Hort4EUGreen

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NUTRITIONAL QUALITY OF HORTICULTURAL PRODUCTS

Regulations on nutritional quality of horticultural products

Volume 2

University of Agronomic Sciences and Veterinary Medicine of Bucharest

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"Enhancing practical skills of horticulture specialists to better address the demands of the European Green Deal"

Bucharest, 2025

Table Of Content

Introduction

To ensure a healthy lifestyle, WHO recommends eating lots of fruits and vegetables, reducing fat, sugar and salt intake and exercising. Based on height and weight, people can check their body mass index (BMI) to see if they are overweight. WHO provides a series of publications to promote and support healthy lifestyles.

In the EU, food producers are required to report on the package, the energy value, and amounts of sugars, proteins, salts, carbohydrates, fats, and saturates. However, these so-called nutrition facts panels, which are often on the back of packages, do not seem to be as appealing to consumers as more intuitively designed and color-coded front-of-pack labels (Jones and Richardson 2007; Becker et al. 2015; Nohlen et al. 2022).

Module No. 2 Regulations on nutritional quality of horticultural products

Summary

In this module, aspects related to nutritional quality in EU, especially the regulations of European Union and the regulations requested by retailers, are presented. In the second unit you will find the regulations requested by non EU countries need to be use for presence on European market.

"A balanced and varied diet, composed of a wide range of nutritious and tasty foods, adds years to life and life to years. Nevertheless, the burden of disease associated with poor nutrition continues to grow in the WHO European Region".

Source: https://www.who.int/europe/health-topics/nutrition#tab=tab_1

Learning outcome descriptors

By the end of the module, the trainees should be able to prove they acquired both general and transferable skills and knowledge, understanding and professional skills.

Knowledge, understanding and professional skills

1	Specify the main factors that should be taken into consideration before
2	Plan the different steps of the understanding

General and transferable skills

1	Plan a research task
2	Work independently or with a minimal guidance where appropriate
3	Work in team with minimal guidance where appropriate
4	Show good written and oral communication skills
5	Demonstrate computer literacy
6	1.Perform online (computer) searchto develop information technology skills in order to retrieve information from a variety of sources

Unit 2.1: Nutritional quality in EU

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2.1.1 Regulations of European Union/EU regulation policies

The nutritional quality characteristics of horticultural products are included in EU regulations and international or national standards. In order to apply the quality standards for vegetables and fruits, different criteria specific to each product are used, depending on the most important characteristics.

According to the normative acts, the product quality is differentiated by categories: **extra quality** products, **quality I** and **quality II**.

12 WORLD HEALTH ORGANIZATION (WHO) recommendations for a healthy lifestyle

Eat a nutritious diet based on a variety of foods originating mainly from plants, rather than animals.

The classification of the horticultural products is done according to the quality indicators:

- Degree of maturity;
- Texture (firmness, strength);
- Visual appearance (volume, weight, size, shape);
- Aroma (sweet, bitter, sour, acidity);
- Nutritional value (content in protein, carbohydrates, starch, vitamins, minerals);
- Ecological value (contamination with toxic substances of natural origin, microbiological contamination, mycotoxins).

12 WORLD HEALTH ORGANIZATION (WHO) recommendations for a healthy lifestyle

Eat bread, whole grains, pasta, rice or potatoes several times per day.

The international organizations responsible for food safety and quality are:

Food and Agriculture Organization (FAO)

Twitter
YouTube
Linkedin

World Health Organization (WHO)

Twitter
YouTube
Linkedin

European Food Safety Authority (EFSA)

Twitter
YouTube
Linkedin

For countries that don't have the resources or infrastructure to develop their own safety evaluations and regulations, the Joint FAO/WHO Food Standards Programme, known as the **Codex Alimentarius** develops harmonized, voluntary, international food standards utilizing a transparent, science-based process to ensure food safety and quality (https://www.foodingredientfacts.org).

(http://www.fao.org/fao-who-codexalimentarius/home/en/)

Codex Committee on Fresh Fruits and Vegetables (CCFFV20) 2-6 October 2017 youtube link

The Codex Alimentarius includes standards for all the principal foods, whether processed, semi-processed or raw, for distribution to the consumer, as well as provisions in respect of food hygiene, food additives, residues of pesticides and veterinary drugs, contaminants, labelling and presentation, methods of analysis and sampling, and import and export inspection and certification

Source: https://www.fao.org/fao-who-codexalimentarius/home/en/.

