

# *Trends of the Agroindustrial Complex in the Context of New Industrialization*

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**Abstract**—During the period of new industrialization, the approach to the agroindustrial complex as a set of interrelated elements has been formed under the influence of a number of objective reasons: scientific and technological progress, market saturation with goods, and changes in the marketing paradigm. In the paper, some historical aspects of the establishment of the agroindustrial complex concept based on the analysis of domestic and foreign literature have been traced. Based on this, the authors have derived a refined definition of the agroindustrial complex in the context of the formation of a new economy. An adjustment of the complex structure has been also proposed, and the dynamics of some of its indicators has been analyzed. In summary, it is concluded that the efficiency of the poultry industry is inextricably linked with the development of all subcomplexes of the agroindustrial complex, but import substitution is impossible without a correlation of the processes occurring in all links.

**Keywords**—reasons for agroindustrial complex development, concept of agroindustrial complex, agroindustrial complex structure, branches of agroindustrial complex, poultry industry.

## I. INTRODUCTION

The political and economic situation that has developed in Russia and around Russia in recent years brings to the fore the most pressing issues, including the problem of the country's food security. The solution to this problem can only be associated with an increase in the efficiency of the domestic agroindustrial complex (AIC), with taking into account the interrelation of these elements based on the correlation approach. The dynamic development of one link of AIC is impossible without the simultaneous development of other links. This approach is due to the very concept of the agroindustrial complex, and the history of the emergence of this term is a confirmation of this.

In Russia, the concept of AIC in the second half of the 20<sup>th</sup> century, when agriculture has become integrated into industrial sectors actively and already at a new level. It was then that the inextricable link between the industrial production of agricultural machinery and agriculture has been realized. This is due, firstly, scientific and technological progress—it was the root cause. Secondly, the change in the economic situation in the world market has had an impact: the emergence of a huge number of similar products, sales

difficulties, reduction of producer power, and increase in the consumer power. Thirdly, all this led to a change in the marketing paradigm, when the manufacturer had to take into account the needs of customers and act with regard to competitors.

## II. LITERATURE REVIEW

The fundamental pre-revolutionary encyclopedic dictionaries, in which there is not even mention of the union of agronomy and industry, can serve as a justification for this thesis [14]. Despite the different levels of technical equipment for agriculture (on the one hand, primitive agricultural tools in the Russian Empire, and, on the other, tractors on US farms), the approach to agriculture by the beginning of the 20<sup>th</sup> century remained the same—as a separate independent industry.

This is observed not only in Russian editions, but also in foreign ones. Thus, in the American Encyclopedia of 1918-1920 (The Encyclopedia Americana or The Americana), the concept of agroindustrial is absent [2]. However, since the 1930s, the agroindustrial complex building as a response to the growth of the investment costs of farmers with low prices for the agricultural industry begins in the United States. It was also found that the agricultural sector was no longer self-sufficient. Its relationship with other sectors—suppliers, processors, carriers, distributors—has increased. This situation led to the fact that it was in the USA in the 40s of the 20<sup>th</sup> century that the agroindustrial complex was first formed [9].

In the Soviet Union, they followed the same path, but for objective reasons, at a slower pace. If we turn to the first edition of the *Great Soviet Encyclopedia* (GSE), then we can see that the concept of the agroindustrial complex as such did not exist in the Soviet republic in the 1920s, but it was already headed for mechanization and cooperation in the agrarian policy of the State [4].

At the same time, cooperation was understood as “a form of labor in which many people systematically and jointly participate in the same labor process or in different ones, but interconnected labor processes”, as well as “various kinds of mass collective associations in the field of production and exchange” [13].

In the second edition of GSE (the end of the 1940s), it is already not so much about cooperation, but about collective farm, and farmers were offered the services of machine and tractor stations—state-owned enterprises that provide agricultural equipment to large agricultural producers [7]. This can be considered as the first steps to create an agroindustrial complex in Russia.

The third edition of GSE already contains such a concept as agroindustrial associations—“a complex geographically, organizationally, and technologically united specialized agricultural enterprises with a group of industrial processing enterprises” [8].

The next stage of development of the approach to the definition of AIC is the end of the 20<sup>th</sup> – beginning of the 21<sup>st</sup> century. So, C.A. da Silva, D. Baker, A.W. Shepherd, S. Jenane, S. Miranda-da-Cruz; 1996-2009) understand as APC a subset of the manufacturing sector, processing raw materials and intermediate products obtained in agriculture, fishery, and forestry, as well as manufacturers of food, beverages, and tobacco, textiles and clothing, wood and furniture, paper, paper products, and printing production, rubber and rubber products [11].

