Management of organic agricultural production – ORGANIC FARMING

Exercise

Organic farming

- was created by combining the centuries-old experience of our ancestors and the latest modern scientific knowledge,
- does not introduce foreign substances into the environment in the form of various chemicals,
- does not exert or force any pressure on nature,
- at the same time, it contributes to maintaining a balanced cultural landscape and creates the conditions for rural prosperity.

Organic farming

- ... the belief and the philosophy of a return to nature.

It is a balanced agroecosystem of a lasting nature,

- **which is based primarily on local and renewable resources,**
- **using plant and livestock technologies that minimize environmental damage,**
- **thereby ensuring the production of quality and wholesome food and ultimately taking into account future generations.**

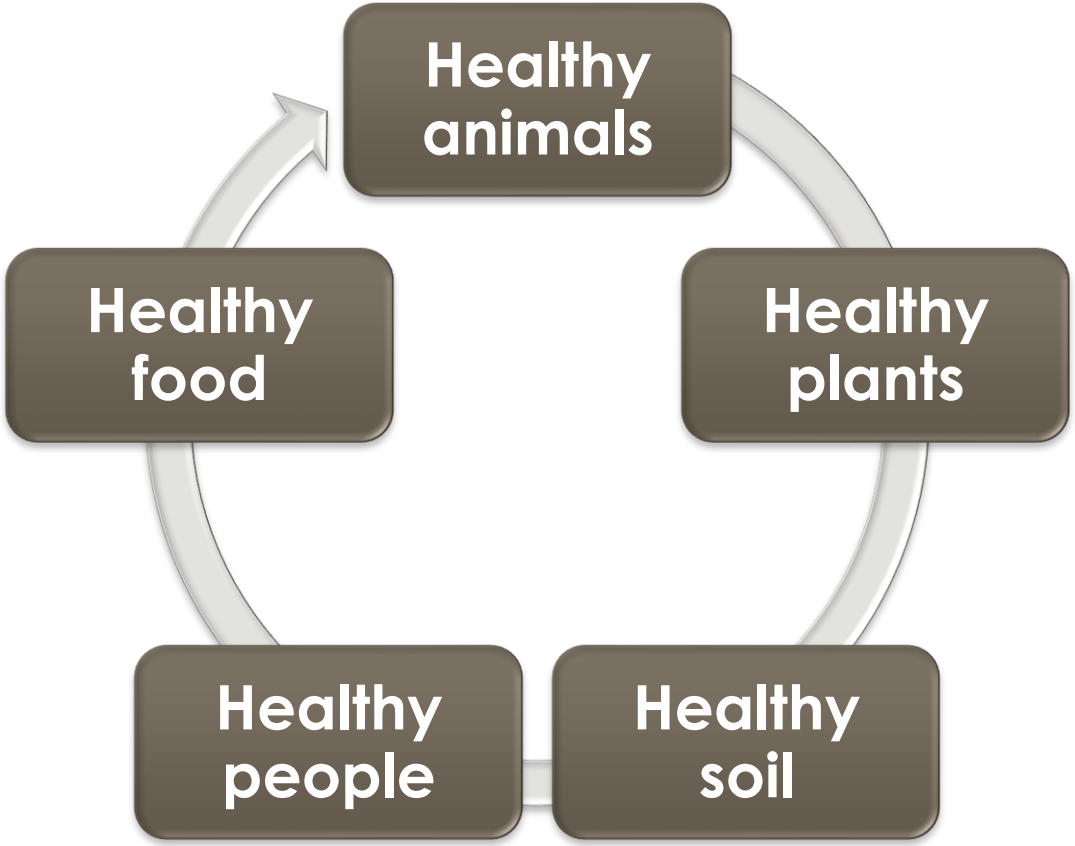
Conversion in organic farming

- It is a period during which the transition from conventional farming to organic farming takes place.
- **Conventional farming** is a method of agricultural production in which different (traditional) methods are used.