12 WORLD HEALTH ORGANIZATION (WHO) recommendations for a healthy lifestyle

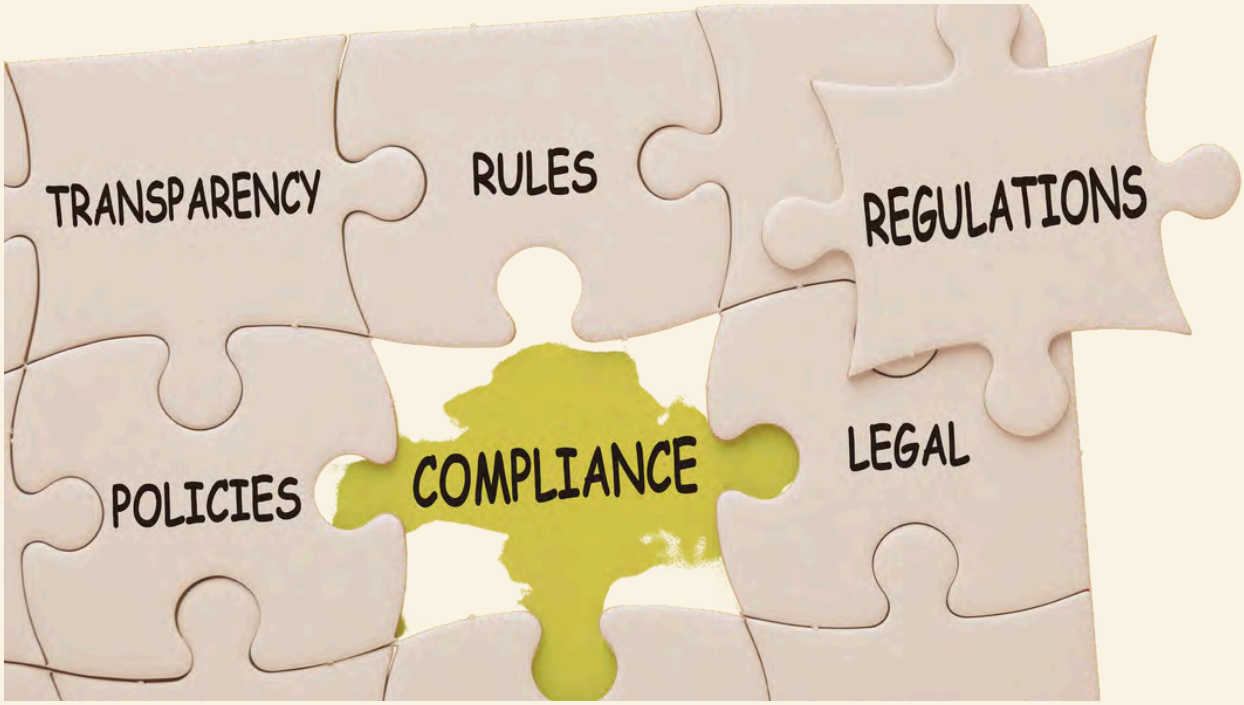
Eat a variety of vegetables and fruits, preferably fresh and local, several times per day (at least 400g per day).

The European Commission

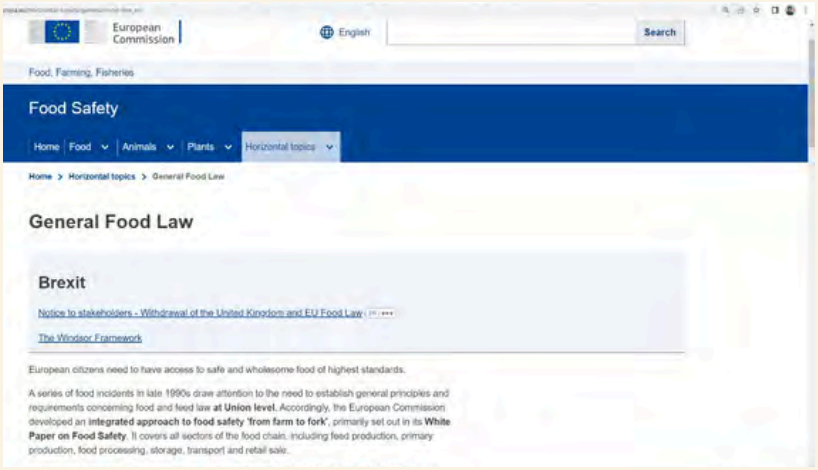
https://ec.europa.eu/food/safety/general_food_law_en

is responsible for policy and regulation related to ensuring the safety of food and food products in Europe.

The General Food Law Regulation, mandated and overseen by the European Commission, is the foundation for food law in Europe – providing a comprehensive framework for the development of food and feed legislation at the European Union and national levels in Europe.



The General Food Law sets out the principles, requirements, and procedures which direct decision making in regards to food and feed safety through all stages of production and distribution https://food.ec.europa.eu/horizontal-topics/general-food-law_en



Source: https://www.foodingredientfacts.org/knowledge-center/food-safety-regulation/

European citizens need to have access to safe and wholesome food of highest standards.
The General Food Law Regulation ensures a high level of protection of human life and consumers' interests in relation to food, while ensuring the effective functioning of the internal market

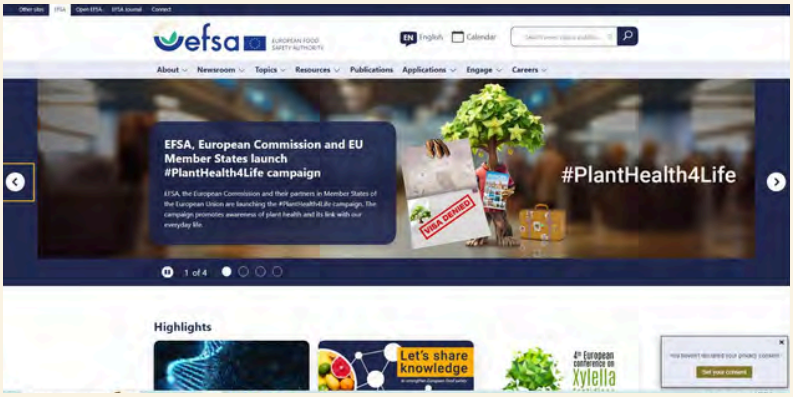
The European Food Safety Authority EFSA

is the official agency that provides independent scientific advice on topics related to food, and communicating to stakeholders regarding existing or potential risks in the food supply chain.

Mission

"Safety in the food chain from farm to fork is at EFSA's core. We contribute to protecting human life and health, taking account of animal health and welfare, plant health and the environment.

We deliver independent and transparent scientific advice to policy makers, through cooperation with our partners, and in an open dialogue with society."



EUROPEAN FOOD SAFETY AUTHORITY

EFSA is concerned with matters relevant to:

- Food and feed safety (animal health and welfare);
- Plant protection;
- Plant health & nutrition;
- Safety within the food supply;
- Safety of the food chain;

(https://www.foodingredientfacts.org)

The work of EFSA and its Panel on *Nutrition, Novel Foods and Food Allergens* (NDA) is largely dictated by the requirements of EU legislation or in response to specific requests from the European Commission.

