DEVELOPMENT OF ORGANIC FOOD PRODUCTION

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Abstract. *This article examines the state of organic production in agriculture in our country, as well as the main requirements and content of adopted laws on the organization of organic farming.*

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Introduction. It is widely acknowledged that the use of various chemical, biological, and natural products in the agro-industrial sector, particularly in food production, as well as the widespread distribution of GMO seeds, demand for organic products in the global community is growing. For cultivating organic food products in our republic, targeted measures are being established, and activities are being carried out not only for food products but also for other types of products. Organization and management of organic production is the process of growing and effectively managing agricultural products using natural methods, without the use of chemical fertilizers, various pesticides, and genetically modified organisms (GMOs).

This process involves strict adherence to organic product requirements throughout the entire value chain, from planting food or other crops to growing and harvesting, as well as transportation, sorting, cleaning, processing, packaging, and delivery to the consumer, regardless of whether the produce is grown in the field or greenhouse. In recent years, practical successes have also been achieved in this regard. Specifically, from 2020 to date, approximately 50 "Organic" certificates and over 200 "Global GAP" certificates have been obtained based on quality management requirements. These products include cotton (textiles), wheat, melons, medicinal plants, horticultural products, and other goods.

In 2023, two agricultural and food enterprises in the Jizzakh region, Arnasoy Limon Agro LLC, began producing organically certified products. In the Namangan region, four agricultural and food enterprises—Mekhrigiyo LLC, Art Soft Holding LLC, Art Soft Tex Cluster, and Baraka Meva Sanoat Service LLC—have received international organic certification.

In our country, the Law "On Organic Products" was adopted in April 2022 The adopted law establishes that all products produced not only in agriculture but also in the organic sector must be organic and comply with international requirements and standards. The main purpose of the Law "On Organic Products" is to regulate relations in the organic product sector (production, processing, storage, transportation, labeling, and sale of organic products, as well as conformity assessment and authorization).

Organic food products or other types of products are, first and foremost, a set of products that are grown, cultivated, harvested, and transported in specialized vehicles, stored, sorted, processed, packaged—in short, certified—using production technologies that meet the requirements of this legislation and legal and regulatory documents in the field of technical

regulation at all stages. According to this law, the following are the main principles of organic product production in our country:

- ✓ priority to protecting the life and health of citizens, as well as environmental protection;
- ✓ prudence in choosing the direction of organic product production;
- ✓ transparency and openness of information about organic products;
- ✓ use of renewable natural resources;
- ✓ ensuring environmental protection and ecological safety.

The cultivation of organic agricultural products in the global community is defined in accordance with international standards and is based on the following core principles:

- ✓ efficient, open, targeted, and rational use of natural resources (water and soil), as well as systematic and continuous protection of the environment and bioecosystems (plants and animals);
- ✓ complete abstinence from the use of chemical fertilizers and pesticides during planting, processing, cultivation, and harvesting;
- ✓ creation of a stable, clean, and transparent ecosystem – creating conditions for the growth of all plant species growing in a given area and preserving the wildlife living there;
- ✓ systematic and ongoing quality control of manufactured products (regardless of whether they are food or raw materials) – achieving organic production in accordance with international organic certificates;
- ✓ social responsibility for the interests of the state and society – creating safe and fair working conditions for all citizens engaged in organic production, including all categories of specialists and workers in cluster, farm, and dehkan farms, as well as household plots.

General requirements for organic production:

- ✓ high-quality preparation of fertile soil and selection of suitable crops;
- ✓ use of natural fertilizers (compost, black soil, peat, green manure (plant humus)) instead of chemical fertilizers;
- ✓ soil and plant protection using biological means (crop rotation, mixing and composting organic fertilizers and other waste; maintaining a balance of organic matter);
- ✓ selection of crops suitable for the natural climate and soil fertility (conditions);
- ✓ planting and growing crops;
- ✓ pest and disease control using biological means (entomophages, natural fungicides);
- ✓ pest and disease control using manual and mechanized labor; □ Use of water-saving technologies.

Farmers, entrepreneurs, and government agencies are taking significant steps to develop organic production in Uzbekistan. Organic production in our country's agriculture is driven by the growing demand for environmentally friendly and healthy agricultural products. Farmers and farm managers often have questions about the soil composition required for growing organic produce. According to research and official scientific data:

1. for organic production, the soil must have high natural fertility (over 60);
2. soil density of 1.30-1.35 t/m³, porosity of 50-55%;
3. humus content in the arable layer must be over 1%;

4. the soil must be moderately and abundantly supplied with naturally mobile nitrogen, phosphorus, and potassium;

5. non-saline or slightly saline (salt-leached) soils;

6. lands not contaminated by wastewater and not subject to waterlogging;

7. soils not subject to water and wind erosion;

8. lands not affected by industrial and household waste;

9. lands must be sufficiently supplied with a natural water source.

