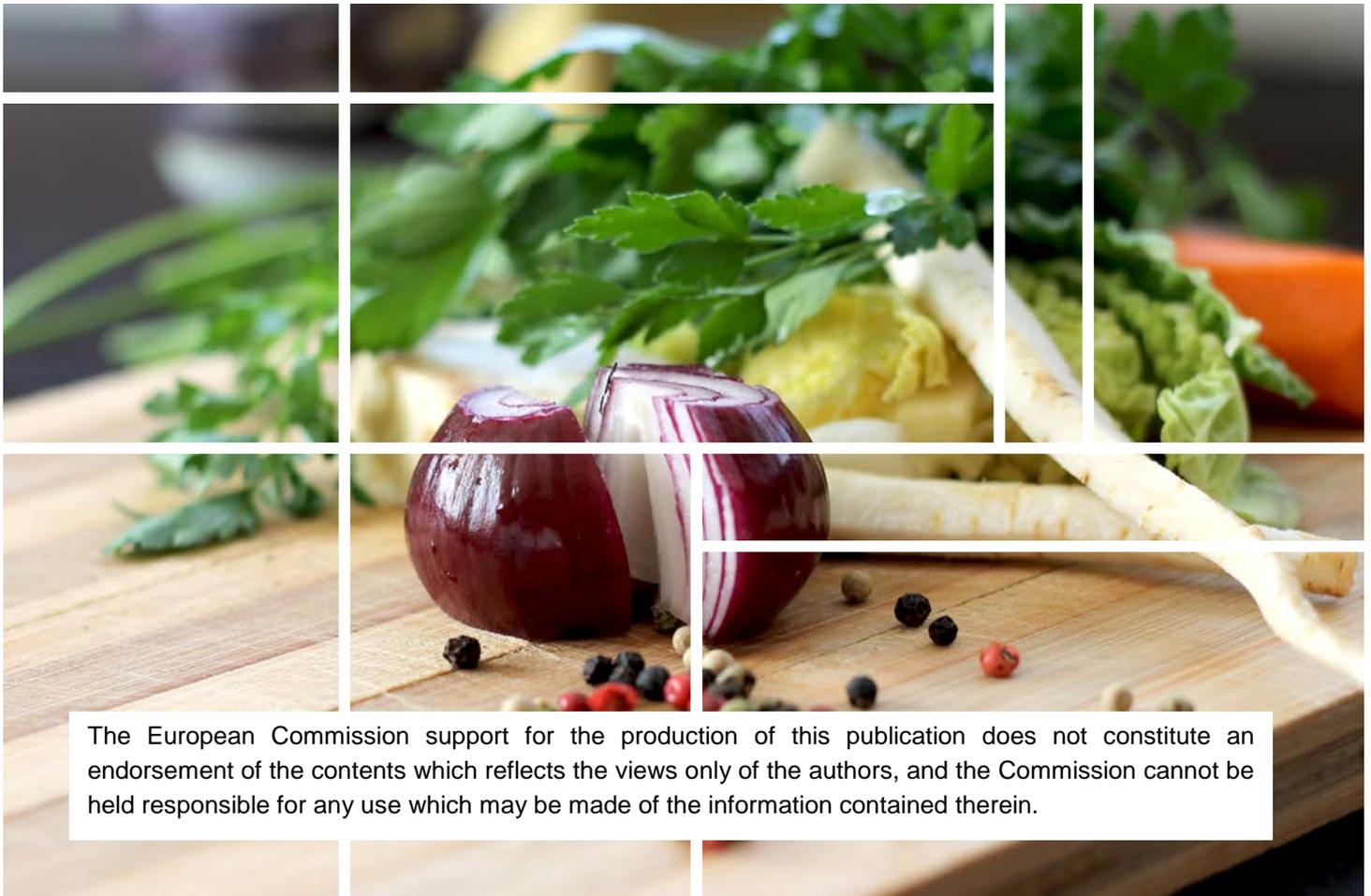




PROJEKT REKUK

Vocation Training for Chefs and Executive Chefs of Large-Scale Kitchens in Sustainable Food and Kitchen Management

Foods Use Script



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1 Glossary

1.1 General Glossary

Chef: professional cook who often manages the kitchen, e.g. in restaurants, large-scale kitchens, hotels.

Communal catering/public catering: Large-scale catering facilities in the public sector. These include patient catering in hospitals and elderly residences, catering in educational institutions and businesses. In contrast to gastronomy the focus here is to provide well-balanced meals and maintaining cost efficiency, providing qualitative meals outside the home.

Executive Chef: Chef who has an overall responsibility for the kitchen: purchase, staff, menu, sometimes manager of several kitchens / restaurants. Sometimes referred to as kitchen manager.

Large-scale kitchen: Large-scale kitchen is a term for a kitchen that is used for commercial purposes and in which meals for numerous consumers get cooked, namely gastronomy and communal feeding (hospital, company canteen, nursing homes, halls of residence, student halls etc.).

Organic foods/produce: These products are produced within the scope of organic farming and has a certification marks which are regulated by law.

Regional food/ products: Regional food is food that is produced there where it is consumed. A common definition for regional or national products is that they are produced within a radius of 150 km around the processing commercial kitchen. In fact, what is considered regional varies by country. In Italy the regions are geographically defined and it is common to use those definitions when referring to regionality. In other countries a max. distance of 150 km is determined. This distance was chosen because if the distance is greater the return benefits of sourcing produce locally diminish. In Germany and Austria, the word "regional food" is not regulated by law.

Seasonal foods: Foods available only at a certain time of the year from outdoor production (meaning available from local sources), typical fruits and vegetables. Some produce is available year-round as fresh or stock goods like onions, potatoes and apples.

Stakeholder: Member of an interest group.

1.2. Module specific Glossary

Conventional agriculture: System of farming characterized by a higher intensity of farming and by the use of larger energy and material inputs to maximize the production

Organic farming: System based on sustainable development principles and the holistic world approach.

Integrated agriculture: Transitional system between conventional and organic farming. Agrochemical inputs are based on diagnosed methods of nutritional state of plants and immediate stock of nutrients in the soil.

Sustainable nutrition: give priority of organic, regional and seasonal foods, increase the quantity of freshly prepared meals and optimise the consumption of meat and meat products.

Organic foods is produced within the scope of organic farming and has certification marks.

Conventional foods : In all countries, the overwhelming majority of foods is conventional, they are produced in a conventional (intensive, classical) farming system

Food from alternative crops are those crops that extend the existing range; they can be both newly bred and old forgotten varieties. A common case may be buckwheat, millet, old varieties of apples etc.

2 Principles of Sustainable Use of Food

Slides 2-15, 41-48, 56-59 and 66-68

2.1 Excursion to the history of the grocery trade

Until the modern age, the international grocery trade includes only spices, tea, coffee and tropical fruit. Most of the basic food products were consumed at the place of production. Only bigger cities were importing agricultural products from rural areas within a region. The Industrial Revolution brought a large number of the population from country to more developed cities. Increasingly larger volumes of food were transported not only within the regions, and the international food trade was expanding. Scientific and technical progress helped to ensure food sovereignty in developed countries, and during the second half of the 20th century we reached overproduction of food and market saturation. Unfortunately, we failed to distribute food surpluses to the rest of the world that suffered from food deficiency. The dominance of agriculturally developed areas over the rest of the world forced the less developed countries to reorientate local market production to specialised export production. The importance of factors contributing to the globalization of agriculture had been gradually rising. Above all, it was the development of long-distance transport, which allowed the interconnection of markets and the growth of international trade. In the last twenty years, globalization of agriculture has been exacerbated by changes in the geopolitical structure. There is a distinct deregulation of national agricultural systems and greater openness of the world market, which increases the dominance of multinational corporations. They are involved in food production around the world, and a major part of world agricultural production is subordinated to the needs of a relatively small group of these large companies. Global food producers focus on a unified product range and then flood the world market with such products. Agriculture is getting under the control of large-scale production. The food production is gradually gaining an industrial character. Cheaper products are preferred and quantity and low prices are often prior to quality.

