EAT EUROPE

EUROPEAN NUTRITION

WHICH TOOLS FOR THE RIGHT POLICY?

FARM EUROPE

Farm Europe is a multicultural think tank that aims to stimulate thinking on agri-food economies in the European Union and offer a platform to economic, institutional, and academic actors who are interested in the future of the EU agricultural sector & the agri-food chain, in food, health and nutrition.

EAT EUROPE is the dedicated department of Farm Europe which aims to tackle the most sensitive societal issues, focusing on the role that institutional actors play in citizen's health, analyzing and defining the tools that the EU and its Member States could implement in order to prevent their population from habits that could lead to unhealthy lifestyles. It reasons on science and efficacy, by gathering knowledge of people and focusing exclusively on the EU common good and its ability to deliver.

Responsibility over the scientific data & interpretation is of the single authors, who declare not to have any conflict of interest.

Rond-Point Schuman, 09
1040 Brussels, Belgium

European Nutrition

Which tools for the right policy?

Table of Content

ABSTRACT

The purpose of this study is to open the debate on the European state of art on the nutritional and market tools implemented by public policies. Improvement of mortality rate from Non-Communicable Disease (which are very much linked to nutrition habits) has gained relevance at the UN level, with one of the Sustainable Development Goal for 2030 (n. 3.4) dedicated explicitly "*to reduce by one third premature mortality from non-communicable diseases through prevention and treatment and promote mental health and well-being*".

The major drivers of health problems related to nutritional habits and nutrients intakes are analysed in the following pages, and the consequent public policies that States (European and non) have used to limit the health consequences of unbalanced diets. In doing so, we tried to keep an open approach, using peer-reviewed articles to support our conclusion.

We found that the most effective tool that governments could implement is educational programmes to the wider population (notably targeting the youth), in combination with educational initiatives such as Front of Package labelling on packaged food[1]. On the latter, this paper analyses the advantages and shortcomings of current systems, and advances some guidelines for further development of the tool.

[1] To this respect, the European Commission, in its Farm to Fork Strategy, advanced the initiative to have a harmonized European labelling system. Legislative proposal is expected to be drafted in 2022.

PART I

HEALTH PROBLEMS RELATED TO NUTRITION

This first part of the study intends to give a general overview of the heath issues deriving from unbalanced nutrients intake in a person's diet (nutrition-related diseases) and asks the underlying question: what are their impacts on European Member States (MS) public health and budgets? What are the measures that MS are implementing now in order to cure them?

The following part of the study will analyse the strategies at national level that MS have adopted in order to prevent and reduce the spread of this kind of diseases and their efficacy.

Which diseases do un-balanced nutrition habits lead to?

Diseases related to nutritional habits are widespread in the whole world and affect all kind of populations, regardless of age, sex, and geographic location. However, the most diffused in the European continent are what the scientific community refers to" **non-communicable diseases**" (NCD), namely obesity, cardiovascular, respiratory, and metabolic diseases, caries, hypertension, insulin resistance, fatty liver, and cancers. With the exception of diabetes and cancer, these diseases are not influenced by genetics (they cannot be inherited), and even if genetic predisposition is a factor that can lead to the disease in a person, their manifestation can be drastically reduced and/or delayed if particular attention is given to lifestyle and, notably, to eating habits.

Diseases related to salt consumption

The human body requires a small amount of sodium to conduct basic living activities such as nerve impulses, contraction and relaxation of the muscles, and the maintenance of water and minerals. It is estimated that the minimum physiological need is about 500 mg of sodium per day, but too much sodium in the body can lead to some serious health issues: cardiovascular problems such as hypertension, heart diseases, strokes, kidney diseases, as well as stomach cancer. In many cases, in fact, the kidneys have trouble keeping up with excess sodium in the blood. As sodium accumulates, the body holds onto water to dilute the sodium. This process increases both the amount of fluid surrounding cells and the volume of blood in the bloodstream. Increased blood volume means increased activity for the heart and more pressure on blood vessels which, over time, can stiffen and lead to the aforementioned cardiovascular problems (Harvard T.H. Chan; European Commission, 2012).

While adequate intakes of salt, according to a Harvard T.H. Chan article, should be of around 6 grams per day, the average European citizen introduces from 7 to 12 grams (European Commission, 2020c; European Commission, 2012), while the suggested amount of salt by the WHO (2015a) is 5 grams per day / 2 grams of sodium. In 2017, a diet high in sodium was accountable for more than 182 000 deaths in the EU. Image 2 shows how this figure is spread among MS.

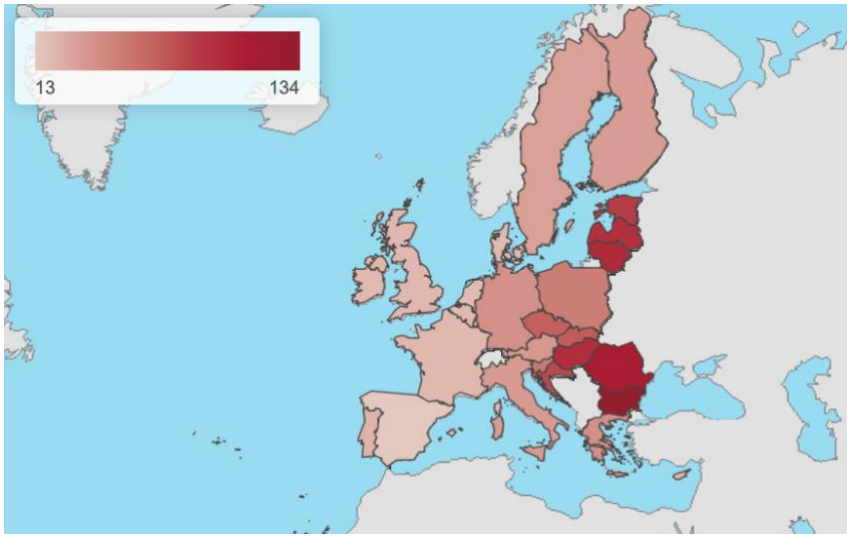


Figure 1: Deaths/100 000 attributable to diet high in sodium in Europe, 2017.
Source: European Commission

