 2016). Research also reports that consumers lose trust and become suspicious of a label when an 'unhealthy' product is depicted by the FOP label as relatively nutritious (Harbaugh et al., 2011).

7. IMPACT ON FOOD BUSINESS OPERATORS AND ON THE INTERNAL MARKET

FOP labelling schemes can affect food manufacturers, and food suppliers in general, in different ways. The introduction of FOP labels can be an incentive for companies to reformulate existing and develop new products in order to obtain a (more) favourable FOP label rating. Other issues linked to FOP labels, such as potential barriers to the free circulation of food products in the internal market, are also relevant to food suppliers.

Impact on supply behaviour including reformulation and innovation

As long as FOP schemes may affect consumers' choices, producers have an incentive to adapt the nutritional composition of their products to the requirements needed to obtain a (more) favourable rating. There is some evidence that FOP labels actually influence product composition. For example, the adoption of the Healthy Choice logo in the Netherlands (Vyth et al., 2010), the Health Check Program³³ symbol in Canada (Dummer et al., 2012) and the Health Star Rating in New Zealand (Ni Mhurchu et al., 2017) are reported to have brought improvements in the nutrient profile of food products on the market. However, this evidence of reformulation/innovation is largely based on self-reported data. Scientific studies on the impact of FOP labels on the development of more healthful products are scant, although some evidence exists on the role that voluntary FOP labels can play in attaining a market with more healthful products (e.g. study by Liu et al. (2015) on ready-to-eat cereals). A reported potential risk associated with producers' response to FOP schemes is that reformulation occurs only for the nutrients that are included in the FOP scheme (Vyth et al., 2010; Carter et al., 2013). Attention should also be given to potential substitute ingredients so that any achieved reformulation also has the potential to confer a true public health benefit³⁴.

Reformulation may influence taste and other features of products, which could lead to a decrease in demand and therefore offset potential benefits for companies of a better FOP scheme rating. Manufacturers will thus strategically evaluate the benefits of nutrition-based product differentiation when they reformulate or introduce food innovations (Van Camp et al., 2012).

But even if manufacturers decide not to reformulate their products, or if they are not able to reformulate their products due to specific product composition or standards³⁵, they can still choose to apply a voluntary FOP label, for example for reasons of transparency. This strategy can also be chosen by retailers (Machleit and Mantel, 2001) with a view to positively affect customers' perceptions of the retailer's attention to their health (Newman et al., 2014). FOP labelling could also allow retailers to further differentiate private label products (sold under a retailer's brand name) from national brands. As shown in a study by Van Camp et al. (2012) in the UK, private label products were most likely to use FOP labels.

Impact on SMEs

Especially for SMEs, potential fees and/or certification procedures can be important barriers for applying FOP labels. Therefore, some of the schemes are specifically designed to encourage SME uptake (free of charge, no certification, data made available to proceed to the score calculation...). SMEs may find it more difficult to reformulate their products than larger companies due to less financial and/or human resources, although it has to be noted that continuous product improvement is only partly related to and affected by FOP labels. With regard to positive logos (e.g. Keyhole, healthy choice logos), smaller producers report that they appreciate the impact that a well-known logo can have on their own, less well known, brands and for raising their products' quality and health image.³⁶

Impact on internal market

³³ Ended in 2014

³⁴ Transfatty acids in Europe: where do we stand?, JRC Science and Policy Report, 2014

³⁵ This can for example be the case for some agricultural products or foodstuffs which have been granted with a 'Geographical Indication' under European Union law (geographical indication includes protected geographical indication (PGI) and protected designation of origin (PDO), two quality schemes protecting the name of products which come from a specific region and follow a particular production process laid down in the product specifications).

³⁶ Case studies on Keyhole, Choices programme, UK FOP scheme and Nutri-Score conducted by external contractor in the context of the Evaluation of Regulation (EC) No 1924/2006

The FIC Regulation provides, as one of the requirements for FOP schemes developed by Member States or food business operators under Article 35, that their application does not create obstacles³⁷ to the free movement of goods in the EU internal market. The same principle applies to FOP schemes falling within other regulatory provisions (see section 3.2)³⁸.

