



Société Française
de Nutrition

How to conciliate nutrition and climate? For the consideration of environmental issues in the French Food-Based Dietary Guidelines

Summary of the joint report by the Climate Action Network France (*Réseau Action Climat France*) and the French Society of Nutrition (*Société Française de Nutrition - SFN*), published on 20th February 2024.

Abstract

Food, which accounts for 22% of France's carbon footprint, will have to change significantly over the next few years if France is to meet its climate targets. In particular, this means moving towards diets that are both healthy and sustainable, with fewer animal-sourced products and more high-quality plant-based foods. At a time when the government is in the process of drawing up its National Strategy for Food, Nutrition and Climate, the Climate Action Network France and the French Society of Nutrition (SFN) have conducted a study highlighting the need to update the food-based dietary guidelines (FBDG) of the National Nutrition and Health Programme (*Programme National Nutrition Santé - PNNS*), in order to take into account not only nutrition and human health issues, but also the environmental impact of food. The study provides scientific results on diets that can significantly reduce greenhouse gas emissions, with a 50% reduction in meat consumption compared to the current French average, while satisfying all the recommended nutritional intakes. Based on these results and on an international benchmark, the study also puts forward concrete proposals for changing the French FBDG, in particular by recommending that the adult population eat no more than 450 grams of meat a week (all meats combined, including red meat, poultry and processed meat), eat legumes once a day (65-100 grams of lentils, chickpeas, beans, etc.) and 2 small handfuls of nuts per day (25-30 grams of almonds, walnuts, hazelnuts, etc.).

N.B. : This report considers only the question of diets and therefore does not deal with the issues of ways of producing food, food waste and packaging, etc. Its analysis and recommendations apply to the adult population under 65 years old, excluding pregnant and breastfeeding women.

The full report and its summary in French are available at the following URL :
<https://reseaucionclimat.org/reduire-de-50-la-consommation-de-viande-permettrait-datteindre-les-objectifs-climatiques-de-la-france-tout-en-ameliorant-la-sante-de-la-population/>

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Focus point #1 : The number of Food-based dietary guidelines (FBDG) that take into account the environmental impacts of food is rapidly increasing

By 2023, the FBDG of 25 countries were already taking environmental issues into account to varying degrees. While European countries are in the majority, the trend is international, with Brazil, Canada, China and Mexico also taking part. Initiated in the early 2010s, the inclusion of environmental issues in food recommendations has accelerated in recent years, with 11 countries doing so between 2018 and 2023. Several countries have also initiated or planned a new revision of their FBDG in this direction, such as Argentina, Germany, Iceland and Norway. The map below shows more specifically the situation in Europe¹.