Diseases related to fat/saturated fats consumption

Many studies show the positive correlation with the introduction of excessive amounts of fats in a diet and the manifestation of NCD such as diabetes, heart diseases, and cancers (breast, colon, prostate) (Law, 2000). There are different types of fats, and whereas some - introduced in the right doses - might be beneficial for the health (such as the polyunsaturated ones), many, such as saturated fatty acids or trans-fats, are not, even if taken into small quantities. Specific saturated fatty acids raise the blood cholesterol levels and, thus, increase the risk of atherosclerosis. Moreover, higher fat intake may increase the risk of contracting breast cancer, specifically through increased blood oestrogen levels, and, possibly, through increased obesity (Kuller, 1997).
Many nutrition and health-related organisations recommend a daily fat consumption of 20 – 35% of the total daily energy intake. However, Europeans introduce an average of 37%, leading to the aforementioned health-related problems (European Commission, 2020a). Figure 3 shows the distribution of them among the EU 28.

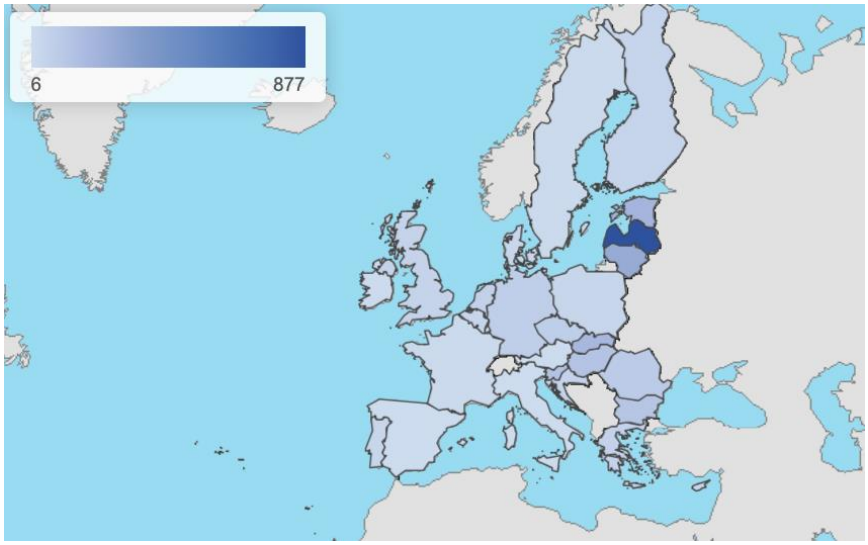


Figure 2: Deaths/100 000 attributable to diet high in trans fatty acids in Europe, 2017.
Source: European Commission

Diseases related to sugar consumption

A slice of the European population is affected by diseases that are related to unbalanced (excessive) sugar intakes, notably overweight and obesity, that are the welcoming door to type 2 diabetes, heart diseases, liver diseases, and some types of cancer.
According to a study from the Harvard Medical school (2017), the excessive sugars for Europeans come mainly in the form of sodas & energy drinks, followed by grain-based desserts and fruit drinks. The same paper mentioned that the (US, adult) population is introducing a daily average of 24 tablespoon of sugar, while the World Health organisation (WHO) recommends six. Excessive sugar consumption leads to overload the liver. It can rise blood pressure and increase chronic inflammation and damage the lining of the body vessels, leading to a host of cardiovascular-related concerns. Sugar, especially the one introduced through beverages (Pepin and Imbeault, 2020), has been found that "tricks" the hungry sensation by working on the brain's perception of the sweet flavour, increasing the blood sugars levels and the production of insulin[2], leading to an increased, yet artificial, perception of hunger and, eventually, to higher amounts of introduced food.
Cancers can also be the outcome of exceptionally high sugar intakes. It has been studied [Harvard Medical School, 2017] that the activation of sugar-based metabolism in a cell driven by high sugar quantities on the cell membrane causes cancer to form in the first place, developing into prostate, rectal, and pancreatic.
Another consequence of excessive sugar intake is the possibility to develop dental problems, notably caries. The study by Pepin and Imbeault (2020) suggests that edulcorates and sugar substitutes cause similar consequences. Figure1 shows how the deaths due to sugar-related diseases are spread among the EU States.

[2] The hormone that absorbs sugars in the blood.

