

7 CURRENT STATE AND PROSPECTS OF ORGANIC PRODUCTION IN UKRAINE

7.1 Scientific principles of biological (organic) agriculture in the world and Ukraine

Agricultural production always combines its production base with the surrounding ecosystem, which is based on natural resources: soil, water, air and landscape. Farmers specializing in both agriculture and animal husbandry must protect the environment, and the level of load of agricultural production on its eco-state should not exceed the maximum allowable levels. In general, the management methods used have a direct impact not only on soil, water and air pollution, but also on the environment.

Organic (biological) agriculture covers various areas of production of healthy biologically complete ecologically safe food products of crop production, animal husbandry, horticulture, beekeeping and poultry farming. The concept of sustainable economic-ecological-technological and socially harmonized development in the field of agriculture develops organic (biological = ecological = self-renewable = biodynamic) agriculture for the production of environmentally safe food, preservation of fertility and protection against pollution and toxicity of soils, rivers, lakes, reservoirs, wells, purification of drinking water sources from toxic chemicals, reduction of greenhouse gas emissions, development of the market and international trade in organic farming, increasing jobs, creating innovative farms farms, producers of biologically valuable agricultural products at small costs and low cost (Shikula, Gordienko, Bikov, 2005).

Inhabitants of villages and cities as a result of natural

resources; irrational usage, as a rule, contribute to the degradation of nature, not thinking that will remain the next generation. Quite often this is due to the lack of knowledge in this area and the use of traditional (intensive) management methods (excessive use of organic and mineral fertilizers, pesticides, genetically modified plants, etc.), which have a negative impact on natural resources. Issues of environmental safety and quality of food are reflected in the Basic Law of Ukraine (Articles 16 and 50 of the Constitution of Ukraine) (Vidomosti Verkhovnoyi Rady Ukrayiny, 2018, July 10, № 2496-VIII).

Today, a program of balanced agriculture development and rural areas is widely promoted in Ukraine, which is reflected in the EU policy, which supports agricultural technologies aimed at preserving the environment. Quality food products on the world market have been, are and will be in short supply in the near future. In developed livestock countries, the requirements of the organic market and the EUROP standard contribute to the quality development of breeding, feeding and keeping systems (Bashchenko, Voloshchuk, Nebelitsya, 2017).

In the conditions of the world market of agricultural products and its processing in Ukraine, organic production, including livestock production, is gaining relevance, is a more characteristic phenomenon for the EU, the US and a number of developing countries. For example, Ukraine has adopted an appropriate legal framework that defines the principles, rules and methods of organic production.

Legal framework of Organic Production in Ukraine. Organic production is regulated by the Law of Ukraine “On Basic Principles and Requirements for Organic Production, Circulation and Labeling of Organic Products” dated July 10, 2018 № 2496-VIII, which on August 2, 2019 repealed the previous Law of Ukraine “On Production and Circulation of

Organic Agricultural Products and raw materials” from 03.09.2013 № 425-VII (Vidomosti Verkhovnoyi Rady Ukrayiny 2018, July 10, № 2496-VIII.; Vidomosti Verkhovnoyi Rady Ukrayiny, 2013, September 03, № 425-VII.; Lushpaev, 2019)

Detailed rules of organic production and circulation of organic products of the following branches of organic production: organic crop production (including seed production and nursery); organic livestock (including poultry, beekeeping); organic mushroom growing (including growing organic yeast); organic aquaculture; production of organic seaweed; production of organic food (including organic winemaking); production of organic feed; procurement of organic objects of flora is determined by the Resolution of the Cabinet of Ministers of Ukraine № 970 of October 23, 2019. On approval of the Procedure (detailed rules) of organic production and circulation of organic products (Resolution of the Cabinet of Ministers of Ukraine, № 970, 2019, October 23).

At present, the legislation on organic production according to EU Standards has evolved: on 28 June 2007 Council Regulation (EU) № 834/2007 on organic production and labeling of organic products and repealing Regulation (EEU) № 2092/91 was adopted; On 5 September 2008, Commission Regulation (EU) № 889/2008 was adopted, laying down detailed rules for the implementation of Council Regulation (EU) № 834/2007 on organic production and labeling of organic products with regard to organic production, labeling and control; May 30, 2018 of the adopted Regulation (EU) 2018/848 of the European Parliament and of the Council on organic production and labeling of organic products and the cancel of Council Regulation (EU) № 834/2007, which due to quarantine restrictions due to Covid-19 01.01.2022 on the territory of the EU, and outside it only in a year (Council Regulation (EC) No 834/2007 of 28 June 2007 (EEC)

No 2092/91; Commission Regulation (EC) No 889/2008 of 5 September 2008 (EC) No 834/2007; Regulation (EU) 2018/848 of 30 May 2018).

