

# GrEAT

## Green Education for Active Talents

### INTELLECTUAL OUTPUT 2 TRAINING MODULES AND MATERIALS

### Sustainable agriculture and food production



## INDEX

<b>CHAPTER 1: TOPIC FRAME .....</b>	<b>3</b>
You are what you eat. ....	3
Important concepts to understand the topic.....	3
Historical Picture .....	5
Food Production and society .....	5
Organic food consumers.....	6
Organic production is on the increase. ....	7
Sustainable agriculture in Europe .....	8
Sustainable agriculture in Spain .....	10
Sustainable agriculture in Italy .....	10
Sustainable agriculture in France .....	11
Sustainable agriculture in Croatia .....	12
<b>CHAPTER 2: REFERENCE LAW.....</b>	<b>13</b>
Principles and European legislation.....	13
<b>CHAPTER 3: POLICY INSTRUMENTS.....</b>	<b>19</b>
Common agricultural policy.....	19
<b>CHAPTER 4: THE JOB MARKET .....</b>	<b>21</b>
<b>CHAPTER 5: PROFESSIONALS .....</b>	<b>22</b>
Eco-farmer .....	22
Marketer and food distributor .....	23
Organic Agricultural or Food Scientist .....	23
<b>CHAPTER 6: CASE STUDIES .....</b>	<b>25</b>
Mobile Farmers Market, healthy options on the way .....	25
The Union Street Urban Orchard .....	25
<b>CHAPTER 7: LABORATORIES .....</b>	<b>26</b>
Laboratory: Eco-orchard at school.....	26
<b>CHAPTER 8. BIBLIOGRAPHY AND SITOGRAPHY .....</b>	<b>27</b>

## CHAPTER 1: TOPIC FRAME

### **You are what you eat.**

What you put into the soil has a profound impact on what you get out of it. Would you like to consume toxic and persistent pesticides and synthetic nitrogen fertilizers, antibiotics, synthetic hormones, genetic engineering or other excluded practices, sewage sludge, or irradiation?

Organic food is produced without the use of toxic and persistent pesticides and synthetic nitrogen fertilizers, antibiotics, synthetic hormones, genetic engineering or other excluded practices, sewage sludge, or irradiation. Sounds good, isn't it?

That is why producers rely on such practices as hand weeding, mechanical control, mulches, cover crops, crop rotation and dense planting, rather than toxic and persistent pesticides, herbicides, and synthetic nitrogen fertilizers, to enrich the soil in which they grow their crops.

“Organic agriculture is a holistic production management system which promotes and enhances agro-ecosystem health, including biodiversity, biological cycles, and soil biological activity. It emphasises the use of management practices in preference to the use of off-farm inputs, taking into account that regional conditions require locally adapted systems. This is accomplished by using, where possible, agronomic, biological, and mechanical methods, as opposed to using synthetic materials, to fulfil any specific function within the system.” (FAO/WHO Codex Alimentarius Commission, 1999)

Organic food is food produced by methods that comply with the standards of organic farming. Standards vary worldwide, but organic farming in general features practices that strive to cycle resources, promote ecological balance, and conserve biodiversity. Organizations regulating organic products may restrict the use of certain pesticides and fertilizers in farming. In general, organic foods are also usually not processed using irradiation, industrial solvents or synthetic food additives.

### **Important concepts to understand the topic**

Organic farming relies on a number of objectives and principles, as well as common practices designed to minimize the human impact on the environment, while ensuring the agricultural system operates as naturally as possible

- Wide crop rotation as a prerequisite for an efficient use of on-site resources
- Very strict limits on chemical synthetic pesticide and synthetic fertiliser use, livestock antibiotics, food additives and processing aids and other inputs
- Absolute prohibition of the use of genetically modified organisms
- Taking advantage of on-site resources, such as livestock manure for fertiliser or feed produced on the farm
- Choosing plant and animal species that are resistant to disease and adapted to local conditions
- Raising livestock in free-range, open-air systems and providing them with organic feed
- Using animal husbandry practices appropriate to different livestock species.

For organic farmers a fertile soil and respect for the environment are of crucial importance for humans and animals. Organic farmers respect the environment through:

- Responsible use of energy and natural resources
- Maintenance of biodiversity
- Maintenance of regional ecological balances
- Enhancement of soil fertility

- Maintenance of water quality

Organic processors and, by extension, marketers and food distributors, will have the same goals as organic farmers - namely the provision of fresh and authentic processed food designed to respect nature and its systems.

Important principles for the processing of organic products include the:

- Strict restriction of which additives and processing aids can be used
- Strict restriction of chemically synthesised inputs
- Prohibition of the use of genetically modified organisms (GMOs)

As organic produce comes in a wide variety of forms, the distribution of organic products to consumers occurs through a similarly diverse range of ways. Typical distribution channels through which consumers like you might encounter organic produce include:

- Local and specialised organic markets
- Specialised organic shops in rural or metropolitan areas
- Roadside stalls in rural areas
- Directly from the farm where the food was produced
- Delivered to your door or a collection point through web-based home delivery and/or box scheme

## WHAT IS ORGANIC FARMING?

Organic production is an overall system of farm management and food production that combines best environment practices, a high level of biodiversity, the preservation of natural resources and the application of high animal welfare standards

### KEY PRINCIPLES



The use of chemical pesticides and synthetic fertilisers is banned



Antibiotics are severely restricted



GMOs are not allowed



Crops are rotated



The EU's organic logo guarantees EU rules on organic farming have been respected



europarl.eu

Sources:  
EPRS, Eurostat, Eurobarometer

## Historical Picture

The debate on the consumption of organic products has born in the contemporary era with the appearance of industrial and intensive production of large quantities of food to supply the entire population that has progressively specialized their jobs and have abandoned rural life.

The organic agriculture movement emerged in the 1940s in response to the industrialization of agriculture. The creation of processes and products that get the most out of production in order to obtain the maximum benefits obeys a reasoning that follows the logic of the market but not the logic of nature.

The impulse of the demand of some organic products that have guarantees regarding the production process comes as a reaction of the consumers over the uncertainty about the products they consume, in an era of 'industrial' production of natural products.

In 1939, Lord Northbourne coined the term organic farming in his book 'Look to the Land', out of his conception of "the farm as organism," to describe a holistic, ecologically balanced approach to farming—in contrast to what he called chemical farming, which relied on "imported fertility" and "cannot be self-sufficient nor an organic whole."

