

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.

UDC 636.2.084

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## **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

against the background of lack of appetite, post-calving, hypotension of the pre-ventricles, low energy intensity and feed quality. This leads to the development of a negative energy balance in the cow's body, a powerful shortage of macro-and microelements. As a result, there are diseases associated with metabolism, ketosis and osteodystrophy [7]

For the production of milk volume in Kazakhstan and neighboring CIR countries, with the existing number of breeding livestock, the milk productivity of dairy cows should be raised on average by at least 37-45% and milks an average of 8000 kg of milk per lactation from each cow. However, given that 60% is located in private farms, where it is difficult to implement effective elements of intensive milk production technology, maintenance conditions and General management, we can say that the current level of cow productivity and milk quality does not meet the requirements, not only international, but also national standards, to meet the needs of the population in milk and dairy products.

The reason for this is the relatively low productivity of cattle, due to the lack of appropriate conditions for their maintenance, control of the feeding diet, timely prevention of metabolic diseases, reproductive function, and cultivation of repair young cattle [8,9].

**Method of research.** Study of the effect of feeding diets on ketosis in different periods of life in highly productive cows

- analysis of the feeding ration for dry cows, per head per day;
- analysis and method for determining the average concentration of exchange energy for productivity and dry matter in different periods of life in highly productive cows;
- determination of the average amount of b-betahydroxybutyrate in the study groups for different periods of life in highly productive cows.

Research and production experiments were carried out using generally accepted classical methods;

To determine the level of b-betahydroxybutyrate in the blood, an electronic device called FreeStyleOptium (AbbotDiabetesCare company, USA) was used. The preliminary diagnosis was based on rapid tests (keto-tect and girul, dirul Industrial Co., LTD).

**Research result.** In order to determine the average concentration of exchange energy for productivity and dry matter in different periods of life in highly productive cows, the research was carried out on 3 dairy farms of LLP «Zelenie luga» NKO, Kazakhstan; Farm «Bontoropharm» in Izmir, Turkey and breeding plant «Stepnoye», Zaporozhye, Ukraine.

For each farm, the analysis of the feeding ration and the average live weight of the breeding stock in different periods of life was carried out. In table 1, the order of feed is located in accordance with the sequence of loading into the mixer, and data on average milk yield per head is also displayed.

According to the analysis of feeding cows before calving and the first milking of the middle of the lactation, the average annual milk yield per head was made on dairy farms Ukraine 15000 kg, 12500 kg. Turkey and Kazakhstan 8000 kg. According to the diet of groups in the table-1, dairy farm Ukraine in the dry period the average live weight was 500 kg in the first milking period of 490 kg, in mid-lactation 560 kg; dairy farm Turkish in the dry period of 600 kg in the first milking period of 540 kg in mid-lactation 650 kg and dairy farm of Kazakhstan in the dry period 450 kg during the milking 430 kg, of section 520 kg (tables 1, 2).

Table 1 – Analysis of feeding diet that is loaded in mixers cows, per head per day

CIR country	Dairy farm of Ukraine			Dairy farm of Turkeys			Dairy farm Kazakhstan		
	structure of diets, % of nutrition			structure of diets, % of nutrition			structure of diets, % of nutrition		
	pre-calving period	first milking	Mid-lactation	pre-calving period	first milking	Mid-lactation	pre-calving period	first milking	Mid-lactation
1	2	3	4	5	6	7	8	9	10
The average annual milk yield, kg	15000			12500			8000		
Average live weight, kg	500	490	560	600	540	650	450	430	520

continuation of table 1

Indicators									
CB norm	17,5	17,1	19,6	21	18,9	22,7	15,7	15,05	18,2
Corn silage	12	12	16	10	12	16	9	10,5	12
Legume or cereal silage	7	9	12	8	9	12	5	7	10
Brewer's grain or beet pulp high moisture	5	8	11	-	-	-	-	-	-
Hay	7	10	15	6	8	13	5	10	14
Corn of high humidity	4	5	8	3,5	4	6	3	3	7
Feed or feed ingredients	1,3	2	2,5	1,5	1,8	2,3	2	2	3
Molasses and water	1,9	2	2,5	1,5	1,8	2	1	1,3	1,6
Feed mixing	+	+	+	+	+	+	+	+	+
The diet contains:									
Propylene glycol	0,20	-	-	0,15	-	-	-	-	-
Feed unit	11,2	11,5	11,3	10,5	9	10,2	9,3	9,5	9,8
Protein, g	1246	1250	1257	1150	1106	1135	1050	1107	1095
Calcium, g	125	125	130	115	125	130	103	110	115
Phosphorus, g	67	70	75	58	60	75	55	60	70
Carotene, mg	624	630	635	580	600	650	520	550	635

