CHAPTER 1

European Food Information Regulations: Recent Developments

STEPHEN PUGH

Sugarwise, 5 Signet Court, Swann Road, Cambridge CB5 8LA, UK
Email: stephen.pugh@eufoodlabellingspecialists.eu

1.1 Introduction

The major change in food labelling in the European Union (EU) is the introduction of mandatory labelling for nutrients of public health interest on prepacked foods. This might not seem like a major change in the UK but, in other EU Member States (MS), the market for prepacked foods is not as well established but these and other markets are growing quickly.

The push for mandatory labelling comes from a multitude of directions. The two main protagonists are MS government health departments and from consumer organisations. Governments, and in particular health departments, are concerned about the rise in non-communicable diseases, such as obesity, and better nutrition labelling is seen as a way of empowering and/or nudging citizens to improve their diet.[1] Consumer organisations are being pushed from two directions: members are concerned about the nutritional content of foods, but also the addition of fat, sugar and salt, which increase bulk or palatability of food products without any nutritional benefit or improved quality.

With food labelling being an issue that affects trade across the EU, and largely considered a European Commission (EC) competence, the EC also has

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an interest. However, health *per se* is an area where MS have priority, making nutrition labelling a joint competence. However, such has been the pressure from MS to harmonise nutrition labelling across the EU, the EC incorporated rules on previously voluntary nutrition labelling in the new regulation on the provision of food information to consumers (FIC) (1169/2011/EC),[2] making nutritional labelling mandatory and standardised across the EU.

In some areas, nutrition labelling has been mandatory for many years, following the introduction of Nutrition and Health Claims Regulations[3] in 2006, together with fortified foods regulations.[4] If manufacturers make a nutrition or health claim on a food, then a nutrition declaration according to the rules on voluntary nutrition labelling was required. The same applied to fortified foods: if a manufacturer fortified a food, then a nutrition declaration was mandatory. This voluntary nutrition labelling was governed by regulation 90/496/EC,[5] and the provisions for presenting this information have been copied over to FIC with a few small changes, *e.g.* labelling of sodium as salt, the order of nutrients and nutrients that must be included. These changes reflect public health concerns of MS governments and can be regarded as future-proofing the FIC regulation.

Given the lack of nutritional information on prepacked foods within the EU previously, particularly from medium-sized food businesses (50–250 staff, 10–50 M Euro turnover or 10–43 M Euro balance sheet total), regulators initiated a longer lead-in period for mandatory nutrition labelling. Requirements for general labelling came into law on 13 December 2014, but nutrition labelling was not mandatory until December 2016. The aim was to promote compliance with the new FIC regulation by fitting in with the normal labelling cycle for medium-sized businesses (*i.e.* approximately 3 years).

The primary aim of nutrition information is empowerment, *i.e.* knowing the nutritional content of a product enables consumers to make informed choices about their diet. In fact, labelling alone makes little difference to consumer behaviour but, combined with national programmes of education, this information can help consumers adopt a healthier diet. Similarly, nutrition labelling is of limited value without public health information that makes consumers aware of the nutrition contents of foods, what these values mean and how they can be used to eat more healthily. In the EU, on a population basis, nutrients such as sugar, fat and salt – as well as energy intake as a whole – need to be reduced. Whether or not individuals need to amend intakes depends on their circumstances. Having amounts of these nutrients on packaging empowers some consumers to make more informed choices.

Actual intakes, however, depend on how much is eaten, *i.e.* portion size. Food producers make strenuous efforts to determine portion size for their products, but consumption depends on the individual, *e.g.* age, access to foods, appetite. Currently (*i.e.* 2018), there are no defined portion sizes in the EU and, given the complexity of the subject, this is unlikely to change in the near future, despite lobbying from a range of stakeholders across Europe. In the meantime, food manufacturers are able to indicate nutrition content based on portion size as well as per 100 g, and many have chosen to do so for

a variety of reasons. In many cases, portion size is obvious (*e.g.* one can of a soft beverage or small packet of potato crisps) but, in many cases, particularly large packages, portion sizes are less intuitive (*e.g.* breakfast cereals) and more controversial (*e.g.* chocolate bar).