Some food manufacturers argue that FOP schemes recommended by certain Member States could have an impact on sales of specific products imported from other Member States, or that some schemes, although voluntary, could become *de facto* compulsory due to pressure on food manufacturers to apply the recommended label. Official complaints have been received in this context in 2013 from economic operators against the UK traffic light scheme. So far, no other complaints or data regarding the potential impact of FOP schemes on the internal market have been received by the European Commission.

The fact that a FOP scheme is recommended by a Member State could create expectations for consumers that food products marketed in that country, including those coming from other countries, should be labelled with the official scheme. This could imply that the average consumer gives a preference to products labelled with the official scheme compared to products that are not labelled or that are labelled with other existing labels, and could create a pressure on EU food business operators to label all products present on the national market with the official scheme promoted by the Member State.

As far as can be ascertained, the literature is silent as to the impact of the FOP labels introduced in the EU market on trade between Member States and/or impact on sales of imported products. Studies regarding the impact of introducing FOP labels on purchasing decisions rather look at the impact on the nutritional quality of the purchased food than at the impact on sales of specific (imported) products.

Finally, a potential impact could be caused by the fact that different FOP schemes are recommended by different Member States, which can result in additional labelling costs for food business operators if they want to use the recommended label and have to change the packaging in function of the national market concerned.

On the basis of the available information and studies and given the difficulty to collect data on any long-term impact of rather recently developed schemes, evidence that recommendations from Member States to use a specific FOP scheme may or may not hamper the free circulation of food products, is so far limited and inconclusive.

8. POSITIONS AND POINTS OF VIEW

1.7. Council, European Parliament and Committee of the Regions

In its conclusions³⁹ adopted on 6 June 2017, the Council calls upon the Member States and the Commission to encourage voluntary labelling of foods, in accordance with the principles laid down in Regulation No 1169/2011, in particular of Article 35(1), to support all consumers, in particular those from lower socio-economic groups, into choosing healthy options and promote education and information campaigns aimed at improving consumer understanding

³⁷ According to the settled case-law, an 'obstacle' is to be understood as those trading rules enacted by Member States which are capable of hindering, directly or indirectly, actually or potentially, intra-EU trade.

³⁸ Articles 34-35 of the Treaty on the Functioning of the European Union provide that national measures capable of hindering intra-EU trade are prohibited.

³⁹ Council conclusions to contribute towards halting the rise in Childhood Overweight and Obesity (2017), OJ C205, 29.6.2017, p. 46-52

of food information, including nutritional labelling. In its conclusions⁴⁰ adopted on 22 June 2018, the Council invites the Commission to continue prioritising public health, in particular by addressing issues of cross-border importance such as, amongst others, food labelling, with the ultimate goal of improving health outcomes in the EU.

Since the adoption of the FIC Regulation, no specific resolution from the European Parliament has been adopted on the topic of FOP labelling.

In its opinion⁴¹ adopted on 4 July 2018, the European Committee of the Regions "calls on the European Commission to propose, after examining existing food labelling systems, a mandatory, single European colour labelling system, in which colours would be applied on a basis of 100 g units, on the front of food packaging throughout the EU, providing consumers with clear information on the sugar, salt and fat content, encouraging healthier eating patterns."

1.8. EU Member States' experts from national competent authorities

In the preparatory phase for this report, joint meetings between Member States' experts from the national competent authorities, stakeholders and the Commission were organised in the course of 2018 to exchange on the issues covered by the report and collect data/information⁴².

Experts from a few EU national competent authorities favoured reductive FOP schemes providing nutrient-specific information, based on portion sizes, without evaluating foods and are concerned that under evaluative FOP schemes some traditional products and regional specialities (e.g. cheeses, edible oils, meat products) might display labels that deter consumer purchase. Experts from a number of EU national competent authorities, including countries where evaluative labels are already in operation, favoured evaluative schemes arguing that such schemes are helping consumers make healthy food choices. Experts from other national competent authorities did not express any specific preference for reductive or evaluative FOP schemes.

Experts from many EU national competent authorities explicitly expressed their support for harmonisation of FOP nutrition labelling across the EU underlining that a multitude of schemes across the EU is confusing for the consumer and might lead to market fragmentation. In general, most Member States' experts agreed that any scheme should build on extensive scientific research, with demonstrated evidence of the scheme's objective understanding by the consumer, taking different socio-economic groups into account.