Due to globalization, technological innovations in product processing, transport or storage a perennial supply of fresh food has been enabled. For example, a sale of exotic fruits has been rising, often due to sophisticated marketing strategy of the supermarkets informing consumers about the possibilities of preparation and consumption of those products. Consumption of processed food, food prepared by industrial technology, canned, frozen, half-finished food or ready meals is rising in developed countries. The amount of meat consumed has been and still is often the benchmark of living standards. Intensive meat production is a source of environmental problems, and there are concerns what would be the consequences if this trend continues and spreads to developing countries. It is clear that such a system does not support sustainable forms of agriculture but extends industrial forms of agriculture, it supports large enterprises and producers operating at international level who are able to deliver relatively cheap products at the expense of the environment and thanks to the exploitation of labour in less developed countries. The current agricultural and food production systems are characterized by a contradiction between the globally growing food

sector of the supermarket chains and the need for sustainable production and the growing demand for healthy, local food.

2.2 Agricultural management systems

Predominantly, the farming systems have still been considered as production systems. **Conventional agriculture** is a system of farming characterized by a higher intensity of farming and by the use of larger energy and material inputs to maximize the production (a current economic effect). The typical conventional agro-ecosystems are characterized as very open, as systems based on technological processes substituting the natural biological ones, systems with high labour productivity but with lower biodiversity, flexibility, stability and sustainability on the other hand. There is a pressure on the conventional intensive agriculture. There are extreme forms such as crop monocultures without any link to livestock production, respectively manure supply, also greenhouse, hydroponic production, non-plant and land biomass production, specialized livestock without the link to plant production and others. Soil quality in conventional intensive agriculture is decreasing. Intensive soil cultivation affects the soil structure negatively and raises the risk of soil erosion. Because of the substitution of mineral fertilizers for organic manures, the content and quality of organic matter decreases and the microbial activity of the soil is disturbed. Within the effort to increase the labour productivity, there has been often used larger and heavier agricultural machinery, which leads to intensive soil compaction resulting in unbalanced soil air and water regime, limited root system development, soil biological activity and water absorption reduction and erosion risk increase. The external technical and material inputs markedly increase the energy demands and thus consumption of non-renewable resources together with higher atmospheric pollution. As the specialization develops, number of used species decreases, the preventive function of cropping patterns (pests and diseases reduction) degrades. Crop breeding for high yields brings higher demands for fertilizing and higher plant sensitivity to adverse environment conditions. There is also an increased need of synthetic nitrogen fertilizers. Residual content of nitrogen contributes to underground and surface waters pollution and nitrogen evaporation into the atmosphere. The accumulation of such active substances in the soil results in destruction of useful microorganisms, antagonists and other soil organisms, also leads to development of resistance to pesticides in harmful organisms, decrease of plant and animal species number, pollution of underground and surface waters and the atmosphere with a negative impact to the whole ecosystem. Similarly, the intensifying concentration and specialization of livestock production results in great local amounts of organic wastes, possibilities of their utilisation are not sufficient and the risk of soil and water pollution rises. In conventional systems, water is extracted from surface sources and chemicals used in agriculture pollute water resources and endanger the living organisms in them. Protective structures and areas are only used to increase production. Biodiversity, within the conventional farming, noticeably suffers not only due to crop range reduction leading to monocultures, but also thanks to reduction of associated fauna and flora thought as harmful and thus systematically eliminated or suffering from pesticides or other biocide substances at the same time. Concentrations of breeding companies and potentially

also the emerging of gene engineering products reduce the genetic diversity of crops and animals.

Recently, global climate change related to the greenhouse effect is a frequently discussed topic. Greenhouse gases (methane, carbon dioxide and nitrogen oxides) hold heat in the atmosphere, much like glass in the greenhouse. Primarily, energy production, industry and transport are their largest producers. In agriculture, methane is primarily produced when cattle digest and when fertilizers are stored and used. Tractors produce nitrogen oxides and carbon dioxide. Much more of these greenhouse gases, however, escape into the air during transport and processing and storage of production. After harvest, the more the agricultural products are mechanically or thermally treated, stored and treated again for a long time, transported from one place to another, the greater the energy consumption and the ecological burden.

Besides the bad effects on environment the development of the "industrial" agriculture has also adverse socio-economic impacts. Market structure is negatively affected by the structure of agriculture. The competitiveness of smaller farms is reduced and the number of farms is decreasing. Increasing profits for distributors and retailers mean a drop in profits for farmers at the same time. Food production is under the dictatorship of the world market. A globalised food market and its adverse impact on local agriculture, both in developed and developing countries, raise the need for change. A change that would bring a comprehensive solution for all three areas of interrelated problems: ecological, economic and social, with the aim of finding the optimal boundary between nature and man. In case of insufficient solution for ecological problems, the economic area will inevitably deteriorate and consequently the situation will also deteriorate in the social sphere. It comes in both directions, without a significant improvement in the social and economic sphere of the countryside there will be a depopulation of the countryside connected with a decline in production and the degradation of the cultural landscape as a whole. It is necessary to introduce the "Sustainable Management Systems" protecting the landscape and the basic natural resources, soil, water, air and biodiversity to a whole society. Sustainable agriculture must then introduce such plant cultivation and animal breeding practices that reduce the need for external inputs and thus protect nature. **Ecological farming** and **integrated production** are the established systems of sustainable production.

Slide 41

Consequences of conventional farming:

- Pollution of groundwater and drinking water with nitrates, phosphates and pesticides
- Damage to soil structure and soil fertility
- Erosion, salination and desertification
- High consumption of fossil fuels and energy
- Increased Emission of air pollutants
- CO₂ emissions 2.5 times higher than organic farming (1300 kg CO₂ / ha versus 503 kg CO₂ / ha)
- Reduced food quality
- Decreased animal welfare
- Price dumping

Slide 3

The basic principles of sustainable agriculture are:

- Lowering the harmful impacts and maintaining natural resources
- Reduction to elimination of chemical inputs
- Economical production of sufficient quantities (food safety), health-conscious (wholesome food) and nutritionally valuable food (food quality)
- Responsible approach to health, safety and social status of the workers
- Maintaining the viability of agricultural holdings and living conditions of farmers
- Respecting the cultural and social requirements of the population and society as a whole

The organic farming systems are based on sustainable development principles and the holistic world approach. It is a production system focused on preservation and improvement of natural resources and the environment at the same time. As for the system concept, there is an effort to balance the economic, environmental and social aspects and relations on global and local level. Agricultural activity itself is considered a process of reasonable ecosystem exploitation with respect to its stability and sustainability.

More detailed information about the ecological agriculture and bio organic food production can be found in the chapter four of this booklet or in the Handbook.