1.2 Why Nutrition Information?

With changes in the retail environment and consumer preferences for pre-prepared food products, EU MS governments and consumer organisations have been calling for better information on food labels, and this included nutrition information. These calls began in the late 1980s, which is reflected in the directive on voluntary nutrition information that was published in 1990 and a Codex standard for nutrition information adopted in 1985. Increased rates of obesity throughout the developed world, and also amongst some developing countries as GDP increased, added urgency to these calls for better information.

Worldwide, the prevalence of obesity nearly doubled between 1980 and 2008. More than half of all men and women in the World Health Organization (WHO) European Region are overweight, and about a quarter of women (23%) and 20% of men are obese.[6] Based on latest estimates in EU MS, being overweight affects 30–70% and obesity affects 10–30% of adults. The number of overweight infants and children in the WHO European Region has risen steadily since 1990, meaning more than two-thirds of children who are overweight before puberty will be overweight in early adulthood. Childhood obesity is associated strongly with risk factors for cardiovascular disease, type 2 diabetes, orthopaedic problems, mental health disorders, underachievement in school and lower self-esteem.[6] Recommendations for managing and reducing obesity emphasise the need for cooperation amongst different actors not just individuals and, in addition to increased levels of physical activity, information about foods is key to consumers adopting a healthier diet.[7]

Nutritional poverty or poor diet, where energy intake is in excess overall and the proportions of nutrients imbalanced, particularly with respect to high intakes of saturated fat, salt and sugar and insufficient consumption of fruit, vegetables and fibre, is a risk factor for weight gain and obesity. One way of addressing this is to provide information about the amounts of fat, salt and sugar in foods. However, this information is not always clear (*e.g.* intended portion size) and those at greatest risk of nutritional poverty have limited access to healthier foods (*i.e.* local food businesses are predominantly fast food retailers). Also, understanding public health information, supporting application nutrition information, is highly variable. Thus, some EU MS governments have encouraged manufacturers and retailers to provide interpretations around the nutrition declaration (*e.g.* traffic light indicators) or nutrition facts (*e.g.* dietary reference values and guidelines[8]) to help consumers identify and control intakes of foods high in fat, salt and sugar. However, interpretations are difficult (good or bad for whom, *e.g.* full fat milk – recommended for children but not adults), and some

manufacturers and retailers have felt unfairly singled out for criticism, particularly those making or selling products high in sugar, salt or fat (*e.g.* chocolate). Of course, it is precisely these products that consumers need to cut down on or eliminate if they are to have a healthy diet and control their weight.

Formats of nutrition declarations and nutrition facts have their origins in the Codex standard. Some EU MS governments have considered front-of-pack labelling, health markers or other ratings helpful for consumers to interpret information in the nutrition declaration. The very need for these and the plethora of information around interpretation, as well as the public debate of experts around their relative value, demonstrates the complexity of nutrition declarations and nutrition facts for the general public.

1.3 Codex Alimentarius

The genesis of the requirement for mandatory nutrition labelling are guidelines for nutrition labelling under the auspices of the General Standard for the Labelling of Prepacked Foods produced by the Codex Alimentarius Commission. Codex was established by the World Health Organization (WHO) and the Food and Agriculture Organization (FAO) of the United Nations (UN) to develop international food standards for the protection of consumer health and to ensure fair practices in the food trade. The General Standard for Labelling of Prepackaged Foods (CODEX STAN 1-1985)[9] was amongst the first Codex standards to be adopted, together with other general Codex texts (*e.g.* hygiene, contaminants, pesticide residues, food additives), and forms an important pillar of the Codex food standards system.

CODEX STAN 1-1985 was revised and enlarged extensively in 1991 and there have been numerous amendments and additions since then. These changes have ensured the Standard meets the needs of modern consumers. As with all texts of this nature, there is some interpretation around the text and guidelines have been produced to help promote consistency. For nutrition information, guidelines were produced initially, following the introduction of the CODEX STAN 1-1985, but implementation has been left to national governments. The implication is that food information should be provided if a government feels the issue is a concern, *e.g.* food hygiene/safety.