NDA panel members are scientists from across Europe with expertise in: nutrition, nutritional epidemiology, human medicine, infant nutrition, pediatrics, dietary exposure assessment, food allergy and intolerance, toxicology, food technology, microbiology, biochemistry

Source: https://www.efsa.europa.eu/en/science/scientific-committee-and-panels/nda

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EUROPEAN FOOD SAFETY AUTHORITY

EFSA has as main areas of activity (https://www.efsa.europa.eu/en/topics/topic/nutrition):

1. Dietary reference values, including upper tolerable intake levels of vitamins and minerals.
2. The safety of novel foods (defined by EU legislation as “foods or ingredients which have not been consumed in the EU to a significant degree before 15 May 1997”) and nutrient sources (e.g. sources of vitamins and minerals).
3. The safety of other substances intentionally added to food (e.g. plants and herbal extracts).
4. Scientific advice on foods for special groups (in particular infants).
5. The scientific substantiation of health claims.
6. The potential of certain food ingredients to cause allergic or intolerance reactions.
7. Other generic questions related to human nutrition, such as the safety of caffeine.

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EUROPEAN FOOD SAFETY AUTHORITY

Agricultural product quality policies are governed at the European Commission level by several regulations on the application of EU quality schemes, which also "include geographical indications and traditional specialty guaranteed, the use of the logos in relation to each scheme, and covers the labelling guidelines for agri-food products that use PDOs (Protected designation of origin) or PGIs (Protected geographical indication) as ingredients" (https://ec.europa.eu/info/food-farming-fisheries/food-safety-and-quality/certification/quality-labels/quality-schemes-explained/regulations-food-and-agricultural-products_en).

12 WORLD HEALTH ORGANIZATION (WHO) recommendations for a healthy lifestyle

Replace fatty meat and meat products with beans, legumes, lentils, fish, poultry or lean meat.

The most important regulations on quality schemes that apply directly in the EU member states, also in Romania, include:

Regulation (EU) No **1151/2012** of the European Parliament and of the Council of 21 November 2012 on quality schemes for agricultural products and food stuffs
Source: http://data.europa.eu/eli/reg/2012/1151/2021-12-07

Commission Delegated Regulation (EU) **No 664/2014** of 18 December 2013 supplementing Regulation (EU) No **1151/2012** of the European Parliament and of the Council with regard to the establishment of the Union symbols for protected designations of origin, protected geographical indications and traditional specialities guaranteed and with regard to certain rules on sourcing, certain procedural rules and certain additional transitional rules
Source: http://data.europa.eu/eli/reg_del/2014/664/oj

Commission Implementing Regulation (EU) No **668/2014** of 13 June 2014 laying down rules for the application of Regulation (EU) No **1151/2012** of the European Parliament and of the Council on quality schemes for agricultural products and foodstuffs.
Source: http://data.europa.eu/eli/reg_impl/2014/668/2014-06-22

The most important regulations on quality schemes that apply directly in the EU member states, also in Romania, include:

- Corrigendum to Commission Implementing Regulation (EU) No **668/2014** of 13 June 2014 laying down rules for the application of Regulation (EU) No **1151/2012** of the European Parliament and of the Council on quality schemes for agricultural products and foodstuffs.

- Council Regulation (EC) No **361/2008** of 14 April 2008 amending Regulation (EC) No **1234/2007** establishing a common organisation of agricultural markets and on specific provisions for certain agricultural products (Single CMO Regulation)

- Commission Implementing Regulation (EU) No **543/2011** of 7 June 2011 laying down detailed rules for the application of Council Regulation (EC) No **1234/2007** in respect of the fruit and vegetables and processed fruit and vegetables sectors (*Annex 1*, Part B specific marketing standards and *Annex 1*, Part A, general marketing standard).

The most important regulations on quality schemes that apply directly in the EU member states, also in Romania, include:

- **White Paper On Food Safety Commission** of the European Communities - Brussels 12.01.2000;

- **Regulation (EC) No 852/2004** of the european parliament and of the council of 29 April 2004 on the hygiene of foodstuffs;

- **Regulation (EC) No 178/2002** of the European Parliament and of the Council of 28 January 2002 laying down the general principles and requirements of food law, establishing the European Food Safety Authority and laying down procedures in matters of food safety.

According to Ministry of Agriculture and Rural Development of Romania, national legislation on agricultural products and foodstuffs are governed by the following regulations (https://madr.ro/en/):

- **ORDER no. 1762 of 16 July 2015** on approving the Procedure of registration and verification of the documentation for obtaining a quality scheme protection of an agricultural product and/or foodstuff, the Procedure for declaring national opposition, and the Procedure for submission to the European Commission the application

The most important regulations on quality schemes that apply directly in the EU member states, also in Romania, include:

for registration of quality systems for agricultural products and/or food to acquire protection at European Union level, as well as specific Rules regarding the model and usage of the national logo.

- **DECISION no. 152 of 4 March 2015** on establishing the institutional framework and certain measures for implementing the Regulation (EU) **No 1151/2012** of the European Parliament and of the council of 21 November 2012 on quality schemes for agricultural products and foodstuffs.

Currently, the market for organic horticultural products is constantly growing worldwide, diversifying rapidly, especially in terms of processed food.

Why organic? Because organic means more nutrition, fewer chemicals, mitigated climate change, and healthier ecosystems.

According to the report of FIBL & IFOAM The World of Organic Agriculture Statistics and Emerging Trends 2021 (https://www.fibl.org/fileadmin/documents/shop/1150-organic-world-2021.pdf), in 2019, 72,3 million hectares of organic agricultural land, including in-conversion areas, were reported.

The regions with the largest organic agricultural land are Oceania (35,9 million hectares), and Europe (16,9 million hectares, 23 %), followed by Latin America (80,3 million hectares, 11%), Asia (5,9 hectares, 8%,), North America (3,6 million hectares, 5%), and Africa (2 million hectares, 3%).

Negotiations on amending European legislation on the production, control and import of organic products have started in 2017. Discussions with all stakeholders in the organic farming sector will take a critical period in the coming years to finalise CAP-Post 2020 (Common Agricultural Policy Post-2020), in order to create support for the development of organic farming and organic food industry in Europe.