Organic farming

- It is the collective name of methods ensuring such production of products, the aim of which is to minimize and even completely eliminate the use of synthetic chemicals, ie. industrial fertilizers, pesticides, pharmaceuticals and other chemicals, while preferring natural soil fertility and restoring the dynamic balance of the agroecosystem.

The essence of the ecological cycle of substances and energy in nature

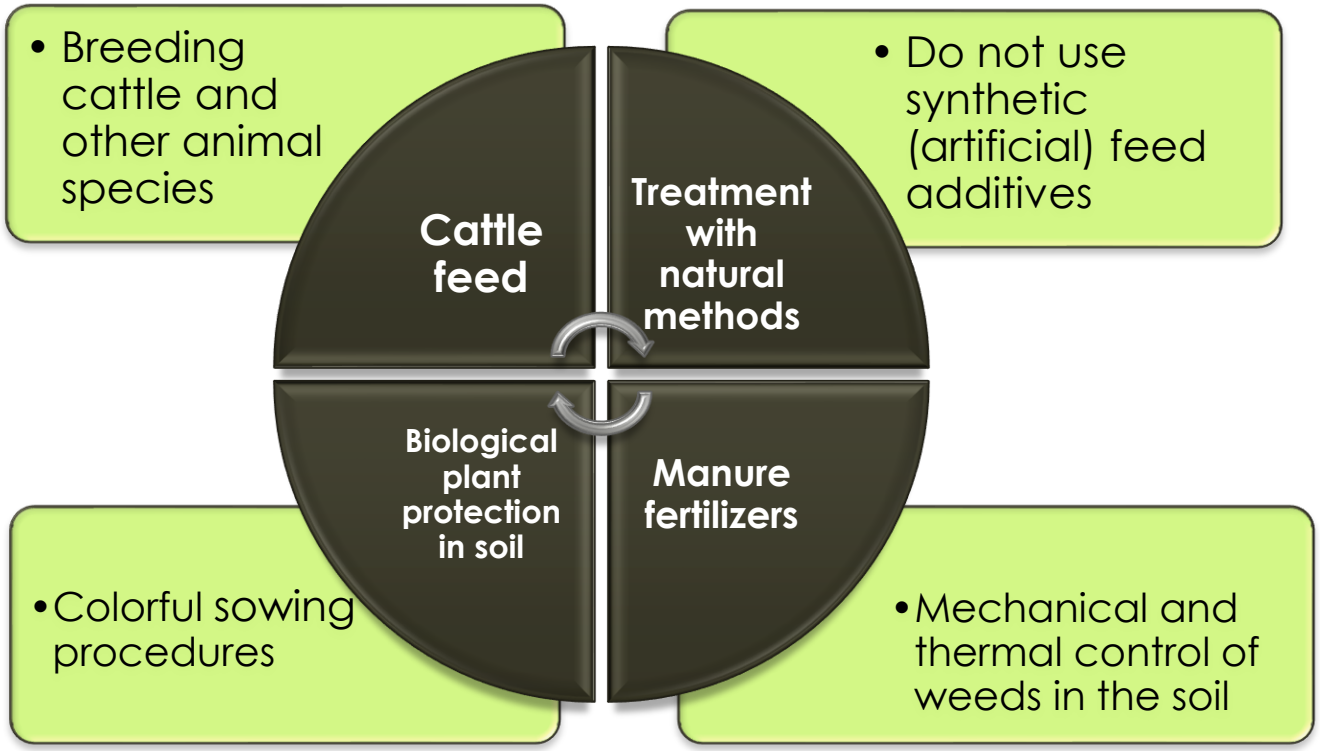


Organic agricultural production

Is the **production of plants when using**:

- special sowing procedures,
- green manure,
- fertilization with organic fertilizers, permitted by natural inorganic fertilizers,
- mechanical, physical and biological methods of plant protection,
- **as well as *livestock farming*** *for which exclusively feed from organic crop production is used and at the same time animals receiving special veterinary care* .