CODEX STAN 1-1985 gives a background to the provision of nutrition information and introduced priority nutrients as well as supplementary nutrients that might be given. FIC (1169/2011/EC[2]) nutrients correspond exactly to these, and CODEX STAN 1-1985 guidelines also allow for a certain amount of tolerance around figures on the label for enforcement, which allows for seasonal and production variations. The guidelines also specify nutrients that should be together on the label along with appropriate wording for each. In most nutrition labelling schemes, there are five nutrients of public health interest, *i.e.* energy, fat, carbohydrate, salt and protein. Some national governments or regional legislation have refined further the categories of fat (saturated, polyunsaturated and monounsaturated) and carbohydrates (sugars). There are also supplemental nutrients that may be

included (*e.g.* fibre) or nutrients (*e.g.* vitamins) that must be included if a claim is made.

Within Codex, there are a couple of issues that have not been resolved, specifically trans fats and interpretive nutrition labelling, which have been left with national governments to address as they see fit. Codex guidelines allow for interpretive labelling, but they are complex and difficult to understand. The US Food and Drug Administration (FDA) has tried to simplify the language in their nutrition facts table, but which foods might be better as part of a balanced diet is still open to consumer interpretation. The Codex Committee on Food Labelling (CCFL)[10] has acknowledged some interpretation of nutrition declarations would be helpful, and a project to develop guidelines has started.

1.4 Current Labelling Requirements

EU nutrition labelling rules for prepackaged foods are set out in FIC (1169/2011/EC).[2] The most basic requirements are straightforward: a nutrition declaration is mandatory for (most) prepacked food on retail sale. There are seven nutrients of public health interest – energy, fat, saturated fat, carbohydrates, sugars, protein and salt. Other supplementary nutrients can be added on a voluntary basis, or on a mandatory basis if a claim is made around one of these nutrients. The nutrition declarations must be given on a 100 g or 100 cm^3 (100 mL) basis. However, they can also be given as per portion or serving unit. Significantly, these nutritional values must be on an ''as served'' basis. The amounts of nutrients in the product can be calculated or measured directly through analysis. Composition data may be taken from established databases (*i.e.* food composition tables).

Supplementary nutrients include mono- and polyunsaturated fats, polyols, starch, fibre and any of the vitamins or minerals listed (Point 1 of Part A of Annex XIII of the FIC), and present in significant amounts.

Amounts of food per portion or per serving is at the discretion of food manufacturers but must be realistic. There is a lot of criticism around overly optimistic portion sizes, with a view to ensuring nutritional values are as low as possible. In fact, portion or serving sizes are very difficult to judge and can have positive or negative effect on sales. It is easier where products are predivided into discrete units (*e.g.* individual cakes), when market forces will decide whether these are too small, and sales suffer regardless.

There are a number of exemptions to nutrition labelling, which revolve around unprocessed foods defined in hygiene regulations (852/2004/EC)[11] or foods of little or no nutritional value (*e.g.* natural mineral waters, tea and coffee). Flavoured teas are also exempt from a nutrition declaration, as long as the flavouring adds no nutritional value to the product; the same does not apply to flavoured coffees. Two other exemptions apply to foods (1) with a largest surface area of less than 25 cm^3 (*e.g.* individual sweets/candies), as it would be difficult to include a nutritional declaration in the minimum font size on products of this size; and (2) food, including handcrafted products, supplied

directly by the manufacturer in small quantities to the final consumer or local retail establishments supplying the final consumer. Finally, to help small businesses expanding to a larger marketplace, nutritional labelling only becomes mandatory after these companies have expanded beyond county borders.

1.5 Trans Unsaturated Fatty Acids (Trans Fats)

Trans fats occur naturally in some animal fats, such as beef tallow and buttermilks, but they are also an isomeric by-product of dehydrogenation of saturated fatty acids (converting saturated to unsaturated fatty acids). Unsaturated fatty acids (*e.g.* palmitoleic, oleic, myristoleic, linoleic and arachidonic acids) are added to products to give more desirable properties (*e.g.* mouth feel, ease of processing). Trans fats are also produced from the partial hydrogenation of polyunsaturated fatty acids, which is used to reduce the risk of rancidity, *i.e.* extend shelf life.

