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POLICY BRIEF

Incorporating sustainability into food-based dietary guidelines by "Traffic Light Ecolabelling"

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Abstract

Context: Food-Based Dietary Guidelines (FBDGs) are science-based recommendations in the form of guidelines for healthy eating. They provide information and advice on foods and dietary patterns to consumers to promote the overall health and prevent chronic disease. As of now, these FBDGs lack information about the sustainability of food products. Consumer food choices have a large impact on human and planetary health and wellbeing, as the production and processing of diets make up between 20% and 30% of the total greenhouse gas emission of consumable goods in the European Union (EU). A plethora of different ecolabels exist to aid consumers in making sustainable choices when purchasing items, both food and non-food products. These ecolabels make it easier for consumers to choose eco-friendly product alternatives, with the aim of lowering the environmental impact of the products a consumer buys. While the growth of ecolabels may be interpreted as a sign of success, label overload and gaps in the understanding might result in confusion for consumers, resulting in the limit of use of these already existing ecolabels. Therefore, this policy brief proposes the development of a universal, understandable ecolabel for food products, to enable consumers to make better informed decisions.

Policy Options: Three policy options are examined. Firstly, a hypothetical 'do nothing' scenario is considered, in which food ecolabels are not used. As a second alternative, the use of carbon footprint labelling is examined. Lastly, the implementation of a "traffic light" colour pattern label that uses the colours green, orange and red to demonstrate low, medium and high environmental impact, respectively, is examined.

Recommendations: In order to determine the best policy option, the three proposed policy options are compared using five evaluation criteria (time of implementation, cost of implementation, ease of implementation, consumer friendliness and positive environmental impact). The traffic light ecolabel had the highest overall score, and it is thus recommended that this food ecolabel should be used. Lastly, it is recommended that the ecolabel is incorporated into the already existing EU ecolabel, in an effort to increase consumer knowledge and understanding of this novel ecolabel.

Keywords: Dietary guidelines, food labeling, policy recommendation, sustainability, traffic light ecolabel.

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Introduction

Food-Based Dietary Guidelines (FBDGs) are science-based recommendations in the form of guidelines for healthy eating. They provide information and advice on foods and dietary patterns to consumers to promote the overall health and prevent chronic disease (1). As of now, FBDGs lack recommendations about the sustainability of food and food choices. The sustainability of food goes beyond nutrition and environment, and includes economic and socio-cultural dimensions as well. Suffice to say, the failing incorporation of sustainability in FBDGs impacts human and planetary health and wellbeing gravely, as the production and processing of diets make up between 20% and 30% of the total greenhouse gas emission of consumable goods in the European Union (EU) (2). This increase in greenhouse gas emissions has led to climate change, which has already had observable effects on the environment. Glaciers have shrunk, ice on rivers and lakes is breaking up earlier, plant and animal ranges have shifted, and trees are flowering sooner (3). Moreover, encouraging consumers to purchase and consume sustainable foods could reduce food waste by changing consumer behaviour. Food waste is a significant problem because the burning of food waste requires considerable energy, and releases greenhouse gasses in the atmosphere, which also leads to global warming. Although global warming may bring some localized benefits, such as increased food production in certain areas, the overall health effects of a changing climate for the population are overwhelmingly negative. Climate change affects many of the environmental and social determinants of health, such as clean air, safe drinking water, sufficient food and secure shelter. Also, high temperatures will raise the levels of ozone and other pollutants in the air which will exacerbate cardiovascular and respiratory disease in individuals. Additionally, aeroallergen levels are higher in extreme heat, which can trigger asthma, affecting about 300 million individuals globally (4). Not only does the food that consumers eat have an impact on the environment, choosing sustainable food options is also important to maintain a good health status among the population, as sustainable food options are often also healthier food choices for the consumer. A recent report by the Dutch Voedingscentrum recommended that consumers that were opting for a more sustainable diet should eat less meat, more plant-based foods, and avoid sugary drinks (5). This recommendation is fairly similar to healthy diet recommendations of more plant-based foods, whole grains, legumes, seeds and nuts, and less animal-based foods (6). Thus, it can be argued that sustainable food choices benefit a person's health as it is less damaging to the environment, as well as through the improvement of the overall dietary intake of an individual. Fortunately, in a study done by the European Consumer Organisation on consumer attitudes towards sustainable food, over half of consumers indicated that sustainability concerns have an influence on their eating habits, however, most consumers underestimated the impact of their food choices on the environment. Two thirds of consumers are open to changing their eating habits for the environment, but price, lack of knowledge, unclear information, and limited choice of sustainable options prevents them from eating more sustainably (7). A plethora of different ecolabels exist to aid consumers in making sustainable food choices. These ecolabels are provided by certifiers that assess whether farmers and/or food processors comply with specific and transparent environmental or social standards. Common certification categories include: “environment/organic”, “animal welfare”, “labour/worker welfare” and “fair-