Integrated agriculture is a transitional system between conventional and organic farming. Agrochemical inputs are based on diagnosed methods of nutritional state of plants and immediate stock of nutrients in the soil. The application of pesticides is limited to cases where the threshold of individual harmful agents is exceeded. It prefers preventive measures (crop rotation, selection of crop varieties), biological control methods and the balance of all growing factors.

Respecting all forms of life should be a fundamental ethical principle. All life on earth is one large, internally interdependent system. Disruption of one part of the biosphere can affect the entire planet. Maintaining the vitality and diversity of the land requires a conservation of the extent and quality of natural resources (soil, water, air, living organisms), reduction of the depletion of non-renewable resources and ensuring the sustainable use of renewable resources.

2.3 Sustainable eating

Slides 4-5

The term “sustainable nutrition” is derived from the term “sustainable development”. One of the definitions of sustainable development is: “Sustainable development of society is such a development that preserves, for the present and future generations, the opportunity to meet their basic needs while not reducing the diversity of nature and preserving its natural functions”.

Simply put, it is about behaving in such a way that our children have the same or better living conditions than we do. For example, we cannot exhaust all the natural resources just to satisfy our generation and not think about what will come after us.

Communal catering facilities can move towards sustainability, if they:

- increase the use of organic, regional and seasonal foods;
- increase the quantity of freshly prepared meals at the expense of semi-finished products;
- reduce the consumption of meat and meat products.

“Your nourishment will be your cure”, Hippocrates stated 2500 years ago. Supporting the application of regional, seasonal and organic production will bring the use of fresh, higher quality and nutritionally richer raw materials and foods to communal catering. By stable consumption of regional raw materials and foods, regional self-sufficiency will also be strengthened; local farmers, farmers, food producers and suppliers will have the possibility to develop. This is the *“cure”* to maintain or increase the number of jobs, improve the quality of life of people, and strengthen their ties to their own region. By shorter distances of food transport and lower consumption of energy-demanding semi-finished products, emission pollution is reduced as well, and that is one of the *“cures”* for a better-quality environment. In such a case, we can talk about fulfilling the premises of a sustainable diet that will not jeopardize the ability of future generations to meet their needs. The use of organic, regional and seasonal foods and creating a healthy diet have these important positive aspects:

Slide 12

Benefits for the catering participants

- Good food = higher quality of life
- The interest in health is more likely satisfied
- A sense of responsibility is supported
- Increasing transparency about the origin of used products
- Increase in fresh production and own production compared to the use of semi-finished products
- Decrease in meals with meat content (on average, by 25 % more meat meals is consumed)
- Seasonal products = better taste

Benefits for the enterprise

- Higher attractiveness of the dishes
- Higher customer satisfaction
- Higher number of customers
- More efficient resource handling
- Possible direct contact with the manufacturer/producer

Slide 13

Benefits for regional suppliers

- Shorter transport
- There is no loss of quality due to intermediary storage
- Possible direct contact with consumers (= e.g. kitchen management)

- Value spending remains 100 % at the manufacturer

Slide 14

Social and environmental benefits

- The culture of food and tradition in the region is preserved and revitalized
- Maintaining and creation of labour force in the region
- Purchasing power and value spending remain in the region
- Regional identity is strengthened
- Generically natural animal breeding/quality product
- Lower CO₂ emissions based on shorter transport
- (without genetically manipulated feed, no antibiotics and other chemicals)

Slide 15

Buying foods has a crucial impact on whether or not the communal catering facility aims at sustainable development. In principle, the following products can be distinguished for further processing:

Regional x Imported food:

These products vary according to the transport distance between the consumer and the producer, with regional foods being products from local producers.

Seasonal x Non-seasonal food:

Non-seasonal foods are available throughout the year regardless of season, such as dried products, dairy products, meat, fish, bread, pastries. Seasonal Foods: Foods available only at a certain time of the year (meaning available from local sources), typical fruits and vegetables.

Foods from alternative crops:

Simply put, alternative crops are those crops that extend the existing range; they can be both newly bred and old forgotten varieties. A common case may be buckwheat, millet, old varieties of apples etc.

Organic x Conventional food:

In our country, the overwhelming majority of foods is conventional, they are produced in a conventional (intensive, classical) farming system; on the contrary, organic foods is produced within the scope of organic farming and has certification marks.



2.4 CO₂/Energetic Footprint

Slides 58-59

CO₂ is also known as carbon dioxide – a colorless and odorless gas composed of carbon and hydrogen. Plants absorb CO₂ and release oxygen. CO₂ contributes significantly to global warming. It results from nature by for example breathing of mammals or the degradation of animal and herbal organisms and is mostly caused by the provision of energy or the burning of fossil fuels (traffic, heat).

Three factors are most important to assess CO₂ emissions:

- The type of production (conventional or biological)
- The level of processing (convenience or fresh food)
- The transport (kilometers that have to be covered and the means of transport)

2.5 10 steps of sustainable produce shopping

Slides 66-68

1. List all produce
2. Sort by quantity [kg]
3. For those foods that are not listed in kg (pieces, crate, boxes) conversion factors have to be determined
4. Arrange similar produce in groups (for example fresh potatoes, fries,...)
5. Assign all produce to a product group
6. Determine:
 - a. Production: BIO, conventional,...
 - b. Rate of processing: fresh, convenience, frozen,...
 - c. Origin
7. Determine the seasonality and regionality of fruits and vegetables
8. Calculate CO₂ emissions
9. Setup monitoring to document changes annually
10. Identify the potential for improvement based on the results of the previous year (monitoring)

3 Regional Food

3.1 Importance of regional food

Slide 17

“Regional food” is a product that is produced in the appropriate region, is made mainly from domestic raw materials and shows unmistakable regional characteristics.

Local (regional) foods are being discussed more and more often. The attractiveness of local products lies in several basic facts.

Slide 18

First, it is important for consumers to buy foods with traceable local (domestic) **origin**. They want to have control over their consumption and the feeling that they can make themselves certain of the quality and the way the goods they buy are produced. Imported products are often of no clear origin and transported thousands of kilometers unnecessarily.

The second fact is the higher **quality** of local, seasonally offered fruit or vegetables. With the progress of the agricultural year, foods are harvested and sold in the best condition, ripe, full of taste. They do not have to ripen chemically treated in bulk. The quality is incomparably higher even for other products - dairy products, meat, meat products, eggs. Locally specific foods also offer a wider variety of flavours.

The third major motive for purchasing local foods is the **development of the region** and support of local farmers, processors and producers. In many consumer preference researches, this is a very powerful reason for purchase. Many customers have had too much of anonymous foods and begin to realize that their purchase can significantly affect the lives of local people. Foods, on the one hand, directly keep the human body alive, but they also affect our lives - food shapes the family ties and affects the lives of communities, economic and ecological systems.

Equally important is the environmental impact that food production has. The way of production, transport, storage - these are essential components of the mosaic of the ecological footprint of specific foods. The local product, if it is processed with respect to the environment, the countryside, the livestock, will burden less the environment. Even this fact is taken into account by consumers when selecting goods.

Determining regional food is not entirely clear-cut. For some people, regional food can be a food produced in a given district or region, in a wider context, regional foods can also be foods from national producers. Regional food also has its label that the local producers can place on their products.