The technological process of drying fruits and vegetables, like any other process of processing vegetables and fruits, influences in any of its technological stages the quality of the final food product, being a complex process involving specialists with very diverse and complex training (Dumoulin, IJFS, 2012)

Ecologically processed products should be obtained through the use of processing methods that ensure that, throughout all stages of the production chain, the ecological integrity and essential qualities of the product are maintained (Kahl, 2012; EC Reg. 834/2007; EC Reg. 889 / 2008).

Qualitative characterization of processed organic products remains an objective and a challenge (Seljåsen, et al., 2016) for many research teams, but also laboratories and certification firms.

12 WORLD HEALTH ORGANIZATION (WHO) recommendations for a healthy lifestyle

Choose a low-salt diet. Total salt intake should not be more than one teaspoon (5g) per day, including the salt in bread and processed, cured and preserved foods. (Salt iodization should be universal where iodine deficiency is a problem)

The quality of organic products is a set of attributes that define its complexity and assure the consumer that the value and taste of these products are superior to those conventionally obtained, according to the role of the organic farming system - to produce cleaner food, better suited to human metabolism. in full correlation with the conservation and development of the environment.

"Organic production is an overall system of farm management and food production that combines best environmental and climate action practices, a high level of biodiversity, the preservation of natural resources and the application of high animal welfare standards and high production standards in line with the demand of a growing number of consumers for products produced using natural substances and processes. Organic production thus plays a dual societal role, where, on the one hand, it provides for a specific market responding to consumer demand for organic products and, on the other hand, it delivers publicly available goods that contribute to the protection of the environment and animal welfare, as well as to rural development."

Source: REGULATION (EU) 2018/848 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL
https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:32018R0848

National and international regulations regarding the ecological products processing

According to the regulations EC **Reg. 834/2007** and EC **Reg. 889/2008**, there are very few indications regarding the processing of organic products, although 80% of the trade in organic products is represented by them. Thus, art. 6 of EC **Reg. 889/2008** states that:

- the production of organic food from organic agricultural ingredients, unless an ingredient is not available on the market in organic form;
- limiting the use of food additives, non-organic ingredients with main technological and organoleptic functions and micronutrients and processing aids, so that they are used to a minimum and only in the case of an essential technological need or for special nutritional purposes;
- the exclusion of substances and processing methods which are likely to mislead as to the true nature of the product;
- careful processing of food, preferably by biological, mechanical and physical methods."

12 WORLD HEALTH ORGANIZATION (WHO) recommendations for a healthy lifestyle

WHO does not set particular limits for alcohol consumption because the evidence shows that the ideal solution for health is not to drink at all, therefore less is better.

National and international regulations regarding the ecological products processing

- Regulation of the European Community EC **Reg. 834/2007** states that:

"*The processed organic product must be obtained by using processing methods that guarantee its integrity and vital qualities to be maintained at all stages of the production chain*."

- The Chinese standard states that

"*processing must maintain the original nature of the product and its nutritional value at the highest level*", and

- The Soil Association standard defines the processed organic product as "healthy, authentic, unaltered and of high quality".

Regardless of the standard, all 8 regulate the processing of organic products through 2 concepts:

- authorization or prohibition of specific processing methods,
- authorization of specific ingredients or substances permitted during processing.

2.1.2 Regulations requested by retailers

From December 2016, nutrition labeling on food, by **Regulation (EU) No 1169/2011** requires the vast majority of pre-packed foods to bear a nutrition declaration:
the energy value and the amounts of fat, saturates, carbohydrate, sugars, protein and salt of the food. This may be supplemented voluntarily with the indication of the amounts of mono-unsaturates, polyunsaturates, polyols, starch, fibre, vitamins and minerals. All the information must be expressed per 100g or per 100ml, but may also, in addition, be expressed per portion or per consumption unit of the product.

Several information in the EU under:

Regulation (EU) **No 1169/2011** of the European Parliament and of the Council of 25 October 2011 on the provision of food information to consumers, amending **Regulations** (EC) **No 1924/2006** and (EC) **No 1925/2006** of the European Parliament and of the Council, and repealing Commission **Directive 87/250/EEC**, Council Directive **90/496/EEC**, Commission Directive **1999/10/EC**, Directive **2000/13/EC** of the European Parliament and of the Council, **Commission Directives 2002/67/EC** and **2008/5/EC** and **Commission Regulation** (EC) **No 608/200**4.

Document for competent authorities, tolerances for the control of compliance of nutrient values declared on a label with EU legislation (https://ec.europa.eu/food/system/files/2016-10/labelling_nutrition-vitamins_minerals-guidance_tolerances_1212_en.pdf).

Summary table of the different tolerance values included in the guidance document (https://ec.europa.eu/food/system/files/2016-10/labelling_nutrition-vitamins_minerals-guidance_tolerances_summary_table_012013_en.pdf)

In case of doubt the guidance document text should be consulted as the official reference.

12 WORLD HEALTH ORGANIZATION (WHO) recommendations for a healthy lifestyle

Promote exclusive breastfeeding up to 6 months, and the introduction of safe and adequate complementary foods from the age of about 6 months. Promote the continuation of breastfeeding during the first 2 years of life.

Unit 2.2 Regulations requested by non-EU countries

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Generally, all countries have their own national authorities which establish and enforce food regulations. For examples:

- National Health Commission of the People's Republic of China;
- Japan's Ministry of Health, Labour, and Welfare;
- Food Standards Australia New Zealand;
- Food Safety and Standards Authority of India.

Depending on the country, food laws and regulation can be governed by territory or by federal governments. In Australia, for example, food standards found in the **Food Standards Code** (which are law) are enforced by States and Territories by their own interpretations of the law.

12 WORLD HEALTH ORGANIZATION (WHO) recommendations for a healthy lifestyle

Prepare food in a safe and hygienic way. Steam, bake, boil or microwave to help reduce the amount of added fat.

