

жасында тиісінше 149,1-167кг, 9 айлық жасында 217,7-248 кг., 12 айлық жасында 245-310 кг көрсеткіштеріне қол жеткізді.

РЕЗЮМЕ

В Республике Казахстан в последние годы в развитии мясного скотоводства по продуктивности в области производства мяса выделяется калмыцкая порода. Известно, что продуктивные свойства молодняка формируются на основе наследственности в процессе сложного взаимодействия организма с средой обитания, поэтому большое значение имеет изучение закономерностей роста и развития молодняка различных генотипов.

Рационы составлялись по кормам, производимым хозяйством, в зависимости от возраста и пола животных. Условия кормления и содержания подопытных молодняка до потери свекрови были организованы в соответствии с технологиями, принятыми в мясном животноводстве.

В статье представлены данные исследования динамики роста и развития чистопородного калмыцкого потомства в условиях общества с ограниченной ответственностью «Московский». В ходе проведения исследований в хозяйстве от каждого производителя в контрольные группы было взято по 15 приплодов от рождения до 12-месячного возраста: I-II группа бычки и телки линии Моряк- 120541; III-IV группа бычки и самки линии Стройного-2520. Контрольные группы получали кормление и уход на том же уровне, согласно требованиям технологии опытного выращивания крупного рогатого скота. Живую массу потомства контрольной группы определяли по методике, определяющей коэффициент динамики роста, среднесуточный прирост и абсолютный прирост. В результате исследований живая масса бычки и самки чистокровной калмыцкой породы составила 29-33 кг, в 3 месяца 96-112 кг, в 6 месяцев 149,1-167 кг, в 9 месяцев 217,7-248 кг., 12 мес в 12 мес в возрасте 245-310 кг.

UDC 636.084

DOI 10.52578/2305-9397-2023-2-3-44-51

IRSTI: 68.39.15, 68.39.19

Kharzhau A., master of Agricultural Sciences, **the main author**, <https://orcid.org/0000-0003-4551-1851>

NJSC «West Kazakhstan Agrarian and Technical University named after Zhangir khan», Uralsk, st. Zhangir khan 51, 090009, Kazakhstan, kh.ainur@bk.ru

Batyrgaliyev Y.A., candidate of Agricultural Sciences, <https://orcid.org/0000-0003-0294-7401>

NJSC «West Kazakhstan Agrarian and Technical University named after Zhangir khan», Uralsk, st. Zhangir khan 51, 090009, Kazakhstan, erkin231088@mail.ru

Bogolyubova N. V., doctor of Biological sciences, <https://orcid.org/0000-0002-0520-7022>

L.K. Ernst Federal Research Center for Animal Husbandry, Dubrovitsy, Moscow region, Podolsk, 142132, Russia, 652202@mail.ru

FEATURES OF FEEDING DAIRY COWS OF CATTLE

ANNOTATION

The leading role in order to increase the productivity of farm animals, including in the development of dairy cattle breeding, is based on the creation of a feed base, knowledge of the needs of a growing organism in energy, nutrients, vitamins and other biologically active substances, taking into account the physiological state, the level of productivity and the purpose of use. Rational organization of full-fledged feeding is one of the main interests. Full-fledged feeding can significantly increase the productivity of animals, thereby reducing possible losses of livestock and the amount of products received. The dairy productivity of cows by 50-60% is ensured by the quality and full-fledged feeding of animals. As a result of our research in the Esbol farm to determine the level of nutritional value of feed, it was found that the volume of dry matter in yalov cows was at the same level, in dairy cows it was 1.02% higher, digestible protein in yalov cows by 1.30%, in dairy cows by 1.12% higher compared to the indicators of 2022. The level of crude fat, crude ash, calcium,

phosphorus in feed was also higher in the diet of 2023. It is obvious that raw fiber and the high content of its fractions in feed reduce the level of digestibility of feed by the body.