V. Bauerly considers AIC as a progressive integration of agriculture and industry to meet market demands. The main thing in this definition is integration, reflecting the interconnection of all subcomplexes in AIC.

The most accurate definition of the agroindustrial complex, in our opinion, was given by B.A. Raizberg et al., T.V. Uskova et al., and B.E. Frumkin (Table 1).

TABLE I. SOME APPROACHES TO THE CONCEPT OF AGRICULTURE IN RUSSIAN SCIENCE

Authors	Year	Definition
T.V. Uskova, R.Yu. Selimenkov, A.N. Chekavinsky [9]	2013	The set of branches of the national economy, interconnected economic relations about the production, distribution, exchange, and consumption of agricultural products
B.A. Raizberg, L.Sh. Lozovsky, Ye.B. Starodubtseva [10]	2017	A set of branches of the country's economy, including agriculture and industries closely related to agricultural production, transporting, storing, processing agricultural products, supplying them to consumers, providing agriculture with machinery, chemicals, and fertilizers, serving agricultural production
B.Ye. Frumkin [11]	2004	Interindustry sphere, including reproduction cycles of final products from certain types of raw materials. The raw material base is agriculture. The functional structure of AIC consists of related specialized units, both prior to production and including it. Consists of the sphere of production means, agriculture, as well as transportation, procurement, and processing areas

Based on the points of view shown in the table, a slightly refined definition can be formulated: AIC is an interdisciplinary sphere of the economy, combining the reproduction cycles of specific groups of final products from agricultural raw materials; it includes agriculture and industries closely related to agricultural production, transporting, storing, processing agricultural products, supplying them to consumers, providing agriculture with

machinery, chemicals, and fertilizers, and serving agricultural production.

### III. RESULTS AND DISCUSSIONS

AIC is a set of sectors of the national economy, which are interconnected by economic relations about the production, distribution, exchange, and consumption of agricultural products. The overall ultimate goals of these industries are as follows:

1. the fullest possible satisfaction of the population's basic needs for food, consumer goods from agricultural raw materials;
2. addressing food safety issues;
3. a fundamental change in the living and working conditions of the rural population based on the growth of the efficiency of the complex [6].

AIC should be considered as a system of such interrelated industries as:

1. agriculture (animal husbandry and crop production) is the core of the entire agroindustrial complex;
2. industries that manufacture means of production (agricultural engineering, the production of mineral fertilizers, chemical protection against pests and diseases, agricultural construction, etc.), which contribute to the intensification and industrialization of the agroindustrial complex in general and agriculture in particular;
3. logistic (harvesting, storage, transportation of agricultural products), processing industries (food industry, feed production), the sphere of circulation [6].

The links of the branches of the agroindustrial complex, which should be taken into account when building an agroindustrial complex management model, are shown in the diagram of Figure 1.

Figure 1 shows that the development of agriculture is impossible without the production of engineering, chemical, construction industries, as well as veterinary, pharmaceutical, and feed ones, which have a significant impact on the development of agriculture. In turn, agricultural products enter the sphere of feed production, the procurement, processing industries, and the sphere of circulation.

There are objective prerequisites for the effective development of the agroindustrial complex in the Russian Federation. Thus, agricultural land occupies 222.1 million hectares [12] (which is 13% of all land); among the rural population, there are 21 million people of working age [3]; the capacities of enterprises producing agricultural machinery are sufficient for further growth in production (for example, in 2017, the Russian agricultural equipment was released 21% more than in the previous year [10], which made it possible to significantly increase the share of domestic agricultural equipment in the market). Also in 2016-2017, Russia fully provided itself with fertilizers, both mineral and organic, as shown by recent studies [1].

Furthermore, the sanctions that have been in effect since 2014 orient the Russian economy towards maintaining the policy of import substitution and the development of domestic producers.

**IV. CONCLUSIONS**

Thus, the path of the Russian agroindustrial complex was thorny, and its condition remained to be desired, and not only in recent decades. Thus, the 1990s were not always the turning point that marked the beginning of the stagnation of many branches of the agroindustrial complex. Problems in the agrarian sphere have emerged as early as the beginning of the 1980s. For example, from 1975 to 1990, there was a decrease in the area under cereals and grain legumes by 18.1%, and for potatoes—by almost 30%. At the same time, during this period, there was an increase of more than 60% of the gross harvest of cereals and grain legumes, but of potatoes—a decrease of almost 40% [12].

In 1975-1990, many branches of the agroindustrial sector developed, including animal husbandry, due to pig-breeding (almost 15% increase in the number of pig population in 15 years) and poultry breeding (an increase of 50.6%). Cattle livestock has increased slightly, balancing on the verge of decline, but the increase in milk production was 15% [5]. At that time, the population was independently wealthy in financial terms, so the available of effective demand could give impetus to the development of the entire AIC. However, the demand of the population was not satisfied; instead, a sharp rise in prices in 1992 dealt a blow to the domestic agroindustrial complex.