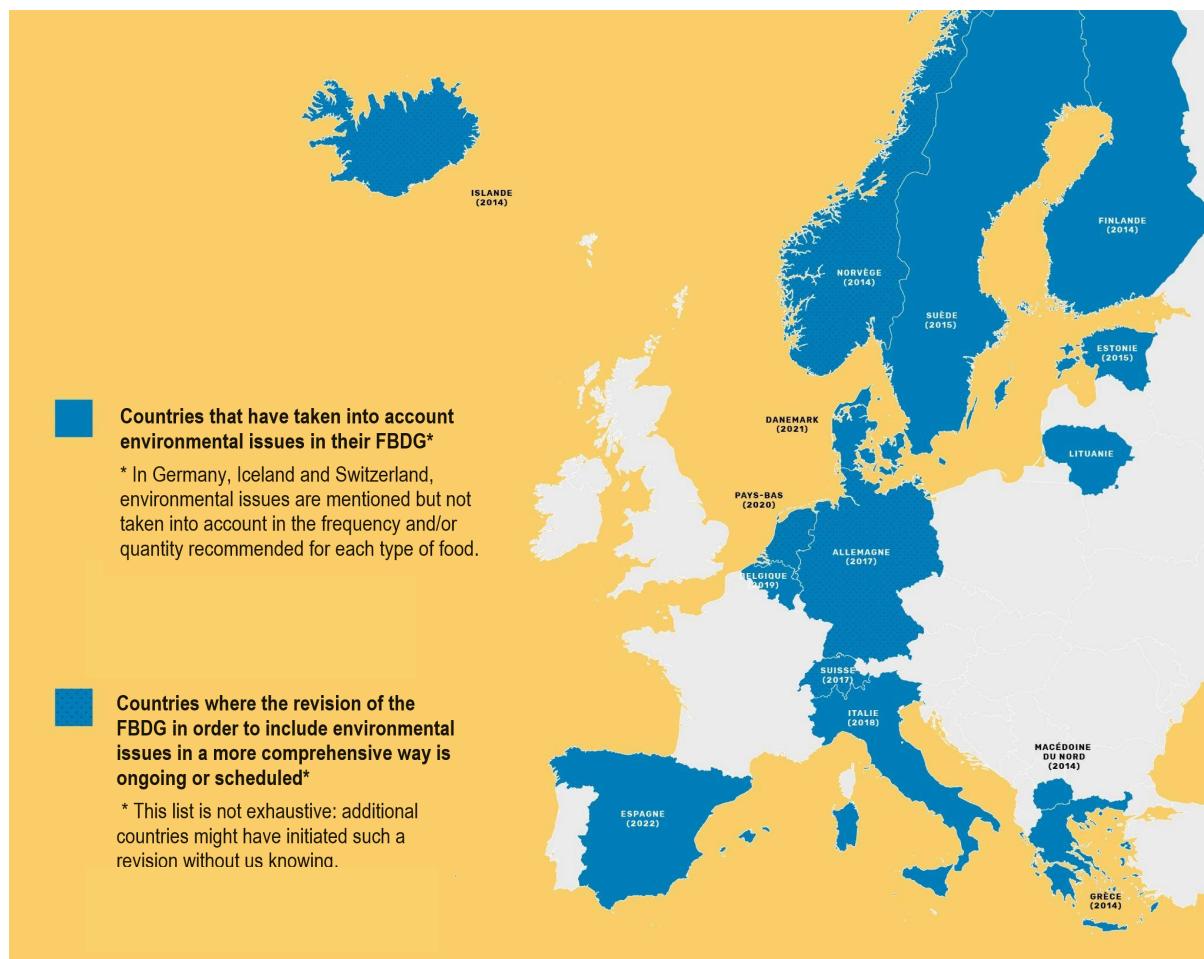


Figure 1: Countries that have taken into account environmental issues in their FBDG

NB: While environmental issues are mentioned in the FBDG of Germany, Iceland and Switzerland, they are not taken into account in the frequencies and/or quantities of consumption recommended for each type of food. Together with the Netherlands, these countries have recently or will soon launch a process to revise their FBDG in order to include environmental issues (according to publicly available and privately shared information). This list is not exhaustive and additional countries might have initiated a process of revision of their FBDG without us knowing.

¹ The inventory made in this report mainly draws upon the paper of James-Martin, G. et al. (2022). [Environmental sustainability in national food-based dietary guidelines: a global review](#). *Lancet Planet Health*, Dec;6(12):e977-e986.

15 countries have gone so far as to take environmental impacts into account when defining precise recommendations for frequency or quantity of consumption of each food category. This is also the case for the [Flemish region in Belgium](#) and the [Nordic Nutrition Recommendations](#) published by the Nordic Council of Ministers in 2023.

The analysis of these 15 FBDG shows that it is possible to draw up recommendations that are favourable to both public health and the environment, which is inspiring for the changes that need to be made to the French FBDG. In fact, beyond their socio-cultural specificities, these food guides converge on the following points:

- A limit on meat consumption, with maximum recommended quantities depending from 300 to 630 grams per week. This limit includes processed meat in 13 out of 15 FBDG, and poultry in 8 out of 15 FBDG. Maximal recommendations on meat consumption quantities that include poultry concern 7 of the 8 countries that have revised their FBDG since 2018 (Belgium, Denmark, Spain, Italy, the Netherlands, China and Mexico).
- High consumption of fruit and vegetables, wholegrain cereals, pulses and nuts, above current levels.
- Moderate consumption of dairy products, with recommendations varying from country to country, usually between 2 and 3 portions per day (a portion could be a glass of milk, a yoghurt or a piece of cheese).