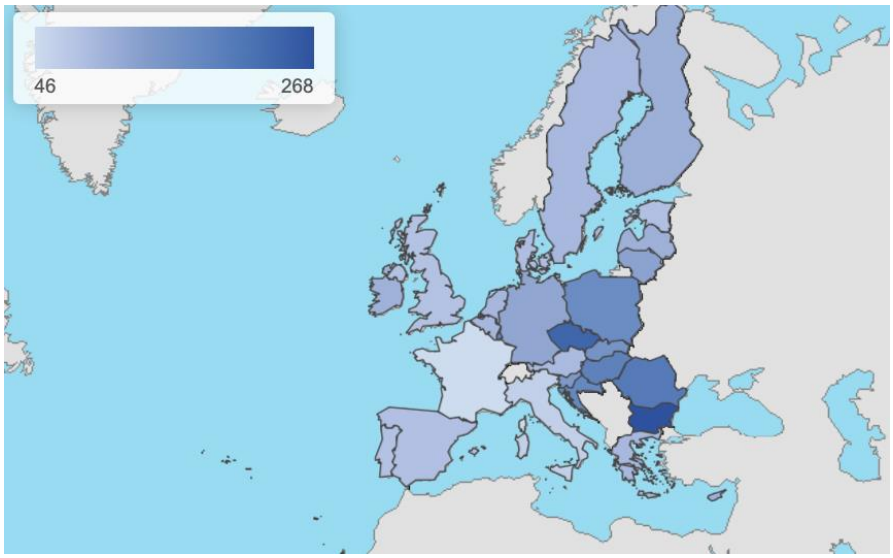


Figure 3: Deaths/100 000 attributable to diet high in sugar & sweetened beverages in Europe, 2017. Source: European Commission

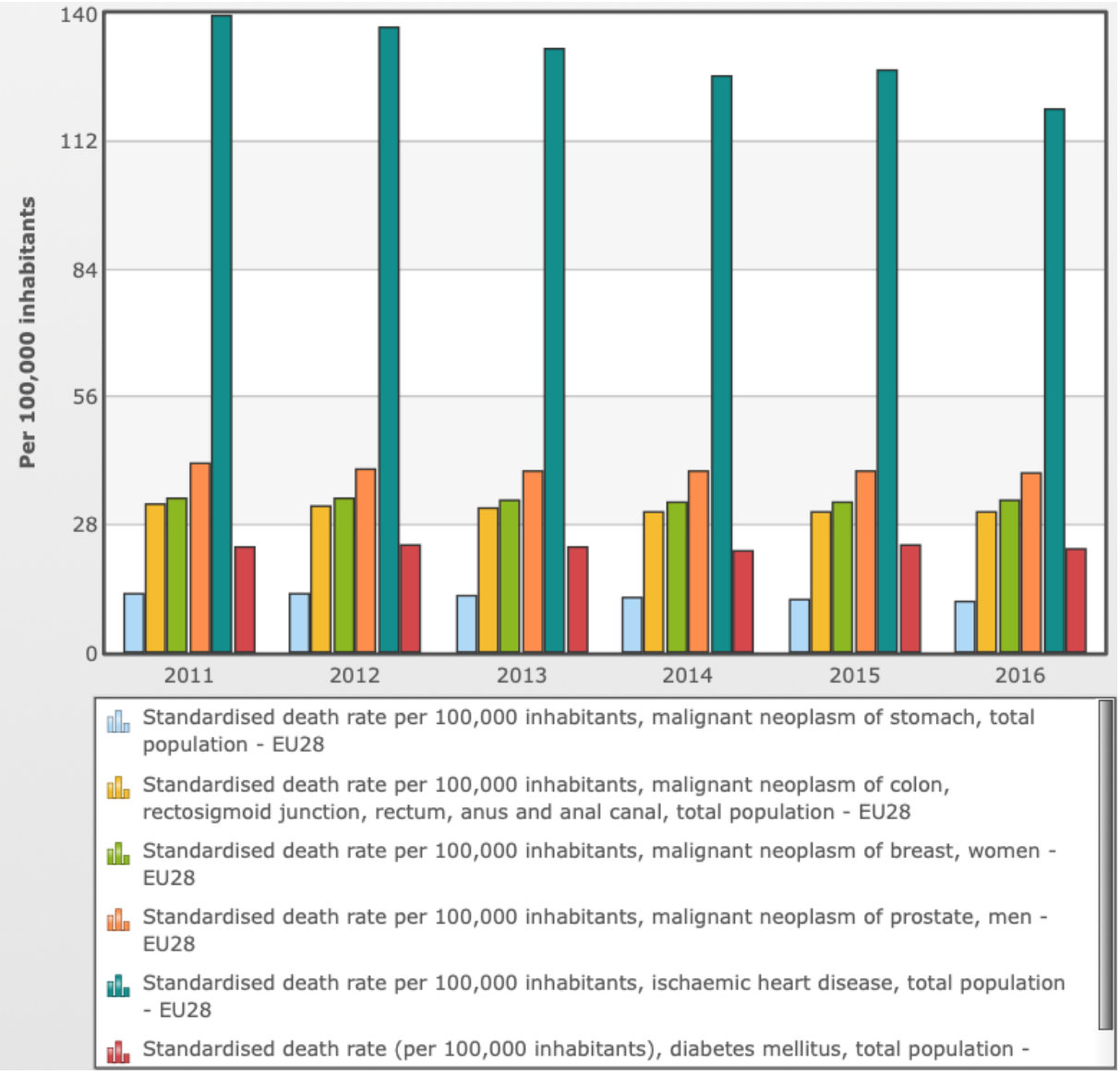
European state of the art

As Figures 1 to 3 in the previous pages show, Europe is not immune to NCDs. The previous paragraphs described the correlation between unbalanced introduction of some nutrients in a diet and the presence of NCDs.

