Contracting repair young animals in personal subsidiary plots of the population

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Abstract. In modern conditions, livestock production in the Samara region faces many difficulties. One of the main ones is the insufficient number of young stocks at large agricultural enterprises to ensure the growth of cattle. At the same time, another significant source of young growth — the household economy — is practically not in demand for these purposes. A significant number of cattle in this sector of agricultural production, high productivity allows us to consider personal subsidiary plots as a real alternative to the acquisition of young animals. The purpose of the work is to develop a contracting system for young cattle in private household plots to increase the number of livestock in agricultural enterprises. The proposed option involves the participation of government agencies, which should provide organizational and consulting support in solving integration, veterinary, financial issues. The creation of an integration system for providing agricultural organizations with young stocks of repair at the expense of the resources of private farms will give a new impetus to the development of this sector. Attraction of real state support in private farms, creation of a regional integrated structure based on the State Unitary Enterprise “Veles” will stimulate the development of this sector. The region is interested in increasing production in the dairy industry, as it provides less than 50% of its own demand for this type of agricultural product. In addition (at least in the early years of the system), the implementation of the proposed measures will allow more efficient use of budget funds, achieving a synergistic effect by reducing the actual purchase price of repair young animals by agricultural producers.

1. Introduction

Dairy cattle breeding in the Samara region is currently in crisis. This is evidenced by the fact that the region provides, through its own production, only 46% of the total needs of the region’s population [4]. A decrease in the number of cattle in agricultural organizations, a decrease in the number of dairy farms indicate a low attractiveness of this industry for agricultural producers and potential investors. Since 1996 alone, the number of cattle and cows has decreased by 3 times, since 2000 - by 2 times, over the past ten years it has not changed. Moreover, in recent years there has been a decrease in the number of livestock in private farms (especially bright - in the last three years). This process is explained by the transfer of part of the livestock from private farms to peasant (farmer) farms to receive subsidies for the creation of a new farm [3].
As a result, stagnation of production volumes in dairy cattle breeding is observed. In farms of all categories in the Samara region, there is a slight increase in milk production (from 2013 to 2018) by 9.0%. In agricultural enterprises over this period there was a 16% increase, and in the sector of households - a decrease of 13%. The same tendencies are observed in meat production - an increase in total production (by 15%) in agricultural enterprises (by 42%), and in private household plots - a decrease of 23% [10]. Partial compensation for the rate of decline in milk production due to the number of animals in the private farms sector is observed due to an increase in the productivity of cows. Since 2013, there has been a steady increase in milk production at households from 4443 kg to 4731 kg per lactation (or 6.5%). Only in 2018, agricultural enterprises were able to exceed the level of productivity shown by private household plots (mainly due to the massive supply of livestock from abroad). This indicates a sufficiently high genetic potential of animals in households [5].

In recent years, attempts have been made in the Samara region to rectify the current situation. Large projects are being implemented to intensify dairy cattle breeding (new modern complexes are being built, old farms are being reconstructed, livestock are being purchased abroad with high genetic potential for productivity, etc.) At the same time, one of the constraining factors for the development of dairy cattle breeding is the shortage of the number of repair young animals.

2. Methodology
Production tests of imported livestock in the conditions of the Samara region showed that in most cases the adaptive capabilities of these animals do not correspond to the technological parameters in which they are kept, due to which milk production, reproductive ability of animals and their life are reduced. This issue is especially relevant in connection with the purchase of many heifers from abroad. Significant demand for the stock of repair young animals cannot be provided only by importing animals from other regions and from abroad, since it is limited by the financial capabilities of agricultural enterprises (increase in the exchange rate, the refusal of foreign suppliers to work with Russian state-owned companies (due to existing sanctions, etc.). To meet the needs of dairy farms in the Samara region, it is necessary to find internal reserves for increasing the number of livestock by using the resources of personal subsidiary farms, since at present more than 90 thousand heads are kept in the LPH of the region [1, 12].

3. Discussion and Results
Today, private farms are reducing the volume of production. This is due to both an increase in non-agricultural income of rural households and a lack of attention from the regional authorities. For example, in 2018, out of more than 40 areas of support for agricultural production in the region, only two are aimed at the development of households: compensation of the interest rate on loans and borrowings and subsidies for the maintenance of cows. In absolute terms, this amounted to about 50 million rubles out of more than 6 billion rubles aimed at supporting agricultural production in the Samara region, and this with comparable volumes of production. Therefore, if we calculate the support indicator (PSE) as a whole, we get a modest 8.3% (Table 1). The real size of state support for agricultural organizations and peasant (farmer) households in the Samara region (17.2%) is comparable with the support of agricultural production, for example, in the USA (about 21%) [5, 9].

