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Abstract. The article describes the state of production of cattle meat on the example of the Voronezh region. It is revealed that the successful overcoming of the crisis period was achieved thanks to the measures taken to enhance investment activity. It was noted that the key condition for increasing the production of cattle meat in the region was the transition to specialized meat cattle breeding. The basis for the development of this subsector was the development of high-tech investment projects, under which the large-scale delivery of highly productive beef cattle from other countries was carried out. Along with this, new livestock complexes were built, advanced technologies were introduced into the production process. One of the stimulating factors was the adoption in the region of state support measures aimed at the development of breeding activities and an increase in the production of high-quality beef. In conclusion, the main problematic issues hindering the effective development of beef cattle breeding in the region are given, and the need to improve existing measures and mechanisms of state support is indicated in order to ensure further intensive development of this sub-sector and increase its investment attractiveness. In particular, a mechanism is presented to stimulate the breeding of beef cattle in households.

1. Introduction

In the conditions of the need to accelerate the development of agro-industrial production, the most important direction of its provision is the active participation of the state in stimulating the inflow of long-term capital to economic entities. One of the forms in implementation of the state participation in solving this large-scale task is state support for the investment development of various sectors of the agro-industrial production. Under the state support of investment development, we understand a system of economic instruments and organizational measures, as well as financial mechanisms, ensuring the process of continuous accumulation, formation, distribution, and use of resources aimed at large-scale development of high-tech investment projects in crop production, animal husbandry, and other related areas of agro-industrial production.

Within the current conditions of the Russian economic system for regulating the national economic complex, it is important to use different models of state support for investment development, covering a variety of business forms and taking into account the differentiation of capabilities of the federal center and regions in subsidizing business entities in the implementation of projects in the field of agro-industrial production.

As practice shows, the process of investment development of agro-industrial production in modern Russia is extremely uneven. The most attractive for investors are those industries and subsectors of the agro-industrial production, the investment of resources in which brings them the greatest profitability. While certain types of production activities requiring the attraction of long-term capital remain unattractive for investment, in particular, they include the production of beef cattle. In connection with this, it becomes relevant to consider the model of investment development of beef cattle in the region in which this subsector is successfully developing.

2. Methods

The article used the methods of comparative analysis, monographic, analytical, abstract-logical methods and others.

3. Results

In the conditions of the planned economy of the Soviet period, as is known, the main source of beef produced was the dairy-type cattle, namely, culled cows and super-young. However, due to a sharp reduction in the number of cattle during the transition to market relations, it became impossible to provide the population with beef only at the expense of dairy-type cattle. On this basis, it became necessary to develop the specialized beef cattle, aimed at increasing the production of high-quality cattle meat in the country.

The data of literary sources and our research indicate that at present one of the leading regions in terms of the development of specialized meat cattle breeding in Russia is the Voronezh region.

During the transition to a market economy in the Voronezh region, as in the country as a whole, there was a significant decline in livestock production. Thus, the number of cattle decreased from 1.4 million heads in 1990 to 638.8 thousand heads in 2000, i.e. 2.2 times. The production of cattle meat decreased by 2.3 times to 83.2 thousand tons, while the consumption of meat and meat products per person per year was 43 kg against 73 kg in 1990 [1].

To overcome the crisis that has arisen in agriculture and to ensure its dynamic growth in the Voronezh region, the priority national project “Development of the Agro-industrial Complex” was implemented, and the regional program “Development of Agriculture in the Voronezh region for 2008-2012” was subsequently approved. As a result, the volume of agricultural production in the region increased by 40% for the years 2006-2009, particularly by 34% in livestock products [2]. In the future, the regional program “Development of Agriculture in the Voronezh Region for 2013–2020” and the State program of the Voronezh region “Development of Agriculture, Food Production and Infrastructure of the Agri-food Market” were adopted.

In addition to the measures taken by the state support, an active policy in the implementation of investment projects began to be pursued in the region. Thus, the volume of attracted investments for the development of animal husbandry amounted to 6.1 billion rubles in 2009 against 55 million rubles in 2005 [2]. In aggregate, the investment attractiveness of agriculture in the Voronezh region has increased significantly. So, fixed capital investment in agriculture, hunting and forestry in the region doubled in 2013-2016, reaching 30.6 billion rubles in 2016 (by large and medium-sized organizations). It was second only in terms of production and distribution of electricity, gas and water, as well as in manufacturing [1].