Organic farm with the cultivation of plants associated with organic animal husbandry



Methods and results of organic farming

The methods are given by the procedures and ways of implementing a certain manual of activities.

There are several methods of organic farming in the world:

- **Organizational agriculture** accounts for up to 75% of the methods used. The main emphasis is on agriculture as a closed-cycle organic nutrient unit. Entrances from outside are completely excluded or strictly limited.

- **Organic agriculture** through which agricultural products are obtained without the use of synthetic fertilizers and pesticides.

- **Organic farming** is one of the simplest feasible methods, the principle of which is that agriculture must not pollute the environment.

- **BIO farming**, this method is based on maintaining and increasing natural soil fertility through organic fertilization. In addition to organic fertilizers, mineral flours rich in trace elements are also used. Various plant exhalates are recommended instead of pesticides.

- **Specific organic farming** , the basis of this method is the results of work on the beneficial effects of magnesium, trace elements, seaweed and biological transmutations .

- **The ANOG method** is used in fruit and vegetable production. The basis is the natural fertility of the soil. Certain use of industrial fertilizers and pesticides is strictly defined and controlled.

- **Biological method** , basis this method is composting sea grass.

- **Biodynamic agriculture** was established in Germany in 1924.
- The agricultural enterprise is understood as an independent harmonic organism.
- The cycle of substances is activated by various methods and must be closed.
- Herbs from composts, species-rich sowing procedures, green manure, composted manure and autoregulation of pests are used.

- **Sustainable agriculture** based on the use of renewable natural resources.

The conversion process

- **The transition (or transition period) from a conventional to an organic management system is required by law to take two years (in the past it was three years).**
- For a successful conversion, it is necessary to develop a conversion plan, which should include, inter alia:
  - measures to improve soil properties,
  - proposal of a balanced sowing procedure,
  - nutrient balance,
  - application of organic fertilizers,
  - tillage design with alternatives,
  - ways of controlling the incidence of weeds, diseases and pests,
  - mechanization, labor needs estimation, crop estimation, marketing opportunities, financial estimates and the conversion schedule itself.

Fundamental differences between conventional and organic farming systems

CONVENTIONAL SYSTEM	ECOLOGICAL SYSTEM
Quantity priority	Quality priority
Profitability of production is put before biological and ecological balance	Biological and ecological balance is placed before economic demand
Production is highly specialized	Production is versatile
Unilateral sowing procedure	Varied sowing procedure
Use of inorganic, easily soluble fertilizers	Use of organic, slowly dissolving fertilizers
Use of agrochemicals and growth regulators	Efforts for the production system itself to regulate the occurrence of harmful factors

Ecological rules in production

- The organic producer is obliged to use fertilization with organic fertilizers, green manure and plant residues and natural inorganic fertilizers when growing plants, so as to ensure a balanced balance of soil organic matter and optimal plant nutrition.
- Organic plant cultivation can be carried out on land that is not located in congested areas and the use of which has been approved for this purpose by the inspection body on the basis of the results of analyzes of foreign substances.

Ecological rules in production

- Biological products and mechanical methods that control the number of weeds, pests and organisms can be used in the ecological plant protection system.
- In addition, it is necessary to use balanced sowing practices and proper crop rotation with an emphasis on the cultivation of permanent and temporary grasslands and clover.
- Organic producers are prohibited from growing the same crop in parallel on all the land they cultivate. The use of synthetic plant protection products and industrial fertilizers is also prohibited.

Objectives of organic production

- **<u>The general goal of organic production</u> is to achieve a closed system of mass and energy cycles, in which the natural requirements of soil, plants, animals and humans are substantially considered.**

- **The partial goals of organic agricultural production are** :
  - non -hazardous food production ,
  - maintaining soil fertility, especially organic matter,
  - creation of conditions for natural animal husbandry,
  - rational management of natural resources,
  - protection against environmental disturbances and balance in nature.