Nutritional quality refers to the composition and content of essential nutrients in a food or diet and its potential impact on human health. It encompasses the balance and adequacy of macronutrients (carbohydrates, proteins, and fats) as well as micronutrients (vitamins and minerals). Here are some key aspects of nutritional quality:

Micronutrients: Micronutrients are essential vitamins and minerals required in smaller quantities but are critical for various bodily functions, growth, and development. Examples of micronutrients include vitamin A, vitamin C, vitamin D, iron, calcium, and zinc. A varied and balanced diet that includes a wide range of fruits, vegetables, whole grains, lean proteins, and dairy or dairy alternatives can help ensure an adequate intake of micronutrients.

Macronutrients: Macronutrients provide the body with energy and include carbohydrates, proteins, and fats. A diet with a balanced distribution of macronutrients is important for maintaining overall health and well-being.

Dietary Fiber: Dietary fiber, primarily found in plant-based foods, plays a vital role in digestive health, maintaining healthy blood sugar levels, and reducing the risk of certain diseases. Good sources of dietary fiber include whole grains, fruits, vegetables, legumes, and nuts.

Antioxidants and Phytochemicals: Antioxidants and phytochemicals are compounds found in plant-based foods that have been associated with various health benefits, including reducing inflammation and protecting against chronic diseases. Examples include flavonoids, carotenoids, and polyphenols, which are present in colorful fruits, vegetables, herbs, and spices.

Energy Density: The energy density of a food refers to the number of calories it contains per unit of weight or volume. Choosing foods with a lower energy density, such as fruits, vegetables, and lean proteins, can help with weight management and promote a nutrient-dense diet.

Processing and Preparation: The processing and preparation methods of food can impact its nutritional quality. Highly processed foods may undergo extensive refining, resulting in the loss of essential nutrients. Additionally, cooking methods can affect nutrient content, with prolonged heating or excessive processing potentially reducing the nutritional value of certain foods.

Overall, nutritional quality involves consuming a varied and balanced diet that provides adequate amounts of essential macronutrients, micronutrients, fiber, and other beneficial compounds. It is important to emphasize whole, minimally processed foods and to consider individual dietary needs, preferences, and health goals when determining nutritional quality.

The nutritional quality analysis and regulations in non-EU countries can vary significantly based on each country's specific legislation and policies. In terms of the basic nutritional quality parameters listed as the main topics above; In non-EU countries, analyses and monitoring are made by following 5 approaches:

1. **Dietary Guidelines**: Many non-EU countries develop and publish dietary guidelines that serve as recommendations for achieving a healthy and balanced diet. These guidelines often include information on the recommended intake of macronutrients, vitamins, minerals, and other essential nutrients.

2. **Food Composition Databases**: Governments and research institutions in various countries develop food composition databases that provide detailed information on the nutrient content of different foods. These databases help in assessing the nutritional quality of specific food items and developing nutrient profiles for dietary analysis.

3. **Nutrient Labeling Regulations:** Non-EU countries typically have regulations in place that mandate the provision of nutritional information on food labels. These regulations may require listing key nutrients, such as calories, macronutrients (carbohydrates, proteins, fats), vitamins, and minerals. The format and level of detail of the required information can vary among countries.

4. **National Monitoring Programs**: Some countries implement national monitoring programs to assess the nutritional quality of their food supply. These programs involve collecting food samples, conducting laboratory analysis, and evaluating the nutrient content of commonly consumed food items. The results help identify potential gaps or areas of concern in the nutritional quality of the food available to the population.

5. **Public Health Initiatives:** Non-EU countries often promote public health initiatives aimed at improving nutritional quality. These initiatives may include awareness campaigns, education programs, and collaborations with food manufacturers and retailers to encourage the production and availability of healthier food options.

2.2.1 Food regulation in Türkiye. Legislation

Türkiye is one of the first members of the **Codex Alimentarius Commission (CAC)-**link here, which was established in 1963 with the cooperation of the **United Nations Food and Agricultural Organization** (FAO) and the **World Health Organization** (WHO) and is the largest organization working to ensure international food safety.

In addition to ensuring food safety in the world, these standards also have the benefit of preventing technical barriers in food trade between countries. *The purpose* of the CAC is to determine the quality and hygiene criteria of foodstuffs in the world food trade as well as produce quality and reliable products and present them to consumers.

WORLD TRADE ORGANIZATION

The WTO Health and Phytosanitary (SPS) and Technical Barriers to Trade (TBT) Agreements, which came into force after the establishment of the World Trade Organization (WTO) in 1994, took the CAC Standards as a reference for food-related regulations in international trade.

The nutritional quality monitoring of food products in Türkiye is primarily regulated, and overseen by the **Ministry of Agriculture and Forestry**, through its various departments and agencies which are managed under the **General Directorate of Food and Control.**

https://www.tarimorman.gov.tr/GKGM/Sayfalar/EN/Anasayfa.aspx

REPUBLIC OF TÜRKİYE
MINISTRY OF AGRICULTURE
AND FORESTRY

For this purpose, many legal regulations, some of which are listed below, primarily the **Turkish Food Codex**, have been officially published by the General Directorate of Food and Control, and their revisions and compliance studies are still being carried out actively depending on the current developments.

Although Türkiye is not yet an official EU member state, it has almost achieved full compliance in coordinating its legal regulations with the EU on food control, monitoring, and nutritional analysis as in many other areas by following CAC standards.