See the details in the following figure and table, and all the data in the full report in French.

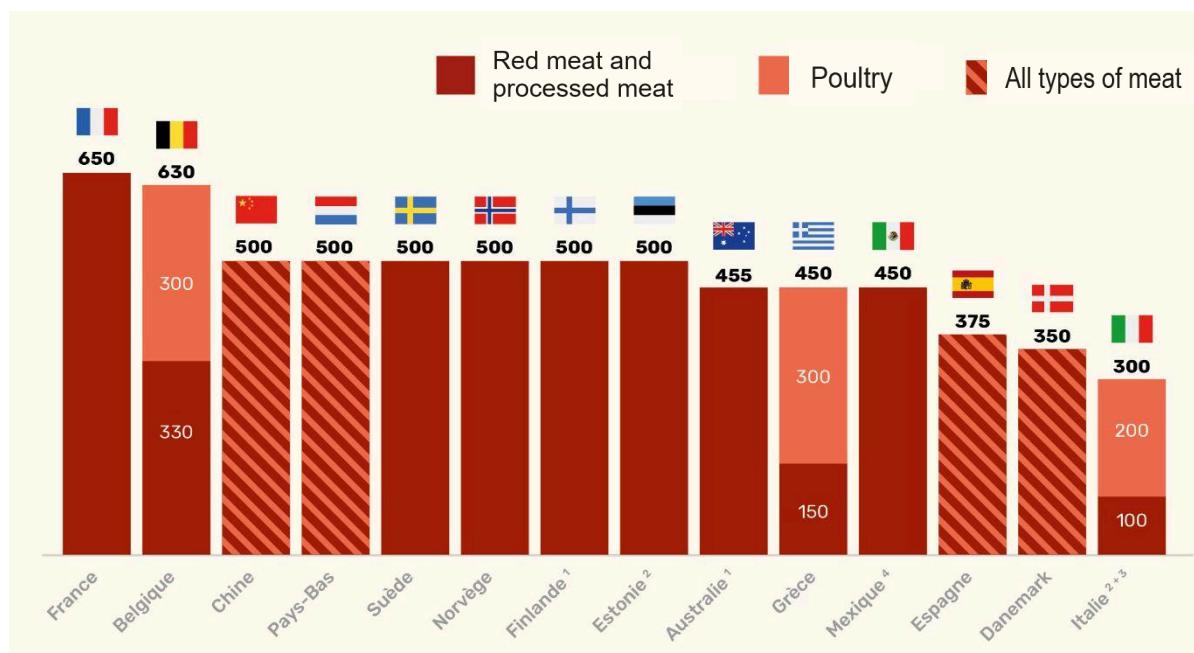


Figure 2: Maximum quantities of meat recommended in France and in countries that have taken the environment into account in their dietary recommendations (grams per week)

1. This quantity does not include processed meat, for which the maximum quantity is not specified.
2. This quantity does not include processed meat, which the FBDG recommend avoiding.
3. The amount of poultry can be up to 300 grams when red meat is not consumed.
4. 385 grams for women and 515 grams for men.

Table 1: Recommendations for meat, legumes and nuts in the FBDG in France and in the countries that have taken into account environmental issues since 2018

Country (year of publication)	Meat (cooked weight; per week)	Legumes (cooked weight)	Nuts (shelled; per day)
France (2019)	Red meat (processed meat not included): 500 g maximum Charcuterie: 150 g maximum	At least twice a week	1 small handful (15 g)
Belgium (2019)	Red meat: 300 g maximum Processed meat : 30 g maximum Poultry: 100 to 300 g	At least 100 g per week	15-25 g
Denmark (2021)	All meats: 350 g maximum	100 g per day	30 g
Spain (2022)	All meats: 300-375 g maximum	4 to 7 servings of 170 g per week	3 to 7 servings of 20- 30 g per week
Italy (2018)	All meats: 300 g maximum (including maximum 100 g of red meat); recommendation of avoiding processed meat	3 servings (450 g) per week	9 g (60 g per week)
Netherlands (2020)	All meats: 500 g maximum, including maximum 300 g of red and processed meats	At least 135 g per week	15-25 g
China (2022)	All meats: 300 to 500 g	Once a week	-
Mexico (2023)	All meats: 275 to 385 g for women 380 to 515 g for men	100-200 g per day for women; 200 g per day for men	-
New-Zealand (2020)	350-500 g of red meat maximum (up to 3 servings per week); recommends to limit processed meat	-	30 g