European countries are home of 550 000 cases[3] and it can be noted that health problems related to nutrition has higher incidence in the Eastern states of the EU. While cultural heritage and culinary habits play an important role in the overall diet depending on the country and the regional traditions, public authorities have also tried to better educate their populations in what a healthy and balanced diet looks like and what types of proportion of nutrients should be introduced daily.

Graph 1 gathers some data from the European Commission (2018) on the deaths due to some of the above-mentioned NCDs in Europe between the years 2011-16. As it can be noted, some progresses have been made, reducing the total toll from the overall 2293 deaths per 100 thousand inhabitants to the lower figure of 2270. The major improvement has been done for heart diseases, which have been reducing permanently every year, counting for an overall reduction of 14,7% over the time-period analysed.

[3] Which represent an estimated 77% of death causes in the EU.



Graph 1: Deaths/100 000 attributable to some NCD in Europe, 2011-16. Source: European Commission

Concerning salt intakes, the EU action aligned with the WHO European Salt Action Network's that aims at reducing salt consumption to 5g per day or less (WHO, 2018), and adopted a **Salt Reduction Framework**. Since the implementation of this Framework (in 2008), all the EU Member States, plus Norway and Switzerland, have adopted some public initiatives for salt reduction resulting in overall positive trends.

The European action for reducing fats intakes can be looked at the 2019 regulation that modifies Annex III of the (EC) 1925/2006 law, "*on fat, other than trans-fat naturally occurring in the fat of animal origin*" through which it set a maximum limit of trans fat of 2 g per 100 g of fat, and the obligation for business to inform on the amount of trans-fats in foods (European Commission, WHO, 2015a). There are also many voluntary initiatives, often as a

result of a collaboration between industries and governments. Examples of it are the voluntary goal for product reformulation, the collaborative development of alternative foodstuffs with low trans-fats content, the production of standardised voluntary labels (WHO, 2015a)

As far as European actions targeted at reducing the sugar intakes, no specific legal initiatives have been taken at European level, leaving it to the national sphere of action and to the voluntary efforts made by the food industry. Non-binding actions have, however, been taken by the EU Framework for National Initiatives on Selected Nutrients in 2015, where the objective of reducing by 10% the added sugars by 2020 compared to 2015 levels was stated.

Economy of Non-Communicable Diseases in the EU

The setting just outlined is due mainly to lifestyle. It is said that more than half of these cases could be avoided if an effective prevention attitude would be followed. Physical inactivity, diet, smoking and excessive alcohol consumption are the leading causes of NCDs in Europe and worldwide. Non-communicable diseases represent a burden also for the European health systems accounting for at least 0,8% of the European GDP. Each year, public health systems in the EU are asked to pay €115 billion for the treatment of diseases that could have been otherwise avoided[4].

The totality of the EU MSs offer to citizens free health services which are, most of the time, one of the major voices of liabilities in public budgets. The years following the financial crisis of 2008 and the strict fiscal rules implemented all over Europe have had consequences on public health programs budgetary cuts, demanding to the health infrastructures and personnel to keep their usual services with less resources available. The natural consequence of such a policy resulted in a decreased efficiency and in a crippled hospital system all over Europe. Only in recent times, because of the renewed attention due to the Covid-19 global pandemic, States are starting to dedicate increased financial envelops to health programs in their budgets with the hope to restore the efficiency of a well-functioning public health system. However, even if investing in the infrastructure might solve short-term problems, the long-term solution stands in the roots, in this case, on **prevention**.

In this context of health infrastructures weighted by the Covid-19 virus and increasing public debts all over Europe, it seems reasonable for the public decision-maker's point of view to find ways of improving the State efficiency and the citizens 'health by investing in measures that could lead in the middle term to save public finances and improve health infrastructures. Prevention on non-communicable diseases and, notably, on nutrition & diets, should receive renewed attention from governments in the EU as a tool to improve citizens 'health and cut inefficiencies, financial losses. The new budgetary Health4Eu European programme for 2021-2027 could be the starting point for setting the guidelines of a European harmonised policy on nutrition & diets.

[4] According to some other sources (a letter to Agricultural Commissioner signed by health and food NGOs sent on September 3rd, 2020), this figure amounts to €700 billion per year. Among the signatories, the representatives of the Association of European Cancer Leagues, European Heart Network, European Medical Student's Association, European Oncology Nursing society, European Public Health Alliance, Safe Food Advocacy Europe).

Legislative framework

At the European level, regulation 1169 of 2011 on Food Information to Consumers (FIC regulation) aims at giving a general framework for informing customers about nutrients to be found in their food, so to, eventually, make the citizens more aware of the compositions of their diet nutrients-wise. The regulation was a starting point, but it resulted in the proliferation of many different tools that might just confuse the population. Moreover, the data from the WHO show that since its application in 2014, the trend in non-communicable disease did not seem to have changed in the EU[5].