## Food Production and society

Early consumers interested in organic food would look for non-chemically treated, non-use of unapproved pesticides, fresh or minimally processed food. They mostly had to buy directly from growers. Later, "Know your farmer, know your food" became the motto of a new initiative in 2009. Personal definitions of what constituted "organic" were developed through first-hand experience: by talking to farmers, seeing farm conditions, and farming activities. Small farms grew vegetables (and raised livestock) using organic farming practices, with or without certification, and the individual consumer monitored.

Today, many large corporate farms have an organic division. However, for supermarket consumers, food production is not easily observable, and product labelling, like "certified organic," is relied upon. Government regulations and third-party inspectors are looked to for assurance.



Organic food market is developing rapidly, consumers have raised great interest to healthy and tasty diet with high nutritional compounds, confidence in food safety, environmental and animal welfare concern and also sustainability.



Twentieth century has been the witness of most of the technological agricultural changes leaving remarks on rural landscape and population. Sustainable food production became more and more vital after facing with social, ecological and economic impacts of industrialized agriculture. Societies find solution by demanding for low-input, regional and seasonal products with the respect of environment, health and social welfare of the region.

Consumers of industrialized countries have shown a great attention towards organic products. Food safety and quality issues have triggered the awareness of consumers and people start to be suspicious towards conventional products. Moreover, today's educated society is showing great interest to their and children's health and prefer foods with more nutritional values, less additives and more coming from natural production methods. Furthermore, ethical movements are becoming widespread in developed countries towards animal health and welfare on farms and effect consumers' choice when buying meat and milk products.

### **Organic food consumers**

Today, income and price differences are no longer the only barriers and also green movement is no longer the only motive in the sector. Important thing is, marketers and companies have to be aware of that organic consumption is rapidly expanding among the people from every socio-economic group and ideology and new individual needs are rising. While some nations are more familiar to organic food consumption and even accepted as a part of their lifestyle, others especially developing countries involved in newly.

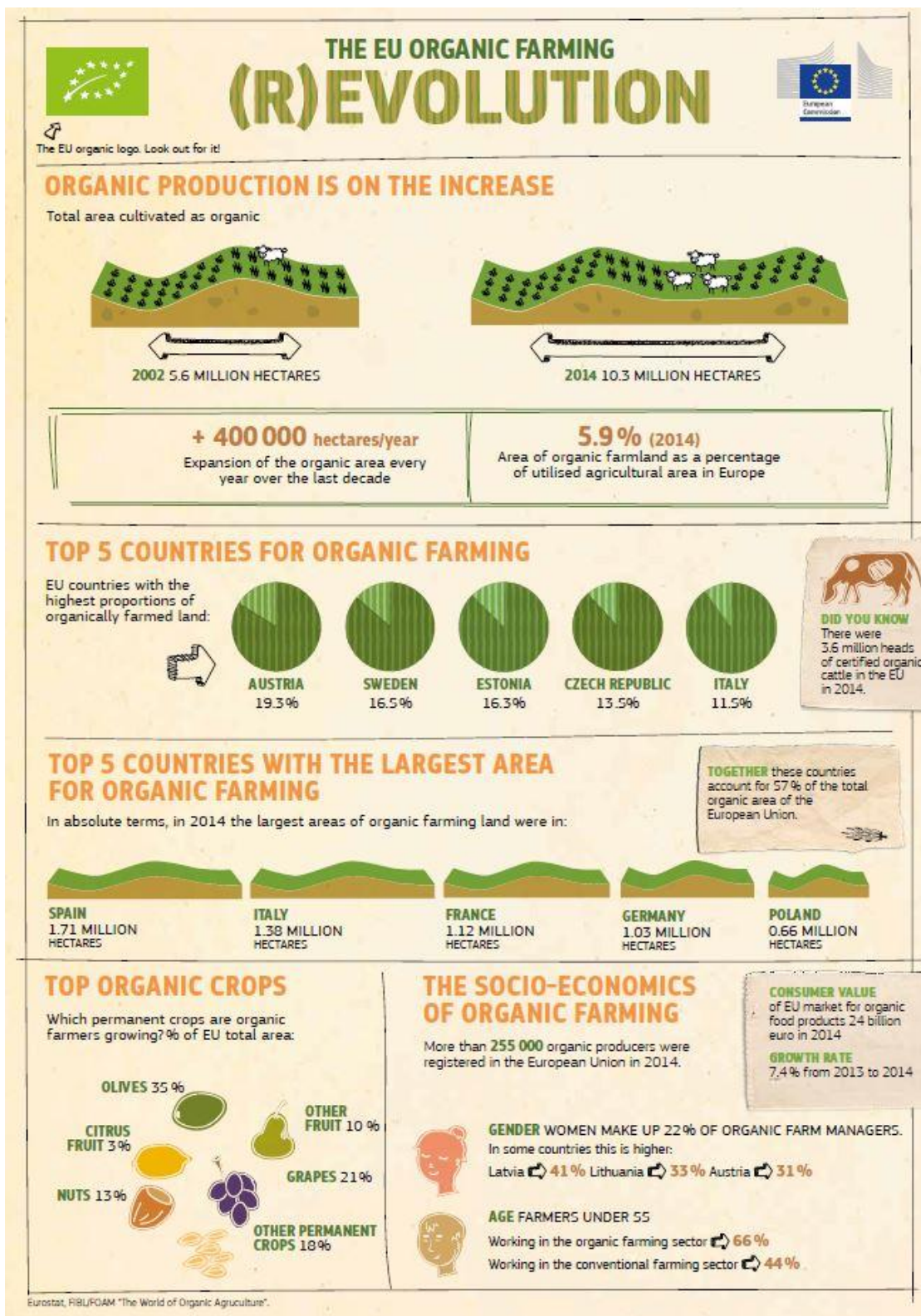
The classification of the organic consumer identity varies depending on the writers. Many surveys find out that women are more disposed organic foods than men; the presence of children in the household seem to have positive effects on organic food consumption; there is not significative difference between age groups; regular consumers in most of the countries are found to be high educated then occasional and non-buyer

and studies about the impact of income are variable, but some researchers claim that income has a positive effect on organic food consumption and organic consumers mostly live in big cities and urban area with socio-economic status.

The dominant motivation toward organics is “health”. People want to intake organic products for better health conditions or maintaining the present situation, preventing illnesses and avoiding the intake of chemical residues. The second motivation for organic consumers is the environmental protection, because of the raising concerns about environmental and resources. The following motivations towards organic consumption are animal welfare, which varies depending on the countries, the high quality of the products, the knowledge about the origin of the product, the taste, the trust and food safety and the price, availability and appearance are the least important factors in the surveys.