Key words: *dairy cows, productivity, milk yield, ration, chemical composition of feed*

Introduction. One of the benefits of developing the dairy industry is that it provides the country with a reliable source of food. Milk and dairy products are an essential part of the human diet, providing essential nutrients such as calcium, protein, vitamins, and minerals. By developing this industry, the country can meet its own demand for dairy products, reducing dependence on imports. This can also provide employment opportunities for people in the rural areas, helping to reduce poverty and increase economic growth.

Another benefit of developing the dairy industry is that it can generate income for small-scale farmers. Dairy farming is traditionally conducted by small-scale farmers who supply their milk to processors. By increasing the demand for dairy products, farmers can increase their income, making it easier for them to improve their standard of living. Moreover, dairy farming can contribute to the development of rural areas, as it stimulates the growth of small businesses, such as milk collection centers, processing plants, and marketing enterprises.

Finally, developing the dairy industry can contribute to improving food security and reducing malnutrition. The milk produced by dairy cattle is an excellent source of nutrition for children and elderly people, especially in areas where there is a high prevalence of malnutrition. By increasing the availability of milk and dairy products, the country can improve the health of its population, reducing the prevalence of under-nutrition and other related diseases.

In conclusion, the development of the dairy industry is one of the most promising ways to prevent socio-economic problems in the country. This industry can provide a reliable source of food, generate income for small-scale farmers, contribute to the development of rural areas, and improve food security and reduce malnutrition. By investing in this industry, the country can create a sustainable source of economic growth while improving the livelihoods of its citizens.

The milk and dairy product market in Kazakhstan is a promising segment with a considerable share of domestic production and imports. Kazakhstan has been increasing its domestic milk production, but it still heavily relies on imports to meet the growing demand for dairy products.

Australia, the Baltic countries, Poland, Germany, Russia, and other countries are the leading importers of dairy products in Kazakhstan. These countries supply a wide range of dairy products, including cheese, butter, yogurt, and milk, to meet the diverse needs of consumers in Kazakhstan.

Kazakhstan's domestic dairy industry has been rapidly growing in recent years. The government has implemented various programs to support the development of the dairy sector and increase local production. This has led to the emergence of new dairy farms, modernization of existing farms, and the introduction of advanced technologies to improve the quality of milk.

However, despite the significant progress made in the domestic dairy industry, Kazakhstan still has a long way to go to achieve self-sufficiency in dairy product production. Experts suggest that the implementation of modern farming practices, the introduction of advanced technologies and the increase in government support will lead to a reduction in imports and an increase in domestic production.

In conclusion, the milk and dairy product market in Kazakhstan is a promising segment with significant growth potential. The market's structure is formed by both domestic production and imports, with a considerable share of imports coming from Australia, the Baltic countries, Poland, Germany, Russia, and others. While increasing domestic production is a priority, it is essential to maintain a balance between domestic production and imports to ensure a consistent supply of quality dairy products to meet growing consumer demand.

In the dairy industry of Kazakhstan there was a specific type of reproduction, which is characterized by instability of key financial and operational parameters, unstable development of production, increase in costs. Socio-economic processes occurring in the agricultural sector require evidence-based management of production, rational use of production resources, based on an integrated approach to the development of agro-industries, their intensification. This necessitates the study of economic phenomena on the basis of appropriate criteria and indicators that reflect the essence of these processes. One of the main causes of the situation on the market of milk and dairy

products is the lack of effective economic mechanism, as well as the disengagement of the state from regulating these processes. World practice shows that the role of the state in regulating the market of agricultural products increases, because agriculture due to its specificity is particularly vulnerable to the sharp disparity in prices for agricultural and industrial products.

Currently, the level of development of the food market is mainly a direct impact on food security. The country's agriculture is characterized by low productivity, depends on the natural climatic factors, has seasonal nature of production, adapted to the economic conditions that change slower faster than in other industries. Therefore, in modern conditions it is necessary to concentrate all efforts on the restoration and development of agro-industrial complex of the country, including industry dairy farming. The main promising direction of development of dairy farming is to maximize the use of genetic properties of animals based on the use of cost-effective calculation of forage resources and the organization of high-grade animal feed [1].