In 2014, a voluntary EU Action Plan on Childhood Obesity 2014 - 2020⁴³ was agreed at EU level by EU government representatives referring to the development of voluntary food labelling schemes that are easy to understand for consumers.

1.9. Stakeholders

Consumer representatives and public health associations consider that FOP nutrition labelling can play a key role in helping consumers make more informed, healthier food choices. During

⁴⁰ Council conclusions on Healthy nutrition for children (2018), OJ C232, 03.07.2018, p. 1-8.

⁴¹ Opinion of the European Committee of the Regions on local and regional incentives to promote healthy and sustainable diets (2018), OJ C387, 25.10.2018, p. 21-26.

⁴² Summary of the meetings of 23 April, 22 June and 22 October 2018 available at https://ec.europa.eu/food/expert-groups/ag-ap/adv-grp_fchaph/wg_2018_en

⁴³ EU Action Plan on Childhood Obesity 2014-2020. Brussels: European Commission, updated July 2014. Available at

https://ec.europa.eu/health/sites/health/files/nutrition_physical_activity/docs/childhoodobesity_actionplan_2014_2020_en.pdf

the negotiations of the FIC Regulation, they supported the introduction of a harmonised mandatory EU FOP scheme. They still favour a common approach for FOP nutrition labelling and favour colour-coded FOP nutrition labelling⁴⁴; consumer representatives support Nutri-Score in particular⁴⁵. Associations of dietitians have a similar position about colour-coded schemes and are in favour of one single robust labelling scheme throughout the EU⁴⁶.

Back in 2008 during the negotiations of the FIC Regulation, the European food and drink industry was in favour of voluntary FOP information and favoured the Guideline Daily Amount (now Reference Intakes) scheme. Many sectors expressed in particular opposition to a FOP traffic light scheme, highlighting that such a scheme could confuse the consumer about the meaning of the colours and is too judgemental⁴⁷. Today, some sectors are still opposed to colour-coded schemes for the same reasons and in particular specific sectors dealing with food products that could only marginally (if at all) be reformulated (e.g. meat products) in order to avoid an unfavourable label. Some other food and drink companies have changed their position regarding colour-coded schemes and are applying colour-coded (nutrient-specific or summary) labels. Also several retailers are currently using different FOP schemes, including colour-coded schemes, across the EU.

EU farmers and their cooperatives consider that providing nutritional information enables consumers to adopt a healthier and more balanced diet. However, they oppose colour-coded schemes focusing only on negative nutrients since they consider that this would ignore the overall nutritional contribution of agricultural products that are rich in essential nutrients⁴⁸. They are concerned that such schemes would have the effect of negatively highlighting some agricultural products that cannot be easily reformulated because of their compositional or traditional characteristics.

Many stakeholders favour a harmonised approach on FOP nutrition labelling across the EU and most stakeholders agree that any FOP scheme should be science- and evidence-based.

A European Citizens' Initiative⁴⁹ 'PRO-NUTRISCORE' calling on the Commission 'to impose simplified Nutriscore labelling on food products' was registered on 8 May 2019⁵⁰.

1.10. International organisations

The Report of the World Health Organisation (WHO) Commission on Ending Childhood Obesity of March 2016⁵¹ recommends to "implement interpretive FOP labelling supported by public education". Its implementation plan of 2017 recommends further to "adopt, or develop as necessary, a mandatory interpretive FOP labelling system based on the best available evidence to identify the healthfulness of foods and beverages." In May 2019, WHO published

⁴⁴ https://www.beuc.eu/publications/beuc-x-2017-141_the_time_is_ripe_for_simplified_front-of-pack_labelling_statement.pdf

⁴⁵ and <http://www.beuc.eu/publications/new-european-commission-%E2%80%93-what-consumers-expect-over-next-five-years/html>

⁴⁶ Information provided by EFAD on 14 June 2018

⁴⁷ Summary of results for the consultation document on: "Labelling: competitiveness, consumer information and better regulation for the EU", European Commission, December 2006 (https://ec.europa.eu/food/sites/food/files/safety/docs/labelling-nutrition_better-reg_cons-summary.pdf)

⁴⁸ Information provided by Copa-Cogeca on 6 July 2018

⁴⁹ https://europa.eu/citizens-initiative/home_en

⁵⁰ Withdrawn in April 2020

⁵¹ <http://www.who.int/end-childhood-obesity/en/>

its draft ‘Guiding principles and framework manual for front-of-pack labelling for promoting healthy diets’⁵².