Table 2 – The average concentration of energy for productive and dry for the periods

Country CIR	Dairy farms of Ukraine structure of diets, % of nutrition			Dairy farms of Turkey структура рационов, % питательности			Dairy farms of Kzakhstan структура рационов, % питательности		
	pre-calving period	First milking	Mid-lactation	pre-calving period	First milking	Mid-lactation	pre-calving period	First milking	Mid-lactation
The average annual yield milking, kg, кг	15000			12500			8000		
Energy for productive	-	2,8	3,28	-	3,0	3,25	-	3,5	3,9
Dry substance	17,5	17,1	19,6	21	18,9	22,7	15,7	15,05	18,2

From the above-stated feeding ration in table -2, it is analyzed that the issue of herd productivity is solved not by the amount of feed, but by normalizing the amount of dry matter and the need for energy for productivity.

The maximum allowed amount of dry matter is from 3 to 3.5 % of the live body weight of a cow. to determine the cow's need for nutrients, we calculated the index for the maximum dry matter in kg per 1 head.

For example,  $3.5 * \text{live weight} = 3.5 * 600 \text{kg} / 100 = 21 \text{ kg}$  of dry matter, in which the difference from the norm in the dry period in the dairy farm of Ukraine was less than 4.5 kg, the yield of 7 kg, in the middle of lactation 5.3 kg Turkey's dairy farm is 2.4 kg less than normal before calving, first milking 4.7 kg less than normal in the middle of lactation, and 1.7 kg less than normal in the middle of lactation; in a dairy farm in Kazakhstan during the dry period, 2.6 kg less than the allowed norm, during the period of first milking by 2.1 kg and in the middle of lactation, the need for dry matter was normal.

The energy requirement for productivity was calculated according to the formula: (MJ / kg of milk) =  $1.05 + (0.38 * F \%) + (0.21 * P \%)$ , in which F %- is the fat content in milk, P % is the protein content in milk, as a percentage.

As a result, it is calculated energy consumption on the productivity in the periods: a dairy farm of Ukraine – during the first milking of 1.2 MJ higher in mid lactation by 1.28 MJ above the norm; a

Dairy farm of Turkey in the period of milking of 0.4 MJ is higher in the middle lactation 0.35 MJ from the norm on a dairy farm in Kazakhstan – in the period of milking of 0.5 MJ in the middle of lactation by 0.3 MJ higher from the norm.

Therefore, the study of the effect of feeding diets on the health of highly productive cows in different periods of ketosis is relevant, both from a scientific and practical point of view. In this regard, experiments were conducted on dairy farms in Ukraine, Turkey and Kazakhstan. The average productivity of cows on these farms in Ukraine is 15,000 kg, Turkey is 10,500 kg, and Kazakhstan is 8000 kg of milk per lactation. For the experiment, 3 groups of 150 animals were assembled in each farm 45 days before the expected calving.

In accordance with the scheme of the experiment in table 3, the animals in three groups were selected on the basis of analogues, from the mother stock: netel by productivity of mothers, breed, live weight, health status, fatness, cows of the 2nd calving - by productivity for the previous lactation. The experiment lasted for 60 days after calving. The groups received rations with different ratios of the dry matter of coarse feed (silage, haylage, hay) in relation to the dry substances in the concentrates.