3.2 Local (regional) food networks

These networks are the result of the common effort of building regionally self-sufficient food economy. The local food networks focus on sustainable food production, processing, distribution and consumption. Thus, they strengthen economy, ecology and health at a particular location and contribute to global sustainability. The local food networks include organizations that create, distribute and support locally produced products. The local food networks are an alternative business model for global corporation models, where producers and consumers are separated from each other by the chain of processors, manufacturers, transporters and retailers. As the food industry grows, the consumers are not always able to judge the quality of food. On the contrary, local food networks restore the direct relationship between producers and consumers, there is increase in the quality of the product characteristics, including not only freshness and shelf life, but also higher trust of consumers in the given products, because they know the place of production. Conscious choice of food does not have only environmental advantages, it also contributes to good feeling of the catering participants, and it also plays an equally important edifying role regarding the younger generation in school canteens and canteens in kindergartens.

When introducing news, including a sustainable diet, we encounter certain **problems and challenges**, especially:

- Higher investment in goods/new calculation
- Higher professional qualification of staff is required during implementation
- More time-demanding/higher personnel costs
- Possible delivery problems from regional producers (availability in the required quantity, applicability for communal catering facilities, degree of processing)
- New technological equipment

3.3 Examples of regional food support

Projects supporting local food and traditional regional products are running in a number of European countries. This trend together with a long-term focus on high quality and food safety brings significant economic effects, whether it concerns traditional production, maintaining and creating new jobs or financial flow into the regions. The support for regional products goes both from European programs, governmental programs, as well as from local authorities and citizens' initiatives. "Products with a Protected Geographical Indication" and "Traditional Speciality Guaranteed" are examples of European programs.

Slides 19-20

Regionální potravina (Regional Product)

Since 2010, the Ministry of Agriculture of the Czech Republic has been awarding "Regional Product" marking to the best quality agricultural or food products that win in regional competitions. The project focuses on supporting the producers of local food and on motivating the customers to search for them on the shelves of the shops, on the farmers' markets or directly at the producers. The Regional Product project is aimed at supporting

small and medium-sized farmers and food producers, while at the same time addressing consumers' growing interest in fresh regional food.

The “Regional Product” marking is given to local food producers and growers through regional competitions. An agricultural or food product trying to receive the Regional Product marking must be produced in the particular region. Awarded products are certified by the Minister of Agriculture and the producers have a right to use the "Regional Product" marking for a period of 4 years. Promotion of the marking is supported by a nationwide information campaign trying to increase the demand for these food products and to convince consumers that not only the price but also quality, freshness and origin are important. The campaign also focuses on activities that have a direct impact on promoting sales of regional foods and promoting them directly in the place of sale.

Picture 1 - “Regional Product” marking



Source: www.regionálnipotravina.cz

Slide 20: Map of Products and Map of Communal catering Facilities for South Bohemia Region

The "Map of Products" (www.produktova-mapa.cz) is an interactive map of regional suppliers and school canteens. It was created in 2012-2013 thanks to the initiative of the Regional Agrarian Chamber of the South Bohemian Region to support the consumption of regional products. The aim of the Map of Products is to create mutual links between producers and suppliers from the food and agricultural sectors as well as consumers of agricultural commodities and food products. The project helps to improve the sale of fresh and seasonal regional food and agricultural products in public communal catering facilities, especially in school canteens. The "Map of Products" offers a free registration for suppliers.

Pic.2 - Map of Products



Source: www.produktova-mapa.cz

The "Map of Products" allows the schools to find a supplier according to individual regions and food products. The result is a list of suppliers and a map view with marked suppliers' locations.

Pic.3 - Map of Products



Source: www.produktova-mapa.cz

Skutečně zdravá škola (Truly Healthy School) (www.skutečnězdravaskola.cz)

This is a parents' civic initiative, which has its professional guarantors and many supporters, parents are often educated in nutrition, there is a number of nutrition therapists among them. The requirements are based on foreign experience and functional systems (such as "Food for Life Partnership" in the United Kingdom) and are supported by scientific studies and knowledge. **Skutečně zdravá škola** is a complex program of healthy school communal catering. The program tries to help the children get an idea of where the food comes from and how it is grown or produced. Children learn to cook, grow vegetables in the school garden, visit local farmers to understand where the food comes from, they share their experiences with parents who often change their eating habits consequently. We work with chefs and other dining staff (education, appreciation of their work, increasing their

involvement in school life), which also helps to improve the meals in the school canteens. The program has a positive economic impact on local communities through efforts to increase the share of fresh, locally grown food in school canteens. It also contributes to reducing the environmental burden (schools involved in the “Food for Life” program have up to 47 % less effect on environment). Schools involved in the program are gradually increasing the share of food products which can be called sustainable (mostly products of local producers and breeders) and food of the organic quality. Although these steps can mean higher costs (by approximately 12 %), more importantly they increase the quality of served food.

3.4 Examples of the positive impact of using regional foods on the environment.

Communal catering facilities can save greenhouse gas emissions by using regional, seasonal and organic foods. Differences between emissions of organic and conventional foods, or of regional and international foods, may seem to be minimal at first sight, however, large number of used foods can save large amount of emissions.

Slides 21-27

- Proposals for CO₂ emission reduction regarding communal catering facilities:
- Increased use of vegetables, fruits and cereal products instead of meat
 - Meat causes up to 90 % of total amount of emissions in the food sector (for the groups of goods surveyed)
 - Especially beef takes a lot of energy. Reason: fermentation in the stomach
- Preparing fresh meals instead of semi-finished products, or replacing semi-finished products with other side dishes
 - The higher the degree of processing, the higher the amount of CO₂ emissions
 - French fries cause by up to 93 % more CO₂ emissions compared to fresh potatoes.
 - The decision of a communal catering facility to prepare fresh potato mash means decreasing emissions by up to 88 %

The support of communal catering facilities, while optimizing diets that account of local, seasonal, fresh and organic foods, will enhance regional economic structures, potential energy savings in communal catering facilities and offer healthier meals.

4 Seasonal and Fresh Foods and Their Use in Kitchen

4.1 Seasonal foods

Slides 28-30 and Slides 60-61

Just meeting established nutritional standards alone is not enough to meet the principles of healthy nutrition. One of the important criteria is to ensure the diversity of the diet and also the quality of the food used. Another way to influence the price of food while maintaining nutritional standards is to buy seasonal foods, especially fruits and vegetables.