trade". While the growth of ecolabels may be interpreted as a sign of success, label overload and gaps in the understanding of both the general concept of sustainability and of the specific sustainability labels might result in confusion for consumers, resulting in the limit of the use of such labels. Unfortunately, there is no standardized certification process in place, and many different types of ecolabels are being used. Certification processes can take place in three different ways: firstly, products can get a certification from the producers themselves. Secondly, the company buying the product can confirm that a producer has met a certain set of standards. Lastly, an independent party can undertake an audit to determine whether the producer has met the standards (8). It is thus up to the consumer to assess the trustworthiness of the certification process and the certifications.

Context

Overall, ecolabels have done a great deal to raise awareness, to create trust, to change what we expect from certain product categories, and to build capacity and create a common framework around sustainability (9). A great example of the effectiveness of ecolabels is the Fairtrade movement in the UK, of which the sales topped £1bn in 2010. However, the large number of different ecolabels and the confusion surrounding the certification procedures of sustainable products leaves consumers feeling that the information provided is unclear, and that they have a lack of knowledge regarding the labelling of these products. It can thus be argued that a standardised certification and labelling process for foods that are sustainable would aid consumers in making more sustainable food choices. One place where a standardised ecolabel has already been effectively used for almost three decades is in non-food products and services. In 1992, the EU established this ecolabel that is now recognised worldwide: the EU Ecolabel. It aims to promote the resource efficiency of industrial production, decrease the environmental impacts of products throughout their lifecycle and to enable consumers to make informed decisions on a product's environmental performance. Difficulties concerning policies on ecolabels in Europe are due to the complex supply chains of the food sector, the vast array of stakeholders and a big variability of consumer preferences. Also, while sustainability is an issue of general interest, in the context of food choice it competes with other issues like sensory quality and healthfulness, and a general interest in sustainability may therefore not necessarily translate into use of sustainability information when choosing food products (10). Ecolabels are likely to form a part of a wider web of practices reinforced and supported by other factors and behaviour patterns (Figure 1). The implementation of ecolabels could be of great benefit to the environment and ease the decision-making process for consumers. Therefore, the development of a universal, understandable ecolabel for food products is recommended, to enable consumers to make better informed decisions. Three policy options will be evaluated.

Policy Options

According to the Regulation (EU) No 1169/2011 of the European Parliament and the Council on the 25th of October 2011, a number of specific information about food is mandatory and should be included on the food packaging as indispensable for the consumer. This information includes the name of the food, the list and quantity of ingredients, any ingredients causing allergies, the date of minimum durability as