Directive of Turkish Food Codex
Regulations under the Directive of Turkish Food Codex

1	Nutrition Statements Regulation
2	Regulation On Maximum Residual Limits of Pesticides
3	Food Preparation Regulation
4	Regulation On Foods for Babies and Young Children and Regulations On Diet Replacements For Body Weight Control
5	Regulation On Materials and Materials in Contact with Food
6	Regulation On Specifications of Food Additives
7	Regulation On Adding Vitamins, Minerals, and Certain Other Items to Foods
8	Classification Of Pharmacological Active Substances That May Be in Animal Food and Maximum Residual Limits Regulation
9	Regulation On Food Enzymes
10	Regulation On the Common Permission Procedure for Food Additives, Food Enzymes, And Food Flavors
11	Regulation On Food Labeling and Consumers Information
12	Regulation On the Maximum Amount of Coccidiostats and Hıstomonostats In Animal Foods that Cannot Be Carried to Non-Target Feed
13	Regulation On Food Additives
14	Regulation On Flavors and Food Components with Flavoring Feature
15	Contaminations Regulation
16	Microbiological Criteria Regulation

In addition to the food codex and related regulations, declarations (notifications) are published in the main fields listed below, and they are constantly updated.

- Labeling
- Food additives and extraction solvents
- Purity criteria of food additives
- Pesticide residues
- Veterinary medicine residues
- Sampling and analysis methods
- Notifications on materials and materials in contact with food

In addition to the preparation of general definitions, regulations and notifications, and legal regulations in many fields, dozens of notifications have been published on the topics listed below, specific to product groups.

- Meat and meat products
- Milk and milk products
- Eggs and egg products
- Honey
- Processed fruit and vegetable
- Grain and grain-based products
- Fat and liquid oils
- Traditional products
- Quick frozen foods
- Foods for special nutrition
- Alcoholic beverages

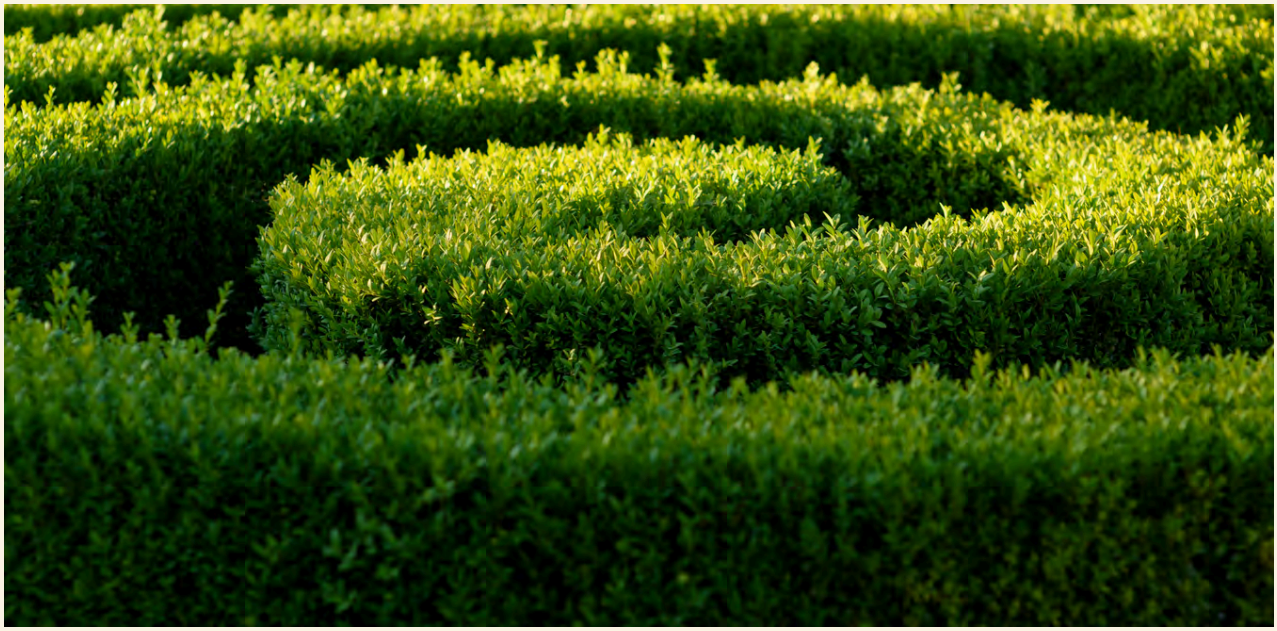
In addition to monitoring the nutritional quality in particular Codex, a serious legal regulation, and practice is carried out regarding pesticide residue, which is an important quality parameter in foods. One of the most important of these is the Pre-Harvest Pesticide Control Program Implementation Instruction.

With this instruction, which are the main objectives of preventing risks to human health, protecting the natural balance, and ensuring the sustainability of plant production, procedures, and inspection steps in subjects such as sampling, transportation, and analysis are defined in detail.

While the public authority uses a serious control mechanism for the implementation and monitoring of these legal regulations in the field; It carries out various campaigns and public activities for the civilian population to take an active part in these inspections and monitoring.

The program, which operates as "**ALO 174 Food Line**", is the most widely used and adopted by the public. Citizens can reach this call center from anywhere in the country by dialing 174.

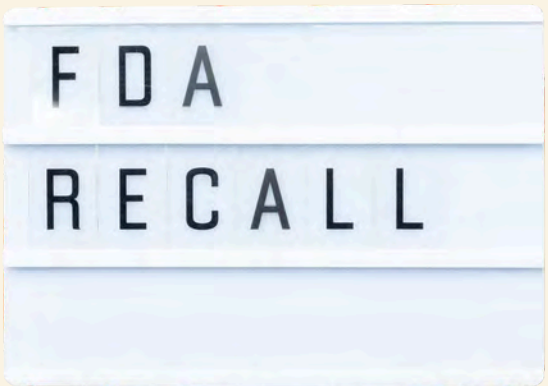
In addition, with the modules of the application integrated into mobile communication applications such as *WhatsApp,* they can easily report any non-compliance they see in businesses that operate food businesses or sell food products, and then receive feedback on the process regarding their notifications.



2.2.2. Food regulation in USA

In the United States of America, the primary food regulatory authority is the **Food and Drug Administration (FDA)**, a sector of the U.S. Department of Health and Human Services, being responsible for nearly all foods that are produced, marketed, sold, and consumed, including food ingredients and food additives.

