

**АУЫЛ ШАРУАШЫЛЫҒЫ, АГРОХИМИЯ, АЗЫҚ ӨНДІРУ, АГРОЭКОЛОГИЯ
ЗЕМЛЕДЕЛИЕ, АГРОХИМИЯ, КОРМОПРОИЗВОДСТВО, АГРОЭКОЛОГИЯ
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L.A. Alzhanova^{1*}, S.J. Mussayeva²

¹Almaty technological university JSC, , Almaty, Kazakhstan
allaura88888@gmail.com*

²Mukhtar Auezov South Kazakhstan University, Shymkent, Kazakhstan
saltanat_mussayeva@yahoo.com

CURRENT STATE OF ORGANIC PRODUCTION DEVELOPMENT

Abstract

The data on the world experience and Kazakhstan's experience in the development of organic agriculture are presented. The development of the organic sector by continents, leaders in the area of land occupied by organic production, is considered. Organic production implies the cultivation of food products, the quality of which will exceed the traditional taste, organic products should be more beneficial to health, without the content of residues of various chemicals, nitrates, nitrites and toxic substances. And also better stored. The use of genetically modified organisms (GMOs) is strictly prohibited. There is a theory of so-called biological agriculture, on the basis of which a number of directions have emerged: "biological-dynamic", "organic-biological", or simply "organic", "natural", "ecological" agriculture.

The analysis of statistical materials of certified organic producers as of 2013 is given. The market of organic products in Asia is developing at a stable pace. Today, there is a tendency to divide Asian countries into two categories - countries that consume and countries that produce. Based on the analysis data and based on market demands, the guidelines for a promising strategy for the production of organic products by types and types of economic enterprises (entities) are determined.

Key words: *organic production, organic farming, certification, agricultural areas, environmentally friendly products, organic agriculture, market.*

Introduction

According to the International Federation of Organic Agriculture Movements (IFOAM) and the Research Institute of Organic Agriculture (FiBL), the area of land under organic production in the world is constantly growing [1, 2]. For fourteen years, their size has increased almost 4 times and in 2013 amounted to 43.1 million hectares.

The main goal of organic farming in comparison with traditional (technogenic) agricultural production is a more rational use of soil fertility, which contributes to the improvement of the biological potential of agricultural crops. In addition, organic farming contributes to the activation of the activity of soil microorganisms, leads to an increase in the intake of organic matter into the soil due to the influx of solar energy, which actively affects the fertility of arable land and the production of higher-quality environmentally friendly agricultural products .

The transition to organic farming provides for:

- ✓ obtaining high-quality products at the lowest cost of labor and money;
- ✓ the close relationship of agriculture of biological direction with the development of animal husbandry;
- ✓ sustainable development and adaptability to adverse weather and climatic factors and stressful situations;

- ✓ formation of ecologically balanced agricultural landscapes with an optimal combination of different types of land use (arable land, meadows, reservoirs, forests, nature reserves, etc.), ensuring the improvement of the natural environment and increasing the comfort of life of the rural population;
- ✓ strict consideration of environmental conditions, ensuring the protection of soil, water, environment;
- ✓ suspension of degradation of fertility of arable lands and ensuring their expanded reproduction;
- ✓ cost-effectiveness and resource conservation, the use of biological methods to increase soil fertility, control pests, diseases and weeds;
- ✓ energy-saving mechanization that does not harm soils, the environment;
- ✓ extensive use of solar, wind and other energy sources;
- ✓ taking into account economic and environmental efficiency, create a structure of acreage, crop rotation systems and crop cultivation technology;
- ✓ the possibility of improving the health of the nation by providing the population with high-quality food;
- ✓ ensuring the production of competitive agricultural products in conditions of the possibility of exporting them to other countries;
- ✓ the scheme of ecological and biological crop rotations should be drawn up in such a way that during rotation the plant mass of siderates or root and crop residues (when using green mass for livestock feed) are plowed as often as possible.
- ✓ complete exclusion of the introduction of synthetic mineral fertilizers, pesticides, regulators and plant growth stimulants. In organic production, it is allowed to use fertilizers that improve soil fertility, except for manure, compost, siderates, etc., raw natural fertilizers - only with the permission of the International Certification Commission.

As for arable lands allocated for organic farming, they should be protected from soil contamination with heavy metals from industrial enterprises, livestock complexes, nearby highways and railways.

During the transition to agro-landscape farming systems, it is necessary to create conditions for optimal, environmentally and economically sound use of natural and anthropogenic resources, the use of environmental energy-saving technologies, obtaining high sustainable yields and environmentally friendly agricultural products.