well as use and storage conditions. The country of origin of the food product, the name of the food business operator and a nutrition declaration should also be indicated on the packaging. The scope of the regulation is to protect individual and public health and thus it focuses on consumer safety. It also provides the necessary information for the smooth and unhindered function of the internal market. However, in no place throughout the Regulation is the notion of sustainability or the use of environmentally friendly practises mentioned and therefore the need for addressing environmental welfare in food labelling remains unmet. The Farm to Fork (F2F) strategy that was presented by the European Commission in May 2020 and is situated in the heart of the European Green Deal is introducing a number of new food labelling schemes to better inform consumers and promote sustainability and individual as well as planetary health. Through the European Green Deal the European Union aspires to become the first major climate neutral economy by 2050, by offsetting greenhouse gases emissions using methods of removing warming gases from the atmosphere. The new labelling initiatives proposed by the F2F strategy focus on mandatory front-of-pack nutrition labelling, extending country of origin indication, nutrient profiles and amelioration of expiration date labelling to reduce food waste. The European Commission also announced the creation of a sustainable food labelling framework that would take under consideration, apart from food safety and nutritional value, the environmental impact and animal welfare in regard to food production but no further information is provided and the proposal is expected in 2024 (11). As mentioned in the introduction, this policy brief aims to address the lack of adequate food labelling policies regarding sustainability and subsequently the many public health problems both in individual as well as in population level that this can lead to. GHGs and global warming resulting from the food industry, millions of tons of food waste and meat-based diets endanger planetary welfare and foster non-communicable diseases. Therefore, three different strategies are considered and evaluated for supporting sustainability in food labelling and subsequently promoting individual as well as public health.

Doing nothing"

1) Implementing a food labelling strategy without first educating consumers in regard to climate change and contributing factors could result in bombarding consumers with an overwhelming number of choices and eventually too much responsibility in their hands. Furthermore, combining information about a product's nutritional value and profile with information about its impact on the environment could turn out to be a challenging task and lead to misunderstanding or misinterpretations and confusion on the consumers' part. Therefore, one way to go about promoting environmental welfare in regard to food products and their impact would be not using ecolabelling at all. Ecolabels on food products allow for products of both high and low quality and environmental impact to be sold by the retailers and transfer the responsibility to the consumer to make the right choice for the environment based on the ecolabel. If labelling was absent, consumers would have to traditionally rely on environmental laws created by the government to decide for them whether a product is allowed to be sold according to national legislation or not. This solution would on one hand bring politicians and legislative authorities face to face with food companies' financial interests and interfere with the notion of free market economy and on the other hand strip the consumers of their right to make informed choices on their own.

"Carbon footprint labelling"

2) As a second alternative to address the lack of ecolabelling in food products, the use of carbon footprint labelling is considered. Carbon footprint refers to the total amount of greenhouse gases-GHG (including carbon dioxide and methane) produced by a particular product throughout its life cycle (12). As mentioned before, a great percentage of the world's carbon footprint is coming from the food and agricultural industry so it makes sense to focus on empowering consumers to opt for low-carbon food products. Carbon Trust, a private UK company set up by the British Government, provides voluntary carbon certification services and in 2007 introduced the first carbon labelling scheme for individual products (9). Examples from analogous initiatives around the world vary. In 2012 world renowned food retailer 'Tesco' decided to drop its ambitious plan from 2007 to put carbon labels on 70,000 products due to the great amount of work needed and the lack of backing from other retailers (13). However, some years later, carbon-labelling seems to be making its way back with big food companies like 'Quorn' and 'Oatly' using carbon labelling on many of their products and 'Unilever' and 'Nestlé' planning to implement carbon labelling in the foreseeable future. Standing at the threshold of a new era of carbon taxes and facing the urgent need to decarbonise, companies are calculating their GHG emissions along the supply chain and disclosing information about it, with French company 'Danone' scoring best and 'Coca-Cola' scoring worst (14). With regard to individual countries, the Danish Government proposed carbon labelling for food as part of the government's 38-point plan for a "greener future" in 2018. The Swedish climate labelling initiative is another example of country wide policy showing that carbon labelling can be implemented with support from the government and the industry. However, there is no doubt that what makes such initiatives ambitious and time-consuming, especially when they come from individual countries and are not the result of group effort, is the difficulty and challenges in measuring carbon emissions for food products (due to the spread out and varied supply system) as well as the need to engage multiple actors like the government, retailers and other stakeholders (15). To avoid consumer confusion due to lack of knowledge regarding carbon footprint, we consider the use of a two metric scheme that would evaluate products according to the neutral reference point of carbon emission for that particular product and would qualify them only if emission levels were below that point.