Besides it, the European action is mainly based on the UN guidelines in its commitment to "*supporting EU countries in their efforts to reach the nine voluntary targets of the United Nations and the World Health Organisation by 2025, as well as Sustainable Development Goal 3.4".* In doing so, the Commission set up a Steering Group on Health Promotion, Disease Prevention and Management for Non-Communicable Diseases, and carried out a reflection process "*in order to identify ways to optimize the response to non-communicable diseases and the cooperation between EU countries*" (Council of the European Union, 2013)

More specifically related to the WHO, all these policies find their place in the European strategy and vision for its health programme and action, notably in the "European Food and Nutrition Action Plan 2015-2020" (WHO, 2015b) according to which, the European region will be able to "*achieve universal access to affordable, balanced, healthy food, with equity and gender equality in nutrition for all citizens*", with the final aim "*to avoid premature deaths and significantly reduce the burden of preventable diet-related non-communicable diseases, obesity and all other forms of malnutrition*". The document sets the political regional objectives/priorities for the European States to reach by 2020, notably:

- To create healthy food and drink environments;
- To promote the gains of a healthy diet throughout the life-course;
- To reinforce health systems and promote healthy diets;
- To support surveillance, monitoring, evaluation and research;
- To strengthen governance, inter-sectoral alliances and networks for a health-in-all-policies approach.

More recently, the Von der Leyen Commission proposed the "Farm to Fork Strategy" (F2F) as the agricultural branch of the more holistic Green Deal (European plan to decarbonise its economy by 2050). In this strategy - as well as in other complementary actions advanced by the same Commission (DG Sante's European Beating Cancer Plan & Health4EU programme) - the European Commissions has proposed to come up with legislative initiatives on a harmonised front-of-package nutritional label, as well promoting actions to reduce the consumption of meat and alcohol, and revise the fruit & vegetable provisions for schools.

[5] https://apps.who.int/healthinfo/statistics/mortality/whodpms/

PART II
PUBLIC POLICIES IMPLEMENTED TO PREVENT HEALTH PROBLEMS RELATED TO DIET

Given the situation at the European level, and the striking positive correlation between nutrition and health problems, some States have implemented public policies aimed at improving the general citizens 'health. The most common ones are **educational tools**, **communication campaigns**, and **fiscal policies** (taxation / subventions). Depending on the policy, and on the population cultural characteristics, some public policies have shown to be more effective than others.

The list of policies from which the public authority can choose is wide. The most analysed in literature, however, are:

- Taxation: high tax on "unhealthy" foods and low tax on "healthy" foods; subsidies for "healthy" foods; "healthy" food income support;
- Restriction for unhealthy food marketing on media (especially for children's food);
- Healthy school food policies;
- Front-of-package food labelling; nutrient declarations; food claims regulations;
- Food composition targets;
- In-store healthy food policies;
- Private workplace food policies;

Generally, studies have shown that the most effective policies in modifying behaviours towards food and health food perception are taxation (despite the fact that it has been noticed a discriminatory effect towards lower socio-economical groups), and educational policies (labelling included).

In fact, according to the meta-data analysis done by Grummon and Hal (2020) - who analysed 23 experiments, representing more than 16 000 individuals – food and beverage warning policies are particularly effective on the population, notably in the "*changing of behaviour, as well as emotions, perceptions, and intentions*" when purchasing a "*marked*" food product. The authors noted that "*warnings elicited stronger negative emotional reactions and more thinking about the health effects*". They consider two types of warnings on food: "**nutrient warning**", and "**health warnings**". While the former is represented in the form of messages that alert consumers that a food or a beverage has a high amount of (a) harmful nutrient(s), the latter describes health harms of a particular product (as shown in figure 4). It has to be added, however, the existence of Front of Package (FOP) types of labels. A tool that aims at informing the consumers about the amount of nutrients in a product, helping them in the interpretation, and, eventually, the choice, of the healthiest food.

Figure 4: Nutrient warning (left) and health warnings (right) food labels. Source: PLOS Medicine, 2020

There is no shared view, however, on pricing policies on food: according to Pfinder et al. (2020), taxation could be a possible solution for improving the public's food habits, but it is not the most effective tool. For instance, they discovered that after the implementation of the Hungarian tax on sugar-added foods, the mean consumption decreased only by 4%[6]. For Eyles et al. (2012), "*food taxes and subsidies have the potential to influence food consumption and health considerably, particularly when such taxes/subsidies are large (around 15% of the product price or more)*". Nevertheless, other studies (Mahesh et al., 2017) show contrasting results, classing "*minimizing taxes on healthy foods*" as the best solution, and "*nutrient declaration on packaged foods*" as the least recommended one.
At any rate, the efficacy of education campaigns was not put into questions by any study.

EDUCATION campaigns

Surely the best fit-for-purpose tool that governments have at their disposal to improve citizens 'health is education. Through education, it is possible to form citizens and allow them to understand the benefits of a healthy diet and the risks factors leading to NCDs. Moreover, if the educational campaign is successful, especially if it targets young people, it is a life-long investment in people's lives, it benefit the population at large, and it can reduce public expenses and increase the efficiency of public hospital services.
If education is by far the theoretically most effective tool, it does not come without shortcomings. The main one being the selection of the targeted population, given that a whole-population-educational effort is virtually, and practically, unlikely. In fact, the downside of educational tools is that they are not highly effective on, notably, older population that has consolidated purchasing habits and an already settled mindset towards their diet. That leaves the debate open on the kit of tools to use so to not leaving anyone behind and improve the health of all societal age-groups towards food purchasing choices[7], each group being different from the other and requesting well targeted approach.

[6] Even if the authors express their uncertainty on the methods used by the reviewed studies and on the lack of further detailed information.

[7] An issue that is considered in the European Food and Nutrition Action Plan 2015-2020 (WHO, 2015) in the objective n°2, by "*taking into account the needs of different age groups*" and considering that "*pre-school and school settings represent excellent entry points, but [that] attention should also be given to opportunities to reach the active and working-age population*".