Tab.1: Seasonal calender (CZ)

Month	1	2	3	4	5	6	7	8	9	10	11	12
Vegetable	www.vitalia.cz											
Asparagus					■	■						
Bean pods						■	■	■	■			
Beetroot	■	■	■		■	■	■	■	■	■	■	■
Bell pepper							■	■	■	■		
Broccoli						■	■	■	■	■	■	
Brussels sprout	■	■	■	■				■	■	■	■	■
Cabbage white and red	■	■	■				■	■	■	■	■	■
Carrot	■	■	■		■	■	■	■	■	■	■	■
Cauliflower						■	■	■	■	■		
Celery	■	■	■		■	■	■	■	■	■	■	■
Cucumbers						■	■	■	■			
Garlic	■	■	■	■	■	■	■	■	■	■	■	■
Hokkaido pumpkin	■	■	■					■	■	■	■	■
Chicory								■	■	■	■	■
Chinese cabbage	■	■	■						■	■	■	■
Kale	■	■	■			■	■	■	■	■	■	■
Kohlrabi	■	■	■		■	■	■	■	■	■	■	■
Leek	■	■	■	■	■		■	■	■	■	■	■
Onion				■	■	■	■	■	■	■	■	■
Parsnip								■	■	■	■	■
Pattypan squash								■	■	■	■	■
Pea						■	■	■	■			
Radish	■							■	■	■	■	■
Radishes				■	■	■	■	■	■			
Root parsley	■	■	■	■	■			■	■	■	■	■
Salad					■	■	■	■	■	■		
Spaghetti squash								■	■	■		
Tomatoes						■	■	■	■			
Zucchini						■	■	■	■	■	■	■

Their price changes regularly according to the seasons and thus their availability. The money saved for purchase can be used to enrich and improve the quality of (or to make cheaper) the diet

Seasonal foods are defined as fresh products (fruits and vegetables) that can ripen in a given climatic zone during the current season. Seasonal foods are therefore foods that ripen during a certain season in the natural conditions of the given region, i.e. without the use of greenhouses, chemical or other agents affecting the natural growth and ripening of plants. A diet with seasonal foods goes hand in hand with the use of regional products.

When creating a diet, it's good to think according to the season, to include fresh products that are currently available - with seasonal foods, the quality is increasing and the price is decreasing. It is advisable to think of meals that use as many fresh ingredients as possible, i.e. vegetables, fruits and other products. You can find out from local growers, which foods are currently in the season. Finding local traditional recipes that use seasonal foods helps build a relationship with the traditional local culinary culture.

Slide 31

Why buy seasonal foods?

- Vegetables and fruits, harvested when being optimally ripe, have the highest content of vitamins and specific plant substances.
- Only ripe products get the optimum taste; when harvested earlier, the aroma cannot fully develop.
- Seasonal products are grown in nature: compared to vegetables grown freely, greenhouse vegetables have a higher nitrate content.
- High energy consumption is required for growing in a heated greenhouse or a plastic greenhouse. High energy consumption causes high greenhouse gas emissions.
- Foods that are harvested and used at appropriate time save storage and conservation costs, and it is possible to save material, energy and chemicals for long-term maintaining of production

Research by the British Organic Farming Organization, The Soil Association, found out that pupils who ate meals prepared from fresh raw materials were more concentrated, less inclined to hyperactivity, and calmer and more attentive during lessons. They also had greater learning capacity and had better attendance at school.

4.2 Fresh products vs. semi-finished products and ready meals

Slide 32

Some canteens use quite a large volume of different instant mixes and semi-finished products that the food market offers in large quantities and which make it easier to prepare meals.

The use of half-finished products is beneficial especially in saving preparation time, labour and costs, it also expands the variety of dishes with the ones that are difficult to make in conventional kitchens, it supports chef's creativity, and also helps with more complex HACCP

situations. The higher price of the half-finished products can be discouraging, although in many cases the difference is relative. These are ready meals and half-finished products that are impossible to produce in ordinary conditions or it can be too time-consuming, so they would not get on the menu at all.

Half-finished products may have different levels of readiness, in accordance to individual preparation processes (planning, buying, storing, prep-work, finishing, serving, maintaining a temperature, expenses, waste). Demands for larger proportion of freshly prepared products are rising. Fusion cuisine has high requirements for hygiene and staff. In general, good quality food can be achieved with adequately trained staff. The law sets out the operational measures to achieve the safe quality of the HACCP concept. Critical points such as serving temperature, maintaining a temperature or cooling the meals require increased attention in terms of avoiding quality damage (temperature control for chilled and frozen goods when handling). Staff must be motivated to create health-conscious food and adhere appropriate quality.

The more fresh food is used, the more you have to pay attention to hygiene. Demands for input inspection, storage and preparation as well as the need for storage and working space are increased. Working processes are not manageable without professional help. If these factors are sufficiently provided, this system can be used without difficulty.

During production of food, an increasing amount of energy is consumed with corresponding negative environmental impact, including climate change. Increased use of semi-finished products in communal catering facilities brings apparent economic benefits (less labour, saving space in the kitchen). The impacts of the use of semi-finished products or ready, processed and long-term storage products on the environment outweigh the impacts of the use of fresh products with respect to the heating and cooling of foods, special packaging and transport costs.

Slide 32

Semi-finished products have the following disadvantages compared to freshly prepared meals:

- Available as regional products only very rarely, thus polluting the environment with emissions from long-distance transport, transport increases their market price
- Highly processed products usually contain other additives, for example dyes, preserving agents, thickeners or flavour enhancers
- Often too much salt and sugar
- Supporting communal catering facilities by optimizing diets, taking into account regional, seasonal, fresh and organic foods, will strengthen regional economic structures, the potential for energy savings in communal catering facilities, and will offer healthier nutrition to catering participants.

4.3 Product processing and food production

The principle of obtaining good-quality food is a friendly processing technology. Without it, previous efforts to grow environmentally good-quality and healthy food would be useless.

There are two concepts of product processing: traditional craftsmanship and modern large-scale technology. Large-scale processing allows large quantities of raw materials to be processed, but high production bears the risk of preference for quantity at the expense of quality.

In traditional processing, there is a greater need for manual work, but thanks to the constant contact of a person with the product and often thanks to many years of experience, the quality, the individuality of the processor, the product story, tradition and a number of other marketing-friendly aspects are valued. The processing and marketing system still has many weak points. It is necessary to support the association of smaller regional producers and processors and to invest in market research.

Slide 33

The principles of environmentally friendly product processing include:

- considerate handling of natural resources - water, air
- energy efficiency
- must not pollute the environment
- waste minimization - recycling
- maximizing engagement in cycles
- elimination of residues in food
- uses proven techniques
- social adequacy

An example of differences in processing technologies is the list of permitted and prohibited organic production processing practices. Most traditional practices can be classified as environmentally friendly to the processed product and the environment. The fact that some practices are prohibited in organic production does not mean that they are directly harmful but they are more likely to reduce some of the nutritional or health quality parameters in order to facilitate or reduce the technological process or to artificially improve the sensory properties (colour, flavour, taste, appearance, etc.) and thus also the marketability.

Slide 34

Authorized processing procedures according to the Decree to the Law on Organic Farming: Mechanical processing, heat treatment, smoking without the use of chemicals, pressing, filtration or clarification, cooling and freezing, homogenization, extrusion, fermentation, spreading, emulsification, steam and alcohol extraction, distillation.

Forbidden operations that are not natural procedures:

- Exchange of cations and anions, bleaching, pickling with the use of chemicals, hormones action, hydrogenation, smoking and the use of chemicals, irradiation, microwave heating.
- The importance of maintaining minimum processing to preserve the character of the processed food is one of the principles of organic food processing. Prohibited procedures for processing organic foods are ionic exchangers, bleaching, synthetic hormones action, irradiation, microwave heating, the use of dyes, aromas, and

sweeteners of synthetic origin. The efforts to avoid the possibility of contamination or confusion with conventional food.

- Organic products and organic foods must be stored and transported separately from other raw materials and foods, in such premises and under such conditions that allow their unequivocal identification and preservation of their quality.