In such a situation, it is difficult to count on maintaining the production of personal subsidiary plot products at an existing level. For their development as a commodity production, increase in the volume of manufactured products, it is necessary to implement new forms of integration formations for the growth of production at the regional level.

When preparing measures to create an integration system for providing young stocks in the Samara Region, it is necessary to monitor the state of livestock production in agricultural organizations, peasant farms and private farms, which will determine the potential of personal subsidiary plots in the development of livestock production in the Samara region [7].
Table 1. Current expenditure commitments of the Ministry of Agriculture and Food of the Samara Region, million rubles

| Year   | 2014     | 2015     | 2016     | 2017     | 2018     |
|--------|----------|----------|----------|----------|----------|
| Plan   | 3513.8   | 3593.9   | 3694.7   | 4374.4   | 6208.4   |
| Fact   | 3490.9   | 3553.4   | 3659.9   | 5159.7   | 6038.4   |
| Completion percentage | 99.3 | 98.9 | 99.1 | 118.0 | 97.3 |
| Agricultural products (in actual prices, billion rubles) | 35.8 | 51 | 58.2 | 67.7 | 73.1 |
| State support level indicator (PSE),% | 9.8 | 7.0 | 6.3 | 7.6 | 8.3 |
| Agriculture products excluding private household plots, billion rubles | 13.3 | 22.5 | 25.4 | 32.7 | 35.1 |
| PSE indicator excluding personal subsidiary plot,% | 26.2 | 15.8 | 14.4 | 15.8 | 17.2 |

Figure 1. Stages of the formation of a system for providing agricultural enterprises with repairing young cattle through the resources of a personal subsidiary plot

Stage 1. To develop the Regulation on the interaction of various entities participating in this program based on mutually beneficial cooperation.

Stage 2. To compile a list of measures and criteria for the selection of private household plots for participation in the young stocking program.

Stage 3. To determine the parameters of the organizational and economic mechanism for the interaction of territorial bodies of agricultural administration.

Stage 4. To develop economic and veterinary technological standards for the rearing of young animals in private farms participating in the contracting program.

In order to create an integration system for growing and purchasing repair young animals, it is necessary to implement the following measures, both at the oblast level and in individual rural settlements (Figure 1):

Stage 1. To develop the Regulation on the interaction of various entities participating in this program based on mutually beneficial cooperation and the Procedure for state support measures for the participants of this integration association.

Stage 2. To compile a list of measures and criteria for the selection of private household plots for participation in the young stocking program.

1. To determine the criteria for assessing personal subsidiary plots (availability of premises for keeping young animals, the dynamics of the number of animals in the holding, work experience in an agricultural enterprise, and other requirements).
2. Determine the criteria for evaluating cattle (productivity, age, epizootic condition, conditions of detention, feeding and calf breeding technology) [18].

Stage 3. To determine the parameters of the organizational and economic mechanism for the interaction of territorial bodies of agricultural administration, State Unitary Enterprise “Veles”, veterinary services, agricultural enterprises and private farms for contracting.

1. Determine the functions and responsibilities of program participants (Ministry of Agriculture and Food of the Samara Region, State Unitary Enterprise SO Veles, territorial departments of agriculture, administrations of rural settlements, agricultural enterprises and owners of private household plots).

2. To formulate a system for monitoring compliance with the terms of the contract (frequency of visits to private household plots, rights and obligations of the parties, etc.).

3. To develop a system of motivation for private household plots to participate in the program (to determine the amount and payment procedure for reared young animals, the possibility of accruing retirement experience while participating in the program, etc.) [8].

Stage 4. To develop economic and veterinary technological standards for the rearing of young animals in private farms participating in the contracting program with the aim of obtaining a healthy and high-quality livestock, increasing the genetic potential, number of animals considering the specifics of farms and regions [13].

Figure 2. Integration system for the purchase of repair young animals during the formation of the dairy herd of the Samara region

1. Development of animal feeding diets considering age and physiological state (availability of feed according to diet structure).
2. Carrying out insemination with sperm of bull-producers of improvers.