"A traffic-light food labelling scheme incorporated in the EU ecolabel"

3) Last but not least we consider the incorporation of food labelling into the existing EU ecolabel through the use of a 'traffic-light' colour scheme, in an effort to support consumers in making sustainable food choices. Regulation (EC) No 66/2010 of the European Parliament and of the Council of 25 November 2009 already sets out the environmental requirements that a product should fulfil in order to be awarded the EU ecolabel. A tough set of criteria, determined on a scientific basis and taking into account the whole product life cycle, assess the impact a product has on climate change, nature and biodiversity, energy and resource consumption, generation of waste, emissions to all environmental media, pollution through physical effects and use and release of hazardous substances (16).

The EU Ecolabel has already been awarded to thousands of different products across Europe and this easily recognisable logo has made it easy for consumers to make quick and informed decisions in a world of too

many green labels and claims. The label has strong foundation and is being daily managed by various cooperating actors including the EU Ecolabeling Board composed of representatives of various institutions like the European Consumer Organisation (BEUC) and the European Chemical Agency (ECHA), the European Commission, Competent Bodies, Stakeholders (industry, trade unions, retailers) and the EU Ecolabel Helpdesk.

We consider the extension of this worldwide recognised environmental excellence label, limited until now only to shampoos, detergents, baby clothes, paints, electrical goods, hotels etc, to food products in order to ensure that a food product is of good quality, safe and environmentally friendly. As in the already existing EU ecolabel the whole life cycle of food products (primary production, processing, transport, packaging and retail) will be taken under consideration and products will be assessed according to their impact in climate change, greenhouse gas emissions and pollution, fresh water and land use, eutrophication, biodiversity, generation of waste and animal welfare.

Following the examples of the EU Energy label as well as the front-of-pack traffic light health labelling on food products in the UK, we suggest the implementation of a "traffic light" colour pattern that will use the colours green, orange and red to demonstrate low environmental impact, medium environmental impact and high environmental impact respectively. Each product shall be attributed one of the three colours according to a standardised procedure assessing the effect the product has on the environment in regard to the aforementioned criteria.

The EU ecolabel is a well-recognised label of environmental excellence that has been around for almost 30 years and is based on a solid foundation. The functioning of the label is based on European regulation and it is operating under the supervision of accredited institutions like the European Commission together with bodies from the Member States and other stakeholders. All these credits make for an excellent foundation for an extension of the label to food products. Our suggestion to use the 'traffic light' colour pattern as the labelling scheme is based on the efficiency of the pattern in similar efforts like for example the EU energy label which, according to the Special Barometer 492, is recognised by 93% of consumers and taken under consideration by 79% when they are buying energy efficient products (17). A detailed evaluation of the three options according to specific criteria follows.

Recommendations

In order to decide on the best policy option, a comparison of the three options previously considered has been done (Figure 2) according to the following evaluation criteria: time of implementation, cost of implementation, ease of implementation, consumer friendliness and positive environmental impact. These evaluation criteria are measured as low, medium or high (scoring for example that the policy proposed will require low time of implementation or that it will create a high positive environmental impact).

Time of implementation

Firstly, the amount of time that would be needed to implement each of the policy options was considered. The first strategy of keeping the current food labelling without any modifications would not require any time of implementation.

However, the other two alternatives would represent the necessity of a longer period of time to implement them. According to an article published by The Guardian, to calculate the carbon footprint of food

products would require a minimum of several months' work for each product. It is foreseeable that even more time would be needed to implement the third alternative (i.e., the traffic light label), as it evaluates many sustainability aspects, including the carbon footprint.

Cost of implementation

One of the challenges of introducing the EU Ecolabel in the food, feed and drink sector are the costs and resources needed for the products to meet a set of sustainability criteria, especially for producers, chain actors and public bodies. The "do nothing" policy option would not represent any cost incurred; however, the other two options would require a higher budget to implement them. The current fee of certification of the EU ecolabel from the EU Competent Bodies is around €350 to €3,000 per operator per year. This would be applicable for both traffic light and carbon footprint labels. However, according to a study on the feasibility of EU Ecolabel for food and feed products done by Oakdene Hollins Consultants, if the carbon footprint label alternative was utilised, the costs of assessment and implementation would increase significantly, around €10,000 to €20,000 per product (18).