In modern conditions, as research shows, the agrarian sector of the Voronezh region is characterized by a positive development trends. For example, the growth rate of agricultural production in 2016 was 3.7%, while for livestock products was 4.8% [1]. Over the past ten years, the production of milk and meat has increased significantly in the region. And animal productivity has increased.

It should be noted that one of the conditions for maintaining and further increasing the growth rates achieved in agricultural production is to stimulate private investment in the industry through creating a

favorable business environment, including macroeconomic, trade, tax policies, liberalization of domestic markets, subsidies, enforcement of contracts, etc. [3].

In general, the number of cattle in the region increased by 19.4% (up to 463.7 thousand heads) for the period 2005-2017. The largest livestock population is concentrated in agricultural organizations (65.1%), the share of households of the population is 26.6%. It is noteworthy to note the increase in livestock numbers in peasant (farmer) farms, from 9.2 thousand heads in 2005 to 38.4 thousand heads in 2017 [1].

Against the background of growing livestock numbers, a steady increase in cattle meat production has been observed since 2009 in the Voronezh region. Thus, the cattle meat production in the region increased by 40.1% for the years 2009-2017 and amounted to 95.7 thousand tons in live weight, whereas for the period under review the level of meat production in Russia and in the whole in the Central Federal District decreased [1]. As a result, the Voronezh region ranks 6th in the country and 1th in the Central Federal District in 2017 in terms of the production of cattle meat.

However, studies indicate that the key condition for increasing cattle meat production in the Voronezh Region was the formation and development of beef cattle breeding. In particular, even before 2010, the main source of cattle meat production in the region was dairy-type cattle, and the specialized beef-raising industry in the agro-industrial complex of the region was almost absent. However, the implementation of large high-tech investment projects (in particular in such enterprises as the “Zarechnoye” LLC, “Stevenson-Sputnik” LLC, “ECOproduct” LLC, and others) and the adoption of measures by the state to stimulate the development of beef cattle breeding contributed to a change in the structure of beef produced in the region.

According to literary sources, in the framework of ongoing investment projects in the Voronezh region, the large-scale delivery of livestock from other countries was carried out due to the lack of high-quality genetic material in Russia. In general, for the years 2005-2014, 28 676 heads of beef cattle were imported into the region, of which 97.2% were the Aberdeen-Angus cattle breed. The remaining part was represented by the following cattle breeds: Charolais, Limousine, Simmental, and Hereford. Deliveries were carried out mainly from the USA, Australia, some countries of Europe. Thus, 21.5 thousand heads of Aberdeen-Angus cattle were imported from the USA, 4.6 thousand heads from Australia, 1.7 thousand heads from Slovakia. According to experts, part of the imported cattle was eliminated due to forced slaughter and death. In this case, the main causes were livestock injuries, including during transportation, diseases associated with metabolism, liver, respiratory organs, etc. [4]. Despite the obvious losses, after a while, a high level of offspring was obtained, which made it possible in subsequent years to reduce imports of animals due to its own expanded reproduction.

Choosing the Aberdeen-Angus breed in the region was due to the good acclimatization of this cattle in temperate climates, as well as the high demand for Aberdeen-Angus cattle in many countries with developed beef cattle breeding due to its precocity, good meat productivity, and adaptability to pasture keeping, which allowed getting high quality meat [5].

Thus, in the region for 2012-2017, the number of specialized beef cattle increased threefold and amounted to 116.1 thousand heads, including 53 thousand heads of cows. In turn, the number of crossbred cattle obtained from meat bulls and dairy cattle reached 35.9 thousand heads. In this regard, by the end of 2017, beef cattle made up almost a third of the total cattle population in the region, and the volume of meat production from beef cattle reached 16.5 thousand tons and exceeded 17% of the total volume of cattle meat produced for slaughter in live weight in the Voronezh region [6].

