

Представлен разработанный в результате проведенных исследований метод укрепления оболочки икры с последующим консервированием. Способ укрепления клеточных оболочек овулировавшей икры осетровых рыб перед обработкой, характеризуется тем, что икру обрабатывают после обесклеивания раствором, содержащим  $\text{Ca}^{2+}$  (II) в течение 1 минуты при температуре  $9^{\circ}\text{C}$

Описанная технология позволяет получить икорную продукцию с высокими органолептическими показателями.

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**Almatova G.S.**, postgraduate

**Ombayev A.M.**, Doctor of Agricultural Science, Professor

NPJSC «Kazakh National Agrarian University», Almaty, Republic of Kazakhstan

### **ZOO – TECHNICAL EVALUATION OF SANTA GERTRUDIS CATTLE UNDER THE ZHAKSYLYK FARM CONDITIONS**

#### **Abstract**

In Kazakhstan, a feature of beef cattle husbandry is the production of ecological meat with the maximum use of natural resources (187 million hectares of pasture land). At the same time, in the South-East of the republic, the natural and climatic conditions are very specific (high dry temperature in summer, swampy salt grasslands, mass occurrence of blood-sucking insects, the presence of natural focal diseases, etc.). In such a rather vast region of the republic, not only domestic meat breeds but also meat breeds imported from abroad did not show their productive, breeding qualities and other economically useful signs, such as Santa Gertrudis breed of beef cattle. In this regard, the focus of work on increasing the productivity potential of beef cattle of «Zhetisu» zonal type of the Santa Gertrudis breed by using effective methods and techniques of selection is relevant and is inextricably linked to the implementation of the national task, i.e. ensuring food security of the country.

In this paper the data are presented that were obtained in the course of the evaluation studies of Santa Gertrudis cattle under conditions of the «Zhaksylyk» farm by the main economically important traits. The main work was carried out to assess the breeding value of cattle. Since the previous factor is the summing up of the evaluation of bull calves by their own productivity and bulls by their quality of posterity, therefore the bulls were evaluated by their own productivity.

In General, during the evaluation of the breeding value, the animals of the «Zhaksylyk» farm had an average fatness and the herd was in good condition. All sanitary and preventive works were carried out on time. Good results were obtained as the bulls were selected from among the best in terms of productivity for the evaluation of their own productivity.

***Keywords:** beef cattle, Santa Gertrudis, evaluation of breeding value, improvers, neutrals, degraders.*

**Introduction.** Providing the needs of the population with foods, in particular beef, the solution of which determines the necessity for the development of meat cattle husbandry both by increasing the number of meat cattle and increasing their productivity [1].

An important reserve for increasing meat resources is the development of specialized beef cattle husbandry adapted to certain natural and climatic conditions of various zones in Kazakhstan. Animals of specialized meat breeds are characterized by higher meat productivity and quality of beef, precocity and good feed efficiency. This industry is low-cost, making it possible to efficiently produce meat products in regions with extensive land use, where the development of, for example, dairy cattle breeding is constrained by limited investment, feed conditions, and remoteness from dairy product markets. A feature of the beef cattle industry is the cost-effective production of ecological beef with the maximum use of natural resources that have extensive pasture lands.

In the South-East of the Republic, in floodplains of rivers and lake basins with specific environmental features (high dry temperature in summer, swampy salt grasslands, mass occurrence of

blood-sucking insects, the presence of natural focal diseases, etc.), work is continuing to increase the mass of beef cattle by using the Santa Gertrudis breed [2].

**Research methodology.** In the post-Soviet States, until recently, a system for assessing the breeding value of beef cattle has been used based on materials obtained as a result of the annual valuation (bonitation) of the herd by sex and age groups. Main qualifying features for the evaluation of beef cattle are: the growth rate of young animals and feed cost per 1 kg of gain in live weight, live weight of cattle in age periods, milk yield of cows (in live weight of young animals at 6 months age), assessment of the constitution and exterior, manifestation of the genotype (origin) and pedigree. The results of a two-stage evaluation of producers based on their own productivity and the quality of their posterity should also be taken into account in order to identify bull-improvers in a timely manner [3].

At valuation of meat cattle are estimated on live weight, milk content, weight of a calf at 6 months of age, reproductive ability, constitution and exterior with determination of an animal class on a complex of traits. In general, the existing system of assessing the breeding value of meat cattle is currently quite acceptable for domestic breeds of cattle: Kazakh white-headed, Aulekol and Zhetisu type, Santa Gertrudis breeds [3].

