

## EXPERIENCE OF FOREIGN COUNTRIES IN ECONOMETRIC MODELING OF THE DEVELOPMENT OF THE POULTRY INDUSTRY

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**Abstract.** In the context of structural changes in the global food market and the growing demand for animal protein, the poultry industry has become one of the strategically important sectors of agriculture. Poultry products, such as meat and eggs, are characterized by short production cycles, high biological value, and relatively low production costs, making them a key factor in ensuring food security. This article provides a systematic analysis of international experience in evaluating the efficiency of the poultry industry, using the cases of the United States, the European Union countries (Germany and the Netherlands), and Brazil. The study examines key economic, organizational, and technological approaches, including vertical integration, digital monitoring systems, and the consideration of environmental and social performance indicators. Special attention is given to feed conversion ratio, production costs, profitability, and export-oriented efficiency. Based on the analysis, scientific conclusions and practical recommendations are proposed for adapting advanced foreign experience to the national conditions of Uzbekistan in order to enhance the efficiency, investment attractiveness, and sustainable development of the poultry industry.

**Keywords:** poultry industry, production efficiency, international experience, vertical integration, food security, feed conversion ratio, sustainable development

**Аннотация.** В условиях структурных изменений на глобальном продовольственном рынке и роста спроса населения на животные белки отрасль

птицеводства приобретает стратегическое значение в системе сельского хозяйства. Продукция птицеводства — мясо птицы и яйца — характеризуется коротким производственным циклом, высокой биологической ценностью и сравнительно низкой себестоимостью, что делает её важным фактором обеспечения продовольственной безопасности. В статье системно проанализирован зарубежный опыт оценки эффективности птицеводческой отрасли на примере США, стран Европейского союза (Германии и Нидерландов) и Бразилии. Рассмотрены основные экономические, организационные и технологические подходы, включая вертикальную интеграцию, цифровой мониторинг, экологические и социальные показатели эффективности. Особое внимание уделено показателям кормовой конверсии, себестоимости, рентабельности и экспортной ориентации производства. На основе проведённого анализа сформулированы научные выводы и практические рекомендации по адаптации передового зарубежного опыта к условиям Республики Узбекистан с целью повышения эффективности, инвестиционной привлекательности и устойчивого развития отрасли птицеводства.

**Ключевые слова:** птицеводство, эффективность производства, зарубежный опыт, вертикальная интеграция, продовольственная безопасность, кормовая конверсия, устойчивое развитие

Currently, structural changes in the global food market and the growing demand for animal protein by the population are turning the poultry industry into one of the strategically important sectors of agriculture. Poultry products - poultry meat and eggs - are distinguished by their short production cycle, high biological value and relatively low cost, and play an important role in ensuring food security. In developed foreign countries, scientifically based mechanisms for assessing efficiency have been developed

and widely implemented in practice in order to ensure the sustainable development of the poultry industry, increase production volumes and strengthen competitiveness. These mechanisms are based on a complex system of production, financial, economic, technological and environmental indicators. In particular, in the USA, the European Union, Brazil and some countries of the Asian region, vertical integration, digital monitoring systems and innovative management models are effectively used in the poultry industry. Studying and analyzing foreign experience in assessing the efficiency of the poultry industry is of scientific and practical importance, as this process allows optimizing production costs, increasing the level of resource utilization, and improving product quality. At the same time, by adapting advanced foreign approaches to the conditions of the national economy, it is possible to increase the investment attractiveness of the industry and achieve sustainable development. This article systematically analyzes the experience of advanced foreign countries in assessing the efficiency of the poultry industry, identifies their main economic and organizational approaches, and formulates scientific conclusions on the implementation of these experiences in national practice.

From this point of view, in the process of modernization of the poultry industry of Uzbekistan, it is of great strategic importance to study the experience of developed countries and adapt it to national conditions. In recent years, the country has been implementing large-scale reforms to expand the production capacity of poultry products, reduce dependence on poultry meat, and bring the quality of poultry farming into line with international standards. Scientific analysis of these processes and assessment through economic and statistical models are necessary to determine the future directions of industrial development. According to the analysis based on my scientific research, the experience of the following countries is being effectively used in assessing the

efficiency of the poultry industry. In particular, the approaches, main indicators and practical mechanisms for assessing the efficiency of the poultry industry are scientifically described on the example of the USA, the European Union countries (Germany and the Netherlands) and Brazil.

**USA experience** - The USA poultry industry is characterized by a highly vertically integrated production system. In this system, breeding, feed production, poultry farming, processing and sales processes are carried out under a single management. This approach allows you to minimize production costs and increase efficiency.