Only for the last year, normative legal acts provided by the Law of Ukraine “On Basic Principles and Requirements for Organic Production, Circulation and Labeling of Organic Products” have been developed and adopted in a total of 12 acts: 3 resolutions of the Cabinet of Ministers of Ukraine and 9 decrees related to organic production.

Biological farming has been developed by scientists from around the world since the 1970s for almost half a century. It is based on the use of natural biological laws developed by nature. It significantly reduces or completely eliminates the methods of chemicalization of agriculture and at the same time uses the agricultural laws of minimum and return to achieve the law of optimum in which plants are best provided with living and development conditions, then they will provide maximum yield, environmentally safe and biologically complete crop products. There are 2 concepts of growing environmentally safe crop products: Western European for poor sod-podzolic soils and Ukrainian for rich black soils. The Western European concept is based on the fact that the area of land use (farm, husbandry) is divided into 3 types of land: arable land, hayfields and pastures. Arable land on the farm is one-third or one-fourth of land use. Livestock on the farm is fed at the expense of all three lands, but manure is applied only on arable land, which allows the concentration of manure on one third or fourth of the farm immediately to expand reproduction of soil fertility, making 25-27 t / ha of manure per 1 ha of arable land. Extended reproduction of soil fertility allows even on poor sod-podzolic sandy soils to obtain not only environmentally safe, but also biologically complete crop products. The Ukrainian concept of producing environmentally safe products on black soils is based on the high potential

fertility of these soils, the ability to use to reproduce soil fertility almost all non-commercial harvest and green manure, and minimize tillage, which accelerates low biological turnover and energy flows. It allows to expand the reproduction of soil fertility in the area of the entire arable land, which in the farms of the black soil zone is 70-90% of land use.

The necessity of biologization of agriculture in Ukraine arose due to the fact that the existing volumes of traditional organic fertilizers in Ukraine are insufficient and agriculture is working on declining fertility. Among scientists, there is an opinion that by abandoning the chemicalization of agricultural production is guaranteed to reduce crop yields by 30-40%, indeed, this view occurs in traditional agriculture, but with the use of organic farming yields can be maintained and increased (Shikula, Gordienko, Bikov, 2005; Pisarenko, Antonets, Lukyanenko, 2017)

Scientific schools of Ukraine on organic farming. The following Scientific Schools of Organic Production have been developing in Ukraine since the 1970s: Mykola Shykula Ukrainian System of Organic Agriculture (National Agrarian University – NULES) and Semyon Antonets System of Organic Agriculture (Poltava State Agricultural Academy, PE Agroecology). Both two scientific schools researched, developed and implemented the system of organic farming in Ukrainian production.

Mykola Shikula Ukrainian Biological Farming System has developed the Concept of Practical Biological Farming in Ukraine, which includes a large list of conceptual provisions, the main of which we cite: Organic farming is organized on ecologically clean lands not contaminated with radionuclides, heavy metals, pesticides their land use for ecological purity of soils. Farms use insecticide-free technologies for growing crops, which exclude the use of herbicides, fungicides, insecticides, desiccants, defoliant in the fields. Weed crops are

protected by agronomic measures (cultivation, semi-steam) and crops of post-harvest cruciferous greens, which have an allelopathic effect on weeds. Protection of crops from pests and diseases will be carried out by agrotechnical, preventive and biological methods. Synthetic mineral fertilizers, genetically modified plants, radiation-irradiated seeds, plants and miliorants are not used in the production of biological products. Soil protection technologies are introduced with the use of special equipment and agro-technical measures. Biological farming products must be departmental or state certified for environmentally safe in accordance with Ukrainian or international standards (Shikula, Gordienko, Bikov, 2005).