During FIC negotiations, issues around trans fats, particularly their link with coronary heart disease, were emerging from across the world. Given scientific recommendations from various expert committees to reduce intakes of trans fats, the FIC Working Group faced a dilemma; requiring trans fats to be declared on labels could have the effect of freezing levels in foods whereas the recommendation was that concentrations of trans fats in foods should be as low as possible. The EC opted not to include trans fats in the list of supplementary nutrients, meaning they could not be included on labels. Then, the EC and MS governments agreed to work with food manufacturers to reduce levels of trans fats in foods, and the EC published a report on these efforts in December 2015. The report gave a series of options that could be adopted to ensure trans fat levels were as low as possible for European consumers. These options were mandatory labelling of trans fat content, legislation to limit the amounts of trans fat in food, voluntary agreements with industry to reduce the amounts of trans fat in food and guidance for setting national legal limits.

In December 2017, the EC published a public consultation on trans fats,[12] giving three options:

- Option 1: Prohibition of the use of trans fats in foods, either through regulation or self-regulation, which refers specifically to industrially produced trans fats.
- Option 2: Labelling of trans fats content, acknowledging that labelling would cover both industrially produced trans fats and those produced by ruminants.
- Option 3: Limits on the amounts of partially hydrogenated trans fat in food, which refers specifically to partially hydrogenated trans fats.

The deadline for responses was 9 February 2018 and the outcomes will be published in due course. However, regardless of any new legislation on trans fats in prepackaged foods, the issue of trans fat in foods sold loose (*i.e.* without labelling) will remain. Surveys of bakery products and biscuits have

found high concentrations of trans fats in these products and continued vigilance is required to ensure trans fats from the diet are kept to a minimum.

1.6 Front-of-Pack (or Traffic Light) Labelling

The exact requirements of the nutrition declaration are technical, and difficult to interpret. Furthermore, research has shown that time spent choosing food products is relatively small. Thus, interpretive labelling aims to help consumers opt for healthier food products. There are a number of different schemes globally, but they fall into three categories: (1) analysis of the nutrient composition to determine whether it is healthy or not, (2) graphical representation to highlight the nutritional content, and (3) simplified nutritional information in a more stylised form. The Dutch keyhole system is an example of analysis (1), and falls under the definition of a health claim in the EU. The Australian and New Zealand star system is a graphical representation (2). The traffic light labelling in the UK[13] offers more stylised information (3) through colour coding for high (red), medium (amber) and low intakes for the priority nutrients.

The traffic light labelling scheme has been around for more than a decade and, in its current guise, has been in operation since 2016, when the UK Department of Health (DoH) issued new guidance that took FIC into account as well the needs of UK food retailers. The original scheme was adopted by most UK retailers, but there were important exceptions. The new scheme was adopted universally and well received by UK consumers, but there remains debate over whether or not consumers use or understand the information correctly.

A lot of research has been carried out on the effectiveness of traffic light labelling in the UK. Work carried out by Sacks, Rayner and Swinburn[14] was largely ambivalent about the effectiveness of the scheme. Work published by Sainsbury on their website found that over half of shoppers in their stores thought traffic light labelling was useful when making healthy choices.[15] The UK DoH research was enthusiastic about the scheme[16] but, as stated by Sacks *et al.*[14] highlighted, it is difficult to assess the effectiveness of a passive scheme. Other researchers have pointed out there is merit in having such a scheme, as consumers begin to understand which products are healthier and repeat purchases with reassurance from traffic light labelling information.

For those unfamiliar with traffic light labelling, the portion element of the nutrition declaration is repeated on the front of packs in both kilojoules and kilocalories, as a simple numerical amount. Amounts of fat, saturated fats, sugars and salt are also repeated, as numerical values, but the background of the declaration is coloured according to the amount present in the food. Red is given to the higher levels and green to lower levels, based on recommended daily intakes for an average adult. Values in between are coloured amber. The cut-off for green is defined in both UK guidance on the traffic light labelling scheme and in the health claims regulation (1924/2006/EC).[17] For fat, this is less than 3 g per 100 g of a food; for sugar less than 5 g per 100 g; and for salt less than 0.3 g per 100 g.