### **Organic production is on the increase.**

Growth in consumer demand in recent years is particularly remarkable. Recent reforms of the common agricultural policy, with its emphasis on market-orientation and the supply of quality products to meet consumer demands, are likely to further stimulate the market in organic produce.



## Sustainable agriculture in Europe

The organic food industry in Europe is a market with a retail sales value of 29.8 billion euros in 2015 and 33.5 billion in 2016. While the well-established Western European market experienced growth of 5.4 percent between 2015 and 2016, Eastern European sales are catching up with a growth rate of 8.8 percent in the



same period. Germany is the leading market for organic products in Europe with a 11.4 percent share of global organic sales, followed by France with 7.3 percent.

Even though sales are booming, the state of organic production is yet to catch up with demand: organic farmland as a proportion of all farmland area rarely exceeds 15 percent in the majority of countries. Similarly, organic meat production is only a miniscule share of overall livestock, particularly in the case of pork at only 0.6 percent. Nevertheless, arable organic crop production in Europe is centered around cereals, while permanent crops are predominantly made up of olives and grapes.



Although Germany has the largest market for organic food, the highest levels of per capita consumption can be found in Switzerland and the Nordic countries. European consumers have high levels of awareness for organic claims at 61 percent, with a further 11 percent actively seeking such products. Furthermore, increasing numbers are buying more organic food and drink products, with a relatively equal proportion willing to pay a premium for an organic claim.

## Sustainable agriculture in Spain

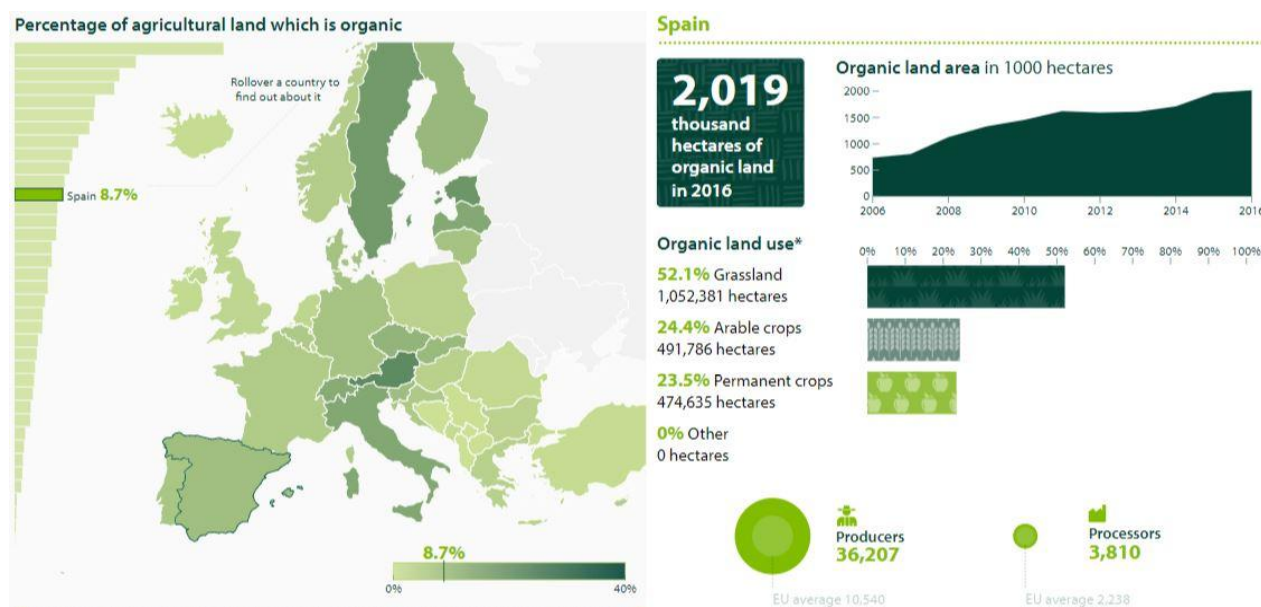
According to the first data of the organic production, facilitated by the Ministry of Agriculture, Food and Environment (MAPAMA), Spain is confirmed the first EU country by surface, surpassing two million hectares. It is also among the top five producers in the world.

The advance of organic production data 2016 confirms the trend towards sustained growth and consolidation of the sector. The area devoted to this type of production has increased by 2.5% compared to 2015, reaching almost 2,019,000 ha. Half of it goes to permanent pastures, one-quarter to arable land crops and the other quarter to permanent crops. Noteworthy is the area under conversion, which has tripled compared to the previous year, which shows its potential.

Since its beginnings, Spanish organic production has always been export-oriented, mainly due to strong consumer demand from Central European countries. It is estimated that 80% of the production is destined for export, mainly for EU countries (89.2%), especially Germany, France and the UK.

The average national consumption of organic products is estimated at 35.4 kilos per year which indicates that every Spaniard consumes 35.4 kilos of organic products and spends about €29 euros on that demand. Organic foods now represent 1.9% of the total expenditure on food made by Spanish households

In terms of operators, the total number of operators increased by 5.3% to 39.744, with the number increasing in all categories: producers (4.4%), industrial (9%), importers (23%), Exporters (17%). These data highlight the increase in the number of operators in the later stages of the food chain, due to the increase in demand. In plant production stands out the increase of hectares dedicated to cereals, tubers, vegetables, fruit trees, nuts, citrus and vineyards.



## Sustainable agriculture in Italy

In Italy, organic agriculture market share is increasing: last calculations show direct consumption (i.e. not considering goods sold by restaurants, bar and food services) for 2,1 billions of euro in 2014, a total cultivation of 1.795.650 hectares in 2016 (+20% with respect to 2015) that pushes the total soil covered by organic cultivation to 14,5%, finally, 72.154 firms have an organic certification (+12.200 in last year).

Being undoubtedly the most relevant segment, organic does not exhaust the notion of sustainable agriculture. In last year, growing attention have been paid to short chain and to conservative agriculture. In the first case, as known as “zero kilometres agriculture”, the retail chain is considered short in a twofold connotation: in a geographic sense, meaning a short distance between producers and consumers (being the latter households or restaurants) that allows many advantages in terms of lower transports pollution, higher freshness of the goods and lower need for refrigeration and storage. But in a different implication, being short implies a drastic reduction of intermediaries in the filière, with a higher percentage of the total revenue to the benefit of producers and the contextual lower final price for consumers.

Conservative agriculture, even known as “blue agriculture”, is based upon three practices: at least 30% of agrarian soil covered permanently by crop residuals; direct seeding (with no kind of soil processing), and compulsory crop rotation. The final outcome is a strong reduction in agrarian costs (mostly because of the null mechanization) and higher environmental benefits, starting from soil enrichment and emissions reduction.