Semen Antonets philosophy of the system of organic farming is based on the creation of an agroecosystem as close as possible to natural formations. The system takes into account the basic principle of planetary development, as the origin of life on Earth was ensured by 2 global processes that will support the development of the biosphere now and in the future, including photosynthesis and nitrogen fixation. Technological measures of the system are based on scientifically sound structure of sown areas and specialized crop rotations with saturation of perennial legumes up to 25–27%, shallow tillage that preserves the natural structure of the arable layer without destroying the vertical orientation of aeration pores, use of perennial legumes and greens. The introduction of scientifically sound norms of organic goods, which provides plants with nutrients and forms a positive balance of humus, the use of environmentally safe agrotechnological and biocoenotic measures in technologies for growing crops (Pisarenko, Antonets, Lukyanenko, 2017).

History of organic production development in Ukraine. Organic production in Ukraine historically dates back to the period when traders in cereals, oilseeds and industrial crops were commissioned to certify Ukrainian farmers under Council

Regulation (EEU) № 2092/91 of 24 June 1991 on organic production of agricultural products and guidelines for agricultural production. products and food products (Council Regulation (EEC) No 2092/91 of 24 June 1991). Due to their poverty, Ukrainian farmers did not have the financial means to buy and use synthetic fertilizers and plant protection products after the collapse of the USSR, so the products obtained at that time were not contaminated with synthetic substances. In the early 2000s, farmers opportunities grew. Some farmers order certification on their own and begin to become players in the organic market up to direct exports of organic products, primarily to EU markets.

In 2007, the first Ukrainian certification body was established in Ukraine – Organic Standard LLC (Organic Standard, 2022).

Innovations in Organic Agriculture are created by achieving several areas of goals:

- economic (economic efficiency, focus on local resources, long-term confidence in the yield of agricultural crops);

- social (development of rural areas and support of local communities, meeting local needs, regional self-sufficiency in food production, use of own labor resources);

- ecological goals (functional ecosystems, sustainable development, biodiversity, conservation of local animal breeds, etc.).

All existing standards for organic production can be divided into international, national and private (Fig. 7.1).

Key principles of organic production:

- prohibition on the use of chemically synthesized substances in the production process;

- prohibition on the use of GMOs;

- prohibition on the use of synthetic additives;

- use only permitted fertilizers, plant protection products,

soil improvers, etc;









The type of standard	Marking
International	 
National	  
Private	  

Fig. 7.1. Classification of organic production standards

Source: author`s approach

- application of methods of production caring for animals and the environment;
- control of requirements of organic standards on all links of a chain;
- prohibition of parallel production.

7.2 General principles and fundamentals of animal products and vegetables organic production in Ukraine

General principles, goals. Creating a stable system of agriculture that: respects natural systems and cycles; increases the level of biological diversity; respects high standards of animal welfare; promotes the production of high quality products. Detailed principles for each area, including recasting

(EU Regulation №834/2007 Art. 4).

The whole farm transition. Simultaneous transition of crop and livestock production is possible (no parallel production, different species of animals (plants), traceability) (EU Regulation 834/2007 Art. 17; 889 Art. 35).

Prohibitions. Prohibition of the use of chemically synthesized substances or ingredients (EU Regulation 834/2007 Articles 4, 12 and 16).

Prohibition of the use of genetically modified organisms or their products (EU Regulation 834/2007 Art. 9).

Prohibited hydroponic production (EU Regulation №889 / 2008 Art. 4). Prohibition of the use of growth regulators, defoliants (EU Regulation 834/2007 Articles 12 and 16).

Prohibition of the use of ionizing radiation and treated products (EU Regulation 834/2007 Art. 10).

Control and certification. Annual certification for all operators, including inspection at least once a year (EU Regulation 889/2008 Art. 65).

Transition period. 2-3 years for perennials; may be reduced to 1 year for individual enterprises if no prohibited substances have been used in the last 3 years (EU Regulation №889 / 2008Articles 36, 37, 38).

Step-by-step conversion, parallel production. Transition plan for perennial crops, if varieties cannot be easily distinguished: special control requirements, maximum 5 years (EU Regulation №889 / 2008, p. 40).

Exceptions: parallel production of the same species for the production of seeds and planting material, for pastures, restricted research areas (EU Regulation №889 / 2008, Art. 40).

Legislation on the protection of the environment, water resources and animal welfare. Compliance with relevant national legislation.

Nutrient balance. Maximum number of animals per 1 ha

of sown area, equivalent to 170 kg of nitrogen (EU Regulation 889/2008 Art. C, 15, Annex IV).