Figures ascribed as red are more complex as high levels of fat, saturated fats, sugars and salt nutrients are not defined in any EU regulation or guidelines. Instead, values are defined as high (red) if 100 g of the product ''as served'' contains 30% or more of the recommended dietary reference value for an adult; 30% was selected based on consumption of three largely energy-equivalent meals per day. This is reduced to 25% for liquids, as liquids can be more readily consumed than solid foods. These figures were put out for consultation prior to application, but not challenged to any great degree.

The scheme as a whole has been criticised and the UK was referred to the EC as having introduced a non-tariff barrier to trade. The argument was that food imported into the UK from a country without a similar scheme would be perceived as unhealthy and, consequently, at a disadvantage in the UK marketplace. However, such an accusation, based on a passive labelling system, is difficult to prove (or disprove): consumers are habitual in purchasing habits and have chosen one product over another, perhaps or not influenced by traffic light labelling, will purchase that product again without remembering what triggered their choice. In 2018, the EC was yet to rule on this matter and, with BREXIT imminent (October 2019 – at the time of publication), the discussion could be rendered mute, subject to new trade agreements.

1.7 Nutrition Labelling and Alcoholic Drinks

Alcoholic drinks are exempt from FIC regulations with respect to ingredients lists and nutrition information, provided they are over 1.2% by alcohol volume. This exemption from additional information on ingredients and nutrition was the subject of much debate prior to adoption of regulation. Most EU MS were in favour of having this additional information and it was more a question of how and when, rather than if. Full ingredients labelling might have led to some anomalies, *e.g.* wine can be listed as a category in the ingredients if it complies with the requirements stipulated in the Common Agricultural Policy (CAP).[18] Thus, a full ingredients list on a bottle of wine would go against the requirements for other fermented products.

The debate around nutrition declarations was also coloured by the desire to control products such as alcopops. However, there is no established definition of an alcopop, even though most involved in the debate understood the meaning of the term, *i.e.* sweet, flavoured alcoholic beverages with relatively low alcohol content (*e.g.* 3–7%), the advertising for which targeted younger people. Some drinks manufacturers also felt unfairly penalised, suggested one sector of the alcoholic drinks industry – specifically wine – was favoured over others. In the absence of a legally established definition, the EC decided a fact-finding exercise on different types of alcoholic drinks and consumer expectations was required and the issues of labelling should wait until more information had been collected.

In the meantime, other issues have become apparent, such as how nutrition declarations should be expressed and, specifically, whether these should be the same for all foods (*i.e.* as a fraction of 100 g of the product as

served) or according to serving or unit sizes. These issues are important when considering the nutrition content of a spirit with a beer, *i.e.* 100 g of a spirit (*ca.* 100 mL compared with a single [small] measure of 25 mL or [large] 50 mL) seems excessive compared with 100 g of beer (*ca.* 100 mL compared with third [160 mL], half [250 mL], two-thirds [330 mL] of a pint and multiples thereof). Providing any information for alcoholic drinks is complex, not just in terms of nutritional content and tax, but also health and safety, *i.e.* ''drink responsibly'' public health messages. Thus, manufacturers have been looking at innovative methods for delivery of this information collectively.

The EC published their report on 13 March 2017.[19] The report gives an excellent background on the issues, although there are some omissions (*i.e.* there is no mention of pre-mixed alcoholic drinks such as gin and tonic) and anomalies. For example, served alone, tonic requires a full ingredients list and a nutrition declaration but, served with gin, it requires neither. In most of the drinks sector, there are EU regulations defining the composition of alcoholic drinks,[20] but this does not apply to beer and ciders. For spirits and wine, the name of the product defines the composition and listing the ingredients would be relatively simple (*i.e.* for a bottle of wine, the ingredients would be wine; for a bottle of whisky, it would be whisky). However, the same cannot be said for a bottle of beer, where the ingredients would be water, malt, hops and yeast. Regardless, a requirement to declare the ingredients would not be too onerous and would inform consumers, enabling them to make choices about the product they drink.