FDA U.S. FOOD & DRUG ADMINISTRATION



The U.S. Department of Agriculture’s (USDA) Food Safety and Inspection Service (FSIS) is responsible for ensuring the safety of meat, poultry, and egg products.

https://www.fda.gov/food
https://www.fsis.usda.gov/wps/portal/fsis/home.

The authority to regulate the safety of food, drugs, medical devices, and cosmetics is the **Federal Food, Drug, and Cosmetic Act (FFDCA)** provides FDA. Food additives are regulated under the **Food Additives Amendment of 1958**, which provides for two regulatory mechanisms by which substances may be added to food. They are the food additive petition process and the GenerallyRecognized as Safe (GRAS) process. FDA is tasked with evaluating and reviewing the safety of food additives and GRAS substances.

Source:https://en.wikipedia.org/wiki/Food_Additives_Amendment_of_1958

2.2.3. Food regulation in Canada

Health Canada is the department of the Canadian government responsible for overseeing Canadian health, including food regulatory policies.

https://www.canada.ca/en/health-canada/services/food-nutrition/food-safety/food-additives. html

Under Canada Government site we will find Agriculture and Agri-Food Canada (AAFC), a department that supports "the Canadian agriculture and agri-food sector through initiatives that promote innovation and competitiveness", and regulate **food policy** in Canada as well.

https://agriculture.canada.ca/en/department/initiatives/food-policy

Food and nutrition	Food safety for industry	Food safety for consumers
"Food safety, food recalls, Canada's food guide, allergies and intolerances, safety standards, how we monitor and measure food consumption."	"Standards and guidelines, regulatory requirements, traceability, packaging, investigation and response, testing bulletins, report a concern."	"You can help protect yourself and your family by following safe food handling practices at home and staying informed about food recalls and allergy alerts.'

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https://eur-lex.europa.eu/legal-content/RO/TXT/PDF/?uri=CELEX:32014R0664&from=en

https://eur-lex.europa.eu/legal-content/RO/TXT/PDF/?uri=CELEX:32014R0668&from=en

Legislația națională din domeniul calității producției agricole și alimentare (National legislation in agricultural and alimentary product quality)

https://madr.ro/industrie-alimentara/sisteme-de-calitate-europene-si-indicatii-geografice/produse-agricole-si-alimentare/legislatia-nationala-din-domeniul-calitatii-prod-agricole-si-alimentare.html

FIBL&IFOAM The World of Organic Agriculture Statistics and Emerging Trends 2021 https://www.fibl.org/fileadmin/documents/shop/1150-organic-world-2021.pdf.

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https://www.govinfo.gov/content/pkg/STATUTE 72/pdf/STATUTE-72-Pg1784.pdf#page=1

https://www.mhlw.go.jp/english/index.html

https://www.foodstandards.gov.au/Pages/default.aspx

https://www.fssai.gov.in/

Assuring food safety and quality: Guidelines for strengthening national food control systems, Joint FAO/WHO Publication, FAO food and nutrition, paper 76, ISSN 0254-4725.

”Do you know, what has been changed in relation to novel food approval in the European Union (EU)?
How are novel foods defined and what is the regulation in force?

Source here

The FAO Museum Network (FAO MuNe) offers a cultural and scientific framework highly relevant to a manual on the nutritional quality of horticultural products.

Established by the Food and Agriculture Organization of the United Nations, FAO MuNe functions both as a physical exhibition space in Rome and as a global digital network. Its purpose is to document how agriculture, food systems, biodiversity, and cultural practices shape human nutrition and wellbeing.

For a manual focused on horticultural product quality, the museum provides a contextual layer that connects scientific understanding with historical, cultural, and policy dimensions. The exhibits illustrate traditional horticultural practices, crop diversity, post-harvest handling, and food cultures across continents - elements that influence nutrient density, phytochemical profiles, and food safety. These historical references help explain why nutritional quality varies across cultivars, production systems, and regions, reinforcing the need for standardized, evidence-based evaluation methods.

In relation to the chapter Regulations on Nutritional Quality of Horticultural Products, FAO MuNe supports the regulatory narrative in two ways. First, it demonstrates the global inconsistency of traditional food systems and highlights the role of international institutions in harmonizing standards for safety, labelling, nutrient composition, and quality control. Second, it provides examples of how cultural heritage and local practices can coexist with modern regulatory frameworks designed to protect consumers and encourage sustainable horticultural production.

Thus, **FAO MuNe** functions as a bridge between heritage and policy. Its materials help position the regulatory content of the manual within a broader global context, showing that nutritional quality is not only a biochemical or technological attribute but also a product of cultural evolution, agricultural innovation, and international governance.