The origin of animals. Livestock for organic production must be born and raised in organic production units; for breeding animals that were not kept in the conditions of organic production are allowed to introduce into the livestock production unit, taking into account certain conditions. (EU Regulation 834/2007 Art. 14a).

No more than 20% of adult pigs may be imported as females (who have not farrowed yet) from inorganic livestock complexes per year to replace or repair the herd (if organically reared animals are absent). (Exceptions: males for breeding; to restore livestock after disease outbreaks) (EU Regulation 889/2008 Art. 42).

In compliance with the organic principles of production, preference is given to breeding local (aboriginal breeds) of farm animals.

Practical methods of animal husbandry and conditions for keeping pigs. Personnel: must have the necessary basic knowledge and skills to ensure the health and proper maintenance of animals (EU Regulation 834/2007 Art. 14b (I)). Animals must have constant access to open-air areas, preferably pastures, whenever weather conditions and soil conditions allow (EU Regulation №834 / 2007 Art. 14b (III); EU Regulation №889 / 2008, Art. 14).

Feeding. Products for feeding animals must, first of all, come from the same unit where they are kept (EU Regulation 34834/2007 Art. 146). The maximum permitted proportion of inorganic feed in the daily diet is 25% (dry matter) (EU Regulation №889 / 2008, Art. 43B).

At least 50% of the feed must come from the farm itself or produced in collaboration with other organic farms, preferably in the same region. (EU Regulation №889/2008, Art. 10).

Feed produced in the transition period is up to 30% in the calculation of feed rations. If such feeds are produced on the same farm, their share can be increased to 60%; feed from permanent pastures during the transition period up to 20%) (EU Regulation №889 / 2008, Art. 21).

Use of inorganic feed for a limited time in a certain area by individual operators in case of catastrophic circumstances (EU Regulation №889 / 2008, Art. 47). The same rules and criteria for processed animal feed (EU Regulation 34834/2007 Art. 18).

Only inorganic substances are allowed, prohibition of the use of growth stimulants and synthetic amino acids (EU Regulation 34834/2007 Article 14 (1, criteria in Article 16). Detailed list of approved feed additives and substances for animal feed (EU Regulation №889 / 2008, Annex VI).

Breeding. Maintaining health by stimulating the animal's natural immune defenses, as well as the choice of appropriate breeds and methods of animal husbandry (EU Regulation 34834/2007 Art. 5e).

Prohibition of treatment with hormones or similar substances, but it is allowed to treat an individual animal in the form of veterinary therapeutic intervention according to the indications (EU Regulation 834/2007 Art. 14e).

Cloning and transfer of the embryo is not allowed (EU Regulation 834/2007 Art. 14c (III)).

Surgery. Any suffering, including surgery, must be kept to a minimum (not permanent, only for safety or in certain cases) (EU Regulation №834 / 2007, Art. 14.b (VIII); EU Regulation №889 / 2008, p. 18).

Disease prevention and veterinary treatment. The use of chemically synthesized traditional veterinary drugs or antibiotics for prophylactic purposes is prohibited (EU Regulation №889 / 2008, Art. 23.1).

The use of substances to stimulate growth or hormones is

prohibited (EU Regulation № 889 / 2008, Art. 23.2).

Treatment of parasites: a maximum of 3 courses of treatment with chemically synthesized substances for 12 months or one course of treatment if the productive life cycle of these animals is less than one year (EU Regulation №889 / 2008, Art. 23.2).

Double waiting period after the use of medicines (EU Regulation № 889 / 2008, Art. 23.5).

Pigs. Special requirements for access to pasture and holding areas (EU Regulation №889 / 2008, Annex III).

Daily ration of roughage for rearing and fattening pigs (EU Regulation №889 / 2008, Art. 20.3).

Sows should be kept in groups, except during the last periods of pregnancy and the period of suckling piglets (EU Regulation №889 / 2008, Art. 11.4). Transition period for imported conventional pigs for meat production: 6 months (EU Regulation №889 / 2008, Art. 38.1B).

Transportation. There are no special requirements, only recommendations for minimizing the duration of transportation (EU Regulation 34834/2007 Art. 14b (VII)).