Organic and conservative agriculture fits with the multifunctional role of the farmer, i.e. the set of complementary functions he could play in addition to the main role of food producer. Many of those functions deal with the production and the conservation of public goods, such as environmental protection (the so called eco-systemic services), landscape, social services (rural nursery, rural social hub, job placement for disadvantaged workers). Other functions have a stronger economic connotation, such as agri-tourism (52.500 in Italy, with 711.000 beds and educational farms (more than 1.000 in Italy).

### ***Sustainable agriculture in France***

France launched its agroecology project in response to these issues in 2012. This is an ambitious, inspirational project that aims to shift agriculture towards the objective of combining economic, environmental and social performance. It has given rise to a wide-ranging action plan, broken down into a variety of projects covering all areas (teaching, support for farmers, reorientation of public support, public and private research, etc.). The project is a joint development between the French Ministry of Agriculture and all key players in the sector.

Certain regulations exist both in France and the EU which limit market access for specific U.S. agricultural exports. EU-28 GAIN Report E17080 should be consulted regarding regulations for restrictions relative to hormone-treated beef, poultry treated with anti-microbial treatments, genetically modified products, in addition to other restricted products. The ongoing harmonization of EU import regulations, as well as the implementation of the World Trade Organization (WTO) agreements, may result in the elimination of French regulations inconsistent with the WTO, as well as in the conversion of quotas, variable levies, and restrictive licensing to tariffs that are to be reduced over time. Additional products that are subject to restrictive regulations include the following: enriched flour, animal genetics, exotic meats such as alligator and buffalo, crayfish, pet food, in addition to certain fruits and vegetables. These products are subject to EU quality norms and must be inspected at the point of entry.

As France is a member of the European Union, its laws and regulations regarding genetically modified organisms are strongly affected by EU-level rules. As is the case for other members of the EU, France’s national legislation is subordinate to EU regulation regarding consumer and environmental protection. However, as these are issues of shared competence between the EU and Member States, the French government has some latitude to enact and implement its own laws and regulations, as long as these are consistent with EU-level regulations. Furthermore, the European authority in charge of approving GMOs may seek advice from national food safety agencies. In the case of France, the food safety agency is the Agence nationale de sécurité sanitaire, de l’alimentation, de l’environnement et du travail (National Agency on Sanitary, Food, Environmental, and Workplace Safety).

The Common Agricultural Policy (CAP) has a multitude of facets and is in constant evolution. Successive reforms have effected many changes to the incentives that the French and European Union (EU) rural sectors face and how the French, EU and global economies react to it. Since its inception, the CAP has evolved from a commodity-focussed program with very specific objectives, among which ensuring food

security and supporting farm incomes in Europe, into a system of support mechanisms with very diverse objectives.

The French authorities have decided to make use of many of the options that were included in the 2013 CAP reform. France has chosen to apply a different model for the Basic Payment Scheme (that replaced the former Single Payment Scheme) in Mainland, France (where the differences in amounts of Direct Payment per hectare, previously based on historical production, are gradually reduced by 2020) from the one applied in Corsica (a flat-rate payment per hectare, as of 2015). Furthermore, France applies the redistributive payment (a boost for small to medium-sized farms by providing an additional support for the first 52 hectares) and "voluntary coupled support" in 11 sectors taking (beef & veal, cereals, fruit & vegetables, hemp, hops, milk & milk products, protein crops, cereals, seeds, sheep meat & goat meat, starch potatoes and rice). Other changes introduced in the 2013 CAP reform include new rules on eligibility to direct payments (the active farmer requirements) and a specific payment for young farmers; in that respect, France decided to allocate a payment corresponding to 25% of the national average payment per hectare and to pay it for the first 34 hectares to young farmers, provided that they fulfil specific eligibility criteria. Other changes introduced in the 2013 CAP reform include stricter rules on active farmers eligible for Direct Payments and a new 25% aid supplement for young farmers for the first 5 years, in addition to already existing installation grants.

### ***Sustainable agriculture in Croatia***

Ecological production is a comprehensive management system for agricultural enterprises and food production that includes the best environmental and climate practices, high biodiversity, conservation of natural resources, high standards for animal welfare and production standards. All of the above should be connected with increasing demand for products produced with the implementation of natural substances and processes. Maintaining high standards in the field of health, environment and animal welfare in the production of ecological products is connected with the high quality of these products. There is also a significant growth trend in Croatia: during the year of 2016 there were 3,546 eco-producers with an area of 93,814 ha, which represent 6.07% of the total agricultural area.

## CHAPTER 2: REFERENCE LAW

### Principles and European legislation

The regulation of the production of organic food is very important for providing a control. EU-wide regulations cover the organic farming supply chain – from production, to control, and labelling. From plants and plant products, regulation of seeds database, livestock, processed products, seaweed and aquaculture, organic wine.

In 2007 the European Council of Agricultural Ministers agreed on a new Council Regulation (Council Regulation (EC) No. 834/2007) setting out the principles, aims and overarching rules of organic production and defining how organic products were to be labelled.

The regulation set a new course for developing organic farming further, with the following aims:

- sustainable cultivation systems
- a variety of high-quality products.
- greater emphasis on environmental protection
- more attention to biodiversity
- higher standards of animal protection
- consumer confidence
- protecting consumer interests.

Organic production respects natural systems and cycles. Biological and mechanical production processes and land-related production should be used to achieve sustainability, without having recourse to genetically modified organisms (GMOs).

Exceptionally, however, synthetic resources and inputs may be permissible if there are no suitable alternatives. Such products, which must be scrutinised by the Commission and EU countries before authorisation, are listed in the annexes to the implementing regulation (Commission Regulation (EC) No. 889/2008).