Table 1 – Distribution of animals by sex-age groups and breed

Group of animals	The number of animals at the reporting date	Of them registered	Including breed by				
			purebred	crossbreed			
				1	2	3	4
Total	2020	2020	2020				
Including							
Bull-producers	26	26	26				
Replacement bulls older than 18 months	121	121	121				
Bulls from 12 to 18 months	475	475	475				
Cows	393	393	393				
Heifers over 18 months old and heifers	192	192	192				
Heifers from 12 to 18 months	422	422	422				
Bulls from 6 to 12 months	291	291	291				
Heifers from 6 to 12 months	100	100	100				
Young growth up 6 months	-	-	-				

From the data in table 1, it can be seen that, as a result of sorting, 2020 cattle of Santa Gertrudis breed were selected in the Zhaksylyk farm to assess the breeding value and conduct a comprehensive assessment. Including 26 bull-producers, 393 cows, 887 bulls (bulls from 6 to 12 months – 291, bulls from 12 to 18 months - 475, replacement bulls older than 18 months – 121), and 714 heifers of different ages (heifers from 6 to 12 months – 100, heifers from 12 to 18 months – 422, heifers older than 18 month and young cattle – 192).

In the amended instructions on the valuation (bonitation) of breeding value and reproduction of animals approved in 2016, animals are not distributed to classes in the summary sheet. Also, the results of the performed work are not analyzed. Therefore, in order to ensure that need a complete analysis of the work in the form of a conclusion, we decided to evaluate the breeding value according to the classical instructions. To do this, in order to determine the breeding value and purpose of

animals of meat breeds of cattle, regardless of the organizational and legal form of farm, they annually perform valuation the whole herd, except for young animals up to 6 months of age, fattening animals, oxen and castrati.

Table 2 – Distribution of valued animals by class

Group of animals	Total numbers valued	including distributed by							Not categorized by class
		breed		class					
		purebreed	crossbreed	elite record	Elite	1	2	Not classified	
Total	2020	2020		310	706	942	62		X
including:									
Bull-producers	26	26		5	21				
Replacement bulls	121	121		36	85				
Bulls from 12 months and older	475	475		63	148	245	19		
Cows	393	393		52	129	196	16		
Heifers older than 18 months. and young cattle	192	192		27	53	102	10		
Heifers from 12 to 18 months	422	422		59	123	223	17		
Bulls from 6 to 12 months	291	291		53	102	136	-		
Heifers from 6 to 12 months	100	100		15	45	40	-		
Young growth up 6 months	X	X	X	X	X	X	X	X	X

As indicated in table 2, the elite-record class rated 310 animals, the elite - 706 and 1 class of 942 animals.

Properly organized and performed assessment of bulls by their own productivity, and bulls-producers by the quality of posterity, allows to conduct selection at high enough, qualitative level: timely identificate of highly productive, prepotent producers, genealogical, and, in the future, plant lines. At the organizing, evaluating the productivity and quality of the posterity, the work was carried out in the conditions of control and testing stations and most often in adapted rooms, directly in breeding factories and farms.

In evaluation, the increase in live weight over a period of 8 to 15 months of age, the feed intake by the group method were taken into account, an individual point estimate of the intravital meat qualities was made. The «A» index is assigned to young animals that have been evaluated for their own productivity. For breeding use, mostly bulls with a complex index of 100 or more points are left [3].

The bulls were selected for the test on their own productivity from among the best in terms of productivity therefore good results were obtained. All animals by live weight at 15 months were at the elite record class level. The average daily gain over the entire period of the test was 963.2 grams on average, and for the improvers was 984.4 g. Feed costs per 1 kg of weight gain were 7.1 of feed units. Meat products were 51.5 points.

Table 3 – Indicators of bulls evaluated on their own productivity

Groups	n	Indicators	Live weight in 8 months, kg	Live weight in 15 months, kg	Average daily increase, g	Meat forms, point	Cost feed per 1 kg of growth, feed units
Improvers	14	M±m	217,3±0,65	424,0±1,15	984,4±6,02	53,9±0,38	7,1±0,00
		Cv	1,12	1,02	2,29	2,67	0,15
Neutrals	16	M±m	216,8±0,8	417,4±1,7	955,7±7,7	51,3±0,6	7,1±0,00
		Cv	1,44	1,60	3,22	5,06	0,20
Degraders	10	M±m	213,4±2,27	412,0±2,52	945,7±9,07	48,3±0,63	7,1±0,02
		Cv	3,36	1,93	3,03	4,15	0,84
Total	40	M±m	216,1±0,92	418,4±1,58	963,2±6,41	51,5±0,61	7,1±0,01
		Cv	2,08	1,85	3,26	5,82	0,46

**Conclusion.** The results of the performed work can be summarized in such a way that, while assessing the breeding value, the animals of the Zhaksylyk farm had average fatness and the herd was in good condition. All sanitary and preventive work carried out on time. The bulls to test for their own productivity were selected from among the best in terms of productivity, such as good results were obtained correspondingly. Thus, the average daily gain in live weight in bulls of improvers was 10.2% higher in comparison with the average for herd.

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#### ТҮЙІН

«Жақсылық» ШҚ жағдайында негізгі шаруашылыққа пайдалы қасиеттері бойынша санта-гертуда тұқымының малдарына зерттеу жүргізілді. Малдардың тұқымдық құндылығын және кешенді бағалау үшін барлығы 2020 бас мал іріктеліп алынды. Оның ішінде 26 өндіруші-бұқалар, 393 бас сиыр, бұқашықтардың саны 887 бас болса, әртүрлі жастағы ұрғашы жас төл саны 714 басты құрады. Оның ішінде, элита-рекорд класымен 310 бас, элита класымен 706 және 1 класспен 942 бас мал бағаланды.