Organic farming significantly improves the socio-ecological situation: increases the level and quality of life of the population, including working and living conditions, rationalizes the structure of nutrition; reduces the presence of nitrates in wells and other sources of drinking water, significantly reduces the eutrophication of open reservoirs and lakes. In addition, organic agriculture helps: to better preserve biodiversity and organic matter in the soil, to reduce the environmental burden on the environment, to increase the attractiveness for agro- and ecotourism.

Organic farming is a clean environment, the health of the younger generation and the elderly, while the agrocenosis corresponds to biodiversity, which positively affects the ecological situation as a whole; minimizes the degradation of soil fertility as a result of reducing water and wind erosion, migration of mobile elements, nutrition into the underlying soil layers, increasing the content of organic matter in the soil due to vegetation and a powerful root system of intermediate crops; ecological and biological crop rotations contribute to the reduction of man-made and pesticide load on the soil, a sharp reduction in the use of chemical plant protection products from pests, diseases and weeds; in addition, a number of other positive processes are observed. But one of the key tasks of biological agriculture is a rational system of organization of agrocenoses.

There are 2 million certified organic growers worldwide, more than three quarters of which are in developing countries. Currently, organic production accounts for 1% of the world's agricultural land [3].

When considering the development of the organic sector by continent as a whole, in the world it is observed that quite large areas have been allocated for organic agriculture, in particular:

in North America - 3 million hectares, in South America - 6.6, in Europe - 11.5, in Asia - 3.4, in Africa - 1.2, Australia and Oceania - 17.3 million hectares [2].

Materials and Research Methods

The object of the study is organic production and the development of organic agriculture.

Research method: statistical analysis of data on the development and organic agriculture, organic sector by continent.

Results and their Discussion

As for the leaders in the area of land under organic production, they are Australia (17.2 million hectares, 97% of which are pastures), Argentina (3.2 million hectares), the USA (2.2 million hectares) (Figure 1). The average size of one farm in these countries is 5636 hectares, 2490, 170 hectares, respectively. In general, the top ten countries with the largest areas of agricultural land occupied by organic production account for 26.3 million hectares, which is 70% of all organic land in the world [1, 2].

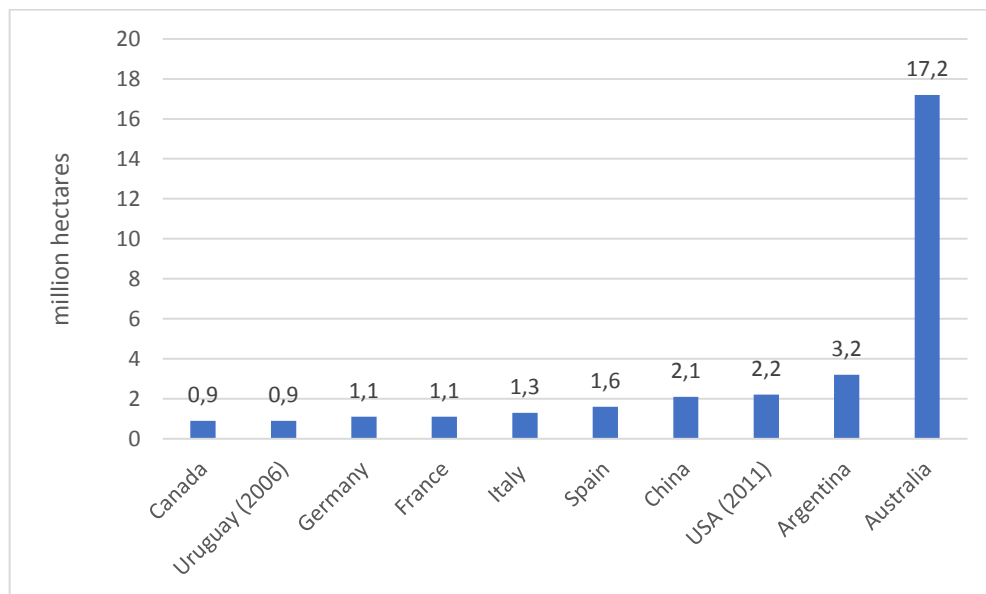


Figure 1 – Top ten countries in the world with the largest agricultural areas under organic production