There is therefore a discrepancy between the French FBDG and the FBDG that have integrated environmental impacts, particularly with regard to meat consumption. In fact, the maximum quantity of red and processed meat is 650 grams in the French FBDG, whereas it varies between 100 and 500 grams in the food guides of other countries. Furthermore, the French FBDG does not recommend limiting poultry consumption, unlike a growing number of food guides that take environmental issues into account (Belgium, China, Denmark, Spain, Greece, Italy, Mexico and the Netherlands).

Focus point #2: Modelling diets that meet nutritional and environmental targets, with half as much meat as today

In order to come up with precise proposals on what could be french FBDG taking into account environmental issues, the Climate Action Network and the French Society of Nutrition worked with MS Nutrition² to model sustainable diets. The aim was to determine how all recommended nutritional intakes could be met by halving current meat consumption in France³, in line with most scenarios of sustainable diets.

METHODS

A mathematical optimization approach was used to obtain "modelled diets" (i.e. daily combinations of foods and their weights):

- containing 2 times less meat (poultry, red meat and other non-poultry meat, processed meat and charcuterie) than in the average diet consumed by adults in France, estimated according to the latest [French study of individual food consumption, INCA3](#), referred as the "observed diet"⁴.
- satisfying all nutrient intake recommendations for adults (proteins, carbohydrates, lipids, essential fatty acids, fibres, vitamins, minerals, with no excess salt, added sugars or saturated fatty acids), also known as "nutritional adequacy",
- respecting current french FBDG,
- without supplements or fortified foods,
- reducing the carbon footprint of the diet, with no degradation of any of the 8 environmental metrics considered in the study (including water impact),
- deviating as little as possible from the observed diet..

A total of 17 models have been designed and tested, differing according to the strength of the constraint imposing carbon footprint reduction, and whether a maximum of two or three portions of dairy products (including dairy desserts and dairy products used as ingredients) were tolerated.

² The MS Nutrition consultancy puts its unique expertise in statistics and modelling at the service of nutrition research, particularly in the field of sustainable food systems and diets. The company is hosted by the C2VN "Centre de recherche en Cardiovasculaire et Nutrition" laboratory (INRA/INSERM/AMU) at the Timone Faculty of Medicine in Marseille.

³ This is an estimate of average per capita meat consumption based on data from the INCA 3 dietary survey conducted in 2014-2015 among individuals living in mainland France. According to FranceAgriMer, total meat consumption per capita has changed little between 2015 and 2022.

⁴ The proportions of the various meats have been adjusted to meet the current French FBDG, namely preferring poultry among meats, and cooked ham among charcuteries.

RESULTS

The results show that it is possible to reduce meat consumption by 50% while satisfying nutritional requirements and without relying on fortified products or supplements. This halving of meat consumption would reduce the carbon footprint (and most other environmental impacts) from -20% to -50%. Setting the carbon footprint target at -35% represents a good trade-off between cultural acceptability and reduced environmental impact, without having to compromise on the nutritional adequacy of diets. However, this requires increasing the consumption of legumes and nuts.

The daily food content of the two modelled diets with a carbon impact reduced by 35% and either 3 dairy products (diet n°1) or 2 dairy products (diet n°2) is presented in table 2 (see next page).

The two modelled diets meet current PNNS guidelines with less than 450g of meat (including poultry, non-poultry meat, processed meat and charcuterie) per week. They are perfectly in line with numerous reports and studies, including the recommendations of the FAO and WHO in their report entitled "Healthy and sustainable food: guiding principles"⁵, which states that "Sustainable healthy diets include wholegrains, legumes, nuts and an abundance and variety of fruits and vegetables, can include moderate amounts of eggs, dairy, poultry and fish; and small amounts of red meat".