### *Labelling organic foods*

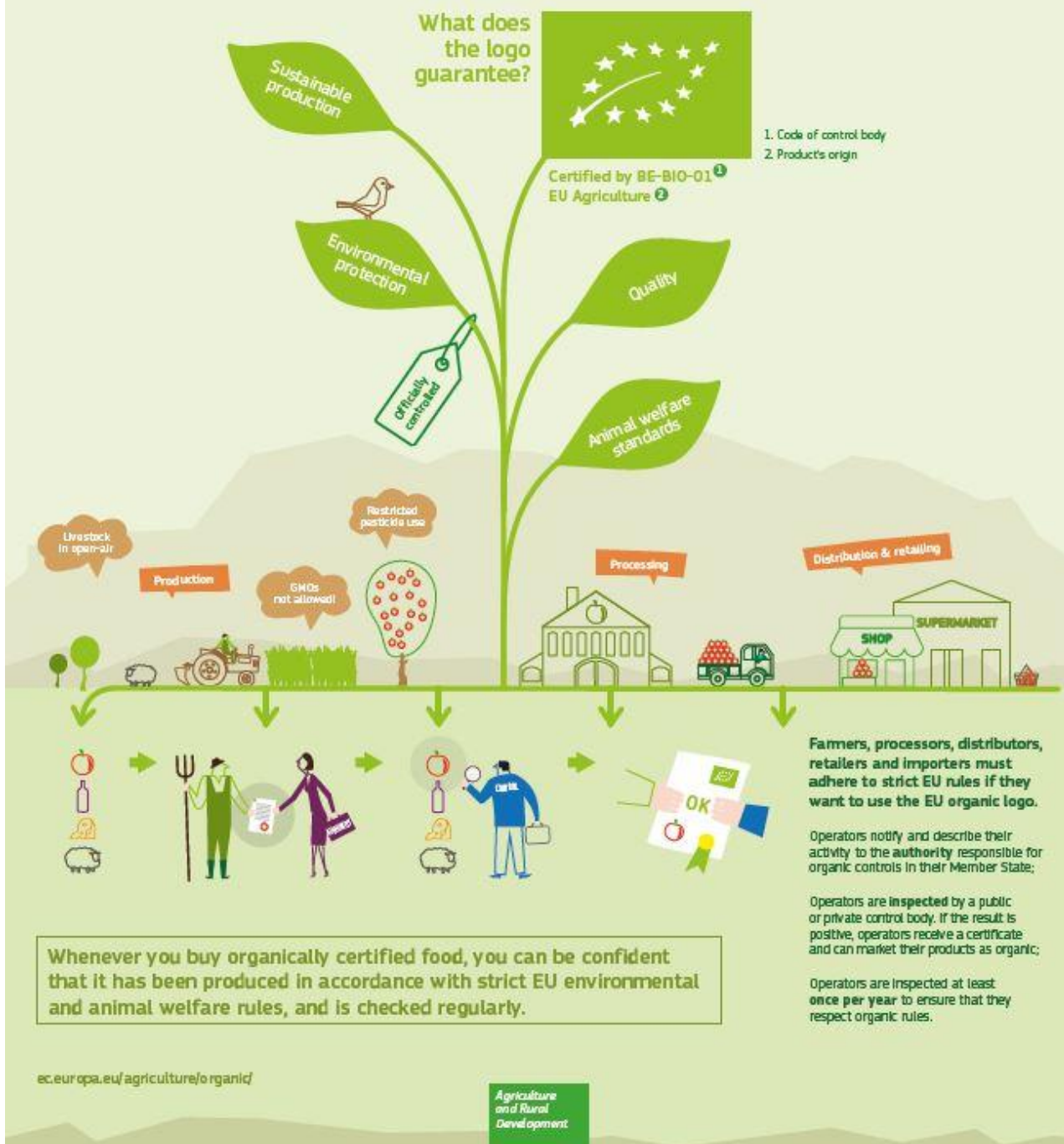
Foods may be labelled "organic" only if at least 95% of their agricultural ingredients meet the necessary standards. In non-organic foods, any ingredients which meet organic standards can be listed as organic. To ensure credibility, the code number of the certifying organisation must be provided.

Organic production outlaws the use of genetically modified organisms and derived products. However, the regulation on genetically modified food and feed lays down a threshold (0.9%) under which a product's GMO content does not have to be indicated. Products with GMO content below this threshold can be labelled organic.



# THE ORGANIC LOGO OF THE EU

Organic farming is a way of producing food that seeks to respect the environment. It applies to all kinds of products e.g fruit, vegetables, meat, milk, wine, cheese, eggs, grains, coffee, chocolate, fish & seafood.



Since 1 July 2010, producers of packaged organic food have been required under EU law to use the EU organic logo. However, this is not a binding requirement for organic foods from non-EU countries. Where the EU organic logo is used, the place where any farmed ingredients were produced must be indicated.

### *Importing organic products*

Organic products from non-EU countries can be distributed on the EU market only if produced and inspected under conditions that are identical or equivalent to those applying to EU organic producers. The rules introduced by the 2007 regulation are more flexible than the previous set-up, under which organic goods could be imported from outside the EU only if they were EU-certified, their production was monitored by the EU countries and an import licence had been issued.

The import licence procedure has been replaced by new import rules. Control bodies (Certifying organisations) operating in non-EU countries are now directly authorised and monitored by the European Commission and EU countries.

This allows the EU Commission to supervise and monitor the import of organic products and the checks carried out on organic guarantees. The new legislation also lays the foundation for EU rules on organic produce including wine, aquaculture products and seaweed.

In addition to the Council Regulation, two Commission Regulations were adopted in 2008 regulating organic production, the import and distribution of organic products as well as their labelling.  
Council Regulation

Council Regulation (EC) No. 834/2007 of 28 June 2007 on organic production and labelling of organic products and repealing Regulation (EEC) No. 2092/91

This regulation establishes the legal framework for all levels of production, distribution, control and labelling of organic products which may be offered and traded in the EU. It determines the continued development of organic production through the provision of clearly defined goals and principles. General production, control and labelling guidelines were established by the Council Regulation and can therefore only be changed by the European Council of Agricultural Ministers.

The new labelling rules in connection with the obligatory use of the EU organic logo have applied since 1 July 2010 with a transitional period until 1 July 2012.

### *Area of applicability*

The Council Regulation applies to living or unprocessed products, processed foods, animal feed, seeds and propagating material, including aquaculture and yeast.

### *Commission Regulations*

The following Commission Regulations have been adopted thus far:

- Commission Regulation (EC) No. 889/2008 of 5 September 2008 with detailed rules on production, labelling and control
- Commission Regulation (EC) No. 1235/2008 of 8 December 2008 with detailed rules concerning import of organic products from third countries

In Commission Regulation (EC) No. 889/2008 all levels of plant and animal production are regulated, from the cultivation of land and keeping of animals to the processing and distribution of organic foods and their control. They go into great technical detail and cover products such as yeast, wine, mushrooms and products from aquaculture.

Multiple Annexes are attached to the Commission Regulation. Within these one can find the following:

- Products permitted in organic farming, such as fertilisers, soil conditioners and pesticides
- Minimum requirements on the size of housing and exercise areas for organic livestock.

- Non-organic animal feed, feed additives and processing aids for the production of compound feed and premixtures permitted in organic farming.
- Non-organic ingredients, additives and processing aids permitted in organic food production.
- Products for cleaning and disinfection
- Requirements on the Community logo.