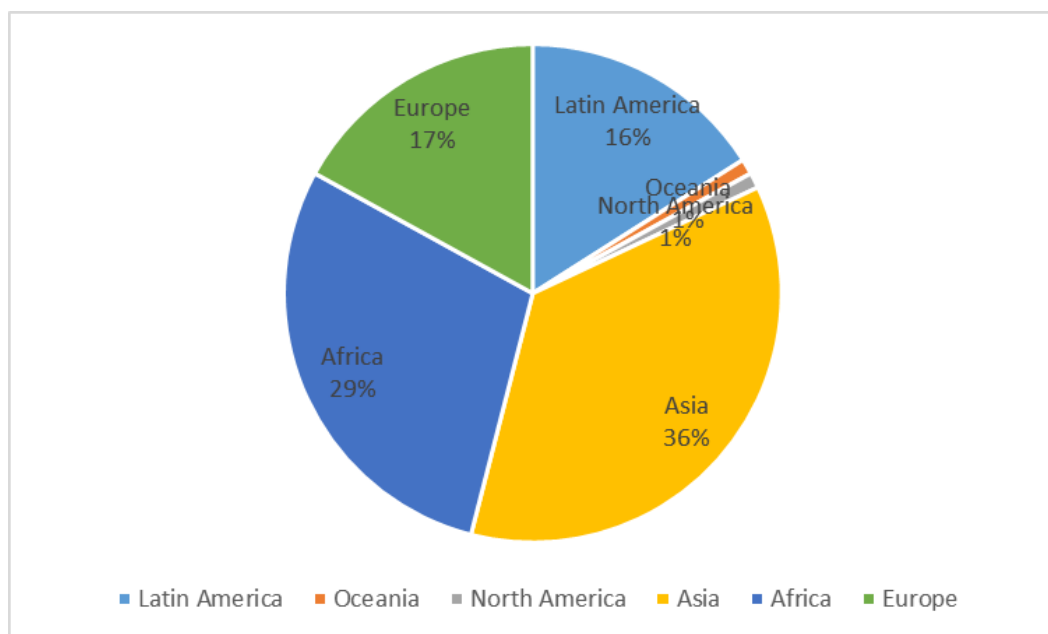


Figure 2 – Certified Organic Producers in the World 2013

An analysis of statistical materials shows that as of 2013, there are 2 million certified organic producers in the world, of which 17% are in Europe, 16% - Latin America, 36% - Asia, 1% - North America, 29% - Africa, 1% - Australia and Oceania (Figure 2).

The top ten countries in the world with the largest number of certified organic producers are India, Uganda, Mexico, etc. (Figure 3).

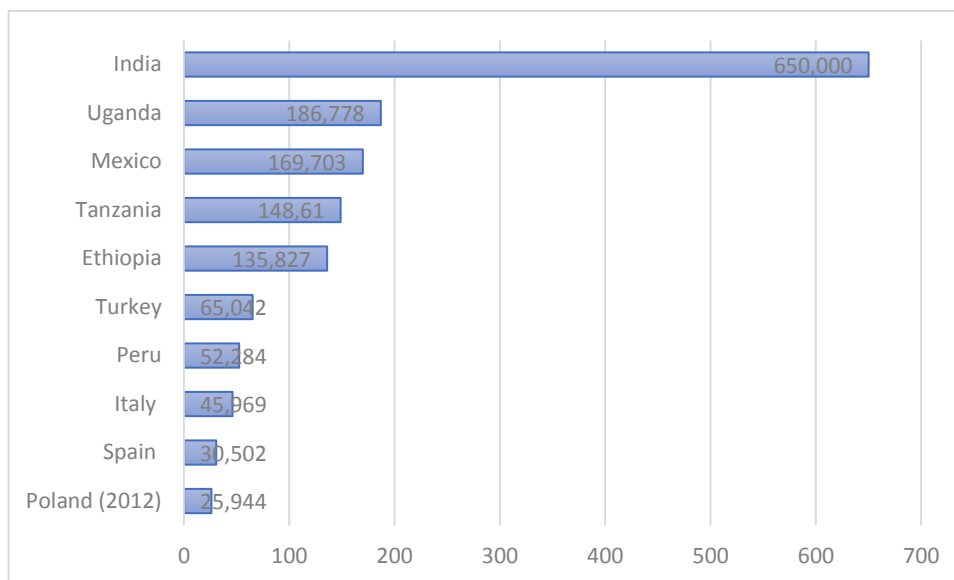


Figure 3 – Top ten countries in the world with the largest number of certified organic producers, 2012

As the analysis Figure 3 comparing the development of organic production shows, in 2013, compared to 2012, the area of organic agricultural land in the world increased by almost 6 million hectares. The increase occurred in all regions except Latin America; in Europe, the area increased by 0.3 million hectares (3%); in Africa, the area has grown by almost 7% (about 80,000 ha); in Asia, by more than 0.2 million hectares (+ 6.5%) and in North America by 1%. The largest increase is observed in Australia, mainly due to the increase in organic pastures (by 5 million hectares). In addition to Australia, there has been a significant increase in organic land in China, Peru, Italy and Ukraine [4].