In contrast to the observed diet, recommended maximums for saturated fatty acids, sodium and sugars are met in the modelled diets, and levels of potassium, magnesium, and vitamins C and E reach recommended levels, and even exceed them in the case of fibre and folates. Even for nutrients considered difficult to obtain with a more plant-based diet, intakes would be either maintained (vitamin D, zinc), increased (iron and EPA-DHA omega-3 fatty acids) compared to the observed diet, or slightly reduced while still reaching the recommended intake level (vitamin B12).

If these dietary changes were to be adopted, they would not only significantly reduce the environmental impact of our food, but also considerably improve its nutritional quality, by making it easier to comply with nutrient intake recommendations for the prevention of diet-related non-communicable diseases (overweight and obesity, hypertension, type 2 diabetes, cardiovascular disease and some cancers).

⁵ FAO/OMS, Sustainable healthy diets: guiding principles, October 2019.

Table 2: Food content of the mean diet consumed in 2015 by French adults (observed diet) and of the two nutritionally adequate modelled diets containing two times less meat

	Quantities (grams per day)		
	Observed diet ⁶	Modelled diet n#1 (3 dairy products)	Modelled diet n#2 (2 dairy products)
Fruit and vegetables	393	537	503
Nuts	2	29 ¹	23 ²
Refined cereals	194	64	70
Wholegrain cereals	19	138	138
Potatoes	73	127	108
Legumes	8	65	146
Dairy products (total)	3 portions	3 portions	2 portions
Milk + dairy products ³	211	250	125
Cheese	40	30	30
Eggs	15 (20-35) ⁴	30	30
Meat and processed meat (total)	124	62	62
Poultry	29	22	22
Other meats ⁵	60	24	24
Cooked ham	11	8	8
Other charcuteries	23	8	8
Fatty fish	9	15	15
Non-fatty fish	24	15	15
Sweet, salty and fatty products	235	89	103

1 : including 19 g of walnuts.

2 : including 17 g of walnuts.

3 : including dairy desserts.

4 : including consumption of shell eggs and eggs as components of multi-ingredient products (sources : Nau F., Flouri J., van der Werf H., et Le Minous A.-E. 2016. Les œufs et les ovoproduits dans l'alimentation des Français. Cahiers de Nutrition et de Diététique, 51 (3), p. 147-156 ; FranceAgriMer, La consommation de produits carnés et d'œufs en 2022, septembre 2023).

5 : meat excluding poultry, including ruminant meat, pork, game, rabbit and offal.

6 : based on INCA 3 data, adjusted to include the quantities of each type of food in mixed dishes.

NB: Beverages (water and hot drinks) and fats (including sauces) are not represented. The quantities indicated for each food category include foods consumed as ingredients in mixed dishes (quiches, pizzas, lasagne, mixed salads, etc.).

Focus point #3 : Recommendations for French FBDG taking into account environmental issues

Based on the literature review and the modelling study, we suggest that the recommendations relating to 3 food categories should change: those concerning all meats, legumes and nuts (see detailed justifications in the full study).

FOR ALL MEATS:

→ We suggest to recommend consuming no more than 450 grams of meat per week, including all meats: red meat (beef, pork, etc.), poultry, charcuterie and other processed meats, specifying that consumption of charcuterie should not exceed 150 grams per week (in line with the current French FBDG recommendation for charcuterie).

FOR LEGUMES:

→ We suggest to recommend the daily consumption of legumes, for a quantity of 65 to 100 grams per day (cooked weight).

FOR NUTS:

→ We suggest to recommend the consumption of 2 small handfuls of unsalted nuts, for a quantity of 25 to 30 grams per day, giving preference to walnuts.

For information, the current French FBDG of the other food categories are the following:

FOR FRUITS AND VEGETABLES:

→ Eat at least 5 fruits and vegetables per day.

FOR DAIRY PRODUCTS:

→ Eat 2 dairy products per day.

FOR FISH:

→ Eat fish twice a week, including one fatty fish.

FOR GRAIN PRODUCTS:

→ Eat grain products everyday, and preferably wholegrains.