3. Organization of veterinary services for animals kept in personal subsidiary plots of the population (vaccination, studies on leukemia, brucellosis, tuberculosis and other infectious diseases, conducting dehilmization, deratization, etc.)

4. Economic calculation of the selling price of repair young animals from households to agricultural organizations.

The process ofcontracting repair young animals includes the following steps (Fig. 2):

Stage 1 - the collection of applications for participation in the program for the maintenance of young animals (from agricultural enterprises forming a herd and personal subsidiary plots having the opportunity to supply high-quality young animals). The formation of the application package should go through the State Unitary Enterprise “Veles” as an integrator of the program, which in turn should group them according to the principle of minimizing the costs of events (by territorial location, the desired animal genotype and phenotype, etc.)

Stage 2 - monitoring of private farms to determine the condition of the breeding stock and animal welfare conditions. Conclusion of contracting agreements with the owners of households based on the fulfillment of the established criteria for participation in the program. The list of conditions should be formed in advance so that potential participants can adapt their households to them.

Priority at the conclusion of contracts should be given to members of agricultural credit consumer cooperatives, which in turn should act as guarantors of the fulfillment of obligations by private farms [6, 11]. As an alternative, the conclusion of a contract insurance contract for the supply of reared rearing young animals can be considered [2, 16]. However, this option is more costly and less preferred.

Stage 3 - covering the cows with sperm of bulls-producers-improvers.

Choosing the right seed is a very important issue. Namely, due to the use of sperm of suitable quality, it is possible not only in the short term to guarantee the quality of repair young stocks, but also in the long term - to solve the problem of holsteinization of local livestock. In addition, in order to control the epizootic situation and improve the quality of the offspring, it is necessary to exclude the natural cover of cows, and apply artificial insemination using animal seeds from Israeli, American or Canadian breeding.

Stage 4 - the development of recommended rations for feeding animals and the formation of a feed supply system. To do this, it is necessary to extend government intervention purchases to the feed group, in the volume of the forecasted demand for private farms concluding contracting agreements. To ensure the admission of program participants for the purchase of feed from the regional reserve fund at bid prices held during their purchase. Feed replacement is allowed only after analysis of nutrient content in certified laboratories.

Stage 5 - quality control of the cultivation of repair young animals. For this, it is recommended to provide for visits to personal subsidiary farms by farm specialists with a frequency of once every two weeks. They should be able not only to recommend compliance with the cultivation technology, but also to make situational adjustments in case of deviations identified, which in the long term can lead to a deterioration in the quality of repair young animals.

Stage 6 - transfer of the raised animals to agricultural enterprises engaged in the acquisition of stock herds. The age of transmission may depend on the condition of the animal and the technology used in a enterprise. The growing period cannot be less than 13 months but should not exceed 20 months.

Settlement under contracting agreements is carried out considering the costs incurred by the parties for the provision of feed, contract maintenance and advance payments. Resolution of conflict situations arising from the implementation of the contract.

When implementing the proposed activities, the following results are expected:
- increase in the number of repair young animals acquired by agricultural enterprises and peasant farms by 40-50 thousand heads over three years;
- reduction in the cost of acquiring repair heifers by 30-60%
- reduction in the incidence of cattle in private farms for leukemia and other diseases;
- increase in the percentage of reliability of animal welfare for infectious and invasive diseases, etc.:
- reduction in the number of obstetric and gynecological diseases, mastitis, diseases of the extremities due to the innovative technology of growing repair young animals, developed in the Samara State Agrarian University;
- increase the number of cattle, adapted to regional conditions and features of the maintenance due to internal reserves with minimal costs.

Animals obtained by the contracting system will have good milk production, reproductive qualities and a viable offspring. Animals will meet the veterinary and sanitary requirements for breeding stock (well-being for infectious and invasive diseases).

4. Conclusion
The creation of an integration system for providing agricultural organizations with young stocks of repair at the expense of the resources of private farms will give a new impetus to the development of this sector. Attraction of real state support in private farms, creation of a regional integrated structure because of the State Unitary Enterprise “Veles” will stimulate the development of this sector. The region is interested in increasing production in the dairy industry, as it provides less than 50% of its own demand for this type of agricultural product. In addition (at least in the early years of the system), the implementation of the proposed measures will allow more efficient use of budget funds, achieving a synergistic effect by reducing the actual purchase price of repair young animals by agricultural producers (the price reduction will correspond to the amount of the subsidy that is now paid upon acquisition young animals (25-45%)).

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