Increasing the efficiency of livestock production should be carried out, first of all, through the rational use of feed, since the reproductive characteristics of the animal, its productivity and the quality of the products produced depend on the level of feeding. In order to effectively use feed and maximize their payback, it is necessary to organize animal feeding at the level of scientifically sound standards. The diet should be not only biologically complete and balanced for all nutrients animals, but economically profitable, that is, the minimum value of the diet [2].

Feeding affects the development, growth rate, body weight and reproductive functions of the animal. Only with the full support of livestock and poultry with high quality feed can successfully develop animal husbandry. Of all the environmental factors, the greatest impact on productivity has feeding. The cost structure of livestock production, the share of feed in the production of beef is around 65-70%. In modern animal husbandry great attention is paid to ensuring a balanced diet of animals. Applying science-based feeding system, can improve animal performance and efficient use of feed. In the process of power component substances affect organism of the animal, not in isolation from each other, and in the complex. The balance of the constituents of the feed in accordance with the needs of animals, the main indicator of this complex. For livestock is not only the amount, but mainly the quality of the food, that is, their value is determined by the nutrient content. Fully are those rations and forage, containing all necessary for the body of the animal substances, and capable for a long time to ensure the normal operation of all its physiological functions. Under nutritional understand the property of the feed, which satisfy the natural needs of the animals in the food. To determine the nutritional value of feed only in the process of its interaction with the body's physiological condition of the animal and the change in its productivity. The nutritional value of feed cannot be expressed by any single indicator. Scientists conducted research on the role of individual nutrients in the life of the animal is allowed to make the conclusion about the necessity of a comprehensive system of assessing the nutritional value of forages. This assessment consists of the following data: chemical composition of the feed and its caloric value; the digestibility of nutrients; total (energy) nutrition; protein, mineral and vitamin nutrition.

The optimal parameters of a daily diet can serve as a reference for agricultural organizations and used in their business, but at the optimum combination of all elements of the supply efficient use of feed allows agricultural producers to reduce the monetary cost of food and increase the profitability of the industry. For this reason, it is very important to determine the optimal feeding parameters for each animal species in order to achieve the highest level of productivity. As the number of animals in the farm increases, the costs of feeding increase, so it is necessary to improve the efficiency of production of food [3].

Potential the product of productivity characterized by the level of digestion of fiber, requires replacement of roughage in the diet of cows grain forages, which are known as concentrates, since the content of energy is much higher. However, the diet contains a limit dose of concentrated feed, the excess of which leads to digestive disorders. To prevent such violations, it is necessary the presence in the diet of large particles coarse fodder, as they contribute to the return of ruminants substances and contribute to a better digestion of food. In existing measurement systems of feeding cattle in an indicator used for this purpose, crude fiber, and in some cases, a neutral and acid-detergent fiber. In the process of applying a fully mixed rations raw content and neutral detergent fiber determined by chemical analysis of forage, primarily as a result of crushing, not a fully characterizes the needs of the structure of the diet in accordance with the physiological needs of the animal [4].

The share of fodder units at least a certain number indicates compliance with the fiber content required level. Some literature uses the term «structural» or «effective» tissue [5].

However, questions about the required amount of this tissue in the complete diet, and that the data feed are perceived as related to feed, to ensure the normal operation of the digestive system remain unresolved.

Given the influence of the increase in the consumption of dry matter [6,7,8], changes in digestibility of feed both in reducing and improving the content of individual nutrients, and changes in metabolic energy in the process of feeding in connection with these trends, it should be noted that the existing system of feeding livestock has not yet developed properly, when the fodder for animals extract the maximum productive capacity and maintain health, this implies the improper use of normalized feeding, ensuring the safety of the population [9,10].