- Organic production cannot fully replace conventional production and it is therefore necessary to focus on its rational application, especially in justified cases such as:
  - management in marginal or other specific areas (protected mountain and other protected areas)
  - to connect organic farming also with other activities such as agrotourism and rural tourism, cultivation of special and medicinal plants, or the use of biofuels and so on .

Organic products and organic food

- Organic products are plant and animal products produced by the system of organic agricultural production.
- Organic food is food produced from organic products using permitted ingredients, additives and materials.
- Only those plant and animal products for which a certificate of organic origin has been issued may be designated as an organic product.
- This mark is the placement of the logo on the product, which can only be used by producers who have met the requirements and have subsequently been granted a certificate.

System

- Control function in accordance with ***Act no. 189/2009 Coll . on organic farming of 1 June 2009 is*** the highest control body for EPV ***Central Agricultural Inspection and Testing Institute (ÚKSÚP),*** which performs the following functions in the system **:**
  - cooperates with the relevant EU and Member State authorities,
  - maintains a register of operators,
  - issues consent for the import of organic products,
  - oversees the entire system and
  - imposes sanctions for violations of the law,
  - it issues a permit to the inspection body to carry out inspections and supervises its activities.

NATURALIS SK
SK-BIO-002

- This inspection organization is ***NATURALIS SK, sro*** and all entities managing the EPV system in Slovakia are obliged to conclude an inspection agreement with it.
- It is accredited according to STN EN 45 001 and is authorized to issue and withdraw certificates for organic farming products and impose sanctions for violations of the law.

Positives and negatives of the ecological system of land management

POSITIVE	NEGATIVE
Production of healthier and better food.	Higher labor production and a high share of labor costs in total costs.
Prioritizing the quality of organic food over quantity.	Complex ecological and economic ties increasing the demands on work organization.
Ensuring production control at all stages of production and processing .	High demands on professional skills of managers.
Managed use of natural resources and elimination of negative effects on the environment.	Fluctuation of production results and higher risk of production.
Preservation of natural soil fertility.	Legislative complexity and increased control by state institutions.
Promoting the sustainable development of rural areas.	Sales Failure.

Ecology & Economy

- the ecological management system is based on principles aimed at protecting the environment and health.
- However, organic agricultural production is carried out by business entities, resp. farmers whose main objective, as with all other businesses, is to make a profit.
- In organic farming, the use of intensifiers is limited, which results in a higher proportion of live labor and at the same time lower yields compared to conventional farming.
- On the other hand, the higher quality of these products is a prerequisite for their higher realization price, and state aid in the form of agri-environmental and other payments cannot be neglected.
- These result not only in differences in the amount of profit or loss, but especially in the structure of costs and revenues.

- In addition, in European countries (Switzerland, Germany) the sale of organic products is subject to the provision of a certificate from one of their domestic control organizations.