In its Food and Nutrition Action Plan 2015-2020, WHO Europe calls for countries to "increase consumer-friendly labelling by establishing easy-to-understand or interpretative FOP labels that help consumers to identify healthier options". In its report from October 2018, WHO Europe further highlights that FOP schemes providing evaluative judgements about product unhealthfulness, which may also highlight ‘better-for-you’ choices, appear to be more effective and that public education initiatives are important to improve awareness and understanding⁵³.

In its 2017 Obesity Update⁵⁴, the Organization of Economic Cooperation and Development (OECD) underlines that FOP labelling can help people to make healthier food choices and can motivate food manufacturers to reformulate products.

9. CONCLUSIONS

Front-of-pack (FOP) nutrition labelling aims to help consumers with their food choices by providing at-a-glance nutrition information and is increasingly seen as a tool to support strategies for the prevention of diet-related non-communicable diseases.

Under the current EU rules, the indication of nutrition information on the FOP is possible on a voluntary basis in line with the requirements of Union law. **A variety of FOP schemes have been developed** by public institutions, health NGOs and/or private sector. **Most existing schemes are evaluative (interpretative) schemes** that, be they nutrient-specific or summary indicators, are **based on nutrient profiling models**.

The studies reviewed to elaborate this report **confirm the potential of FOP schemes to help consumers make health-conscious food choices**. Most consumers declare that they find FOP labels helpful and look at the labels during purchases, even though the percentage of consumers actually doing so is lower. Studies show that most FOP labels have a positive effect on the ability of consumers to identify the healthier option compared to a no label situation and that consumers’ **understanding** of FOP labels increases when the label features colour-coding, and especially when colours are combined with a summary indicator.

As regards impact on **purchasing behaviour**, experimental studies looking at consumers’ intentions to purchase, show that FOP labels, especially colour-coded labels, can improve the healthfulness of consumers’ shopping baskets. Evidence from real-life (in store) studies about the effect on actual shopping behaviour is difficult to obtain as real-time purchasing decisions are influenced by a multitude of factors. Some studies do confirm that evaluative FOP schemes using colour-coding and/or colour-coding in combination with a graded indicator can improve the nutritional quality of food choices in real-life. Several other studies also show that the effect of a FOP scheme can be substantial if its introduction is combined with awareness and/or communication campaigns.

As regards potential impact of FOP labels on consumers’ diet and health, there is not enough empirical evidence to draw conclusions but modelling studies suggest a positive effect, in particular of evaluative labels.

⁵² <https://www.who.int/nutrition/publications/policies/guidingprinciples-labelling-promoting-healthydiet/en/>

⁵³ What is the evidence on the policy specifications, development processes and effectiveness of existing front-of-pack food labelling policies in the WHO European Region? Copenhagen: WHO Regional Office for Europe; Kelly B., Jewell J., 2018 (Health Evidence Network (HEN) synthesis report 61).

⁵⁴ www.oecd.org/health/obesity-update.htm

Regarding the potential impact of FOP schemes on food reformulation, a few studies, largely based on self-reported data, give account of food **reformulation** allegedly related to evaluative FOP labels, although it must be noted that some agricultural food products cannot be easily reformulated due to their compositional or traditional characteristics.

As regards the potential impact on the **internal market**, evidence, gained from the experience so far, that specific FOP schemes recommended by Member States or implemented by food business operators on a voluntary basis may or may not hamper the free circulation of products in the EU market, is limited at this stage and inconclusive. The fact that a FOP scheme is recommended by a Member State could imply that the average consumer gives a preference to products labelled with the official scheme and create a pressure on EU food business operators to label all products present on the national market with the officially promoted scheme. The use of different FOP schemes in the internal market could result in certain costs for businesses as well as consumer confusion and lack of trust.

Views on FOP schemes – and on how they should (or not) be regulated upon – vary across Member States and stakeholder groups, with experts from several Member States, consumer organisations, health NGOs and some industry sectors in favour of schemes that evaluate the product's nutritional quality, while experts from a few Member States and part of industry favour reductive (non-interpretative) schemes. Experts from many EU Member States and stakeholders favour a common harmonised approach, arguing that the co-existence of a range of FOP schemes in the EU market can lead to market fragmentation and consumer confusion.