To achieve high efficiency dairy farming need to start providing quality new production technologies, this would produce competitive products. While the basis of intensification industry on the basis of industrial technologies is differential feeding animals depending on their physiological state and level of productivity, reducing productivity, high quality products, the cost of its production [11,12].

Increasing milk production and improving the quality of milk is carried out with the possibility of adjusting energii diet with a full feeding livestock that can be achieved through the application of standardized feeding during lactation. Correct feeding of cows is an important factor influencing the overall productivity and quality of milk [13].

In studies of a number of scientists recommended the use of fish meal to make up for deficiency of vitamin D as supplementary feed, as well as recommendations on proper animal providing water, as lactation cows can consume up to 200 litres of water [14].

The leading role in ensuring high productivity of farm animals is to create a feed base, to know the needs of a growing organism in energy, nutrients, vitamins and other biologically active substances, taking into account the physiological state, productivity level and purpose of use, as well as in the organization of rational and full feeding [15,16,17].

According to some scientists, the production of animal products requires a lot of vegetable protein [18,19,20]. For example, 5-7 kg of vegetable protein is required to obtain 1 kg of animal protein.

Thus, grain and legumes, sunflower industrial production waste, cake, meal, etc. are used to increase the protein fertility of feed.

In addition, it helps to reduce protein deficiency and increase animal productivity when using alternative protein sources.

Full-fledged feeding can significantly increase the productivity of animals, thereby reducing possible losses of livestock and the amount of products received, and dairy productivity of cows by 50-60% is ensured by the quality of feed and full feeding of animals [21].

Relevant in this context is the development and improvement of organizational and technological parameters of feeding cattle dairy productivity, taking into account regional climatic characteristics. These are the main indicators of the current state of the livestock development of the whole country for socio-economic development in the Republic of Kazakhstan.

In this context, the aim of this study is to improve the level of feeding of dairy cattle.

Objects and methods of research. The scientific work was carried out in the «Esbol» farm of the Aktobe region. The object of the study is a breeding herd of the Simmental breed.

Studies of dairy cow feeding standards were conducted based on the recommendation of Professor Alexander Hristov, PhD, University of Pennsylvania. In accordance with the recommendation, the diet and productivity indicators of cows were analyzed:

- sampling of feed and their chemical analysis in accordance with SSS 27262-87 and according to classical methods of zootechnical analysis; preparation of samples for analysis – GOST ISO 6498-2014; determination of dry matter – SSS 31640-2012;
- in accordance with the requirements of SS RK ISO 707-2011, milk productivity – according to breeding records and control milking; milk composition (fat, protein, lactose) is calculated on the Expert standard milk analyzer, the number of somatic cells – on the Ecomilk Scan analyzer.

Research results. The main condition for preserving the highly productive qualities of farm animals is feeding with a full and balanced feed. In addition, in order to realize the genetic potential of the productivity of farm animals, it is necessary to provide them with high-quality feed.

During the scientific and production experience, monitoring of the level of feeding of the farm and chemical analysis of feed was carried out.

So, Table 1 shows the composition of the daily diet of the «Esbol» farm.

Table 1 – Composition of the daily diet in the «Esbol» farm

Types of feed	Number of feeds, kg			
	2022		2023	
	not a pregnant cow	lactating cows	not a pregnant cow	lactating cows
Corn silage, kg	12	15	15	18
Field hay, kg	2	2	2	2
Alfalfa hay, kg	5	5	5	5
Bran, kg	4	4	6	6
Sunflower meal, kg	-	-	-	3

According to monitoring, the diet of cows in the «Esbol» farm in 2022 consisted of corn silage, field hay, alfalfa hay and bran. To increase the productivity of lactating cows, sunflower meal was added to the diet in 2023 in order to increase protein nutrition.

In addition, in order to increase the nutritional value of feed, the individual chemical composition of feed in the diet has been determined. The results of this study are presented in Table 2.