Table 3 – average amount by group b-betahydroxybutyrate content in blood by cow life periods

Dairy Farms	Groups of breeding stock	Number of cases	Average amount of b-hydroxybutyrate, 10 days after calving	Average amount of b-hydroxybutyrate, in the period first milking	Average amount of b-hydroxybutyrate, in the middle of lactation
Dairy farms of Ukraine	n=150	47 (31,3%)	0,7 (0,9*)	1,8 (1,7*)	1,3 (0,5*)
Dairy farms of Turkey	n=150	38 (25,3%)	0,8 (0,75*)	1,4 (1,6*)	1,0 (0,9*)
Dairy farms of Kazakhstan	n=150	20 (16,6)	0,4 (0,6*)	0,9(1,0)	0,7 (1,0*)

**Conclusion.** According to the conducted research in table-3, we displayed the analysis of the average number of groups of b-betahydroxybutyrate content by periods in the breeding stock of highly productive cows.

The work was carried out within the framework of the Agreement No. 39 dated November 05, 2018 for the implementation of applied scientific research in the field of agriculture for 2018-2020 under the budget program 267 «Increasing the availability of knowledge and research» subprogram 101 «Program-targeted financing of scientific research».

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## **ТҮЙІН**

Сүт фермаларын өндіріс жағдайында сәтті дамыту көптеген факторлардан тұрады, олардың бірі - диетаны ұстану. Диетаның сапасына, санына және химиялық құрамына сәйкес келмеуі метаболикалық ауруларды дамытудағы негізгі этиологиялық фактор болып табылады, оның бірі - сүт шығару кезінде едәуір шығындарға алып келетін кетоз.

Қазіргі заманғы интенсивті мал шаруашылығының жағдайлары жануарлар денесінің барлық мүшелері мен жүйелерінің шамадан тыс функционалды шиеленістерін тудырады, бұл әртүрлі мүшелер мен ұлпаларда биохимиялық, клиникалық және морфологиялық өзгерістерге алып келеді, сайып келгенде метаболикалық бұзылулардың дамуына ықпал етеді.

Біз өнімділігі жоғары сиырларды азықтандырудың тәуліктік рационына талдау жасадық, метаболикалық энергия мен құрғақ заттың орташа концентрациясын, сондай-ақ өмірдің әртүрлі кезеңдеріндегі б-бета-гидроксibuтираттың орташа мөлшерін анықтадық.

## **РЕЗЮМЕ**

Успешное развитие молочного животноводства в условиях производства, складываются из многих факторов, одним из которых является соблюдение рациона кормления. Несоблюдение качества, количества и химического состава рациона кормления, это основной этиологический фактор развития болезней обмена веществ, одним из которых является кетоз, что влечет за собой значительные убытки производства молока.

Условия современного интенсивного ведения животноводства, влечет за собой чрезмерное функциональное напряжение всех органов и систем организма животных, что ведет к биохимическим, клиническим и морфологическим изменениям в различных органах и тканях и в конечном результате способствует развитию расстройства обмена веществ.

Мы провели исследования анализа суточного рациона кормления высокопродуктивных коров, с определением средней концентрации обменной энергии и сухого вещества, а также среднее количество содержания б-бетагидроксibuтирата в разные периоды жизни.

UDC 636.32/38.082

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## **REPRODUCING QUALITIES OF DIFFERENT AGE FINE - WOOL EWES IN THE CONDITIONS OF THE «R-KURTY» BREEDING FARM IN ALMATY REGION.**

### **Abstract**

The use of mobile artificial insemination, ovocytotoxic serum and sperm diluents, laser bioactivation provides the opportunity to obtain financial savings and increase the profitability of sheep breeding by 26-42% compared with the traditional way of conducting the industry

The development of sheep husbandry, increasing the quantity and quality of products should be based on intensive and rational technologies that ensure the development of farms and the use of genetic resources of both local and local breeding animals on the basis of creating optimal conditions for growing.

Scientific research was carried out on sheep of the Kazakh fine-wool breed bred in the Almaty region, primarily in the farm named after R-Kurty.

To study the productive and biological characteristics of sheep, the Kazakh fine-wool breed was made in accordance with the standards of special scientific and production experiments.

The study of biotechnological methods for the effectiveness of frozen sheep imported breeds The Rambouillet, The Polypei, The Suffolk, The Avacci and The Ost-freeze breeds and their use for ewes of the Kazakh fine-fleece breed and the biotechnological role in obtaining highly productive sheep breeds depending on gender.