Тұқымдық құндылығын бағалау кезінде малдардың қондылығы орташа болды, табындарының жағдайы жақсы деп бағаланды. Барлық санитарлық-профилактикалық жұмыстар уақытылы жасалған. Алынған деректер бойынша, өз өнімділігі бойынша бұқашықтарды сынау кезінде ұқсас жағдайларда ұсталған құрдас-бұқашықтар бағалаудың барлық өлшемдері бойынша шамамен бірдей көрсеткіштерге ие екені байқалды. Бұқашықтарды өз өнімділігі бойынша сынау үшін өз арасында үздіктері іріктелгендіктен, жақсы нәтижелерге қол жеткізілді.

#### РЕЗЮМЕ

Проведены исследования по изучению основных хозяйственно-полезных признаков скота породы санта-гертуда в условиях КХ «Жаксылык». В результате сортировки отобрано 2020 голов крупного рогатого скота для оценки племенной ценности и проведения комплексной оценки. В том числе 26 быков-производителей, 393 коров, 887 бычков, и 714 телок разных возрастов. Из них, классом элита-рекорд оценено 310 голов, элита – 706 и 1 классом 942 головы.

Во время оценки племенной ценности, животные имели среднюю упитанность, стадо находился в хорошем состоянии. Все санитарно-профилактические работы проведены в срок.

Полученные данные по испытанию бычков по собственной продуктивности показали, что в идентичных условиях содержания бычки-сверстники по всем критериям оценивались примерно одинаково. Поскольку бычки для испытания по собственной продуктивности отобрались из числа лучших по данному показателю соответственно и были получены хорошие результаты.

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**Asatbaeva G.K.**<sup>1,2</sup>, Ph.D student

**Kulmagambetova R.Kh.**<sup>1,2</sup>, Master of Agricultural Sciences

**Khamitova V.A.**<sup>1,2</sup>, postgraduate

<sup>1</sup> «Kazakh Agricultural University named after S. Seifullin» NCJSC, Nur-Sultan, Republic of Kazakhstan

<sup>2</sup> Branch «Research Innovative center of animal husbandry» of LLP «Kazakh Research Institute of Livestock and Feed Production», Nur-Sultan, Republic of Kazakhstan

## **INFLUENCE OF FEEDING DIETS ON KETOSIS DISEASE IN DIFFERENT PERIODS OF LIFE IN HIGHLY PRODUCTIVE COWS**

### **Abstract**

For the successful development of dairy farming in production conditions, there are many factors, one of which is compliance with the feeding diet. If the quality, quantity, and chemical composition are not observed, it leads to significant losses in milk production, the main etiological factor in the development of metabolic diseases, one of which is ketosis.

In the conditions of modern animal husbandry, it entails excessive functional tension of all organs and systems of the animal body, biochemical, clinical and morphological changes in various organs and tissues and leads to the final result of the development of a metabolic disorder.

We analyzed the feeding ration for high-yielding cows, per head per day, a method for determining the average concentration of exchange energy for productivity and dry matter in different periods of life in high-yielding cows and the average amount of b-betahydroxybutyrate in different periods of life in high-yielding cows.

**Keywords:** *highly productive cows, metabolic diseases, ketosis, feed, diet, feed, lactation periods, dry matter, cow milking, dry period.*

**Introduction** Today, in the food balance of people, milk and dairy products are basic, and the quality of the resulting products requires nutrients and the amount consumed in General, which affect the health of the nation. The social significance of the obtained dairy products obliges the state of the CIR countries to ensure their physical and economic accessibility.

Currently, dairy farms have reached high productivity levels, having crossed the line of 7, 8, and even 9 thousand per lactation. Such significant productivity results are achieved thanks to modern technologies for feeding cows, growing repair young animals, as well as on the basis of high genetic potential [1-4]. The article will focus on the Holstein breed of cattle, although many key points are relevant for meat and dairy breeds.

Highly productive Holstein cows allow you to get high yields, with the condition of maintaining the level of metabolism in the body. To maintain reproduction, service period, high productivity and health of cows, it is necessary to control the feed intake, feeding ration depending on the animal group, physiological status, content, fatness from 3.6 to 5-point scale, or 5-5,5 on a 9-point scale [5,6].

However, it is very difficult to achieve this in production conditions with a population of 500-800 breeding stock and above: cows, reducing productivity at the end of lactation, do not eat, maintaining a good appetite, consuming a large amount of high-calorie feed, without having time to spend it, create large reserves of fat deposits in the body. In the future, after calving, with the beginning of productivity, for highly productive cows, the yield decreases. Childbirth with complications and normal childbirth are a significant stress for cows. with the beginning of lactation, they undergo global energy costs for milk production, which are covered by spending fat reserves