Processing and storage. The processing of organic foodstuffs must be separated in time or space from the processing of ordinary foodstuffs (EU Regulation 834/2007 Art. 19.1). The use of inorganic ingredients, additives and technological additives must be permitted in accordance with specific criteria (EU Regulation 834/2007 Articles 19.2 and 21).

Inorganic agricultural ingredients are allowed for food products processing (EU №889 / 2008, Annex IX).

Authorized substances for food products processing (EU №889 / 2008, Annex VII, A and B).

Organic farming

Crop rotation. Relevant long-term crop rotations with the use of legumes, etc. plants for green manure, no special

detailed legislation (verified by national inspection and certification bodies) (EU Regulation 834/2007 Art. 12).

Zones of ecological restoration. There are no special legal requirements on this issue. Fertility and biological activity of soils. Improving the level of biological activity of soils and their natural fertility, stability and biological diversity of the soil, prevention of compaction and erosion of soils, as well as fertilization of plants mainly through the soil ecosystem. In addition, fertilizers and soil improvers can be used only if they are allowed in organic production (EU Regulation 834/2007 Art. 5, 12).

Application of fertilizers and soil improvers. Only permitted fertilizers and soil improvers listed (EU Regulation №889 / 2008 special Annex I).

Seed or vegetative planting material. Seed or vegetative planting material must be obtained by organic production (EU Regulation 834 / 2007 Article 1 (I)). Exceptions if there is no material obtained by the method of organic production (database) (EU Regulation №889 / 2008 Art. 45). There are no special requirements for growing vegetables, fruits and winemaking.

Crops protection. To prevent damage from pests, diseases and weeds, we should defer mainly on: protection by appropriate natural enemies, appropriate choice of species and varieties, crop rotation, cultivation methods and thermal (EU Regulation №834 / 2007 Ct.12g). Only substances listed in the special list of permitted plant protection products (EU Regulation №834 / 2007 Articles 12 and 16; EU Regulation №889 / 2008 Article 5, Annex II). Copper use: maximum 8 kg / ha, calculated on the basis of an average of 5 years, from 2006 to 6 kg / ha, calculated on the basis of an average of 5 years (EU Regulation №889 / 2008 Annex II, 6). pyrethroids in traps are allowed, organic herbicides (EU Regulation 889/2008 Annex II, 4).

Optimization of phytosanitary condition of crops.

An important aspect of organic production, based primarily on a set of organizational and economic and agro-technical measures and technologies, namely the structure of sown areas, use of perennial and annual legumes, science-based crop rotations, shallow tillage, use of organic fertilizers sowing of nutritious crops, greens that inhibit the development of the pest, quality seed preparation, the use of microbiological drugs, control of economic thresholds of harmful diseases, weeds, pests. The system provides for the complete abandonment of the use of pesticides and mineral fertilizers, with the exception of seed inlays and the use of macro- and micronutrients to improve the properties of organic fertilizers in the process of processing manure into compost. Optimizing plant nutrition by adding organic fertilizers and greens, which promotes their growth and development has a positive effect on increasing resistance to pests and especially diseases. Good germination, vigorous development of large leaf surface inhibits the growth of weeds, plants become less susceptible to damage by wireworms, fleas, weevils, leaf-eating caterpillars, root rot, this is facilitated by increased microbiological activity of the soil. Flowering plants in the fields of agricultural crops create conditions for the life of beneficial entomophytic insects, which will help reduce the number of pests and diseases and is defined as the effect of agro-phytoncide. The reduction of some pests due to natural regulation of beneficial organisms is confirmed, the development of diseases is restrained by stem microclimate, optimization of phytosanitary condition of organic farming is based on the formation of heterogeneous species and varietal structure microorganisms (Pisarenko, Antonets, Lukyanenko, 2017).

7.3 Introduction of organic production in the conditions of local communities of Ukraine

In order to obtain organic products in animal husbandry, special attention is paid to feed (without preservatives, GMOs, growth stimulants, appetite stimulants) and stress-free conditions of detention and transportation, the use of antibiotics and hormones is prohibited. Given the above: the production of fodder of plant origin – concentrated, waste processing of crop products, other industries – is an important part of the production of livestock products (Fig. 7.2).