This report outlines the main issues to be considered as regards FOP nutrition labelling. One of the issues relates to nutrient profiling models, on which most FOP schemes are based. The concept of nutrient profiling is also used by EU law applicable to the use of nutrition and health claims made on food. The Staff Working Document on the evaluation of the Claims Regulation⁵⁵ concludes that the specific objective pursued by the setting of nutrient profiles is still pertinent and necessary to protect the consumer by limiting the use of claims on foods high in fat, sugars and salt content, as required by the legislation.

Considering the **strong link between nutrient profiling and FOP nutrition labelling**, there could be possible synergies in reflecting on the two topics together.

The European Green Deal⁵⁶ adopted by the Commission on 11 December 2019, announces that a **Farm to Fork Strategy**⁵⁷ will put forward actions to help consumers choose healthy and sustainable diets. In particular, the Commission will explore new ways to give consumers better information on the nutritional value of foods.

Given this political priority, the above elements and the potential of FOP schemes to help consumers make health-conscious food choices, it seems appropriate to introduce a harmonised mandatory FOP nutrition labelling at EU-level. The Commission will in due course prepare a legislative proposal in line with the objectives of the Farm to Fork Strategy and with better regulation principles.

⁵⁵ SWD(2020) 95

⁵⁶ https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal_en

⁵⁷ COM(2020) 381

REFERENCES

- Adriouch, S., Julia, C., Kesse-Guyot, E., Méjean, C., Ducrot, P., Péneau, S., ... Fezeu, L. K. L. K. (2016). Prospective association between a dietary quality index based on a nutrient profiling system and cardiovascular disease risk. *European Journal of Preventive Cardiology*, 23(15), 1669–1676
- Adriouch, S., Julia, C., Kesse-Guyot, E., Ducrot, P., Péneau, S., Méjean, C., ... Fezeu, L. K. K. (2017). Association between a dietary quality index based on the food standard agency nutrient profiling system and cardiovascular disease risk among French adults. *International Journal of Cardiology*, 234, 22–27.
- Amcoff et al. (2015) Livsmedelsverket 2015a Choosing foods with the Keyhole logo– effect on nutrient intake Amcoff, E., Konde, Å. B., Jansson, A., & Sanner Färnstrand, J. (2015). Byta till Nyckelhålet - så påverkar det näringsintaget. Uppsala. Retrieved from <http://www.livsmedelsverket.se/globalassets/rapporter/2015/nyckelhalets-effekt-pa-naringsintaget-2015.pdf>
- Babio, N., Vicent, P., López, L., Benito, A., Basulto, J., Salas-Salvadó, J., ... Salas-Salvado, J. (2014). Adolescents' ability to select healthy food using two different front-of-pack food labels: a cross-over study. *Public Health Nutrition*, 17(6), 1403–1409.