BIOKONTROLL
Maďarsko

AUSTRIA BIO
GARANTIE
Rakúsko

BIOLAND
Nemecko

BIOSUISSE

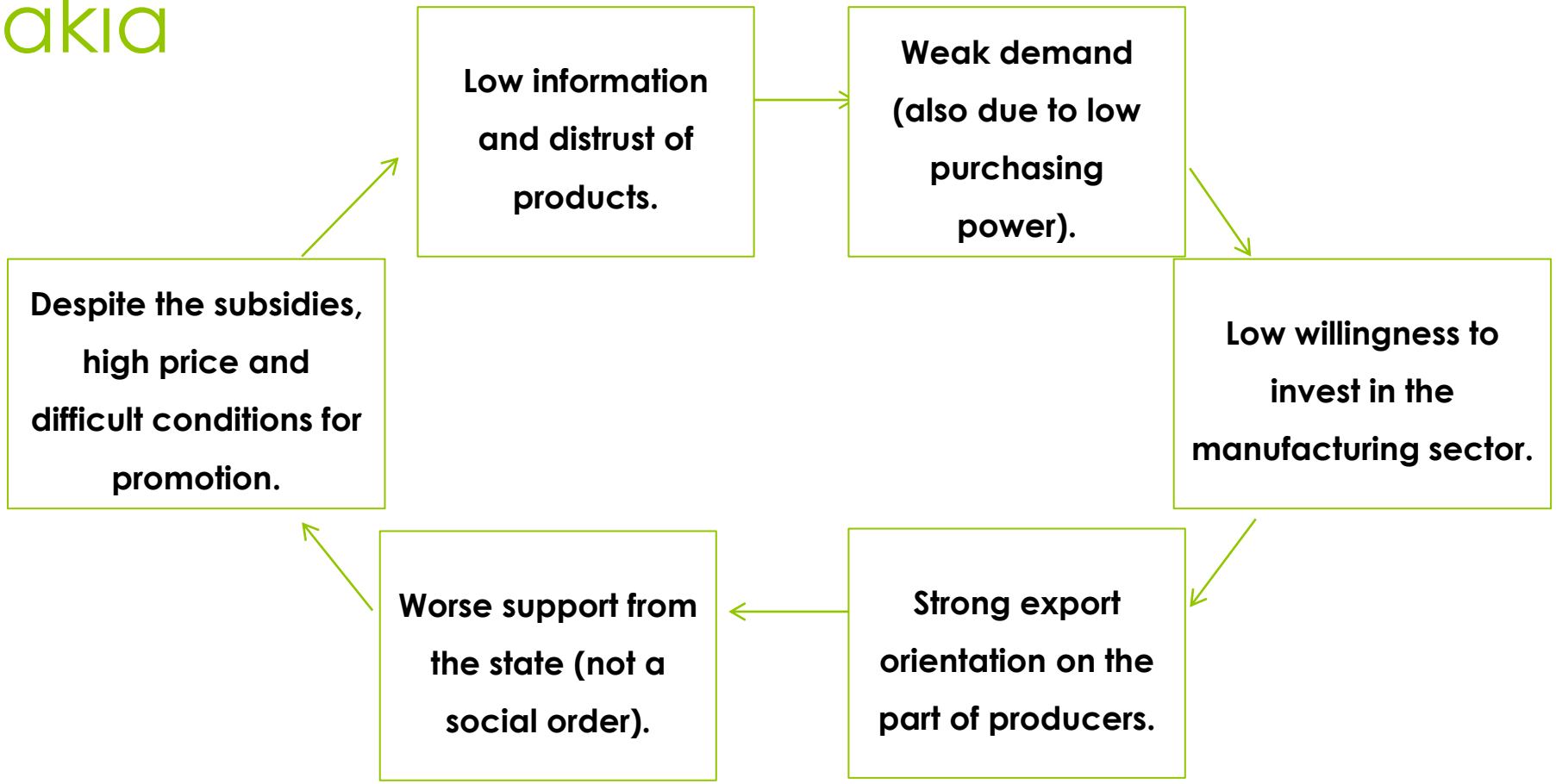
SGS Consumer
testing- Anglicko

United States
Department of
Agricuture- USA

Good Manufacturing
Practices

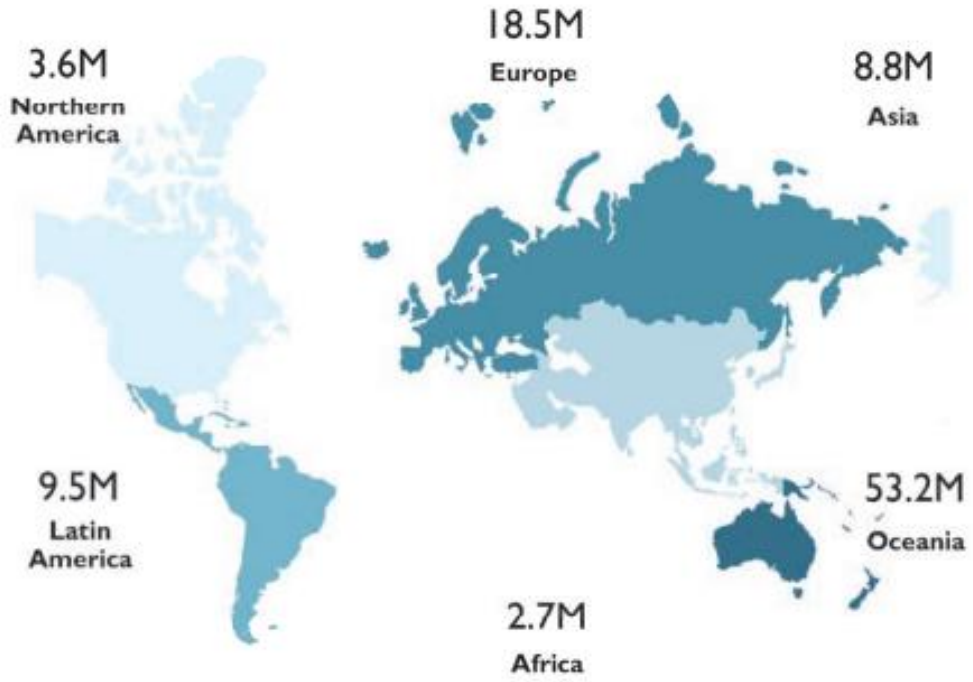
- A competitive advantage is also compliance with US Department of Agriculture standards, under which an BIO -producer can obtain a USDA ORGANIC certificate.
- Good labor standards and quality also helps manufarcuring practices , or British certificate SGS - Consumer testing .

The cycle of bioproduction problems in Slovakia



ORGANIC FACTS

- Organic agriculture is practised in 188 countries, and more than 96 million hectares of agricultural land are managed organically by at least 4.5 million farmers.
- Global sales of organic food and drink reached almost 135 billion euros in 2022.



Organic agricultural land in hectares (M=millions)

Map 1: Organic agricultural land in 2022

Source: FiBL survey 2024

Table 1: World: Organic agricultural land (including in-conversion areas) by region: growth 2021 to 2022, and 10-year growth

Region	Organic agri. land 2021 [ha]	Organic agri. land 2022 [ha]	Share of total [%]	1-year growth [ha]	1-year growth [%]	10-year growth [ha]	10-year growth [%]
Africa	2'607'489	2'735'006	2.8	127'518	4.9	1'531'669	127.3
Asia	6'496'002	8'830'990	9.2	2'334'989	35.9	5'440'949	160.5
Europe	18'258'903	18'450'355	19.1	191'452	1.0	7'081'206	62.3