It has to be considered, however, that the concept of nutritional education finds its basis not only in public-lead campaigns, but also and mostly from **informal/affective dynamics** developed, notably, by the inner familiar and societal circles. Due to that, the conception of food changes into something more than just simple and objective nutrients that are needed to be introduced in order to survive, but into something that delivers a *cultural message* to which are linked emotions, memories, traditions, private affections and stories intertwined with the personal sphere of experiences. When the nutritional information is coming from an outside-the-inner social circle, such as the public authority, it can be perceived by the targeted population as an imposition that clashes with previous knowledge[8]. **Public authorities should consider delicacy in their interventions and foresee the possible social reaction that any kind of policy might have on its citizens**.

Examples

Examples of educational activities on nutrition are not missing and can be found in many States. The literature, however, is predominant of experiences in the U.S.A, a country that stands out for its particularly productive activities in this field, involving nutrition education classes, fact sheets, newsletters, individual counselling guides, and lesson plans for schools. It also created specific programmes targeting different groups of population, such as the Food Stamp Program (targeting the low-income families and children), the Special Supplemental Program for Women, Infant, and Children, and the Child Nutrition Program, and many more, together with communication campaigns (Institute of medicine, 2006).

Nutrition in schools represents a high percentage of the public effort to educate people towards a healthier diet, notably, the youngsters who have not developed consolidated purchasing and food habits yet. Targeting youth has the beneficial double effect of educating them at an early age (to low-sugars and low-salt tastes) – that will stick as growing up -, and to target also, as a positive externality, the families of the children (parents and siblings) that will be affected by the teachings through the student's eating behaviours.
Nutrition in schools 'programs not only involve teachings and front lessons and trainings, but also the development of balanced menus in the school canteens aiming at the understanding of the relationship between diet and health, identifying and selecting the healthful foods, nutrients, and their food sources.
Some promotion campaigns towards "Fruits & Vegetables" in schools have been implemented and financed by the Common Agriculture Policy budget in Europe in previous years but at a limited scale, with in some members states very limited implementation leaving a large part of the financings unused, and with, therefore, very few results.
Moreover, it has to be noted the presence in schools of "competitive foods", such as snacks and beverages at the vending machines, that tend to be lower in nutritional value and higher in calories, fat, salt, and added sugars. They represent a "temptation" and therefore a product that students should avoid. Public policies should as well consider this side of the nutritional

[8] That is very well portrayed by the Italian reaction to the Nutri-Score FOP label, which depicts some traditional Italian food and ingredients as unhealthy and suggests a moderate usage. The Italians felt that the Nutri-Score was (negatively) "judging" something that is very closely related to a cultural trait very important for the Southern Europe State such as it is food and traditional products, resulting in a harsh "crusade" against the Nutri-Score.

outlook of students and take action towards reducing their exposure to competitive foods. So far, no policy in this sense has been implemented.

At the European level, public policies in food education in schools have been implemented since the '70s with the European School Milk Scheme, the School Fruit and Vegetable Scheme, and the Schools for Health in Europe network.
The current EU legal framework combines since 2017 two previous schemes (for milk, and fruit &vegetables, respectively into force since 1977 and 2009). Every seven years it allocates around €1.75 billion to Member States (€250 million per school year)– to be divided into different percentages for the provision of milk and fruits & vegetables-, split among them based on their school age population. On top of that, every Member State can decide to add any amount of money they decide.
The majority of EU Member States (MS) adopted specific policies: for instance, some implemented canteen services in schools where students can get a balanced-in-nutrients meal and the consequent national laws for the quality standards of the food; others the introduced nutrition education in the form of the school curriculum (France, Portugal, Sweden), or cooking classes; policies targeting very young children, such as the Irish "*Aistear*" (the early childhood curriculum Framework); the creation of alternative communication tools, such as the Portuguese "Food wheel" , and many others (Weichselbaum et al., 2011).
However, regardless of the efforts made by States and EU institutions, children health related to nutrition remains an issue to solve. For instance, the incidence of diabetes in school-age children has been growing in Europe (Green et al, 2000; Patterson et al, 2012). A revision of these schemes should follow by the EU institutions as well as at National level.
The European Commission's legislative initiative framework of the Farm to Fork (FTF), among other actions, foresees, during 2023, to advance a legislative proposal to review these programmes "*to enhance its contribution to sustainable food consumption and in particular to strengthen educational messages on the importance of healthy nutrition, sustainable food production and reducing food waste*".

The review of these programs should be an opportunity to redesign the action of the European Union towards education at a early age in order to make it more effective and truly fitted for purpose.
It may be the right time to define a European large scale inclusive program focusing on:
- all schools and all children (and teenagers) at school;
- interactive and multidisciplinary cooking, food and nutrition courses making the link in an adapted way according to the age groups with biology, the seasonality of productions, philosophy, culinary art, medicine, etc.;
- promoting the right use of all foods;
- co-information campaigns targeting students' families;
- incentives for canteen procurements to not only provide balanced but also good and tasty meals. Today proposing balanced meals but not-tasty ones at a low price is the preferred choice by the public schools. However, the underlying flow of the logic is the correlation that children might follow: if canteen meals = balanced, then balanced = not good. Public authorities must recognize the fact that "good" and "balanced" meals come at a higher ecumenic price.
- banning ultra-processed products from schools;
- asking for national co-financing (from public or private funds);

- for adults, promoting "private & public working places". For example, European funding programs could foresee additional incentive to privet-public projects: these could be recognised as training programs for employees, and the company that puts them into practice could be granted tax incentive (such a specific percentage deduction of the taxable results). In this way, the companies would be much more incentivised in putting them into place.