The quality and composition of water supplied to crops for organic production must meet the following requirements:

In our republic, surface water resources are divided into the following categories based on quality indicators:

* very clean (SII-0.3 or less);
* moderately clean (SII-11-2.5);
* polluted (SII-2.51-4.0);
* impure (SII-4.1-6.0);
* very polluted (SII-6.1-10.0);
* extremely polluted (SII-10.0+).

For organic agricultural production, it is recommended to use water categories 1-2.

Requirements for organic and mineral products. Chemical mineral fertilizers cannot be used for organic production.

Organic farming strictly prohibits the use of chemical fertilizers and instead requires attention to the natural transformation of the soil and the enhancement of biological processes to maintain, restore, and improve soil fertility.

What products (resources) should be used instead of chemical fertilizers?

The following alternative organic fertilizers are recommended for organic production:

Compost, per hectare – 0-40 tons (depending on soil condition);

Manure (well-rotted) – 20-60 tons;

Green manure, plant residues, chopped grass, etc. (green manure);

Bone meal (for phosphorus) – 500-1000 kg;

Wood ash (for potassium) – 500-1500 kg;

Phosphate rock (for phosphorus) – 300-600 kg;

Biofertilizers (beneficial microorganisms) – based on special strains are recommended.

In organic farming, it is more practical to improve soil fertility naturally than to use chemical fertilizers. Intensive use of natural plant protection products against diseases and pests, the most important of which are:

* use of biological pesticides instead of chemical (synthetic) pesticides (e.g., beneficial insects, bacterial preparations, plant extracts).

* use of environmentally friendly methods – use of natural insects against pests (e.g., beetles that consume small generations of pests).

* natural improvement of soil fertility – use of mycorrhizal fungi and beneficial bacteria.

Efficient use of irrigation and water resources:

* implementation of drip and sprinkler irrigation systems – saves water and prevents soil erosion.

* regulate the timing and amount of watering to maintain optimal moisture levels for each plant species.

* use clean and safe water sources – never use water contaminated with sewage or industrial waste.

For always using healthy seeds and seedlings:

* avoid GMOs and chemically treated seeds.

* use local and certified organic seeds.

* natural seed protection is recommended, such as soaking seeds in standardized herbal infusions or using biofungicides.

For improving soil fertility, it is advisable to rotate crops annually.

Organic production requires attention to efficient land use, maintaining and improving soil fertility, taking into account specific environmental factors. In these cases:

• proper placement of each crop type depending on soil and climatic conditions;

• for organic production – cultivating the land using resource-saving technologies, extensive use of organic fertilizers, planting green manure crops, and growing companion crops between main crops;

• for improving soil fertility – taking measures to prevent salinization, poisoning, waterlogging, soil erosion, soil pollution, and soil contamination with various wastes;

• in organic production – using biological and agronomic measures to control weeds, pests, and diseases in the fields.

• it is important to grow local crop species and varieties adapted to climatic conditions, resistant to diseases and pests, and providing high economic efficiency.

What types of crops are included in green manure fertilizers and how to use them. In organic farming, crops are specifically planted, grown, harvested at the appropriate time, crushed, and added to the soil as green manure. The benefits of green manure include:

• the soil accumulates a large amount of organic matter;

• favorable environment for the development of soil microorganisms is created, enabling the transfer of nutrients from a bulk form to a mobile form, which can be absorbed by plants;

• root system of green manure crops forms reserves of mineral nutrients in the deep soil layers;

• mechanical, physical, and microbiological properties and characteristics of the soil are improved;

• green manure fertilizers save water by conserving moisture in the fields, which is of great importance.

It is recommended to widely use alfalfa, soybeans, and beans as green manure fertilizers.

Seed requirements for agricultural crops in organic production. Seed production systems are of great importance in organic production. Therefore, it is advisable to ensure a high variety and quality of seeds for each crop grown. Organic farming is farming based on natural processes and incorporating scientific advances. This is a vast complex, encompassing such important requirements as increasing the amount of organic fertilizers in cultivated areas, plowing depending on the crop species and type, widespread use of "green" fertilizers, improving the mechanical and physical properties of the soil (deep loosening, incorporation of organic matter at various depths into the soil layers, mulching the surface with "green" fertilizers made from organic waste), using scientifically proven irrigation methods, selecting the right irrigation methods and components, and systematically and sustainably increasing the number of beneficial microorganisms in the soil.

Organic agricultural production is a priority in our country, and despite being a relatively new area, it holds great promise. Considering that in developed countries, such products sell at

higher prices than products grown using traditional agricultural technologies, farmers, farms, household plots, and agro-clusters that decide to work in this direction will have the opportunity to significantly increase their income.

Conclusion The implementation of the above-described procedures and requirements for organic agricultural production in agriculture will, first and foremost, create opportunities for organic producers to earn high incomes, produce competitive products in domestic and foreign markets, and establish a strong position in the global food market. For achieving this status, it is advisable to enhance the professional potential of farmers, farms, and agro-clusters, as well as to focus on awareness-raising and information exchange in this area to increase the number of economic entities producing organic products in our country.

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