Latin America	9'484'391	9'537'387	9.9	52'996	0.6	2'825'835	42.1
North America	3'276'330	3'627'818	3.8	351'488	10.7	580'109	19.0
Oceania	35'985'809	53'194'639	55.2	17'208'830	47.8	35'872'906	207.1
World*	**76'108'924**	**96'376'196**	**100.0**	**20'267'272**	**26.6**	**53'332'674**	**123.9**

*Source: FiBL survey 2024, based on data from government bodies, the private sector, and certifiers. For detailed data sources, see annex, page 335. * Total includes correction value for French Overseas Departments*

Internation Federation of Organic Agiculture Movements - IFOAM

- It is a world organization for organic farming founded in 1972 in Paris, currently based in Germany.
- It unites more than 350 regular member organizations of the world, which represent the interests of more than ¼ mil. growers from 60 countries.
- Since 1992, our organization Natural Alimentaria sro, based in Bratislava, has also been a member.
- It organizes the development of agricultural systems, mainly on an ecological basis.

The most important areas of IFOM's activities

- The most effective soil protection against erosion.
- Minimization of external energy inputs.
- Careful and efficient use of organic fertilizers.
- Active green fertilization.
- Species-diverse production of plants and animals, according to their living requirements in a flawless environment.


VERMICOMPOST
GREEN LEAF MANURES
CROP ROTATION
ORGANIC FARMING
MANURES
BIOLOGICAL MANAGEMENT
BIOFERTILIZERS
ANIMAL HUSBANDRY

Thanks for paying attention !