### *Import regulations*

The usual bilateral recognition of third countries by the Commission in cooperation with the Member States is maintained. In doing so, the Commission, with the support of the Member States, supervises the production and control of organic products which must be aligned with the goals and principles of organic legislation, but maybe are not produced in exactly the same way. A list of recognised third countries can be found in Annex III of the Import Regulation.

The import regulations ensure that organic products can be imported also from third countries which have not yet attained bilateral recognition.

Products that are produced and controlled in precisely the same manner as in the EU may have free access to the common market. Control bodies that intend to undertake such controls must apply to the EU Commission and be authorised by the Commission and the Member States for this purpose. Their supervision is directly incumbent on the Commission in cooperation with the Member States.

However, since production conditions in third countries are sometimes different from those in Europe, it may not be possible to apply exactly the same rules for production or controls. Therefore it is possible also to allow similar rules that conform to the goals and principles of the organic legislation.

Currently control bodies approved for this purpose carry out this inspection in situ. These control bodies must also be directly approved for this purpose by the EU Commission and the Member States and remain under their direct supervision. Guidelines have been published that explain how control bodies can apply to get approved, how they should be supervised and which other measures are necessary in relation to imports of organic products and their control.

The import regulations facilitate organic imports into the EU on the whole whilst at the same time promoting better monitoring, thus counteracting deception and fraud.





# ORGANIC E-CERTIFICATION FOR IMPORTS INTO THE EU



**ORGANIC PRODUCTS**  
are imported into the EU from  
more than **140** countries



**NEW**   
**e-certification**  
leading to



**1** better  
**TRACEABILITY**

**2** better  
**CONTROL**

**3** and simpler  
**ADMINISTRATIVE**  
process 

Agriculture  
and Rural  
Development

The EU is working on an update of existing rules on organic production and labelling in response to major changes that have transformed the sector. Proposed alterations include:

- Stricter controls: all operators throughout the food supply chain (farmers, breeders, processors, traders, importers) are checked at least once a year
- Fairer competition: producers from non-EU countries who want to sell their products in the EU need to comply with the same rules as producers in the EU.
- Prevention of contamination with pesticides: farmers must take precautionary measures to avoid accidental contamination with non-authorized pesticides or fertilisers. A product loses its organic status if the contamination is due to fraud or negligent behaviour. EU countries that have thresholds for non-authorized substances in organic food can continue applying them, but they must allow other organic foods from other EU countries in their markets. The European Commission will assess the anti-contamination rules in 2025.
- Better supply of organic seeds and animals: a computer database on the availability of organic seeds and animals is set up in every EU country.
- Mixed farms: farmers are allowed to produce conventional products in addition to organic ones, but need to clearly separate their farming activities.
- Certification procedures for small farmers are made easier.
- New products such as salt, cork and essential oils are included. Others can be added later on.

## CHAPTER 3: POLICY INSTRUMENTS

In 2004 the first European Action Plan for Organic Food and Farming urged EU countries to take measures in support of organic farming.

The Commission ordered a study of these measures. Entitled 'Use and efficiency of public support measures addressing organic farming', it was carried out in 2011 by the Johann Heinrich von Thünen Institute. It listed and categorised support measures in all EU countries, and explored the relationship between policy measures, policy strategies and the development of organic farming, based on case studies in 6 countries.

All types of support were examined:

- measures in national or regional Rural Development (RD) programmes
- direct payments under the first pillar of the Common Agricultural Policy (CAP), aid to Producer Organisations for fruit and vegetables
- national support schemes, including, where relevant, schemes at regional level

One key conclusion was that the role of government in promoting organic farming is a very complex one. The effectiveness of single policy measures, such as area-based support schemes, depends not only on the scope and nature of the assistance but also on the size of the sector and/or the stage of development it has reached. Single policy measures for organic farming are highly interdependent. This is why policy packages are more effective, provided they fit into a broader policy picture, target strategic goals and directly cater to the sector's needs.

The study offers useful insights which should be helpful to EU countries and regions in designing their next Rural Development Programmes (2014 – 2020).

### Common agricultural policy

The common agricultural policy is about our food, the environment and the countryside. Is one of the EU's oldest policies, supporting farmers and ensuring Europe's food security.

Launched in 1962, the EU's common agricultural policy (CAP) is a partnership between agriculture and society, and between Europe and its farmers. It aims:

- to support farmers and improve agricultural productivity, so that consumers have a stable supply of affordable food
- to ensure that EU farmers can make a reasonable living
- to help tackling climate change and the sustainable management of natural resources
- to maintain rural areas and landscapes across the EU
- to keep the rural economy alive promoting jobs in farming, agro-foods industries and associated sectors

The CAP is a common policy for all the countries of the European Union. It is managed and funded at European level from the resources of the EU's budget.

The CAP sets the conditions that will allow farmers to fulfil their multiple functions in society — the first of which is to produce food. There are around 11 million farms in the EU and 22 million people work regularly in the sector. They provide an impressive variety of abundant, affordable, safe and good quality products.

Farming is also about rural communities, the people who live in them and their lifestyle. Many jobs in the countryside are linked to farming. The farming and food sectors together provide nearly 44 million jobs in the EU.

To operate efficiently and remain modern and productive, farmers, upstream and downstream sectors need ready access to the latest information on agricultural issues, farming methods and market developments.

During the period 2014-20, the CAP is expected to provide high-speed technologies, improved internet services and infrastructure to 18 million rural citizens, the equivalent of 6.4 % of the EU's rural population.

Farming is unlike any other business. Despite the importance of food production, farmers' income is significantly lower compared to non-agricultural income (by around 40 %). Agriculture depends more on the weather and the climate than many other sectors. Besides there is an inevitable time gap between consumer demand and farmers being able to supply: growing more wheat or producing more milk inevitably takes time.

While being cost-effective, farmers should work in a sustainable and environmentally friendly manner, and maintain our soils and biodiversity.

Business uncertainties and environmental impact of farming justify the important role that the public sector plays for our farmers. The CAP takes action with:

- Income support. Direct payments ensure income stability, and remunerate farmers for environmentally friendly farming and delivering public goods not normally paid for by the markets, such as taking care of the countryside
- Market measures. The EU can take measures to deal with difficult market situations such as a sudden drop in demand due to a health scare, or a fall in prices as a result of a temporary oversupply on the market
- Rural development measures. National and regional programmes address the specific needs and challenges facing rural areas.

The European Union supports farmers with 38% of its budget, but it constitutes only 1% of all public expenditure in the EU, less than 30 cents a day for each EU citizen.