Front of Pack Labels

Given the importance of the initiative at the European level to harmonise front of package labels on packaged foods, as it is stated in the Farm to Fork Strategy, and the impact that this tool would play in educational matters for youth (as a complementary tool) and adults (in increasing sensibilisation on the matter of malnutrition and helping them in the healthier choice), Front of Package (FOP) Labelling requires a full session of this chapter.

Why Front-of-pack labels can be part of the solution

Information on the food label is intended to enable consumers to compare products (of the same category) and make informed choices about foods and beverages that best meet their nutritional needs. The U.S FDA (Food and Drugs Administration) research (Institute of medicine, 2006) has shown that about half of the adult consumers use food labels when purchasing a food item for the first time, in particular to assess its levels of fats and calories. The European Union sets a general framework on the workings of the Front of Package National Labels (FOPNL) in **Regulation 1169/2011**, which combines the two directives on "Labelling, presentation and advertising of foodstuff (13/2000/EC) and on "Nutrition labelling for foodstuffs" (496/90/EEC). The regulation sets out some improvements in the clarity of the information concerning the FOPNL, making the following rules binding for MS standards. The limits and obligations that the regulation introduces can be summarised in the following points (Official Journal of the European Union, 2011; European Commission):

- Improved **legibility** (minimum font size for mandatory information)
- Clearer and harmonised presentation of **allergens** for prepared foods in the list of ingredients
- **Mandatory allergen information** for non pre-packed food, including in restaurants and cafes
- Requirements of certain **nutrition information** for majority of pre-packed processed foods
- Mandatory origin information for **fresh meat** from pigs, sheep, goats and poultry
- Same **labelling requirements** for online, distance-selling or buying in a shop
- List of **engineered nanomaterials** in the ingredients
- Specific information on the **vegetable origin** of refined oils and fats
- Strengthened rules to **prevent misleading practices**

- Indication of **substitute ingredient** for "imitation" foods
- Clear indication of "**formed meat**" or "**formed fish**"
- Clear indication of **defrosted** products

From this starting point, every MS can implement a "tailor-made" FOP on pre-packaged foodstuff within the national territory, after notification and approval of the services of the European Commission. Indeed, many States have adopted specific labels that, even if they all follow the indications contained in the 1169/2011 regulation, they all look very different (design-wise), display different information, and underline different characteristics of the product, leading, eventually, to different purchasing choices.
The benefits of improved food information from the costumers 'point of view have been shown that has positive effects on their choices while grocery shopping. In fact, according to the study conducted by Himmelsbach et al. (2014), "*accessing the nutrition label had a stronger positive effect in driving healthier choices than the ingredient list, possibly because the more structured design of the nutrition label is better suited to show relevant food information (amounts in particular)*". Besides, the European Food and Nutrition Action Plan 2015-2020 (WHO, 2015b) foresees the usage of FOP labels, arguing as follows:

"*Front-of-package labelling can facilitate consumer understanding of the nutritional content of many foods, especially complex processed foods, and might also have an effect on diets by encouraging food producers and retailers to reformulate their products. Easy-to-understand or interpretative front-of-package labelling can limit consumption of foods high in energy, saturated fats, trans fats, sugar or salt in the context of overall improvements to the nutritional quality of diets*"

Tarabella and Voinea (2013) also argue that the placement of nutrition information on the front of food packages, in order to supplement the more complex nutrition table on the back, is supported by customers as a method of providing simplified and visible nutrition information. They also point out that consumers generally understand the link between food and health and most of them have an interest in using the nutritional information. Moreover, the 2020 report from the European Commission's Joint Research Centre (JCR) states that "*as regards measured understanding, studies show that most FOP labels have a positive effect on the ability of consumers to identify the healthier option compared to a non-label situation*", and at the same time that "*FOP labelling could increase the number of people choosing a more nutritious food option by about 18%*".

FOPs could be, therefore, credible and effective tools, and that is why the EU Commission considers it as one of the elements in the toolbox to educate citizens healthier diets. The challenge is represented by the still present national barriers on food perception and National Daily guidelines (or Reference Intakes), whereas a harmonised labelling system not only could help to improve public health all around Europe, but also can have beneficial effect on business, notably on packaging costs, and food analysis.

However, a European standard solution will be difficult to design considering that studies have shown that different countries have different priorities in how they use food labelling and that the efficacy of such a tool change according to the country (and to the type of FOP).

For example, southern Europeans, in particular Italians, are distinct in wanting to eat 100% wholesome and natural foods, with less regard for calories. 50% of Italians check for food additives while only 30% check for calories on food labelling (European Commission, 2008). Thus, the European solution should look at the national cultural attitudes towards food and find the good balance between standardisation, cultural sensibility, single market requirements, and flexibility. Surely not an easy task.

What should be improved in current FOP?

At the moment of writing, several FOP labelling systems are adopted by EU countries. Even if all of them share the common purpose of improving nutritional choices for the European consumers, none reaches it fully. The main obstacles can be summarised in the following:

Misleading: in the impact assessment done before the latest renovation of the current EU legislation on food labelling (European Commission, 2008), the European Commission states that the purpose of any FOP is to "*have labels that are simple, legible, understandable and **not likely to mislead***". Whereas we can agree with the respect of the first three standards of current labels, some do not comply with the last one, given the fact that they might create judgemental sentiments towards foodstuff itself, and towards the person buying it. Furthermore, the fact of having more than one FOP system in different MS is an additional factor that might lead to confusion among consumers.