5 Foods from alternative crops

5.1 Importance of alternative crops

Slide 35-39

Determining In modern agriculture, plant varieties are grown and cultivated primarily for high profit, technological quality and good storage life. These features bring the highest economic effect. Products are cheaper, well-processable and can be stored for a long time in a storehouse or on a shelf in a shop, which is widely made use of, for example, by global chain stores. Out of tens of thousands of edible plants, over 80 % of human nutrition is provided by five crops (wheat, corn, soy, rice and potatoes). Our diet becomes uniform and depleted. Thus, the market offers us thousands of not really cheap food supplements.

Local production foods more often retain its genetic diversity. Local farmers often offer a wide variety of plant species, often more colourful and tastier, sometimes these are so-called alternative crops. Many of these crops were grown earlier in our country, but due to lower profits and changes in dietary habits, their cultivation was stopped. Alternative crops are also referred to as minor crops because they are grown to a much lesser extent than traditional crops or special crops because most alternative crops have specific qualitative properties. They are part of rational nutrition, therapeutic diet, but they are also applied in pharmacy and cosmetics. Alternative crops do not reach high profits, but on the other hand, their cultivation is less demanding for inputs, such as fertilizers, and thus contribute to the protection of nature. The disadvantage of alternative crops is usually higher market price.

Since alternative crops are grown on smaller areas, they are sometimes referred to as low-volume or even minor crops. Many species common in some European countries and almost unknown in the rest can be included among them. A wide range of crops comes from continents other than Europe, but they have become a regular thing in our lands (crops such as potatoes from America, buckwheat from China), other crops are almost unknown to us (Yacón, Quinoa from South and Central America). Alternative crops also include traditional crops, which until recently were commonly grown, but got gradually replaced by more profitable crops. A hundred years ago, the most grown cereal was oats as horse feed and rye as a main product for bread making. Today we can classify them as minor crops. On the other hand, cultivation of some of the minor crops is increasing due to the public interest for them (for the Czech Republic: poppy, buckwheat, spelt, naked oat).

Table2: Alternative crops (selection)

Cereals	Pseudo cereals	Legumes	Oilseed crops	Root crops
Two-grained wheat Naked oat Durum wheat Spelt Common millet Hull-less barley Crab grass Foxtail millet	Buckwheat Amaranth Quinoa	Broad bean Common lentil Soya Chickpea Pea Capuchin pea Common bean	Oil pumpkin Sunflower Poppy Hemp Wild flax Flax Oilseed rape	Yacón Chicory Turnip Earth apple Rutabaga Parsnip Red beet

Occasional variation and enriching of the menu with any of the mentioned crops or a number of other alternative crops may please the diners. The interest for unusual food will be increased by giving an additional information (food with a story), whether about the history of cultivation, nutritional or health characteristics, special treatment, taste, etc. Examples of such information about a crop and its nutritional use are given in the scripts. More detailed specifications of other crops and recipes using them can be found in the Handbook and other recommended literature.

5.1 Examples of stories and characteristics of selected alternative crops

Spelt (Triticum spelta L.)

Spelt originally comes from Southwest Asia (Iran, Mesopotamia). Old Egyptians, Greeks and Romans already grew it. Spelt was probably introduced to the rest of the Europe 4 000 years ago during Migration period. It has been used in agriculture since the Bronze Age. Old Slavs had grown common wheat mostly since the sixth century. In Europe spelt holds its local importance and use in harsher areas of the Alpine region (Switzerland 4 000 ha, Austria 3 000 ha, Southern Germany 12 000 ha), North France and Belgium (9 000 ha) and Spain.

Spelt flour is used for preparing pasta, flakes and many kinds of pastries, as a coffee substitute, beer, groats and extruded products. Roasted spelt seeds when they reached a milk stage of cereal maturity are used for preparing so-called green caviar (grünkern) an ingredient suitable for soups or as a side dish. It is characterized by high protein content (14-19 %), essential amino acids, gluten content reaches 35-44 %, and there is a disadvantage of low swelling ability and greater ductility.

Buckwheat (Fagopyrum vulgare Moench.)

Buckwheat is an old cultural crop. It comes from Central Asia (South Siberia, North China). Its cultivation spread to the east (Mongolia, Manchuria and Japan). In Japan, it is mentioned in writing in 772. In our lands, the buckwheat was already known in the 12th century. Buckwheat spread from central Europe (Hungary, Poland, Bohemia) to Germany, Denmark,

France and other countries. Later it also came to America where it became an important crop for its short vegetation and high nutritional values during settlement. Besides common buckwheat (*Fagopyrum esculentum* moench.), tartary buckwheat (*Fagopyrum tataricum*) is cultivated to a limited extent. Groats, grits, flour, flour or flakes can be produced from buckwheat. The yield of the final product ranges between 50-70 % depending on the specific genus, the year and the peeling method.

Buckwheat groats are used as a side dish. It is suitable for preparing porridges, puddings, fillings, etc. Buckwheat groats are an ideal product for fast cooking, semolina is used for traditional porridges, puddings and spreads. Buckwheat flour is used in gluten-free food products. Buckwheat consumption plays an important role in preventing high blood pressure, high blood cholesterol and other cardiovascular risk factors, as well as in strengthening the immune system. Currently there are more than 20 buckwheat products (groats, flakes, semolina, flour, pasta, tea, bread, confectionery, etc.).

6 Organic products

6.1 The impact of food production on food quality and the environment

Slide 41-42

Organic farming is a method of management that significantly emphasizes soil and nature protection measures, ensures considerate treatment of animals and does not use synthetic pesticides or artificial fertilizers. In that way, it offers a solution to reduce the amount of dangerous substances in food to a minimum. Natural methods of protection against pests, weeds and diseases are used in organic farming. Good-quality soil helps plants create natural resistance to attack.

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The principle of organic farming is to produce foods of high quality and adequate quantity. All procedures must be consistent with natural systems. It is also very important to maintain or even increase the long-term fertility and biological activity of the soil. Weeds in organic farming are suppressed only by agrotechnical methods, herbicides are not allowed. Plant protection against diseases and pests is based on the support of preventive interventions and biological and biotechnical methods. Fungicides and insecticides are not allowed. The ethical treatment of animals is important, while respecting their innate needs and behaviours. Respecting local, ecological, climatic and geographical differences and the use of practices and procedures developed as their result. The cultivation of genetically manipulated organisms (GMOs) is not allowed.

Organic farming is supposed to use renewable resources as much as possible. Create a harmonic balance between plant production and livestock breeding. Livestock breeding is an integral part of organic farming. We cannot neglect the important role of livestock for soil fertility as a producer of organic fertilization with the ability to use a large amount of biomass that one could not use for his own nutrition. Therefore, an organic farmer must ensure appropriate conditions for the livestock. Minimize environmental pollution. Process organic production using renewable resources. Produce organic products that are completely biodegradable. Produce good-quality textiles with long durability. To enable all who engage in organic production and processing to have such a quality of life that will mean meeting basic needs and ensure adequate profit and job satisfaction, including safe work environment. Proceed towards a complete production, processing and distribution chain that will be socially just and ecologically responsible.

6.2 Control and certification system

Slide 47-48

Organic product is a direct agricultural product from the farming system subject to a special regulation and control mode for organic farming. Organic product is a raw material of plant or animal origin obtained in organic farming and intended for the production of organic foods and other organic products. These can be, for example, vegetables, fruits, cereals, legumes, oilseeds, fiber and aromatic plants, but also raw milk, eggs or living animals. Organic products have an origin labeling from organic farming or have generic names created by the prefix organic to the usual name of a traditional product. When marketed, they must bear, in addition to this designation, an established label for organic products.

