

культурно-природном наследии регионов Беларуси, активизации механизмов продвижения национальных туристических продуктов на внешних рынках.

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## THE CURRENT STATE AND FEATURES OF THE DEVELOPMENT OF AGRICULTURE IN CHINA

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*The article is devoted to the consideration of the current state of agriculture in the People's Republic of China. An assessment was made of the main indicators of the development of farm and animal husbandry, as well as the dynamics of agricultural production volumes in monetary terms. The main problems of agricultural development are also identified.*

**Keywords:** agriculture, forestry, animal husbandry, fishery, output of farm product, output of farm product per hectare, output of animal husbandry, gross output value.

## СОВРЕМЕННОЕ СОСТОЯНИЕ И ОСОБЕННОСТИ РАЗВИТИЯ СЕЛЬСКОГО ХОЗЯЙСТВА КИТАЯ

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*Посвящена рассмотрению современного состояния сельского хозяйства Китайской Народной Республики. Дана оценка основных показателей развития фермерского хозяйства и животноводства, а также динамики объемов сельскохозяйственного производства в денежном выражении. Обозначены основные проблемы развития сельского хозяйства.*

**Ключевые слова:** сельское хозяйство, лесное хозяйство, животноводство, рыболовство, выпуск сельскохозяйственной продукции, выход сельскохозяйственной продукции на гектар, продукция животноводства, стоимость валовой продукции.

Nowadays the question of how agriculture is developed in the country is relevant, how well the country is provided with everything necessary to support the livelihoods of the population, to support sectors of the national economy closely related to the agro-industrial complex. For many years, Chinese agriculture has been ranked first in the world in terms of the volume of crops planted. This country traditionally grows wheat, tea, rice, potatoes, tomatoes, cotton, oilseeds and other crops. In total, more than three hundred million people are employed in agriculture, as this industry is one of the largest in the country. Despite the huge volumes of agricultural production in China, there is a problem with the products, so it have to purchase food from other countries. China doesn't have much fertile soil, which means it needs irrigation and constant natural disasters: hurricanes and droughts. But still, the country is quite successfully solving the problems of ensuring the domestic food market through the development of agriculture, the use of advanced technologies and the support of its producers.

Agriculture in China cover all rural households engaged in production and operation, organizations for agriculture, forestry, animal husbandry, fishery of all types of economic organization and their branches; organizations engaged in agricultural production activities belonging to non-agricultural industry in each province, autonomous region, municipality, Xinjiang Production and Construction Corps; and all crop land, farms, pastures [1].

Data characterizing the performance of Chinese agricultural production are presented in Tables 1–3. The initial data for the formation of the above tables was information from the National Bureau of Statistics of China (China Statistical Yearbook, Chapter 12) [1].

Table 1

**Output of Farm Product (10000 tons) and Output of Farm Product per Hectare (kg/hectare) for the 2016–2021**

Item	2016	2017	2018	2019	2020	2021
Grain	66043.5	66160.7	65789.2	66384.3	66949.2	68284.7
	5539	5607	5621	5720	5734	5805
Cereals	61666.5	61520.5	61003.6	61369.7	61674.3	63275.7
	6004	6105	6120	6272	6296	6313
Peanuts	1636.1	1709.2	1733.2	1752.0	1799.3	1830.8
	3678	3709	3752	3781	3803	3810
Rapeseeds	1312.8	1327.4	1328.1	1348.5	1404.9	1471.4
	1982	1995	2027	2048	2077	2104
Sesame	35.2	36.6	43.1	46.7	45.7	45.5
	1529	1610	1645	1651	1564	1596
Cotton	534.3	565.3	610.3	588.9	591.0	573.1
	1671	1769	1819	1764	1865	1893
Sugarcane	10321.5	10440.4	10809.7	10938.8	10812.1	10666.4
	73638	76132	76891	78655	79890	81047
Beetroots	854.5	938.4	1127.7	1227.3	1198.4	785.1
	55630	53843	52174	56057	56307	55639
Tobacco	257.4	239.1	224.1	215.3	213.4	212.8
	2121	2108	2103	2079	2091	2086

The production of grain, cereals, peanuts, rapeseeds increased during the analyzed period, while the production volume of beetroots and tobacco decreased. The production dynamics of sesame, cotton, sugarcane were unstable. The growth rate of the most important crops in ensuring food security such as grain and cereals over the past six years was 103.4 % and 102.6 % respectively.