Ease of implementation

Considering the ease of implementation and the space that each policy option would require in the food package, the first alternative is the easiest policy option to implement as nothing in the food labelling must be changed. The carbon footprint approach would require a big surface of the food labels in order to add and explain the symbol, as it should include a footprint symbol, a number representing the total set of greenhouse gas emissions caused throughout the whole life cycle of the food product (expressed for example in grams of CO^2 emissions per grams or ml of food product), and a concise explanation of what the aforementioned number would mean in regard to the level of sustainability. In the contrary, the traffic light alternative would require a smaller surface, as only a self-explanatory small colour pattern symbol (i.e., red, orange, or green) would need to be added, hence, making this third alternative easier than the other two policy options to implement in food and drink products.

Consumer friendliness

In regard to the approachability or consumer friendliness, the traffic light label option was evaluated as the most consumer friendly policy. According to the research at Chalmers Technological University in Sweden, a traffic-light coloured label implemented in a student catering facility increased the sales of green labelled meals by 11.5% compared with the control phase, without these labels (19). The green-orange-red colour pattern is already a familiar construct for consumers, where green is always associated with a positive rating, orange with an intermedium grade and red being linked to a negative score. This standardised and clear label would not require any further explanation besides the colour symbol itself and would make it very easy for consumers to understand its meaning in relation to sustainability. In essence, consumers will easily and effortless relate the green label to an environmentally friendly product and the red label to a low sustainable food or drink product with a high environmental impact. Furthermore, the traffic light label approach would be in line with other food labelling policies already implemented in the EU with respect to dietary recommendations, aiming to demonstrate in an understandable way how healthy and nutritious a food product is. For this reason, the traffic light label would be the most successful approach seeking to make an informed choice among consumers. Contrastingly, the carbon footprint approach

would require an advanced knowledge in sustainability and in the greenhouse gas emission levels that would be desirable for a food product to be considered sustainable. For this reason, it scores to be less consumer friendly than the traffic light, as this type of label would lead to more misunderstanding and confusion among consumers. The "do nothing" alternative is, however, the least consumer friendly due to its lack of transparency and lack of seeking sustainability goals.

Positive environmental impact

Moreover, the traffic light labels can easily educate consumers about the environmental attributes of these products, and, thus, incentivize the marketplace for more green products by increasing consumer demand for environmentally friendly products. Those companies whose food products are identified as non-sustainable with a red label, might be exposed to reputational harm and will, therefore, tend to change their product formulation and process pursuing an orange or green label (20). Although extensive research is still needed to decipher biases in consumer decision-making, one cannot argue that consumers will respond in a more positive way to a clear and intuitively understandable traffic light label as well as one that comes from a respected evaluation scheme such as the EU ecolabel (12).

Considering the positive environmental impact, the traffic light label approach scores the highest positive impact on human and planetary health and wellbeing, as it comprises not only the greenhouse gas emissions, but also the energy, water, land and other resources consumption, the generation of waste, the eutrophication, the biodiversity and the animal welfare, throughout the whole life cycle of food products (11). In contrast, the carbon footprint label approach would only consider the total amount of greenhouse gas emissions, such as carbon dioxide or methane, produced likewise throughout the life cycle of food products (12).

Discussion

According to the results obtained from the policy options analysis, as represented in the comparison graph (figure 2), the use of the traffic light label approach is recommended to incorporate sustainability into food and drink products labels, as in general, it scored the best in terms of our evaluation criteria. The "do nothing" policy option scored the best in terms of time and cost of implementation. Nevertheless, more significance was given in this study to the consumer friendliness and the possible positive impact on the human and planetary health and wellbeing that the traffic light label option would create, as these are more relevant aspects to public health.