Organic food is a food product obtained from organic products and a limited amount of authorized ingredients by defined technological process according to a special regulation and under the control mode.

Supervision of compliance with statutory regulations is carried out by controlling organizations. They are authorized to issue certificates on organic food and carry out inspections and other expert actions. Apart from the unannounced inspections, the controlling organization is obliged to carry out an announced inspection at least once a year. Observance of the established rules is controlled at all levels in the organic farming system, ranging from agricultural production inputs through organic product processing to sale to end consumer. On the basis of the results of the inspections, the certification of organic products and organic foods is carried out by issuing the so-called Organic Product Origin Certificate (Organic Food Origin Certificate) and their labeling by trademark BIO or ORGANIC- Product of Organic Farming. This mark guarantees the consumer that the products come from a controlled system of organic farming and that they have been certified by an authorized certification body.

An organic food whose production uses more than 95 % of weight or volume of organic products can be certified by the control body. (EU Council Regulation No. 834/2007) When being marketed, organic food must be, apart from the name with the prefix organic labeling of origin from organic products or organic production provided with a protected trademark and a name, alternatively with a trademark of the producer association and the company name of the producer. Organic food produced in the European Union has, in addition to the logo of the national control organizations and the control organization code, the logo of the European Union organic food.



Source: [Ministry of Agriculture](#)

The first is the Czech logo, the second is the European logo. You can find both on Czech organic food, and there can be only the European logo on the international ones.

Of course, organic food must also meet all safety and health requirements according to the Food Law. Organic food thus obtained is intended for direct consumption as a food or as a raw material for further processing. The difference between organic products and similar conventional products is not just that one of them was made without chemical spraying. The difference is also in the fact that with organic products you can precisely find out where (from a particular piece of land or a stable) the product comes from and under what (in compliance with strict directives) conditions it was produced.

The mission of an eco-label scheme is to communicate a credible story about what happens during the supply chain.

The functions performed are essentially three:

1. To provide credible assurance of sustainability to consumers and stakeholders;
2. To influence through voluntary standards to improve the social and environmental performance throughout the supply chain;
3. To orient purchase decisions and behavior changes by communicating to consumers on sustainability performances.

The eco-label have generated several positive consequences: increasing awareness and consumer expectations, providing credible communications platforms, creating common reference languages and schemes for sustainability, stimulating opportunities for collaboration, but above all improving the environmental and social impacts.

6.3 Nutritional, health, sensory and technological quality of organic products

Slide 49

There are different views on the quality of organic food. On the one hand, we can hear about a healthier, tastier and more nutritious food, on the other hand, consumers believe that without industrial fertilizers the crops suffer from insufficient nutrition and without chemical treatment they could contain harmful mycotoxins. In organic farming, quality means mainly the conditions under which the crops are grown. The protection and environmentally friendly use of natural resources is the basis for organic farming. Only its result is the production of better-quality and tastier organic food.

The consumer expects a certain extra standard from the purchased organic food.

There are several organic food quality indicators that the certified organic food coming from organic farming has:

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Nutritional value

Nutritional value includes aspects such as the content of substances positively influencing human nutrition, the internal composition and the mutual proportions of the substances

contained. Organic foods contain proteins with a favourable amino acid composition, fiber, pectins, vitamins, enzymes and essential minerals. Nutritional value is usually better in the products of organic farming than the products of conventional farming. Due to the ban on the use of industrial fertilizers, the protein content is usually lower.

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Hygienic quality

Thanks to the assumed hygienic quality, there is interest in organic products. Hygienic quality researches have shown that contamination by foreign and harmful substances is lower with organic products. Organic farming products are less loaded with pesticide residues, nitrates and mycotoxins. The content of heavy metals in organic food depends on their availability and occurrence in the environment and is therefore not influenced by the way of cultivation. It is very difficult with the nitrate content in the products, because even when fertilizing exclusively with farm fertilizers, nitrates can accumulate in the products. This happens under special meteorological conditions.

Natural toxins cause problems in organic farming. They are substances that plants can produce themselves to protect themselves against pests and diseases. Sometimes they are called “natural pesticides”. In organic farming, the production of toxins may be higher, because no chemicals are used to regulate diseases and pests and the plants are therefore more vulnerable.

Slide 52

Technological quality

Technological quality means suitability for different forms of processing in the industry and in the kitchen (the main role here is played by certain properties of organic products, such as yield, colour stability, peelability, suitability for baking, cooking, frying and preserving), transport and storage resistance. During the time of storage, due to mostly low water content, organic products are less vulnerable to mold and rot. Nitrogen fertilization in conventional farming slows ripening, that is why the products are harvested in the younger growing phase, and persisting enzyme activity contributes to storage losses. As for storing potatoes, the losses in organic farming can be by up to 25 % lower than in conventional farming.

Slide 53

Sensory quality

By sensory quality, we mean the properties of the product that can be perceived by the senses. Sensory quality has a subconscious determining influence on our decision to buy and consume food. The basic parameters of sensory quality assessment are the scent, taste, shape, purity, colour, size, integrity, weight and uniformity of appearance. The best values of these properties can be achieved in conventional farming when growing with pesticides, morpho regulators and abundant fertilization. An even greater influence on sensory quality is used in post-harvest treatment and storage. Conventional products are often treated with

dyeing, sweetening, salting, application of preservatives, stabilizers, etc. Consumers have been “trained” by manufacturers since their childhood to enjoy sweet, salty or otherwise strong tastes, they are attracted by colours and artificial scents. Natural products can be handicapped by such “educated” consumers and their sensory quality may have problems. Organic products are often smaller, less balanced in terms of shape and colour, the tastes and scents of natural fresh animal products may not be perceived positively because the customer is often not used to them.

More Information on sensory, health, nutritional and technological quality can be found in the handbook of the foods use module.

Production and storage of organic foods

The organic product must always meet the basic quality standards required for common products. In addition, it was produced under environment-friendly conditions. Therefore, not only the organic product is healthier (it is assumed to contain significantly fewer or no harmful substances, residues of chemical substances, etc.), but the environment in which it is cultivated is healthier.

Organic food producer is any person who produces organic food in order to market it. Organic food production means cleaning, sorting, treating or processing of organic products. When acquiring organic products from which organic food is produced, it is necessary to comply with the statutory conditions determined for both plant and livestock production. Organic product and organic food processing should be carried out according to procedures causing minimal physical, chemical and biological changes.

Organic cleaners

Cleaners are the environmental alternatives of existing products or substitutes for freons, CKWs and other solvents. Cleaners meet the latest technological requirements, improve working conditions for users, and also stand well in the strict environmental tests. Products of organic drugstore clean and wash as well as conventional drugstore, but do not burden us and our environment with unnecessary chemicals. Detergents and cleaners do not contain any ingredients that are considered to be harmful to the environment, endangering health or causing allergies. We are increasingly using raw materials from bio-dynamic or organic farming, such as olive oil, rape oil, coconut oil, palm fat, essential oils, balsamic ingredients, alcohol.