Output of farm product per hectare of all crops under consideration increased, with the exception of tobacco, and the dynamics of the value of this indicator for cotton, rapeseeds and beetroots was multidirectional.

Table 2

### Output of Animal Husbandry and Fishery for the 2016–2021

Item	2016	2017	2018	2019	2020	2021
Output of Meat (10000 tons)	8628.3	8654.4	8624.6	7758.8	7748.4	8990.0
Pork	5425.5	5451.8	5403.7	4255.3	4113.3	5295.9
Beef	616.9	634.1	644.1	667.3	672.4	697.5
Mutton	460.3	471.1	475.1	487.5	492.3	514.1
Milk (10000 tons)	3173.9	3148.6	3176.8	3297.6	3529.6	3778.1
Sheep Wool (ton)	411642	410523	356608	341120	333625	356217
Goat Coarse Wool (ton)	35785	32863	26965	24875	24034	23332
Cashmere (ton)	18844	17852	15438	14964	15244	15102
Poultry Eggs (10000 tons)	3160.5	3096.3	3128.3	3309.0	3467.8	3408.8
Total output of Aquatic Products (10000 tons)	6379.5	6445.3	6457.7	6480.4	6549.0	6690.3
Seawater Aquatic Products (10000 tons)	3301.3	3321.7	3301.4	3285.2	3314.4	3387.2
Freshwater Aquatic Products (10000 tons)	3078.2	3123.6	3156.2	3197.9	3234.6	3303.1

Meat production increased by 3617 thousand tons over six years. In 2019 and 2020, meat production was significantly reduced (by almost a million tons), mainly due to a decrease in pork production, but in 2021 output was restored and even exceeded 2018 levels. Production of milk, eggs and Total output of Aquatic Products also increased. At the same time, the output of sheep wool, goat coarse wool and cashmere is decreasing.

From 1990 to 2021, gross output value of agriculture, forestry, animal husbandry and fishery increased from 76.621 billion yuan to 1470.134 billion yuan, or 19.2 times. At the same time, the main contribution to this significant growth was made by livestock and fish farming: the volume of production of Animal Husbandry products over thirty years increased by 20.3 times, and of Fishery products by 35.3 times.

Currently, China is the largest player in the global agricultural market. Today he buys almost twice as much as he sells. Purchases from China account for more than half of the total soybean market, up to a third of the market for frozen fish, malt extract, fruits, sorghum and rapeseed. China purchases large volumes even of those products for which it itself is a world leader (rice, wheat) or is among the leaders (corn) [2].

Table 3

**Gross Output Value of Agriculture, Forestry,  
Animal Husbandry and Fishery and Related Indices**

Year	Gross Output Value (100 million yuan)					Indices of Gross Output (preceding year = 100)				
	Total	Farming	Forestry	Animal Hus- bandry	Fishery	Total	Far- ming	Fores- try	Animal Hus- bandry	Fis- hery
1990	7662.1	4954.3	330.3	1967.0	410.6	107.6	108.0	103.1	107.0	110.0
2000	24915.8	13873.6	936.5	7393.1	2712.6	325.2	280.0	283.5	375.9	660.6
2010	67763.1	35909.1	2575.0	20461.1	6263.4	271.9	258.8	275.0	276.8	230.9
2015	101893.5	54205.3	4358.4	28649.3	10339.1	150.4	151.0	169.3	140.0	165.1
2016	106478.7	55659.9	4635.9	30461.2	10892.9	103.5	104.2	108.2	101.1	102.9
2017	109331.7	58059.8	4980.6	29361.2	11577.1	104.0	104.7	106.9	102.1	102.8
2018	113579.5	61452.6	5432.6	28697.4	12131.5	103.5	103.9	106.5	101.7	102.7
2019	123967.9	66066.5	5775.7	33064.3	12572.4	102.8	104.6	105.2	97.9	102.5
2020	137782.2	71748.2	5961.6	40266.7	12775.9	103.4	104.1	104.3	102.0	102.2
2021	147013.4	78339.5	6507.7	39910.8	14507.3	107.9	104.5	104.4	115.6	104.1