Table 2 – Chemical composition of feed in the farm «Esbol»

Indicators	Corn silage, %		Field hay, %		Alfalfa hay, %		Bran, %		Sunflower meal, %	
	2022	2023	2022	2023	2022	2023	2022	2023	2022	2023
Raw protein, %	12,7	11,6	8,9	4,7	13,0	12,4	12,8	11,4	-	14,3
Crude fat, %	2,4	4,8	2,8	2,7	1,6	2,4	3,5	6,8	-	19,2
Crude fiber, %	38,5	27,8	31,0	34,5	34,3 4	31,3	4,3	8,7	-	29,5
NDF, %	-	-	40,9	39,20	-	-	-	-	-	-
KDF, %	-	-	71,4	40,5	-	-	-	-	-	-
Crude ash, %	8,22	11,2	12,72	6,42	8,48	6,41	2,04	1,86	-	6,46
Starch, %	14,2	5,46	0,21	4,57	2,65	1,81	46,5	43,8	-	-
Ca, %	0,86	1,05	0,38	0,85	0,62	0,41	-	-	-	-
P, %	0,36	0,46	0,30	0,40	0,20	0,18	-	-	-	-

Note: NDF – neutral-detergent fiber, KDF – acid-detergent fiber

It follows from the data in Table 2 that the feeds did not have strong differences in chemical composition.

Basically, along with the preparation of feed, productivity indicators are directly affected by the level of their assimilation by the body. For this purpose, the level of absorption of feed into the body was also determined, taking into account the nutritional value of feed.

The main nutrients in the feed are protein, fat, fiber, raw ash, vitamins, etc. Protein in the body affects the formation of muscle forms as a building material, fat, affecting the process of synthesis of nutrients, directly affects the metabolism in the body as a whole.

Here it should be noted the level of absorption of the above feeds. This process is directly affected by the content of crude fiber in feed, its fractions, that is, the indicators of NDK, CDK, lignin, starch.

In Table 3, in a comparative aspect, data on the nutritional value of the diet of cows in the «Esbol» farm for 2022-2023 are presented.

Table 3 – Nutritional value of the diet of the farm «Esbol»

Indicators	DS, kg	ME, МДж	DP, g	SK, g	NDF, g	KDF, g	S, g	CF, g	CA, g	Ca, g	P, g
2022											
not a pregnant cow	14,9	148	1209	4222	1286	737	1613	362	745	52	24
lactating cows	15,8	166	1412	4643	1616	1007	1812	422	812	60	33
2023											
not a pregnant cow	14,9	149	1579	1433	767	742	1058	612	928	75	32
lactating cows	16,2	168	1591	1857	383	371	1733	1126	1152	79	34

Note: DS – dry substance, ME – metabolic energy, DP – digestible protein, SK – crude fiber, NDF – neutral-detergent fiber, KDF – acid-detergent fiber, S – starch, CF – crude fat, CA – crude ash,

Nutritional analysis of the diet characterizes the digestibility, feed consumption, which characterizes the productivity of cows. The results of studies on the nutritional value of feed in the context of two years indicate that the dry matter content of non-dairy cows was at the same level, in dairy cows it was higher by 1.02%. All other indicators were higher for cash cows in 2023.

As noted above, the high content of crude fiber and its fractions in the feed reduces the level of assimilation of food by the body. Thus, crude fiber in 2022 showed 4222 g in non-pregnant cows, 4643 g in dairy cows, and in 2023 this indicator was 1433 and 1857 g, respectively.

Neutral and acid-detergent fiber, starch indicators were higher in non-dairy and dairy cows in 2022, which characterizes the low level of digestibility of feed. In this regard, when determining the nutritional level of feed, it is mandatory to determine the chemical composition, the level of digestibility.

Conclusion. The results obtained during the study showed that the effect of differential feeding on the physiological state and the level of productivity of animals is great. At the same time, increasing the productivity and quality of livestock products, as well as reducing the costs of its production, will undoubtedly contribute to a significant intensification of this industry on the basis of industrial technologies.