6.4 Availability of organic foods

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Why buy organic foods

- They do not contain chemical additives - preservatives, dyes or aromas
- Chemical pesticides (fertilizers) are not used during their cultivation
- Animal husbandry in organic farming preserves welfare of animals
- They taste better
- They do not contain genetically modified organisms
- They are nutritionally richer

- Organic farmers protect natural resources and maintain the natural diversity of species
- They are not anonymous, they bring you the story of a particular organic farmer
- Thanks to organic farming, already less known cereals and legumes are on the market today
- They are associated with FAIR TRADE certification - fair trade with developing countries

Benefits of organic foods compared to conventional foods

- their production burdens less the environment
- they do not contain chemical preservatives, dyes, flavouring agents, pesticide residues and other artificial substances
- the production of organic food ensures that the maximum possible content of vitamins, minerals, fiber, fats, carbohydrates and proteins is preserved - for example, organic pastry is made from wholemeal flour and organic oils are obtained by cold pressing, thus maintaining a higher proportion of health-beneficial substances
- they have a better taste, because they contain a higher proportion of dry matter, that is, that part of the food that remains after the water is removed from the food - substances that give the taste and smell to foods are contained only in the dry matter
- thanks to higher content of dry matter, they also have a higher proportion of vitamins, minerals and fiber

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The disadvantages of organic foods compared to conventional foods

- they tend to be more expensive than common foods, not available in all grocery stores
- organic foods, especially organic fruits and organic vegetables, may be less appealing to look at
- some organic foods are not very suitable for people who have to reduce their energy intake - in organic foods, the content of fat and sugar is not reduced, so you cannot find the label "light" on organic food packaging - for example organic milk is always whole milk
- they can go bad faster because they do not contain artificial preservatives.

6.5 Biomarket

Slide 62-65

If something discourages consumers from **buying organic foods**, it is their price. Most people have a well-established opinion of organic farming products being significantly more expensive than conventional foods. The price of **organic foods** usually exceeds the price of conventional products. Organic foods are by 20-40 % more expensive, because they have higher costs throughout the production process. Organic farmers reach lower crop yields and lower livestock yields. The difference, of course, differs according to crop, country and many

other conditions. For example, grains provide roughly 60-70 % of conventional crop yields. Farms focusing on crops usually report greater losses than those specializing in livestock farming.

The reason for higher price is the more demanding way of production and processing with a high proportion of manual work and the cost of packing and distributing small batches. We have to take into account the work in the field as well. Equally, environmental protection against pests, for example in the form of predatory mites, costs more than commonly used chemicals in conventional farming. The price of organic foods is increased by their “honesty”, i.e. the absence of chemical preservatives and a variety of added substitutes. Just the production itself of organic foods is more expensive, for example, the producer has to separate the production of organic foods from the production of other products. However, the environmental aspect of their production is hidden in the higher price of organic foods as a bonus. During production of conventional foods, water is being polluted with fertilizers and pesticides, which are then thoroughly cleaned with taxpayers' money. Poor management also leads to soil exhaustion and its erosion. Remedy is again difficult and expensive. By purchasing domestic foods, the consumer invests in “living countryside” and thus supports local producers. We often pay higher prices for a better-quality, healthier and tastier diet, whose production is also more environmentally friendly. The main obstacles to the use of organic foods in canteens are their inaccessibility, ignorance of suppliers, or ignorance of the possibilities of the current organic market. Therefore, this project emphasizes the creation of a distribution chain that will make the offer of organic foods accessible on the domestic market available to canteens and will facilitate the consumption of organic foods.

School communal catering facilities are different from the normal production companies in market economy in that they are not based on profit. From the economic point of view, the quality of the meals in school canteens can be influenced only very marginally, practically only by means of favourable purchases or financial gifts or subsidies as sources of money above standard. Favourable contracts or quantity discounts on ordered foods can be achieved the more easily, the higher the number of catering participants in the given facility.

With regard to the application of organic farming principles, far more human labour is hidden behind the production of organic foods than that of “ordinary foods”. In the production of “ordinary foods”, farming methods that make it easier for farmers to work and that increase yields are used, but they are not too environmentally friendly. Generally, there is substantially less organic foods produced than “ordinary foods”. With the amount of produced raw materials of animal origin, organic farms cannot, for example, compete with large-scale livestock breeding, where thousands of poultry and other farm animals are kept in a relatively small enclosed area without the possibility of enclosure. Another substantial fact is that farmers on organic farms cannot use chemicals to protect against pests, weeds, molds and rot and therefore have bigger losses. The possible shorter shelf-life of organic foods has already been mentioned in the context of not containing artificial preservatives.

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Sale and demand for organic foods

- in specialized organic food shops and in healthy food shops
- in some chain stores and supermarkets
- via internet

- directly on organic farms, so-called from the yard
- on the organic fairs and organic harvest festivals
- at trade fairs and exhibitions designed for the sale of organic foods

The organic food market is part of the food market and that is part of the general market. Therefore, it cannot be separated as an independent element, on the other hand, it is necessary to accept factors that affect it regarding both the supply and the demand. In general, demand for foods is mainly influenced by income, food prices, or the proportion of food costs on the budget, but also the level of self-supply, dietary habits, level of education and awareness and other factors. The demand for organic foods has some specific aspects. The biggest impact on the demand for organic foods is the guaranteed authenticity of the organic product, the quality of the product, the control of the production process and the reliability of the suppliers and producers. A moderately significant impact on demand is caused by the selling price, the guarantee price, the trade margin and the taste of organic foods. The demand is influenced the least by brand awareness, packaging and supplier service.

However, which introduced organic food, the prices of meals have increased only slightly by about 10 %. Cereal products, legumes and dairy products are the most common products offered in the organic quality. On the contrary, in the smallest amount, schools consume bread, meat and meat products and other types of organic foods.

7 Measures for promoting sustainable public communal catering facilities

Implementing a sustainable eating requires strong self-motivation as well as motivation of interested individuals, systematic work and patience. The first step in the actual implementation is to evaluate the state in terms of quantity and origin of currently used food (regional aspects, seasonal aspects, fresh preparation and quantity of meat). Within the sustainable eating research and common practice, it is necessary to gain experience from executives of communal catering facilities, who have already started implementing. The next step is to evaluate the supportive and braking factors and conditions of our own cuisine. That is followed by making first contacts with regional suppliers and testing communication and cooperation with them, and then creating networks between communal catering facilities and regional suppliers of organic products. Also introducing sustainable eating cannot be done without the public. A satisfaction survey can be a helpful tool during the process.

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Regional factor:

- Finding new suppliers from a region
- Use of the Map of Products (South Bohemia region)
- Introducing a week of regional or traditional meals

Seasonal factor:

- Extended searching for seasonal food
- Introducing meals with food according to a seasonal calendar
- Notifying community about seasonal meals
- Tracking seasonal price movements

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Ecological factor:

- Organic cooking
- Finding suppliers of organic food products
- Compare prices of conventional and organic food products
- Evaluation of the public interest for organic products
- Inclusion of at least one product of organic quality

Fresh food:

- Regulating half-finished food and ready meals
- Introducing salad buffets
- Cost evaluation of finished and fresh products



Co-funded by the
Erasmus+ Programme
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Thüringer
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AIAB LIGURIA
ASSOCIAZIONE ITALIANA
PER L'AGRICOLTURA BIOLOGICA

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Smaller meat portions

- Reducing the portions of meat
- Expanding the offer of vegetarian meals
- Legumes as a substitution for meat
- Substitution of meat with vegetable in risotto
- Supporting the consumption of fish and poultry