The food culture of the Chinese population has changed significantly over the past few decades. The main trend is changing eating habits. For centuries, the Chinese ate mainly plant foods (cereals, vegetables, herbs). However, as the country began to demonstrate economic success, its citizens began to eat more animal foods, especially meat. Dairy products occupy an increasingly prominent place in their diet. Currently, the Chinese are interested not so much in the quantity of food on the shelves, but in its variety.

The development of China's agriculture is hampered by a number of factors.

1. There is not enough arable land to increase production. With the growing prosperity of the population, the amount of suitable land has decreased even more, as former rural areas are now being given over to residential development and industrial facilities. As a result, the world's largest population (approximately 20 % of all inhabitants of the planet) accounts for only 7% of the world's arable land [2].

2. Chinese agriculture is suffering from climate change, the depletion of water resources and the drainage of some previously fertile areas.

3. The cost of food produced in China is steadily growing following the growth of wages and related expenses (fertilizers, fuels and lubricants, equipment). At the same time, in some other countries, production costs are falling or growing less quickly. Thus, without government subsidies, Chinese farmers operate at a loss because they cannot compete with foreign suppliers. To maintain its policy of self-sufficiency in agriculture, the government had to increase subsidies while introducing import quotas.

In general, now in China the possibilities for extensive growth of the agricultural sector have practically been exhausted [2].

Thus, China, being a world leader in the production and consumption of agricultural products, is forced to solve the most important problem of providing itself with basic food products.

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## СОВРЕМЕННЫЕ ПОДХОДЫ К ОЦЕНКЕ ЭФФЕКТИВНОСТИ ДЕЯТЕЛЬНОСТИ ИННОВАЦИОННО-ПРОМЫШЛЕННЫХ КЛАСТЕРОВ

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*Рассмотрены современные подходы к оценке эффективности деятельности инновационно-промышленных кластеров. Выявлены недостатки рассмотренных подходов и их соответствие сформулированным требованиям к указанной оценке. Представлен подход к разработке критериев эффективности деятельности инновационно-промышленного кластера как системы с собственными интересами и целями и как подсистемы системы более высокого уровня.*

**Ключевые слова:** инновационно-промышленный кластер, эффективность, цели и интересы, критерий эффективности.

## MODERN APPROACHES TO ASSESSING THE EFFECTIVENESS OF INNOVATION-INDUSTRIAL CLUSTERS

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*The article discusses modern approaches to assessing the effectiveness of innovation-industrial clusters. The shortcomings of the considered approaches and their compliance with the formulated requirements for this assessment are identified. An approach to developing criteria for the effectiveness of an innovation-industrial cluster as a system with its own interests and goals and as a subsystem of a higher-level system is presented.*

**Keywords:** innovation-industrial cluster, efficiency, goals and interests, efficiency criterion.

Одними из ключевых вопросов процесса принятия решений по организации деятельности инновационно-промышленных кластеров (далее – ИПК) являются разработка критериев оценки их деятельности и выбор эффективных решений, на основании которых будет производиться оценка степени реализации целевой функции указанных территориально-отраслевых образований. Оценке эффективности деятельности кластеров, в том числе ИПК, под которыми будем понимать территориально-отраслевую систему с высоким уровнем знаний и (или) технологий, включающую совокупность субъектов экономических отношений (промышленных предприятий, субъектов инновационно инфраструктуры, учебных заведений и академических институтов, конструкторских бюро, научно-технических лабораторий, сервисных предприятий, изобретателей и т. д.), функционирующую с учетом факторов макро- и микросреды и взаимосвязанных между собой горизонтальными и вертикальными связями в конкретных регионах по поводу преобразования ресурсов с использованием современных технологий, методов управления, способов организа-