Important to mention as well is the role that stakeholders and governments play on these policy options by facilitating or limiting its implementation. Key players, such as the food industry, retailers, farmers associations, may be against the implementation of the carbon footprint and traffic light labels policy options. Some actors expect that producers and service suppliers working in a non-sustainable way would be disadvantaged by the introduction of food in the EU Ecolabel. Due to the high frequency of innovation in the ingredients used by the food industry, recipes, and formulations, that result in frequent changes in their environmental characteristics, establishing sustainable criteria for food and drink products might be quite a challenge for these food manufacturers (18). On the contrary, important players such as ecolabelling advocates, consumer protection organizations (e.g., BEUC, Consumers International, Chafea), animal welfare NGOs and environmental and ecological

organizations may be significantly in favour of the implementation of any of these two policy options as they aim to make food products more transparent; and these same stakeholders may be considerably opposed to the "do nothing" approach. European governments and policy makers have shown during the last years a large interest in developing more sustainable and environmentally friendly policies. Eventually, the implementation of sustainable labels in food products will be mandatory in most of the MS. For this reason, the prompt incorporation of labels that inform about the sustainability of food products is the best option for food producers and sellers of avoiding fines or restrictions due to not complying with future established regulations. For the previously mentioned reasons, the traffic light policy option would better meet the sustainability goals that the EU seeks to achieve.

Plan for change utilizing the Kotter Model

Vision: Improve human and planetary health and wellbeing.

Mission statement: Promoting sustainable diet through transparency and effective policies on FBDGs.

In order to create a climate for change, firstly, it is needed to create a sense of urgency through advocacy campaigns and promoting the importance and urgency of the issue. This can be through highlighted that the current food production is destroying the environment as it accounts for 70% of all human water use; and is a major source of water pollution. It is also the leading cause of deforestation, land-use change and biodiversity loss (21). Moreover, the current COVID-19 pandemic exposed current food systems defects and in order for these systems to be resilient and resistant to crises, it needs to be sustainable. The next step is to establish an expert group from every stakeholder that oversees the implementation of this policy option and consists of members from environmental and consumer organisations, unions, trade, industry, crafts, communities, media, international NGOs. Then to plan a specialized communication strategy for each stakeholder. An example here when targeting consumers, the communication message would be to create awareness and confidence in this policy option as one of the solutions to simplify the concept of sustainability in their daily food choices as well as promoting the concept of sustainability as a whole. Empowering the first actions is the subsequent step through establishing a risk assessment plan in order to identify and address the expected challenges. One challenge is the resistance to change faced by certain stakeholders and planning how to overcome this challenge is essential for the success of this policy. To successfully continue with the change, it is vital to establish the concept of creating quick wins, which can be done through incorporating the traffic light system in phases with each phase including a certain group of products. The final steps are the continuous evaluation of the Traffic Light Ecolabeling policy impact through discussion with consumers and Industry stakeholders and the promotion of the policy to be implemented widely in different international settings.

Conclusions

Knowing that up to date the ecolabelling has not been standardly implemented in food products at the EU level, three possible policy options are considered to address this problem.

- The first alternative is the maintenance of the food labelling how it currently is.

- The second alternative is the incorporation of carbon footprint labels, which would take into account the total amount of greenhouse gas emissions, including carbon dioxide and methane, produced throughout the whole life cycle of food products.
- The third alternative is a traffic light colour pattern symbol, that will use the colours green, orange and red to demonstrate low, medium, and high environmental impact respectively. It will take into account the greenhouse gas emissions, as well as many other sustainability indicators, such as water, land, and energy consumption, generation of waste, use and release of hazardous substances, or animal welfare, throughout the whole life cycle of food products.

After evaluating certain criteria, such as time of implementation, cost of implementation, ease of implementation, consumer friendliness and positive environmental impact of the three policy options previously proposed, it is strongly recommended to implement the traffic light colour pattern label, as it scored the best in the analysis. Lastly, it is recommended that the ecolabel is incorporated into the already existing EU ecolabel, in an effort to increase consumer knowledge and understanding of this novel ecolabel. The implementation of the EU ecolabelling for food products should be also accompanied by a campaign for raising awareness, both about food sustainability and the new label itself, since it has been shown that there is a correlation between the knowledge a consumer has of a label and his/her preference for the product carrying the label.

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