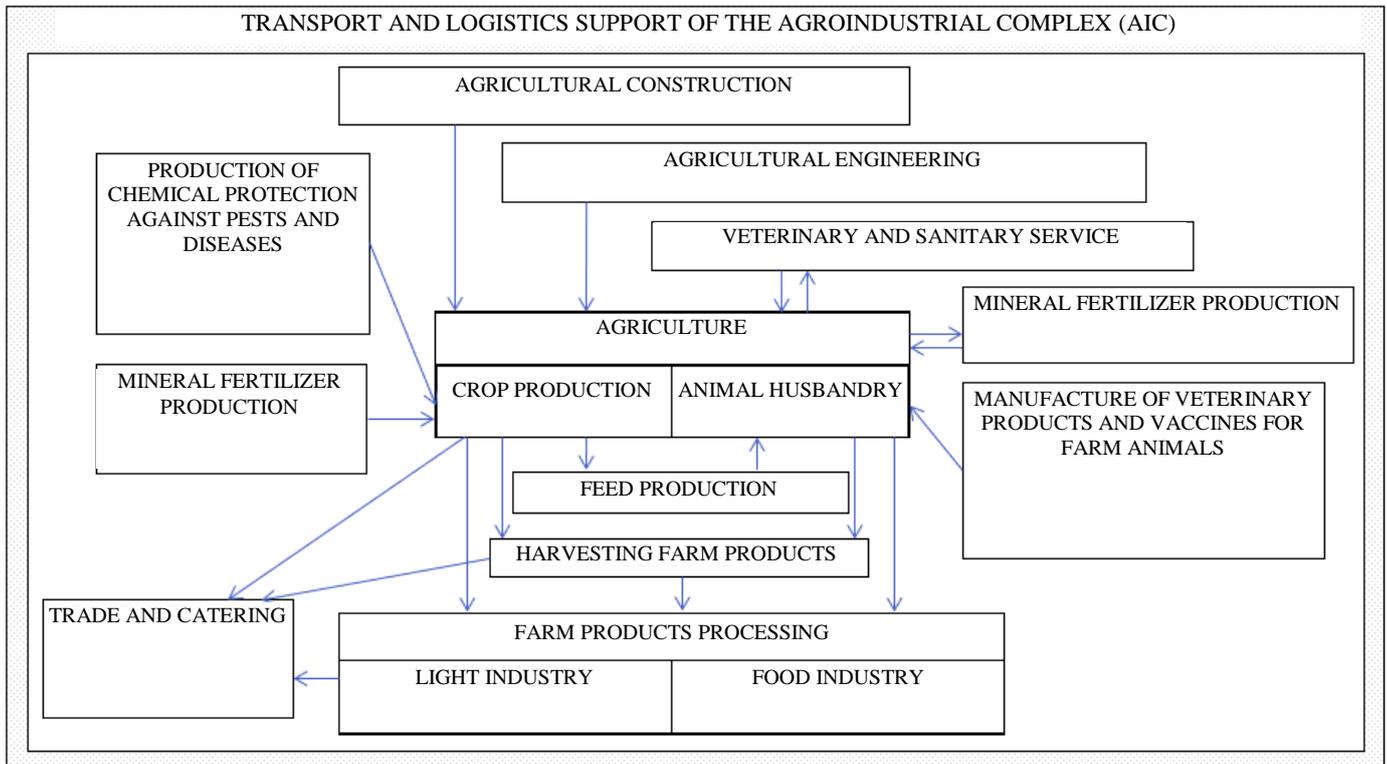


Fig. 1 – The structure of the agroindustrial complex

At this time, Russia has begun to give up its position in exchange for the loyalty of developed Western countries. The latter did not miss the moment and tried to strengthen the position of their own enterprises in this sphere through new markets. The most striking example is the chicken leg quarters that flooded Russia—“Bush legs”, which made a tough price competition to the domestic poultry industry.

From this period, most of the key indicators show a tendency to a steady decline: for example, from 1990 to 2005, the number of cattle has decreased by more than three times, and the number of pigs—by more than 40%.

The poultry stocks have declined right up to 2005, by almost 46%, but from this period (or rather, from 2006, when the “Bush legs” were blocked), it began to grow. This is due to the fact that the leadership of the country has realized the importance of developing its own poultry product

subcomplex, which can provide the country with high-quality poultry meat in a short time.

Thus, the efficiency of the poultry industry is inextricably linked with the development of all subcomplexes of the agroindustrial complex. However, import substitution is impossible without correlation of the processes occurring in all links.

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