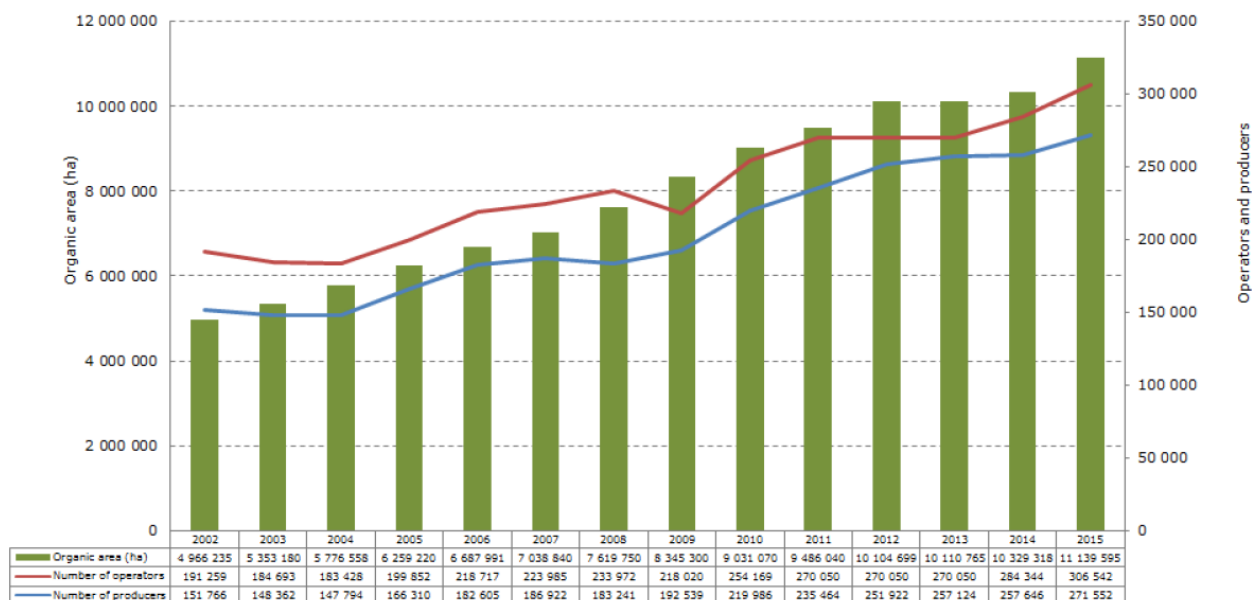
The CAP is financed through the:

- European Agricultural Guarantee Fund (EAGF): direct support and market measures
- European Agricultural Fund for Rural Development (EAFRD): rural development

National paying agencies, set up by each European Union country, manage the payments to beneficiaries. EU countries are obliged to publish the beneficiaries, set out by EU rules on transparency.

## CHAPTER 4: THE JOB MARKET

The organic industry is booming, and plenty of jobs are available. However, some fields are hotter than others, with more openings. Also, pay scales differ quite a lot across the industry.



The organic sector in the EU has been rapidly developing during the past years.

According to Eurostat data, the EU-27 had in 2011 a total area of 9.6 million hectares cultivated as organic, up from 5.7 million in 2002. During the last decade, organic area in the EU improved by about 500 000 hectares per year. This is a big increase, but the whole organic area represents only 5.4% of total utilised agricultural area in Europe. The organic area is cultivated by more than 186 000 farms across Europe.

Around 306 500 organic operators (producers, processors and importers) were registered in the EU-28 in 2015.

More than 270 000 organic operators (producers, processors and importers) were registered in the EU-27 in 2011. A major part of these operators (about 235 000) was represented by agricultural producers, who may also process and/or import organic products, and which were mostly active in the EU-15.

Organic farms are active both in the arable crop and orchard as well as animal sectors. .

Europe's agri-food industry provides 46 million jobs in 15 million businesses, accounting for 6% of the EU's GDP. In 2015, around 10 million people were directly employed in the EU agricultural sector, representing 5 % of Europe's workforce. In most member states, agriculture is still dominated by family farms, where the bulk of the work is carried out by members of their family. At the same time, the farming population in the EU is rapidly getting older. Recent figures show that only 6% of the total farm managers in Europe were under 35 years of age. Agriculture as a source of employment is declining in Europe. Between 2000 and 2015, around 5 million full time jobs in the sector disappeared

## CHAPTER 5: PROFESSIONALS

### Eco-farmer

#### Activity description

As organic farming is soil related, you need to acquire or rent an agricultural land in order to become an organic farmer. Organic production requires commitment and knowledge, therefore it is recommended to have some training for this type of agriculture.

Organic farming is an overall system to manage a farm and produce food, while ensuring the following: best environmental practices, high level of biodiversity, the preservation of natural resources, high animal welfare standards. These are the main principles that have to be translated into concrete production methods such as multi-annual crop rotations, the use of livestock manure as a fertiliser and growing only what the farm can naturally yield. It is also essential to encourage natural resistance to pests and diseases in both crops and livestock. It is encouraged to have suitable habitats for the benefit of the animals to help control pests in a natural way. It is also important to provide access to quality feed and free-range pasture to maintain the health of the animals.

Before starting the organic activity the competent agricultural authority in the Member State can provide information which support measures are available and give advice in general.

It is also important to contact a control body of organic farming in the respective Member State. They can provide more detailed information for the particular segment of organic farming you are planning to engage in. The control bodies are entitled to run control on each organic farm and investigate whether the production is according to the standards. Organic farmers are controlled once a year to make sure that the rules are respected and if they are, the products may bear the organic logo of the European Union. There are two years of conversion period in organic farming before a product can be marketed as organic.

#### Competences

The competencies needed to be an organic farmer are:

- Healthy body
- Organizational skills
- Management skills
- Organic integrity
- People Skills
- Long Life Learner

#### Reference job market and economical treatment

Average Organic Farmer Yearly Salary. An Organic Farmer earn an average yearly salary from 10,000 € up to 25.000€.

#### Course of study

The training in the field of organic farming is more related to practical works and learning by doing. Studies like vocational studies in agriculture, fishing and feeding, vocational studies in livestock and animal assistance or in winemaking are really useful and focused on the labour market. Some degree students in agricultural engineering finally end up riding their own farm.

#### Networks

The main network for organic farmers is the Intercontinental network of organic farmers organisation (INOFO)

## Summary

A farmer is a person engaged in agriculture, raising living organisms for food or raw materials. The skills needed for this work are acquired with the practice and performance of the work, since it is a very practical job

## To know more

<https://www.ifoam.bio/en>

## **Marketer and food distributor**

### Activity description

Every company selling food needs marketers who possess the ability to make their food seem appealing. Food marketers research consumer desires and influence companies to make products and advertisements to suit those desires.