- Becker et al. (2015). Front of pack labels enhance attention to nutrition information in novel and commercial brands. *Food Policy*, 56, 76–86
- Campos, S., J. Doxey, and D. Hammond, Nutrition labels on pre-packaged foods: a systematic review. *Public Health Nutr*, 2011. 14(8): p. 1496-506.
- Carter, O. B. J., Mills, B. W., Lloyd, E., & Phan, T. (2013). An independent audit of the Australian food industry's voluntary front-of-pack nutrition labelling scheme for energy-dense nutrition-poor foods. *European Journal of Clinical Nutrition*, 67(1), 31–35.
- Cecchini, M. and Warin, L. (2016). Impact of food labelling systems on food choices and eating behaviours: A systematic review and meta-analysis of randomized studies. *Obesity Reviews*, 17(3), 201-210
- Chandon, P., & Wansink, B. (2007). The Biasing Health Halos of Fast-Food Restaurant Health Claims: Lower Calorie Estimates and Higher Side-Dish Consumption Intentions. *Journal of Consumer Research*, 34(3), 301-314.
- Cowburn, G. and Stockley, L. (2005). Consumer understanding and use of nutrition labelling: a systematic review. *Public Health Nutrition*, 8(1), 21–28.
- Crosetto, P., Lacroix, A. M., Muller, L., Ruffieux, B. (2018). Nutritional and economic impact of 5 alternative front-of-pack nutritional labels: experimental evidence. Working Paper GAEL, 11. 40 p.
- De la Cruz-Góngora, V., Torres, P., Contreras-Manzano, A., Jáuregui de la Mota, A., Mundo-Rosas, V., Villalpando, S., ... Rodriguez-Oliveros, G. (2017). Understanding and acceptability by Hispanic consumers of four front-of-pack food labels. *International Journal of Behavioral Nutrition and Physical Activity*, 14(1).
- Deschasaux, M., Huybrechts, I., Murphy, N., Julia, C., Hercberg, S., Srouf, B., ... Touvier, M. (2018). Nutritional quality of food as represented by the FSAm-NPS nutrient profiling system underlying the Nutri-Score label and cancer risk in Europe: Results from the EPIC prospective cohort study. *PLoS Med*, 15(9), e1002651.
- Draper, A. K. K., Adamson, A. J. J., Clegg, S., Malam, S., Rigg, M., & Duncan, S. (2013). Front-of-pack nutrition labelling: are multiple formats a problem for consumers? *European Journal of Public Health*, 23(3), 517–521.
- Ducrot, P., Méjean, C., Julia, C., Kesse-Guyot, E., Touvier, M., Fezeu, L., ... Peneau, S. (2015a). Effectiveness of Front-Of-Pack Nutrition Labels in French Adults: Results from the NutriNet-Sante Cohort Study. *Plos One*, 10(10). <https://doi.org/10.1371/journal.pone.0140898>
- Ducrot, P., Méjean, C., Julia, C., Kesse-Guyot, E., Touvier, M., Fezeu, L. K. K., ... Péneau, S. (2015b). Objective Understanding of Front-of-Package Nutrition Labels among Nutritionally At-Risk Individuals. *Nutrients*, 7(8), 7106–7125.
- Dummer, J. (2012). Sodium reduction in Canadian food products with the health check program. *Canadian Journal of Dietetic Practice {&} Research*, 73(1), e227-232.