Of particular note is the role of breeding activities in the intensive development of beef cattle on the example of the studied region. With the financial support of the authorities, economic entities began to actively acquire breeding livestock. And the breeding farms, in turn, focused on breeding animals that had high rates of productivity and adaptability to environmental conditions. So, at the beginning of 2017, according to the data of the State Tribal Register, there were 8 breeding farms in the region, including one breeding plant (“Stevenson-Sputnik” LLC), where the Aberdeen-Angus breed was the main one. It is noteworthy that the breeding stock of beef cattle for 2015-2017 increased

by more than 1.5 times and reached 9.7 thousand heads by the end of 2017. Breeding reproducers supply pedigree livestock both within the Voronezh region and beyond. For example, in 2017, more than 2 thousand heads of breeding beef cattle were sold, while in recent years cattle deliveries to other regions increased, which on the one hand was caused by the formation of the breeding core in the region [6].

Returning to the creation of the necessary economic and technological conditions for the sustainable development of beef cattle breeding in the Voronezh region, it is necessary to note the adoption of the departmental target program "Development of Meat Cattle Breeding of the Voronezh region for 2011-2013", for the implementation of which 691.8 million rubles were provided. The program identified the following types of support: subsidies to the head of mixed breeds and beef cattle being sold to the fattening enterprise; subsidies to purchase breeding stock, biomaterial, technological equipment; subsidies to increase the breeding stock, as well as measures to support investment activities relating, for example, to preferential conditions, etc. [7].

Subsequently, in the framework of the Voronezh Oblast State Program "Development of Agriculture, Food Production, and Infrastructure of the Agri-Food Market," a subprogram "Development of Beef Cattle Breeding" for 2014-2016 was adopted, aimed at increasing the competitiveness of the subsector, with a total funding of 3.8 billion rub. In particular, within the framework of this subprogramme, subsidies were provided in 2016 for the reimbursement of a part of the interest rate on investment loans in the field of beef cattle, subsidies to support economically significant regional programs and pedigree beef cattle [8].

In general, the indicators provided by the subprogram were achieved, which indicated the effectiveness of the activities carried out [8]. At the same time, a generalization of literary sources and our research indicate that, despite the measures taken by state support, the attractiveness of beef cattle for agricultural producers remains at a rather low level. Thus, an analysis of the structure of livestock and poultry production for slaughter (in live weight) in the region showed that for 2007-2017 (with the absolute growth of beef in the agri-food market), there was a decrease in the share of cattle meat from 36.7% in 2007 to 22.7% in 2017 [1].

In this regard, on the basis of the conducted research, we identified the following issues of concern, which restrain the growth of production volumes and economic efficiency of beef cattle breeding:

1. The use of outdated equipment with a high level of wear, which leads to an increase in labor costs and loss of quantity and quality of products. This particularly applies to the technology and equipment for the preparation of feed. Along with this, a significant part of the producers maintains the year-round livestock in the capital premises, which significantly increases production costs. In this case, it is necessary to increase the amount of funds allocated to compensate part of the costs of producers due to the acquisition of modern machinery and equipment, as well as the modernization of livestock farms. In addition, an important role is the expansion of concessional lending and the purchase of livestock equipment on a leasing basis. It should also be noted that the development of leasing livestock is a promising direction for improving the efficiency of beef cattle breeding. As is known, in October 2017, in addition to pedigree beef cattle, specialized meat breeds, which are bred in Russia, were leased. This measure is aimed at increasing the number of suppliers of beef cattle and substantial cost savings for agricultural producers, since commodity cattle are much cheaper than pedigree cattle.
2. Sale of livestock for meat with a live weight of less than 450 kg, which is due to the low organization of the system for fattening livestock, low average daily weight gain and often lack of motivation or funds from producers for intensive fattening. In this case, the stimulating factor can be the allocation of subsidies for each head of livestock to those economic entities that sell livestock with a live weight of over 450 kg. It is important to limit the maximum period of fattening livestock. In particular, it is advisable to set it at 24 months. Otherwise, the achievement of a higher mass of sales will be provided not by increasing the fattening of

livestock and increasing average daily gains, but by increasing the age of the livestock at which it is slaughtered.