### Competences

Food marketers ideally have training at all levels of food marketing. Practical experience may range from farm work to the retail food inventory, but it should be accompanied by knowledge acquired through undergraduate and graduate marketing studies at a university.

### Reference job market and economical treatment

In 2010, a drop in average salary occurred, signifying that the food marketing industry has taken a slight hit. In spite of the salary decrease, food manufacturers are still in need of skilled marketers to effectively determine consumer trends. As of 2010, the average salary for food marketers is approximately 45,000€.

### Course of study

Vocational studies in commercial activities. Degree on marketing.

## Summary

Food distribution is on the increase. Food manufacturers are still in need of skilled marketers to effectively determine consumer trends. Every company selling food needs marketers who possess the ability to sell their food.

## **Organic Agricultural or Food Scientist**

### Activity description

Food scientists apply scientific expertise and technological principles to the study of food products and processes within manufacturing and research settings.

The jobs directly related to food science degree include:

- Food technologist.
- Nutritional therapist.
- Product/process development scientist.
- Quality manager.
- Regulatory affairs officer.
- Scientific laboratory technician.
- Technical brewer.

## Competences

Key skills for food scientists are:

- Knowledge of a range of sciences and their applications to food
- Good business, IT, analytical and numerical abilities
- Being a confident independent worker
- Meticulous attention to detail, particularly with regard to health, safety and hygiene
- Good communication skills
- Strong teamworking skills

## Reference job market and economical treatment

A Food Scientist earns an average salary of 50,000€ per year. Most people with this job move on to other positions after 10 years in this career.

## Course of study

Food science degree

## Networks

The European Federation of Food Science and Technology

## Summary

A food scientist studies the deterioration and processing of foods by using microbiology, engineering, and chemistry. They determine nutrient levels of food by analyzing it's content. They look for new nutritional food sources and investigate avenues for making processed foods taste good, safe and healthy. They also find the best way to distribute, process, preserve, and package the food.

## To know more

<https://www.fffost.org/default.aspx>



## CHAPTER 6: CASE STUDIES

### Mobile Farmers Market, healthy options on the way

With the goal of improving health and ensuring good nutrition in under-served areas identified as food deserts, Mobile Farmers Market provides access to produce year round. Food deserts are those areas defined as lacking in reliable access to sufficient, affordable, nutritious food.

The Mobile Market, a 23-foot bus brimming with fresh produce, will sell fruits and vegetables at significantly reduced prices in communities.

Mobile Farmers Market is a new way to get farm fresh food on the move, and out to the communities that want and need it. They created an innovative program on wheels to help make locally-grown food farms available to people who live and work in neighbourhoods where access to healthy, fresh food can be a challenge.

The Mobile Farmers Market carries a wide selection of seasonal vegetables along with local fruits, milk, meat and eggs. Mobile Farmers Market is designed to make it as convenient and affordable as possible to purchase delicious, local food.



### The Union Street Urban Orchard

Temporary community garden demonstrating the value and potential of empty development sites within the neighbourhood.

The site of 100 Union Street in SE1 was transformed into an urban orchard and community garden during the summer of 2010 for London's Festival of Architecture.

Designed by Heather Ring of the Wayward Plant Registry for The Architecture Foundation and built with the help of Bankside Open Spaces Trust and an array of other helpful volunteers the garden regenerated a disused site in Bankside and create a place for exchange between local residents and visitors to the Festival. The Urban Orchard was also home to the LivingARK, a zero-carbon pod which was inhabited during the period of the project to showcase sustainable ways of living. The site also hosted The Nest, a pavilion created by the Finnish Institute, the Identikit by Thomas Kendal and Tamsin Hanke and a skip turned table tennis table created by Oliver Bishop-Young.



During the summer months a range of events and activities took place - from volunteering opportunities through to pop up cafes and book clubs! In September 2010 the garden was dismantled with all the trees given to local estates and other community gardens as a lasting legacy of the 2010 London Festival of Architecture.

## CHAPTER 7: LABORATORIES

### Laboratory: Eco-orchard at school

#### The idea

The main aim of this activity is to create an eco-orchard with the students, learning through the process of design, building and managing, using innovative methodologies that will help them to improve their skills, and let them have a more holistic education.

#### Learning objectives

Far from being the very construction of a school orchard the principal objective - which will help generate future own activities within the school and improve the holistic education of the center - it will be the process itself, where the students will be the centre of the activity.

Through design thinking and critical thinking processes, the creation of a design project for spaces will be guided, learning to manage complex processes, teamwork, managing time, encouraging curiosity and self-learning, equipping students with tools to improve their communication and networking, in addition to many other high quality skills and competencies that they will acquire while developing the project.

#### Who is the target

High-schools are the best target of the project

#### Work tracks and realization

At the beginning students start the activity getting into the topic through brainstorming, dividing the group in smaller groups to let them talk about the concept of orchard, and defining how does an orchard works, which elements compose the orchard, which activities are carried out in the orchard.

In the second phase students will work in the design phase through design thinking, in which participants will be guided in the different phases of the design thinking workshop: empathize, define, idea, prototype, test. In this workshop, the students will understand the different characteristics of the design, and will let them build the orchard.

In this workshop participants will build the orchard with recycled materials. In the designing phase, facilitators will introduce the request about the origin of the materials, and a reflection about the use and building with recycled materials should take place when designing.

Once the building process finishes, it's time to plan the work on the orchard, asking participants to think about the ground rules of the orchard, to settle them in common.

## CHAPTER 8. BIBLIOGRAPHY AND SITOGRAPHY

'Facts and figures on organic agriculture in the European Union.' Agriculture and rural development. European commission.

*Eurostat FSS Data*

### Web sites

[https://ec.europa.eu/agriculture/organic/index\\_en](https://ec.europa.eu/agriculture/organic/index_en)

<https://www.ifoam-eu.org/en/what-we-do/organic-europe>

<https://www.statista.com/topics/3446/organic-food-market-in-europe/>

<http://whatsorganicmovie.com/>

### Movies

T. Mehlretter, *Organic food: hype or hope?*,

E. Robert Kenner, *Food, Inc.*

M. Ferguson, *Seeds of Death*

Global Science Productions, *Genetically Modified Food: Panacea or Poison*

D. Despommier, *The Rise of Vertical Farming*

K. Pastor, *In Organic We Trust*

J. Colquhoun, C. Ledesma, *Food matters.*