The work presented in the article was carried out within the framework of the BR10764965 program BR10764965 «Development of technologies for keeping, feeding, growing and reproduction in dairy cattle breeding based on the use of adapted resource-energy-saving and digital technologies for various natural and climatic zones of Kazakhstan».

REFERENCES

1. Afanas'eva, O.G. Povyshenie konkurentosposobnosti – vazhnejshij faktor obespechenija ustojchivogo razvitiya molochного skotovodstva / O.G. Afanas'eva // Vestnik Altajskogo gosudarstvennogo agrarnogo universiteta. – 2012. – № 2 (88). – S 113-117

2. Denisova, N.V. Jekonomicheskaja jeffektivnost' optimizacii sutochnogo raciona kormlenija korov molochного napravlenija / N.V. Denisova // Kazanskaja nauka. – 2013. – № 7. – S. 80-8
3. Schütz, K.E. Effects of changing milking and feeding times on the behaviour, body temperature, respiration rate and milk production of dairy cows on pasture / K.E. Schütz, N.R. Cox, V.M. Cave, F.J. Huddart, C.B. Tucker // Applied Animal Behaviour Science. – 2023. - №261. – p. 105895
4. Shajkenova, K.H. Kormlenie korov molochного napravlenija produktivnosti [Tekst] / K.H. Shajkenova, K.M. Omarova, O.S. Sultanov // Selekcionnye i tehnologicheskie aspekty intensivizacii proizvodstva produktov zhivotnovodstva: sbornik po materialam Vserossijskoj nauchno-prakticheskoj konferencii s mezhdunarodnym uchastiem, posvjashhennoj 150-letiju so dnja rozhdenija akademika M.F. Ivanova. – 2022. – S. 192-197.
5. Vasilevskij N. Smeshannye raciony v kormlenii krupного rogatого skota // Tvarinnictvo Ukraïni. – 2011. – № 7 (26). – S. 27-30.
6. Tehnologicheskoe soprovozhdenie zhivotnovodstva: novye tehnologii [Tekst]: Prakticheskoe posobie / Popkov N.A. – Zhodino, 2010. – 496 s.
7. Erfolgreiche Milchviehfütterung [Text]: Textbook / Spiekers H. [et al.]. – Verlag, 2004. – 448 r.
8. Kononoff, P.J. The effect of corn silage particle size on eating behaviour, chewing activities and rumen fermentation in lactating dairy cows / P.J. Kononoff., A.J. Heinrichs, H.A. Lehman // J. Dairy Sci. – 2003a. – V. 86. – R. 3343-3353.
9. Kononoff, P.J. The effect of reducing alfalfa haylage particle size on cows in early lactation / P.J. Kononoff, A.J. Heinrichs // J. Dairy Sci. – 2003b. – V. 86. – R. 1445-1457.
10. De, Vries Short communication: Diurnal feeding pattern of lactation dairy cows / DeVries, M.A.G. von Keyserlingk, K.A. Beauchemin // J. Dairy Sci. – 2003. – V. 86. – R. 4079-4082.
11. Phillips, C.J.C. The effects of frequency of feeding a total mixed ration on the production and behaviour of dairy cows / C.J.C. Phillips, M.I. Rind // J. Dairy Sci. – 2001. – V. 84. – R. 1979-1987.
12. Vasilevs'kij, M.V. Vivchennja vplivu perehodu z rozdil'noï rozdachi kormiv do zgodovuvannja kormosumishi na peretravnist' pozhivnih rechovin u shlunkovokishkovomu trakti zhujnih na foni niz'koï koncentracii energii racioni / M.V. Vasilevs'kij, T.O. Ćlec'ka, I.L. Pol'shhikova // NTB IT UAAN. – 2010. – №100. – S. 169-173.
13. Harzhau, A. Osobennosti tehnologii kormlenija korov v hozjajstvah zapadного regiona Kazahstana / A. Harzhau, A.S. Shamshidin, E.A. Batyrgaliev, D.E. Gabdullin, R.M. Kulbaev, A.K. Zholdasbekov, E.K. Kuzhuget // Trudy Kubanskogo gosudarstvenного agrarnого universiteta. – 2022. – № 8 (101). – S. 321-329
14. Teziev, T.K. Vlijanie differencirovannого kormlenija korov v laktacionnyj period na produktivnost', kachestvo moloka i zhivuju massu T.K./ Teziev, Z.A. Karaeva, T.A. Kadieva // Izvestija Gorsкого gosudarstvenного agrarnого universiteta. – 2015. – T. 52. – № 2. – S. 81-84.
15. Karaeva, Z.A. Tehnologicheskie svojstva moloka korov krasnoj stepnoj porody v zavisimosti ot differencirovannого kormlenija po periodam laktacii [Tekst] / Z.A. Karaeva, T.A. Kadieva // Innovacionnye tehnologii proizvodstva i pererabotki sel'skohozjajstvennoj produkcii: sbornik Vserossijskoj nauchno-prakticheskoj konferencii v chest' 90-letija fakul'teta tehnologicheskого menedzhmenta. – 2019. – S. 250-252.
16. Dikusarov, V.G. Molochnaja produktivnost' korov kak faktor, pozvoljajushhij ocenit' sbalansirovannost' i polnocennost' kormov / V.G. Dikusarov, V.V. Shkalenko, T.A. Akmaliev, L.V. Andreenko // Izvestija Nizhnevolzhskого agrouniversitetskого kompleksa: nauka i vysshee professional'noe obrazovanie. – 2015. – № 4 (40). – S. 97-103.
17. Karapetjan, A.K. Razrabotka i ispol'zovanie biologicheskogo aktivnyh dobavok v kormlenii sel'skohozjajstvennoj pticy / A.K. Karapetjan, E.A. Lipova, M.A. Sherstjugina, O.S. Shevchenko // Izvestija Nizhnevolzhskого agrouniversitetskого kompleksa: nauka i vysshee professional'noe obrazovanie. – 2014. – № 2(34). – S. 123-126.
18. Chamurlijev, N.G. Molochnaja produktivnost' i kachestvo moloka korov krasno-pestroj, cherno-pestroj i krasnoj stepnoj porod / N.G. Chamurlijev, A.P. Habarov // Izvestija Nizhnevolzhskого agrouniversitetskого kompleksa: nauka i vysshee professional'noe obrazovanie. – 2008. – № 4. – S. 123-127.