Organic agricultural production statistics come from 170 countries around the world. Their number is growing imperceptibly every year. In Europe, all countries, without exception, have an organic sector. The table shows that in Africa, organic production is developing in 70% of countries, in Asia - 83%, South America - 65% (table 1).

Table 1 – Distribution of countries in the world with an organic sector by continent

Index	Number of countries with organic farming	Number of countries on the continent	Share of countries with organic agriculture to the total,%
Africa	39	56	70
Asia	39	47	83
Europe	47	47	100
Latin America	30	46	65
North America	3	5	60
Australia and Oceania	12	26	46
The world as a whole	170	227	75

As for the development of the market for organic products in Asia, it is developing at a stable pace. Today, there is a tendency to divide Asian countries into two categories - the countries that consume and the countries that produce. The largest share of organic sales comes from wealthy countries such as Japan, South Korea, Taiwan, Hong Kong, Malaysia and Singapore. But only a fraction of the organic food that is consumed is grown directly in these countries. Large quantities of organic food and beverages (especially processed products) are imported into these countries from Australia and Oceania, Europe and the United States. Another group of Asian countries has a predominantly export-oriented organic food sector [5, 6].

In relation to the Kazakhstani market of organic production, in recent decades, the concept of "environmentally friendly product" has become widespread. In addition, manufacturers declare their products as "ecological", "environmentally friendly". Moreover, today the market offers at least 10 more options for the names of this category of products: natural, environmentally friendly, farm, natural, biological, organic etc. [7, 8].

It should be noted that at the international level (UN, in the EU countries) the terms "biological" and "ecological" are used to describe the system of organic production. Accordingly, concepts such as "ecological product", "organic product", "biological product" and their various abbreviations and combinations (for example, "bio/eco/organic product") are used synonymously, meaning certified organic product [9, 10].

In recent years, there has been an increase in the interest of Kazakh agricultural producers in the transition to organic farming methods, as evidenced by both the issues of agricultural producers and an increase in the number of their appeals to organizations that advise on the development of the organic sector.

All food groups are found among food producers with the "Environmentally friendly product" mark: bakery products and cereals; meat and meat products; fish and seafood: milk and dairy products; eggs (pieces); oils and fats; fruits; vegetables; sugar, jam, honey, chocolate, confectionery.

An interesting fact is that almost all large poultry farms have this sign. This is interpreted by the fact that the criteria and requirements for producers for subsidizing those involved in the production of poultry meat, turkey meat and edible eggs include the presence of the sign "Ecological products" [11].

The size of organic farms in European and Asian countries was formed under the influence of historical and economic conditions of development, as well as natural conditions. In European countries, cereals (37.9%) and green fodder crops (31.7%) prevail in the structure of organic crops. In the structure of perennial plantations, the largest share is occupied by olive, vineyards, walnut and fruit crops.

On the Asian continent, arable land is mainly used for the cultivation of oilseeds and grain crops. The largest areas of oilseeds grown according to the standards for organic production are located in China (150 thousand hectares) and Kazakhstan (82.5 thousand hectares). As for the cultivation of cereals, the leaders in this indicator are Kazakhstan and Thailand [6].

Analysis of the world market for organic products shows the specificity and heterogeneity of the formation and development of the market by country. This situation is associated with the current situation in agribusiness and the presence of the necessary regulatory and legal framework, the presence of a system of environmental certification and standardization, which in turn is associated with the activities of certain initiative groups that have different motives to actively stimulate the formation of the organic sector in the food market.

Conclusions

As for our state, based on the analysis data and based on market demands, it is possible to determine the benchmarks for a promising strategy for the production of organic products by types and types of economic enterprises (entities). In the production of organic products throughout the territory or in individual areas, enterprises and large peasant farms can focus on the production and export of organic products:

- in the northern region - spring wheat, oats, barley, flax seeds, sunflower, rapeseed, mustard;
- in the southern region - barley, oats, sunflower, safflower, rice, melons, cotton, fruits, berries and grapes;
- in the eastern region - wheat, corn, flax seeds, sunflower, soybeans, rapeseed, maral breeding products, cattle meat, sheep, horses, milk, beekeeping products;
- central region - spring wheat, oats, barley, flax, sheep, horses, poultry, pigs;
- western region - oilseeds and melons.