3. Low productivity of natural forage lands, which does not allow providing livestock with high-quality fodder, which leads to their insufficient daily average gain. The importance of this direction for the development of beef cattle breeding necessitates the provision of subsidies to agricultural producers for reimbursement of part of the costs caused by a radical improvement of pastures per 1 hectare. In this case, the condition for the provision of subsidies should be the subsequent use of pastures for keeping beef cattle for a minimum period of not less than 5 years. In addition to the above provision, the important role is played by the subsequent implementation of the federal targeted program for the development of land reclamation.
   In this area, we propose the creation of a public pasture on the territory of a certain pilot region, where beef cattle breeding is actively developing or planned. This proposal, in our opinion, will be especially relevant for small farms, including households, which can take their livestock to a given pasture for a certain period, where animal care, feeding and veterinary services will be produced by pasture workers. Under conditions of a temperate climate, in these pastures, livestock may be kept from May to September. At the same time, a prerequisite is the conclusion of a contract between the pasture owner and the livestock supplier, which will set out the conditions and terms for keeping the animal, as well as the corresponding fee for keeping and feeding the livestock.
4. The disparity of prices in the framework of the main stages of the production of meat cattle breeding. In particular, we would like to note the outpacing growth of electricity tariffs, prices for equipment, machinery, feed, especially in relation to sales prices for cattle meat, as well as unresolved economic relations between agricultural producers, processors, and wholesale and retail trade. A generalization of literary sources shows that in the structure of the retail price of beef, an agricultural producer accounts for no more than 30% on average. In this connection, the regulation of the relationship between purchasing, wholesale, and retail prices for meat of livestock breeds remains an important issue. One of the ways to solve this problem, in our opinion, may be the provision of tax holidays (benefits) to enterprises that provide their products or services to agricultural producers specializing in raising beef cattle.
5. Insufficient level of personnel training and the availability of highly qualified personnel. Analysis and synthesis of literary sources suggests that the skill level of workers has a significant impact on the physiological state of livestock. In particular, the creation of inadequate housing and feeding conditions does not allow the animal to realize its genetically potential. In this issue, an important role is played by staff development on the basis of established training centers, within which a separate training program is aimed at workers engaged in the cultivation of beef cattle, and including the main issues of keeping, feeding, and caring for animals. At the same time, we believe that for small forms of management such courses should be free of charge and should be held in the winter period when employment in the field of agricultural production is minimal. Indeed, the organization of training for farmers and households is one of the conditions for increasing the competitiveness of their production activities. Thus, within the framework of training, representatives of small business forms will receive information on modern technologies, production methods and standards, opportunities for interaction with large agricultural enterprises and investors [9]. In addition, it is necessary to create pilot highly efficient enterprises in the region, on the basis of which it is important to organize personnel training, as well as to work out modern technological solutions.
6. Underdevelopment of sales channels. In our opinion, a promising direction of increasing stability in the subsector is the development of a contractual system for the procurement of livestock, which should subsequently go to the stock exchange of livestock trade. This system provides for an agreement between calf producers and fattening enterprises regarding the conditions of livestock supply for rearing and fattening, which stipulates the delivery time of

livestock, number of livestock, its live weight and price depending on the weight of the animal, which would contribute to predictability in the beef cattle market.

7. Insufficient level of integration of small farms with major producers of beef cattle products [10].

Certainly, the creation of large agro-industrial complexes in regions similar to "Zarechnoye" LLC in the Voronezh region is a significant step towards the formation of the effective specialized meat cattle breeding in the country. However, this requires a long period of time and considerable investment and financial resources, the amount of which is rather limited in the current economic conditions. In this regard, in our opinion, in addition to the creation of large agro-industrial formations, a promising direction for the further development of the subsector is to stimulate the production of meat cattle breeding in small agricultural enterprises and small business forms, in particular in private farms, which is a less expensive tool for the authorities.

In this regard, we have developed a system of measures of state support for citizens, leading personal subsidiary farms and engaged in beef cattle breeding.