Maintenance of the correct functioning of the Single Market and the non-disruption of it: the presence of a large number of schemes could affect the performance of the internal market. Due to divergent regulation in Member States, private operators active in more than one national EU market would be directly or indirectly led to make use of different types of rules depending on the territory on which they operate. The European Commission (2008) was already trying to reach a "*harmonised implementation*" while "*ensur[ing] the smooth functioning of the internal market*" to "*simplify technical requirements and remove unnecessary administrative burden*" so to "*create a pro-competitive market environment in which dynamic, efficient, innovative operators can make full use of the power of labelling to sell their products*" back in 2008 at the occasion of the revision of the regulation. But then as for now, these principles are of extreme topicality when considering a possible update of the current regulation and, possibly, a European food-label standard.

Distracting: FOPs are supposed to bridge the customer towards a more complete information about nutrients of the foodstuffs. Nevertheless, the way the main current FOPs are designed induce the consumer to only look at the FOP itself, making them neglect the analysis of the more complete Back of Package label that contains more specific information.

Marketing tool: it should be avoided that FOP labels that are intended to deliver objective and unbalanced information to become a marketing tool as any other.

Need for more clarity: both in studies done before (impact assessment) and after (TNS, 2014) the approval of the current FIC regulation, most of stakeholders agreed that there is a need for more clarity and understanding regarding food information. However, it has been

confirmed the utility of food labelling and their impact on the health of the consumers. This tool is an effective one given its direct and immediate communication channel to the final user, and the potential information it is able to deliver, forming, hopefully, stable healthy behaviours.

Moreover, we should ask ourselves whether the current FOP systems answer to the more general **needs** of a neutral tool, namely:

- to keep as a milestone the objective principle for which nothing is good and that nothing is bad per se, but it depends on the quality and the quantity used and eaten;

- when it comes to nutrition policies, there should not be a dual society, meaning that socio-economic differences should not play a role in the possibility for a customer to have access to the healthier option (which is, generally, also the more expensive);

- to consider the decision-making process of the consumers is of outmost importance in order to understand the choices during grocery shopping;

- Nutrients introduced by people are the outcome of diets, not single ingredients, nor dishes. It is important to inform and educate the public on diets and the management of its components;

- Eating is not only about introducing nutrients, but it represents pleasure and emotions. Forbidding or accusing some products is a counterproductive tool since it will lead to compensatory behaviours.

All of the FOP that are being analysed in this paper are *complementary* ones, therefore *voluntary*. In fact, according to regulation 1169/11, every pre-packaged foodstuff sold in the common market is required to display on its package the nutritional information of the energy and six nutrients: fat, saturates, carbohydrate, sugars, protein, and salt, expressed per 100g/ml of product; it may in addition be expressed on a per portion basis (there are allowed several formats, such as the one shown in figure 5).
Therefore, every FOP described in the following pages can only accompany one product that already displays the nutritional information label (Back of Pack Label). They are intended to make the information in the mandatory labels more visible and comprehensible to the public who, generally speaking, tends not to read this kind of information when buying foodstuff. In contrast to the FOP, the mandatory label is normally displayed on the back of the package.

Nutrition Information

	Per 100 g %Reference Intake RI		Per portion of 249 g %Reference Intake RI	
Energy	485 kJ / 117 kcal	6% RI	1 181 kJ / 284 kcal	14% RI
Fat	8 g	11% RI	19 g	27% RI
Of which Saturates	3,7 g	19% RI	9,2 g	46% RI
Carbohydrate	9 g	3% RI	23 g	9% RI
Of which Sugars	8 g	9% RI	21 g	23% RI
Protein	1,4 g	3% RI	3,4 g	7% RI
Salt	0,02 g	0% RI	0,06 g	1% RI
Vitamin C	14,81 mg	19% RI	36,91 mg	46% RI

Salt content is exclusively due to the presence of naturally occurring sodium.

Reference intake of an average adult (8 400 kJ / 2 000 kcal)

INGREDIENTS: Mandarin Oranges (37.9%), Light Whipping Cream (**Milk**), Pears (12.4%), Peaches (7.7%), Thompson Seedless Grapes (7.6%), Apple (7.5%), Banana (5.9%), English Walnuts (**Tree Nuts**)

Figure 5: mandatory European nutrient information label. Source: ESHA

The “need” of a FOP label is to ease the passing of nutritional information from the basic nutritional table (Figure 5) to some simpler message. In fact, the major obstacle in the correct use of the nutritional information could be the lack of basic nutritional knowledge, the lack of cognitive skills required to compare products and to interpret the nutrients in the context of the whole diet or, more simply, the lack of time (Tarabella and Voinea, 2013). That is why food manufacturers, retailer and non-profit organisations from different countries have created a series of “signposting” systems of nutritional profiles.

All in all, a variety of FOP schemes have been developed by public institutions, public health non-Governmental Organisations and the private sector all over Europe. These vary from the purely numerical schemes that repeat some of the information contained in the nutrition declaration (so-called reductive schemes), to colour-coded versions that summarise the scoring of the product, to dichotomous endorsement logos (JRC, 2020).