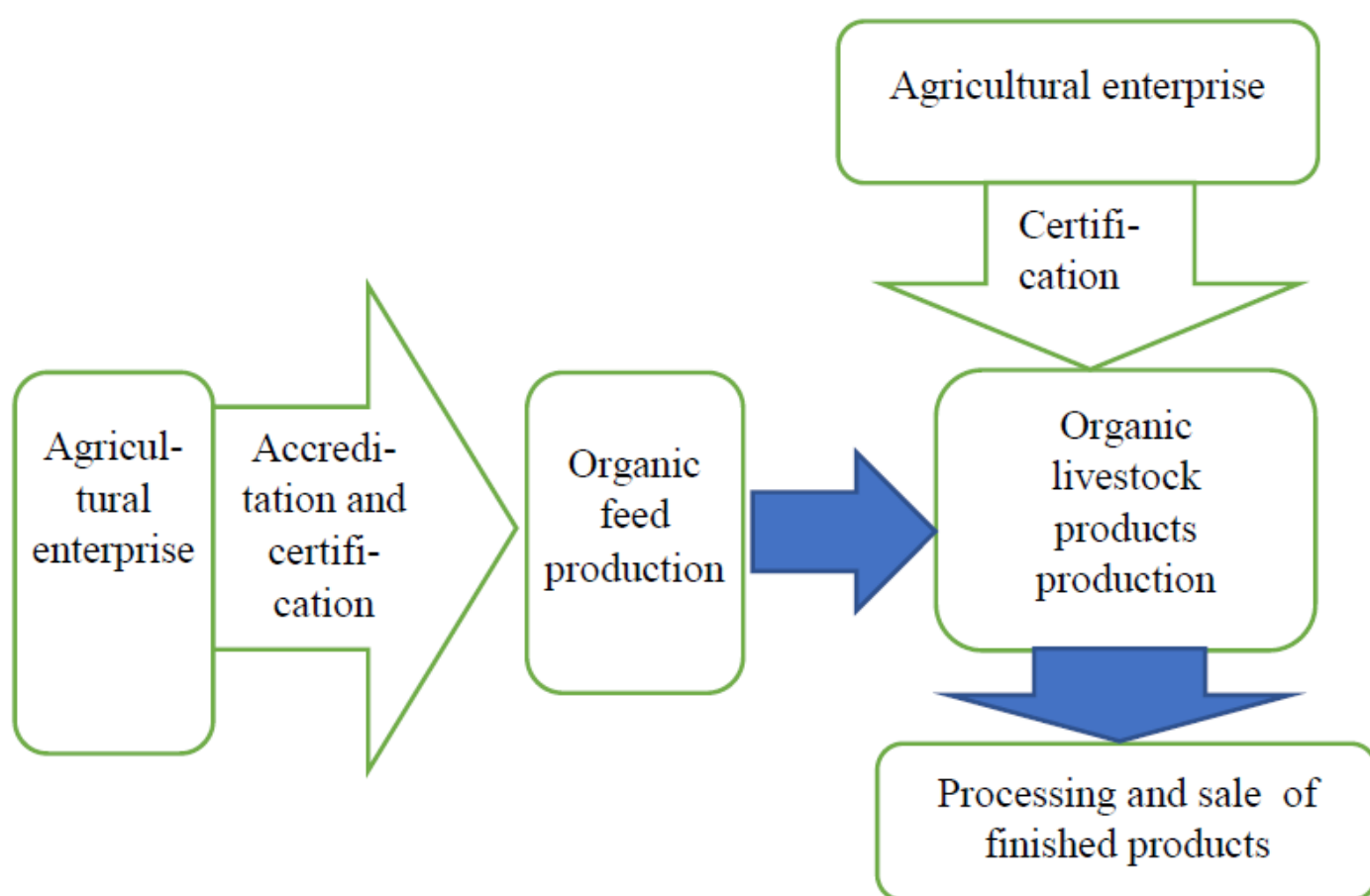


Fig. 7.2. Schematic diagram of production and processing of organic livestock products

Source: Nitsenko, 2019

A study of the structure of enterprises for the production of organic livestock products according to Organic Standard

(Organic knowledge platform. Base of organic producers) as of 01.01.2022 (Fig. 7.3) proves that the most popular is the production of organic eggs (38% of the total number of organic livestock entities), The second place is occupied by the production of organic milk (31% of the total number of organic entities in animal husbandry), the third place is occupied by the production of organic pork (2 entities or 13%). Meat cattle, meat poultry and beekeeping account for 1 business entity or 6% each.