For nutrition information, energy content of the alcoholic drink is the most important nutrient. Most, if not all, of this comes from the alcohol and it is a fairly simple calculation to convert alcohol content into kilocalories. However, some alcoholic drinks also contain a significant amount of carbohydrate (sugar, *e.g.* sweet, flavoured alcoholic beverages) and some contain saturated fats (*e.g.* cream liqueurs). Arguably, some alcoholic beverages might be allowed to declare just energy, but those containing a significant amount of other ingredients should be required to provide a full nutrition declaration (*i.e.* carbohydrate, fat, protein and salt).

The drinks industry has, therefore, been charged with developing a code of practice in this respect as well as how the information might be presented. Alcoholic drinks tend to have a long shelf life and, for spirits, liqueurs, *etc.*, a single bottle might be opened and consumed over a long period of time. One option might be for the information to be presented using links printed on the label or QR codes. However, this could make the information less accessible because many alcoholic drinks are sold in layered packaging, which can be lost or become illegible, or from behind public bars or other catering establishments.

1.8 Tolerances

Food is a difficult matrix and there are many reasons why the declared value of a nutrient might not correspond with values measured analytically. These include the breakdown of nutrients with time or through reactions with

ambient oxygen (*e.g.* vitamin C). There might be variations in the sources of ingredients (*e.g.* tomatoes from the Netherlands *versus* Israel) or seasonal variations in natural components. Labels for a food are usually printed well before manufacture, but nonetheless food under FIC manufacturers are responsible for and must ensure information printed on the label is correct, particularly where there might be issues surrounding the over-consumption of a particular nutrient (*e.g.* energy) or a nutrition claim (*e.g.* vitamin C).

Given the potential for variation in their guidance, the EC indicated the following should be taken into account for enforcement: the nutrient in question, extent of the deviation, and whether the amount was an over- or under-estimation. If a product is claiming to be low fat or low sugar content then the tolerance would be greater, provided the product was below defined thresholds, than if the claim were ''high in vitamin C'' and the product was comparable with other foods without the claim.

Other aspects that would help in determining tolerance would be naturally high variation in nutrient content including seasonality, high degradation rate or analytical variability in some food matrices; low homogeneity leading to high variation of nutrient in sampling for analysis, compliance of the majority of samples from the lot with tolerance ranges, where such data are available; and the history of the company concerned, *i.e.* whether they are generally in compliance. To this end, the EC has published a table of tolerances for different nutrients (Table 1.1).[21]

Table 1.1 Tolerances for foods other than food supplements including measurement uncertainty.

	Tolerances for foods (includes uncertainty of measurement)	
Vitamins	+50%[a]	−35%
Minerals	+45%	−35%
Carbohydrate, sugars, protein, fibre	<10 g per 100 g: 10–40 g per 100 g: >40 g per 100 g:	±2 g ±20% ±8 g
Fat	<10 g per 100 g: 10–40 g per 100 g: >40 g per 100 g:	±1.5 g ±20% ±8 g
Saturates, monounsaturates, polyunsaturates	<4 g per 100 g: ≥4 g per 100 g:	±0.8 g ±20%
Sodium	<0.5 g per 100 g: ≥0.5 g per 100 g:	±0.15 g ±20%
Salt	<1.25 g per 100 g: ≥1.25 g per 100 g:	±0.375 g ±20%

[a]For vitamin C in liquids, higher upper tolerance values could be accepted.

For foods claiming to be high or low in a particular nutrient the differences on the side of the claim should reflect the claim. In other words, if the manufacturer claims to be high in a nutrient then there should only be measurement uncertainly should the nutrient fall below the claim. If the manufacturer is claiming to be low in a nutrient, then there should only be measurement uncertainty if the measurement is above the claim.

There are special conditions for the variability of nutrients in supplements because of their relatively long shelf life and the degradation over time.

Finally, there is a table giving the amount by which the amounts of the nutrients in food can be rounded to give more meaning to consumers.

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