- Egnell, M., Ducrot, P., Touvier, M., Allès, B., Hercberg, S., Kesse-Guyot, E., & Julia, C. (2018a). Objective understanding of Nutri-Score Front-Of-Package nutrition label according to individual characteristics of subjects: Comparisons with other format labels. *PLOS ONE*, 13(8), 1–16.
- Egnell, M., Kesse-Guyot, E., Galan, P., Touvier, M., Rayner, M., Jewell, J., ... Julia, C. (2018b). Impact of front-of-pack nutrition labels on portion size selection: an experimental study. *Nutrients*, 10(9), 1268.
- Egnell, M., Talati, Z., Hercberg, S., Pettigrew, S. & Julia, C. (2018c). Objective Understanding of front-of-package nutrition labels: An international comparative experimental study across 12 countries. *Nutrients*, 10(10), 1542.
- Egnell, M., Crosetto, P., d'Almeida, T., Kesse-Guyot, E., Touvier, M., ... Julia, C. (2019). Modelling the impact of different front-of-package nutrition labels on mortality from non-communicable chronic disease. *International Journal of Behavioral Nutrition and Physical Activity*, 2019, 16:56.
- Finkelstein, E. A. A., Li, W. Y., Melo, G., Strombotne, K., & Zhen, C. (2018). Identifying the effect of shelf nutrition labels on consumer purchases: results of a natural experiment and consumer survey. *American Journal of Clinical Nutrition*, 107(4), 647–651.
- Graham, D. J. J., Lucas-Thompson, R. G. G., Mueller, M. P. P., Jaeb, M., & Harnack, L. (2017). Impact of explained v. unexplained front-of-package nutrition labels on parent and child food choices: a randomized trial. *Public Health Nutrition*, 20(5), 774–785.
- Gregori, D. (2014). Evaluating food front-of-pack labelling: a pan-European survey on consumers' attitudes toward food labelling. *International Journal of Food Sciences and Nutrition*, 65(2), 177–186
- Grunert, K. G. and Wills, J. M. (2007). A review of European research on consumer response to nutrition information on food labels. *Journal of Public Health*, 15(5), 385–399.
- Grunert, K. G., Fernández-Celemín, L., Wills, J. M., Storcksdieck genannt Bonsmann, S., & Nureeva, L. (2010). Use and understanding of nutrition information on food labels in six European countries. *Z Gesundh Wiss*, 18(3), 261–277. <https://doi.org/10.1007/s10389-009-0307-0>
- Hamlin, R. (2015). Front of Pack Nutrition Labelling, Nutrition, Quality and Consumer Choices. (2015) *Current Nutrition Reports*, 4:323–329. DOI 10.1007/s13668-015-0147-1
- Harbaugh, R., Maxwell, J. W., & Roussillon, B. (2011). Label Confusion: The Groucho Effect of Uncertain Standards. *Management Science*, 57(9), 1512–1527.
- Hawley, K. L. L., Roberto, C. A. A., Bragg, M. A. A., Liu, P. J. J., Schwartz, M. B. B., & Brownell, K. D. D. (2013). The science on front-of-package food labels. *Public Health Nutrition*, 16(3), 430–439.
- Hodgkins, C., Barnett, J., Wasowicz-Kirylo, G., Stysko-Kunkowska, M., Gulcan, Y., Kustepeli, Y., ... Raats, M. (2012). Understanding how consumers categorise nutritional labels: A consumer derived typology for front-of-pack nutrition labelling. *Appetite*, 59(3), 806–817.
- Joint Research Centre (2020), Front-of-pack nutrition labelling schemes: a comprehensive review Authors: S Storcksdieck genannt Bonsmann, G Marandola, E Ciriolo, R van Bavel, J Wollgast. EUR 29811 EN, Luxembourg, Publications Office of the European Union, 2020, ISBN 978-92-76-08970-4, doi:10.2760/180167, JRC113586.
- Julia, C., Ducrot, P., Lassale, C., Fézeu, L., Méjean, C., Péneau, S., ... Kesse-Guyot, E. (2015). Prospective associations between a dietary index based on the British Food Standard Agency nutrient profiling system and 13-year weight gain in the SU.VI.MAX cohort. *Preventive Medicine*, 81, 189–194.
- Julia, C., Blanchet, O., Méjean, C., Péneau, S., Ducrot, P., Allès, B., ... Hercberg, S. (2016). Impact of the front-of-pack 5-colour nutrition label (5-CNL) on the nutritional quality of purchases: an experimental study. *International Journal of Behavioral Nutrition and Physical Activity*, 13(1).
- Julia C. & Hercberg, S. (2017). Nutri-Score: Effectiveness of the Nutrition Label introduced in France. *Ernährungs Umschau*, 64(12), M685–M691.
- Kanter, R., Vanderlee, L., & Vandevijvere, S. (2018). Front-of-package nutrition labelling policy: global progress and future directions. *Public Health Nutrition*, 21(8), 1399–1408.
- Liu, X., Lopez, R., & Zhu, C. (2015). Can Voluntary Nutrition Labeling Lead to a Healthier Food Market? 2016 Allied Social Sciences Association (ASSA) Annual Meeting, January 3-5, 2016, San Francisco, California 212818, Agricultural and Applied Economics Association.

