THE OPTIMIZATION OF THE FEED PRODUCTION PLAN AND ITS INFLUENCE ON THE EFFICIENCY OF ANIMAL PRODUCTION

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Abstract: *The study reflects the impact of optimizing the production plan and the use of feed on the efficiency of animal production. In this context, it was established that a significant increase in animal productivity would be possible as a result of improving the structure of the feed base, the preparation of quality fodder, as well as the use of advanced technologies in pyrotechnics and animal husbandry. The analysis is completed by illustrating the specific situation of "Vealvit - Agro" LLC from Cerniţa village, Floresti district, the Republic of Moldova in the period 2016-2018. The results show that to determine the optimal variant of the production plan and use of feed, to provide the livestock sector with quality feed, with minimal costs, along with traditional methods, it is rational to use the method of economic-mathematical modeling with solving the computer problem which, in fact, is the purpose of the study.*

• Introduction

The creation of the feed base plays an important role in the agricultural economy, ensuring the yield of animal production, increasing animal productivity, and last but not least - increasing the quality, production efficiency, and stability of the agricultural production process.

In order to increase production and reduce the cost of feed, as well as the feed base as a whole, it is important that each farm, which deals with animal husbandry, determine the rational structure of the feed base, the type of feed for various categories of animals and the efficiency. Economics of feed production, adjusted to the operating conditions of the enterprise.

• Materials and methods

In order to determine the optimal plan, for production and use of feed for the existing livestock in the analyzed household, the analysis, and the mathematical modeling method were used. They provide the composition of the respective economic-mathematical model and the preparation of the initial information. Based on the methods listed below, the numerical economic-mathematics model is created, and the problem is solved on the computer.

• Research results

The analyzed agricultural holding has a narrow specialization because, in the structure of sales revenues in 2016-2018, the share of revenues from milk sales is about 93%. It is necessary to mention that the 3-4-day-old reeds are marketed, and the calves - divided into age groups, which along the way are transferred to the group of up to 3 months, then the calves from 3-6 months and older 6 Monday, still filling the herd of cows.

In the next step, we will analyze the structure of the sown areas with the agricultural crops that provide the animals with fodder, at the same time comparing it with the optimal data obtained as a result of solving problems at the computer .

The structure of the areas sown with agricultural crops in LLC "Vealvit-Agro" compared to the optimal plan

Name of agricultural crops	Variables ha	Data for 2019		The optimal plan for 2021		Deviations, (+;-)	
		ha	%	ha	%	ha	%
Autumn wheat (feed grains)	X_1	10	6,2	16,8	10,4	+6,8	+4,2
Spring barley	X_2	28	17,3	7,7	4,7	-20,3	-12,6
Pea-feed peas	X_3	-	-	12,2	7,5	+12,2	+7,5
Soybean feed	X_4	-	-	4,2	2,6	+4,2	+2,6
Sunflower	X_5	6	3,7	8,3	5,1	+2,3	+1,4
Corn grain feed	X_6	20	12,3	24,6	15,2	+4,6	+2,9
Maize - silo	X_7	60	37,0	24,4	15,1	-35,6	-21,9
Corn - green mass	X_8	-	-	8,0	4,9	+8,0	+4,9
Annual plants - green mass	X_9	-	-	2,6	1,6	+2,6	+1,6
Lucerne - hay	X_{10}	21	13,0	12,2	7,5	-8,8	-5,5
Alfalfa - hay	X_{11}	11	6,8	16,2	10,0	+5,2	+3,2
Lucerne - green table	X_{12}	6	3,7	24,8	15,3	+18,8	+11,6
Total		162	100	162	100		

Based on the data highlighted in table 1, we notice that in the structure of sown areas a considerable share is held by silage corn (37%). On the second position is placed spring barley (17,3%), and on the third - alfalfa for hay (13,0%). According to scientifically argued rules. The alfalfa is insufficient for the annual insurance of animals with the assortment of feed.

• Conclusions

1. The research carried out allows us to deduce the important cause of the declining indicators in the livestock sector is the lack of a strong, balanced feed base, which is conditioned by insufficient production and a lower quality of feed.

2. Significant increases in animal productivity would be possible as a result of improved feed structure, quality feed preparation, balanced animal feeding, and the use of advanced technologies in pyrotechnics and animal husbandry.

3. Actually, in order to determine the optimal variant of the feed production and use plan, in order to provide the livestock sector with quality feed, through minimum costs, along with traditional methods, it is rational to use the method of economic-mathematical modeling with solving the problem at the computer.