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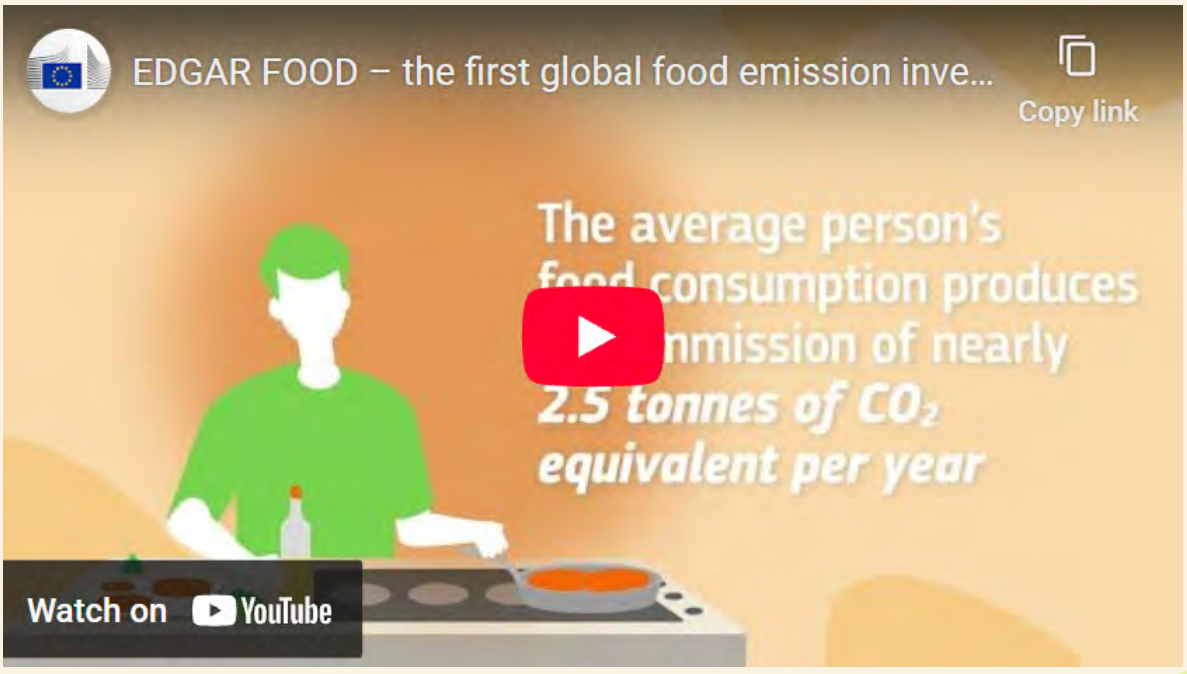
Environmental Performance as a Component of Nutritional Quality

The evaluation of horticultural products increasingly requires an integrated perspective in which biochemical composition, food safety and environmental performance are treated as interconnected dimensions. While classical definitions of nutritional quality focus on mineral content, vitamins, secondary metabolites and the absence of contaminants, contemporary food-system analysis shows that the ecological cost associated with producing these nutrients must also be acknowledged. The nutritional value of horticultural crops cannot be dissociated from the conditions under which they are grown, transported and introduced into the food chain.

This broader view introduces a complementary metric: the environmental efficiency of nutrient delivery. Horticultural products that provide high concentrations of bioactive compounds but require disproportionate energy inputs, long transport distances or high greenhouse-gas emissions present a paradox: physiologically valuable foods generated through ecologically unsustainable pathways. Conversely, crops cultivated under agroecological management, short supply chains and soil-regenerative practices may achieve equivalent biochemical quality while minimizing externalities.

Incorporating this dimension into regulatory or methodological frameworks produces a more robust definition of “quality”. It encourages the alignment of horticultural practices with soil conservation, biodiversity protection and climate-aware resource management. It also supports the development of standards that evaluate not only the end product but the systemic context of its production: soil integrity, water use, fertiliser intensity, carbon and nitrogen footprints, resilience of agroecosystems and postharvest energy requirements.

In this sense, nutritional quality becomes a multilayered indicator: a measure of the plant’s intrinsic biochemical attributes and a reflection of the environmental conditions that shaped them. This integrated approach is increasingly necessary for regulators, researchers and practitioners aiming to safeguard human nutrition while ensuring that food systems operate within ecological boundaries.



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Make obesity prevention and management a central pillar of public health, experts urge

On 1 April 2025, the World Health Organization Regional Office for Europe (WHO/Europe) published a technical call to action emphasizing the need to reposition obesity prevention and management as a core function of health systems. This position emerged from expert deliberations at the WHO Demonstration Platform on Obesity Management (Dublin, Ireland, January 2025), convening delegates from Ireland, Portugal, Slovenia, and Spain under the auspices of WHO/Europe's Special Initiative on NCDs and Innovation (SNI) and the WHO European Centre for Primary Health Care.

Core Assertions:

Obesity as a chronic disease continuum:

Obesity is defined as a progressive, chronic, and multi-factorial condition affecting individuals across the life course, with strong epidemiological links to over 250 comorbid conditions—including diabetes mellitus, ischemic heart disease, and other noncommunicable diseases (NCDs). In the WHO European Region, approximately 25 % of children and 60 % of adults present with overweight or obesity, threatening progress toward Sustainable Development Goal (SDG) 3.4 on reducing premature NCD mortality.

Source here

Make obesity prevention and management a central pillar of public health, experts urge

Integration into universal health coverage (UHC):
The statement underscores that obesity prevention and management should be embedded across primary, secondary, and tertiary care and recognized as integral to universal health coverage. This aligns with WHO's Health Service Delivery Framework for Prevention and Management of Obesity (launched 2023) and the endorsement of the WHO Acceleration Plan to Stop Obesity at the 75th World Health Assembly.

Source here

Make obesity prevention and management a central pillar of public health, experts urge

Evidence from national implementation:
Practical models, such as Portugal's national Integrated Care Model for Obesity Prevention and Treatment, demonstrate feasibility when supported by governance commitment and cross-sectoral structures.

Priority actions recommended:

The WHO text identifies specific public health and policy actions:
Strengthen multidisciplinary care pathways: Establish integrated teams (physicians, dietitians, nurses, psychologists, physiotherapists) across the health system to ensure continuum of care from prevention to specialized treatment. World Health Organization

Regulate commercial determinants and environments: Implement policies to reshape food systems, including front-of-pack labeling, restrictions on unhealthy food marketing (particularly towards youth), and fiscal measures to discourage high-salt, high-sugar, and high-fat products.

Early life and population prevention strategies: Invest in preventive programmes across the life span, with targeted interventions for children, adolescents, and high-risk subpopulations.

Workforce training and stigma reduction: Expand professional training across clinical disciplines on obesity pathophysiology (including concepts such as sarcopenic obesity) and launch campaigns to reduce stigma and improve health-seeking behaviour.

Global policy context:
The call intersects with broader global action on NCDs, including the WHO SNI's "Race to the Finish" initiative targeting 2030 NCD benchmarks and preparatory momentum toward the Fourth High-Level Meeting of the U General Assembly on NCDs (2025).

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