- Machleit, K. A., & Mantel, S. P. (2001). Emotional response and shopping satisfaction: Moderating effects of shopper attributions. *Journal of Business Research*, 54(2), 97-106
- Malam S., Clegg, S., Kirwan, S., McGinigal, S., in association with Raats, M., Barnett, J., ... Dean, M. (2009). Comprehension and use of UK nutrition signpost labelling schemes. London: Food Standards Agency. Retrieved from <http://www.food.gov.uk/multimedia/pdfs/pmpreport.pdf>
- Méjean C., Macouillard, P., Péneau, S., Hercberg, S., Castetbon, K., Peneau, S., ... Castetbon, K. (2013). Consumer acceptability and understanding of front-of-pack nutrition labels. *Journal of Human Nutrition and Dietetics*, 26(5), 494–503.
- Miklavc, K., Pravst, I., Raats, M.M. and Pohar, J (2016). Front of package symbols as a tool to promote healthier food choices in Slovenia: Accompanying explanatory claim can considerably influence the consumer's preferences. *Food Research International*, 90, 235–243.
- Möser, A., Hoefkens, C., Van Camp, J., Verbeke, W., Moser, A., Hoefkens, C., ... Verbeke, W. (2010). Simplified nutrient labelling: consumers' perceptions in Germany and Belgium. *Journal Fur Verbraucherschutz Und Lebensmittelsicherheit-Journal of Consumer Protection and Food Safety*, 5(2), 169–180.
- Newman, C. L. L., Howlett, E., & Burton, S. (2014). Shopper Response to Front-of-Package Nutrition Labeling Programs: Potential Consumer and Retail Store Benefits. *Journal of Retailing*, 90(1), 13–26.
- Newman, C. L., Burton, S., Andrews, J. C., Netemeyer, R. G., & Kees, J. (2018). Marketers' use of alternative front-of-package nutrition symbols: An examination of effects on product evaluations. *Journal of the Academy of Marketing Science*, 46(3), 453–476.
- Nikolova, H. D. and Inman, J. J. (2015). Healthy Choice: The Effect of Simplified Point-of-Sale Nutritional Information on Consumer Food Choice Behavior. *Journal of Marketing Research*. 52(6), 817 – 835.
- Ni Mhurchu, C., Eyles, H., Choi, Y.-H. H., Mhurchu, C. N., Eyles, H., Choi, Y.-H. H., ... Choi, Y.-H. H. (2017). Effects of a Voluntary Front-of-Pack Nutrition Labelling System on Packaged Food Reformulation: The Health Star Rating System in New Zealand. *Nutrients*, 9(8).
- Ni Mhurchu, C., Eyles, H., Jiang, Y., & Blakely, T. (2018). Do nutrition labels influence healthier food choices? Analysis of label viewing behaviour and subsequent food purchases in a labelling intervention trial. *Appetite*. 121:360-365
- Provencher, V., Polivy, J., & Herman, C. P. (2009). Perceived healthiness of food. If it's healthy, you can eat more! *Appetite*, 52(2), 340–344f.
- Roodenburg, A. J. C., van Ballegooijen, A. J., Dötsch-Klerk, M., van der Voet, H., & Seidell, J. C. (2013). Modelling of Usual Nutrient Intakes: Potential Impact of the Choices Programme on Nutrient Intakes in Young Dutch Adults. *PLoS ONE*. <https://doi.org/10.1371/journal.pone.0072378>
- Roseman, M. G., Joung, H.-W., & Littlejohn, E. I. (2018). Attitude and Behavior Factors Associated with Front-of-Package Label Use with Label Users Making Accurate Product Nutrition Assessments. *Journal of the Academy of Nutrition and Dietetics*, 118(5), 904–912.
- Sanjari, S. S. S., Jahn, S., & Boztug, Y. (2017). Dual-process theory and consumer response to front-of-package nutrition label formats. *Nutrition Reviews*, 75(11), 871–882.
- Savoie, N., Barlow, K., Harvey, K. L. L., Binnie, M. A. A., & Pasut, L. (2013). Consumer Perceptions of Front-of-package Labelling Systems and Healthiness of Foods. *Canadian Journal of Public Health-Revue Canadienne De Sante Publique*, 104(5), E359–E363.
- Scarborough, P., Matthews, A., Eyles, H., Kaur, A., Hodgkins, C., Raats, M. M., & Rayner, M. (2015). Reds are more important than greens: How UK supermarket shoppers use the different information on a traffic light nutrition label in a choice experiment. *International Journal of Behavioral Nutrition and Physical Activity*, 12(151), 1–9
- Storcksdieck genannt Bonsmann S., Fernández Celemín L., Larranaga A., Egger S., Wills J.M., Hodgkins C. and Raats M.M. on behalf of the FLABEL consortium (2010). Penetration of nutrition information on food labels across the EU-27 plus Turkey. *European Journal of Clinical Nutrition*, 64, 1379 - 1385.
- Talati, Z., Pettigrew, S., Kelly, B., Ball, K., Dixon, H., & Shilton, T. (2016). Consumers' responses to front-of-pack labels that vary by interpretive content. *Appetite*, 101, 205–213.

- Van Camp, D., De Souza Monteiro, D. M., Hooker, N. H. H., Monteiro, D. M. D., & Hooker, N. H. H. (2012). Stop or go? How is the UK food industry responding to front-of-pack nutrition labels? *European Review of Agricultural Economics*, 39(5), 821–842
- Vyth, E. L. L., Steenhuis, I. H. M. H. M., Roodenburg, A. J. C. J. C., Brug, J., & Seidell, J. C. C. (2010). Front-of-pack nutrition label stimulates healthier product development: a quantitative analysis. *International Journal of Behavioral Nutrition and Physical Activity*, 7(65)