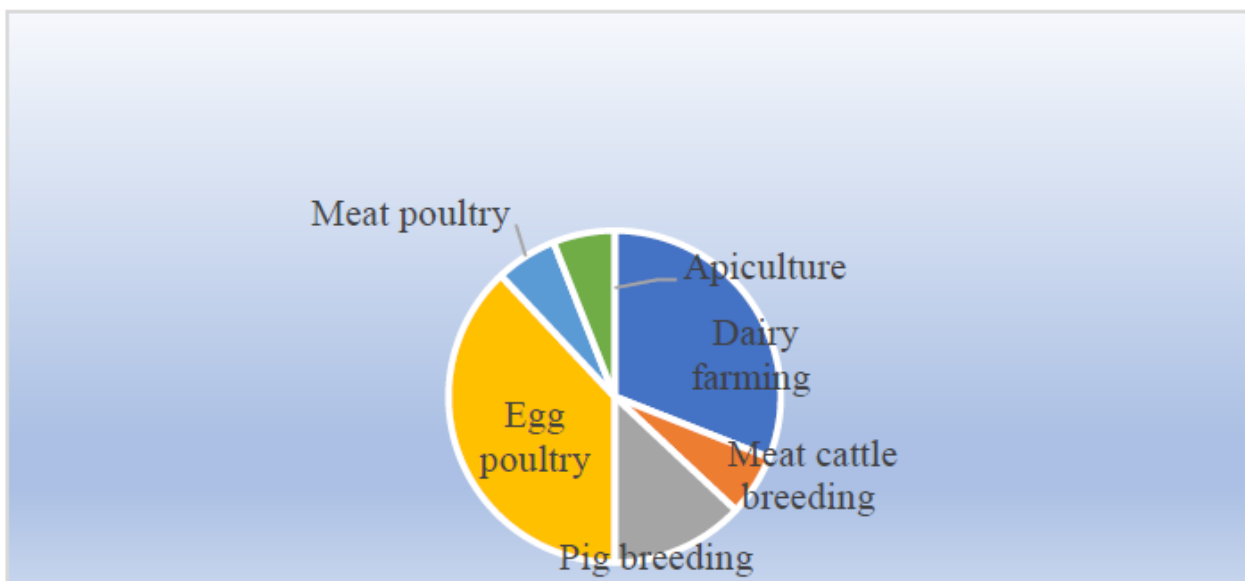


Fig. 7.3. The structure of enterprises (% of total) for the production of organic livestock products according to Organic Standard, 2022
Source: Organic Standard, 2022

We believe that the picture obtained from the certification of enterprises for the production of organic livestock products according to Organic Standard reflects the general situation in Ukraine.

The most successful example of organic production in general and animal husbandry – organic milk, in particular, is PE “Agroecology” Shishak District of Poltava Region, which is certified as a producer of organic crop products, in accordance with the standard. The company has developed crop production and a highly productive dairy herd of Simmental and Ukrainian Red Dairy breeds of cattle. In the

fields of “Agroecology” we get high yields of winter wheat, buckwheat, oats, barley, sunflower, corn, from the grain of which cereals and flour are produced. Livestock is fully provided with environmentally friendly feed of its own production. The company is certified as a producer of milk for baby food, as well as certified as a breeding plant for breeding Ukrainian Red Dairy cattle. Cattle are kept loose in the most comfortable conditions (they spend a lot of time on pastures), milking takes place in the milking parlor, feeding – with the equipment of feed tables and distribution of mono-feed using special equipment (Organic knowledge platform. Base of organic producers, 2022).

Introduction of organic production in the conditions of local communities of the south of Ukraine

One of the leading organic farms in Ukraine, located in the south of the country in the Odessa region is LLC “Danube Agrarian”, which grows organic products per 2000 hectares of organic land. The company is certified by the domestic company “Organic Standard” and foreign operators BIO SUISSE, COR, NOP, GRASP-GLOBALG.A.P. Risk Assessment on Social Practice.

The main directions: Crop, livestock, vegetable and horticultural, from 2021 medicinal herbs are grown, it is planned to organize a greenhouse of vegetable crops and establish new organic gardens.