In the context of increasing competition, in connection with Kazakhstan's accession to the WTO, the development of organic agriculture will allow many small peasant and personal subsidiary plots to survive. The production of environmentally friendly products is a promising idea for this category of farms.

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Л.А. Альжанова^{1*}, С.Д. Муссаева²

¹ «Алматы технологиялық университеті» АҚ, Алматы қ., Қазақстан, allaura8888@gmail.com*

² Мұхтар Әуезов атындағы Оңтүстік Қазақстан университеті, Шымкент қ., Қазақстан, saltanat_mussayeva@yahoo.com

ОРГАНИКАЛЫҚ ӨНДІРІСІ ДАМУЫНЫҢ ҚАЗІРГІ ЖАҒДАЙЫ

Аңдатпа

Әлемдік және Қазақстанның органикалық ауыл шаруашылығын дамуының тәжірибесі туралы деректер ұсынылған. Құрлықтар бойынша органикалық сектордың дамуы, органикалық өндіріспен айналысатын жер ауданы бойынша көшбасшылар қарастырылды. Органикалық өндіріс сапасы дәстүрлі дәмнен асып түсетін тамақ өнімдерін өсіруді қамтиды,

органикалық өнімдер әртүрлі химиялық заттардың, нитраттардың, нитриттердің және улы заттардың қалдықтарынсыз денсаулыққа пайдалы болуы керек. Сондай-ақ жақсы сақталады. Гендік түрлендірілген ағзаларды (ГМО) пайдалануға қатаң тыйым салынады. Биологиялық егіншілік деп аталатын теория бар, оның негізінде бірқатар бағыттар пайда болды: "биологиялық-динамикалық", "органикалық-биологиялық" немесе жай "органикалық", "табиғи", "экологиялық" егіншілік. 2013 жылғы жағдай бойынша Азиядағы органикалық өнім нарығының дамуына қатысты сертификатталған органикалық өнім өндірушілердің статистикалық материалдарына талдау жасалды. Азиядағы органикалық өнім нарығы тұрақты қарқынмен дамуда. Бүгінгі таңда Азия елдерін екі санатқа бөлу үрдісі байқалады - тұтынатын елдер және өндіретін елдер. Талдау деректерін негізге ала отырып және нарық сұраныстарын негізге ала отырып, шаруашылық жүргізуші кәсіпорындардың (субъектілердің) түрлері мен типтері бойынша органикалық өнім өндірудің перспективалық стратегиясының бағдарлары айқындалды.

Кілт сөздер: органикалық өндіріс, органикалық егіншілік, сертификаттау, ауылшаруашылық жерлер, экологиялық таза өнім, органикалық ауыл шаруашылығы, нарық.

Л.А. Альжанова^{1*}, С.Д. Муссаева²

¹АО «Алматинский технологический университет», г. Алматы, Казахстан, allaura88888@gmail.com*

²Южно-Казахстанский государственный университет им. М. Ауэзова, г. Шымкент, Казахстан, saltanat_mussayeva@yahoo.com

СОВРЕМЕННОЕ СОСТОЯНИЕ РАЗВИТИЯ ОРГАНИЧЕСКОГО ПРОИЗВОДСТВА

Аннотация

Представлены данные о мировом опыте и опыте Казахстана в развитии органического сельского хозяйства. Рассмотрено развитие органического сектора по континентам, лидеры по площади земель, занятых под органическим производством. Органическое производство подразумевает выращивание продуктов питания, качество которых будет превосходить традиционные по вкусу, органические продукты должны быть более полезными для здоровья, без содержания остатков различных химических препаратов, нитратов, нитритов и токсических веществ. А также лучше храниться. Категорически запрещается использование генно-модифицированных организмов (ГМО). Существует теория так называемого биологического земледелия, на основе которого возник целый ряд направлений: «биолого-динамическое», «органическо-биологическое», или просто «органическое», «естественное», «экологическое» земледелие.

Приведен анализ статистических материалов сертифицированных производителей органической продукции по состоянию на 2013 г. Рынок органической продукции в Азии развивается стабильными темпами. На сегодняшний день наблюдается тенденция разделения стран Азии на две категории - страны, которые потребляют, и страны, которые производят. Основываясь на данные анализа и исходя из запросов рынка, определены ориентиры перспективной стратегии производства органической продукции по видам и типам хозяйствующих предприятий (субъектов).

Ключевые слова: органическое производство, органическое земледелие, сертификация, сельскохозяйственные угодья, экологически чистая продукция, органическое сельское хозяйство, рынок.