The following key indicators are used to assess the efficiency of the poultry industry in the United States:

- Feed Conversion Ratio (FCR);
- product volume per head of poultry;
- production cost and profitability level;
- labor productivity.

Also, the practice of assessing efficiency in real time based on digital monitoring systems and statistical analysis has been widely implemented. The US experience is recognized as a model of high economic efficiency based on market mechanisms in poultry farming.

**Experience of European Union countries (Germany and the Netherlands)** - Sustainability and an integrated approach are priorities in the development of the poultry industry in European Union countries . In these countries , the assessment of efficiency is not limited to economic results, but also includes environmental and social factors.

areas are important in assessing the efficiency of poultry farming in Germany and the Netherlands :

- production efficiency (productivity and cost);
- environmental indicators (waste, carbon footprint);
- animal welfare and biosecurity;
- product quality and compliance with standards.

for state subsidies, scientific research and innovation support are working effectively. This experience is important as an evaluation model aimed at ensuring socio-economic and environmental balance in the poultry industry.

**Brazil's experience** - Brazil is one of the world's leading exporters of poultry products, especially poultry meat . The efficiency of the poultry industry in this country is largely due to its low-cost feed base, climatic conditions, and logistics system .

In Brazil, when assessing efficiency, special attention is paid to the following factors:

- the share of feed costs in the cost of production;
- export -oriented production efficiency;
- production volume and flexibility to meet external market demand;
- efficiency of logistics and processing processes.

The table below shows the volume of poultry meat and egg products of foreign countries in terms of poultry production in 2024. In this table, the United States is the leader in poultry production in 2024. In the Republic of Uzbekistan, it is important not to directly copy the experience of advanced foreign countries , but to adapt it to the economic, resource and institutional conditions of the country, in order to sustainably develop the poultry industry and increase its efficiency .

**Table 1**

**Volume of poultry products produced in foreign countries in 2024**

<b>Country</b>	<b>Poultry production volume</b>	<b>Egg production volume</b>
<b>USA</b>	27.7 million tons	109 billion eggs
<b>European Union (EU)</b>	1.56 million tons	1.2 billion eggs
<b>Brazil</b>	15 million tons	57.6 billion eggs

gradually introduce the vertical integration system, which forms the basis of the US poultry farming model, into the conditions of Uzbekistan . In particular:

- Strengthening cooperative ties between breeding, feed production, care, and processing processes ;

- development of a cluster system around large poultry farms ;

indicators (cost, profitability, labor productivity) into the mandatory analysis practice when assessing efficiency . This approach will help reduce the cost of poultry products and ensure production stability.

This experience has scientific and practical significance for developing countries as a model for achieving high production and export potential at low cost . Adapting the experience of advanced foreign countries to the conditions of Uzbekistan is an important factor in increasing the efficiency of the poultry industry, and this process is carried out in a phased, comprehensive and scientifically based approach. should be implemented on the basis of. As a result, the sustainable development of the industry, product quality and competitiveness will be ensured.

**LIST OF USED LITERATURE**

1. FAO. *Poultry Development Review*. — Rome: Food and Agriculture Organization of the United Nations, 2013.

2. FAO. *The Future of Food and Agriculture: Trends and Challenges*. — Rome, 2017.
3. OECD–FAO. *Agricultural Outlook 2023–2032*. — Paris: OECD Publishing, 2023.
4. Porter M. E. *Competitive Advantage: Creating and Sustaining Superior Performance*. — New York: Free Press, 2008.
5. Ansoff I. *Strategic Management*. — London: Palgrave Macmillan, 2007.
6. Semyonov V. A., Ivanov A. P. *Экономика и организация птицеводства*. — Москва: Колос, 2016.
7. Windhorst H.-W. The global poultry meat and egg sector: Trends, dynamics and future prospects // *World's Poultry Science Journal*. — 2020. — Vol. 76(3). — P. 1–15.
8. USDA. *Poultry & Eggs: Production and Value Summary*. — Washington, DC: United States Department of Agriculture, 2024.
9. European Commission. *EU Agricultural Markets Briefs: Poultry and Eggs*. — Brussels, 2024.
10. ABPA. *Brazilian Poultry and Pork Export Report*. — São Paulo: Brazilian Animal Protein Association, 2024.
11. Alimuhamedov R., To‘xtasinov S. Agrar tarmoqlarda samaradorlikni baholashning nazariy-uslubiy asoslari // *Iqtisodiyot va innovatsion texnologiyalar*. — 2021. — №4. — B. 170–179.