The primary type of state support should be the reimbursement of part of the costs for the purchase of beef cattle, with the purchase of no more than 10 head of cattle per year. The size of the subsidy should vary depending on the type of livestock. As it is known, the highest cost is typical for cows, followed by heifers, chicks, and young bulls. The main conditions for obtaining subsidies for the purchase of a cow should be the preservation of the livestock of cows for three years and the experience of raising livestock, which is recorded in the household book, in particular the presence of a cow in a personal subsidiary farm for three years.

In order to improve the gene pool and obtain calves with high genetic productivity, it is necessary to provide subsidies for the organization of artificial insemination of livestock. We consider it expedient to organize the mobile district artificial insemination centers, which will significantly increase the coverage of private farms. In turn, for citizens, artificial insemination of breeding stock of beef cattle should be free of charge, which saves the need to conclude an agreement, which later would be a confirmation of receipt of this service. Citizens wishing to use this type of support must submit an application to the district administration.

It is important to note that the organization of artificial insemination of livestock, as well as its free veterinary inspection on an annual basis, are the areas of state support for citizens, leading personal subsidiary farming, as specified in the Federal Law "On Personal Subsidiary Farming." At the same time, we believe that the veterinary bypass of farms engaged in the cultivation of beef cattle should be carried out quarterly, which at the first stage of the development of beef cattle breeding in the farms of the population will make it possible to timely detect or prevent inappropriate care of livestock, veterinary risks, etc.

Expediently it is also assignment for each healthy calf born from a cow meat provided on its cultivation suckling. In this case, in our opinion, the amount of the subsidy should be divided into two parts. The first part is paid directly at the birth of the calf, and the second is covered after 6 months. This measure will increase the livestock of beef cattle and subsequently lead to an increase in beef production.

In addition, we propose the allocation of this category of rural residents on a gratuitous basis of concentrated feed (or feed grain) at the rate of 1 ton per conventional head of beef cattle per year [11]. The validity of this proposal is confirmed by a number of arguments. So in Russia and in the Voronezh region in particular, there has been a record grain production in recent years. At the end of 2017, the gross harvest of grain and leguminous crops amounted to 5.7 million tons in the Voronezh region [1]. In turn, the main cost item in the cultivation of beef cattle in private farms are fodder resources, due to the high cost of which rural residents often slaughter livestock in the fall and do not continue to feed it in the winter. In our opinion, the proposed type of state support will significantly reduce production costs and subsequently lead to the slaughter of heavier young cattle.

At the same time, it is necessary to take into account that one of the key elements of state support, along with administrative legal and financial and economic, is informational support [12, 13, 14]. In

this regard, an important condition for the successful implementation of the above areas is the development of consulting centers, providing free of charge advices on the organization of livestock raising, existing types of state support, various production models. We also consider it expedient to prepare manuals and information materials on the organization of the cultivation of beef cattle for a specific area.

In general, increasing the efficiency of meat production should be consistent. The priority is to ensure the break-even of the activities of producers, in the subsequent achievement of simple reproduction by them and at the third stage ensuring expanded reproduction with the possibility of introducing innovative technologies.

4. Discussion

Studies show that the development of competitive and efficient beef cattle is impossible without the implementation of large investment projects aimed at creating agro-industrial formations, on the basis of which advanced innovative technologies are introduced, high quality of products is provided, highly qualified personnel are attracted, the world market is being released, etc. However, this does not preclude the development of production in small enterprises and small business forms, the main purpose of which is to provide employment to the rural population and to supply products to local markets. In this regard, one of the ways to increase the production of beef cattle should be to stimulate the breeding of beef cattle in small farms, in particular in households, through state support measures.

5. Conclusion

Further development of beef cattle on the example of the Voronezh region, in our opinion, should be aimed at improving the efficiency of meat production, maximizing the regional food market with its own high-quality meat and increasing employment of the rural population. The key role in this direction is played by the active development of related industries, both within the agriculture itself and in the associated farms in the agro-industrial complex. In addition, of particular importance is the modernization of livestock farms, ensuring the introduction of high-tech innovative projects in the production process, ultimately aimed at increasing the investment attractiveness and efficiency of production of beef cattle in the region.

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