From the direction of crop production the main crops which are grown on the farm: wheat, barley, rapeseed, millet, peas, sunflower, corn, mustard, lentils, onions, garlic, pumpkins, melons, watermelons, sweet potatoes, plums, peaches and nectarines. Since 2021, a successful project with the company ENZA ZADEN for growing vegetable crops is being implemented. A plantation of medicinal and spicy crops has been established: chamomile, calendula, mint, savory, echinacea, sage and others. Danube Agrarian is the only

company in Ukraine that grows organic peaches and nectarines and the only one in the world that grows organic cubic watermelon.

The products of the Danube Agrarian (rapeseed, millet, sunflower) are used in the production of baby food by the world-famous company HIPPI, whose representatives come to the farm 3-4 times a year to take samples.

In the field of animal husbandry, Danube Agrarian is the only company in Ukraine engaged in the cultivation of certified organic ducks, broilers and sheep. Danube agrarian is one of the three leaders – producers of organic eggs in Ukraine.

Prospects for the development of an organic enterprise Danube Agrarian LLC in the south of Ukraine

The unique geographical location and agro-climatic conditions of the south of Ukraine allow to implement many interesting projects in crop production, vegetable growing and fruit and berry industry. But the limiting factor for the southern zone of Ukraine is moisture. The farm has 120 hectares of fields under irrigation, and it is possible to transfer up to 850 hectares of land for irrigation.

Danube Agrarian LLC is provided with all necessary equipment, warehouses for floor storage of grain over 6000 m² and refrigeration facilities: fruit and vegetable cooling chamber (one in Bessarabia), sweet potato storage (one in Ukraine).

In crop production it is planned to increase the area of growing trend crops (legumes, millet, high-oleic sunflower) In the fruit industry it is planned to plant a new garden on drip irrigation: cherries, apricots, plums, early apples. There are very few organic stone crops in Europe, early organic apples are practically absent, demand in the European market contributes to the development of this direction in the economy. It is also planned to increase the area under vegetables and melons (melons and watermelons), both for

domestic and European markets. In animal husbandry, it is planned to increase the number of laying hens, ducks, broilers and sheep.

The farm is mastering new industries and directions, namely medicinal herbs from 2021 and greenhouse vegetables from 2023.

The farm is actively involved in the management and marketing of the Danube Agrarian brand. Meetings and trainings are held with representatives of supermarkets together with “Organic Standard” and other operators of the organic market. “Islands” of organic vegetables and fruits are being created in supermarkets.

Work is underway to develop a fruit and vegetable business cluster, for the creation of which in the south of Ukraine there are all the necessary prerequisites: favorable agro-climatic conditions, geographical location at the same latitude as the subtropical Crimea. The south of Bessarabia has always been famous for its early fruits and vegetables, the presence of rivers and reservoirs in the region allows you to actively use the system of merging. 30 years later, Izmail had the second largest cannery in Ukraine for the production of green peas, jade and halva. The infrastructure of the region includes the river ports of Izmail, Reni, Kiliya. Close to the Belgorod-Dniester river and Odessa and Black Sea seaports, which promotes active trade and economic activity. Training of specialists is an important component of successful business development, Izmail and Belgorod-Dniester agrarian colleges and Odessa State Agrarian University provide staff in the agricultural sector (Danube agrarian, 2022; Kurkuliv, 2022; Glossary. Organic Products, 2022).

Ukraine in terms of its agro-climatic conditions, labor resources and economic potential today is one of the most promising countries in the world in the development of organic production.

Ukraine produces such organic crop products as grain, cereals, fruits, vegetables, flour, pasta, oil, juices, herbal teas, chocolate, spices, canned foods (berry pastes, jams, syrups), semi-finished products, snacks; organic livestock products – dairy products, meat, eggs, honey.

The organic market of Ukraine is aimed mainly at exports, and the development of the domestic market of organic products is hampered by low purchasing power and ignorance of the population. The distribution of exports of organic products from Ukraine by parts of the world has the following structure – Europe (85%), North America (12%), Asia (3%), Africa (<1%).

Prospects for the development of organic production in the south of Ukraine in terms of crop production are quite broad, but for the production of organic livestock products there are some difficulties associated with the general processes observed in animal husbandry (economic situation, feed shortages, reduction livestock, high production costs, certification, etc.).

For the effective implementation of organic production in the south of Ukraine it is necessary to create specialized organic clusters with the involvement of agricultural producers, businessmen, financial institutions, trade enterprises, research institutions and educational institutions.

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