19. Brjuhno, O.Ju. Jeffektivnost' ispol'zovanija nuta v kormlenii teljat / O.Ju. Brjuhno, A.K. Karapetjan, V.N. Agapova // Izvestija Nizhnevolzhskogo agrouniversitetskogo kompleksa: nauka i vysshee professional'noe obrazovanie. – 2016. – № 2 (42). – S. 197-204.

20. Christodoulou, V. Nutritional value of chickpeas in rations of broiler chickens / V. Christodoulou, V.A. Bampidis, B. Hucko, C. Illidia, Z. Mudrik // European Poultry Science. Arch. Geflugelk. – 2006. – 70 (3). – R. 112-118.

21. Goeva E.V. Organizacija polnocennogo kormlenija korov molochnogo napravlenija produktivnosti [Tekst] / E.V. Goeva // Nauka segodnja: problemy i perspektivy razvitiya: sbornik mezhdunarodnoj nauchno-prakticheskoy konferencii: v 3 chastjah. – 2017. – S. 5-6.

ТҮЙІН

Ауыл шаруашылығы жануарларының жоғары өнімділігін жоғарылату мақсатында, соның ішінде сүтті ірі қара мал шаруашылығын дамытуда жетекші рөл жем-шөп базасын құруға, өсіп келе жатқан ағзаның физиологиялық жай-күйін, өнімділік деңгейін және пайдалану мақсатын ескере отырып, энергияға, қоректік заттарға, дәрумендерге және басқа да биологиялық белсенді заттарға қажеттілігін білуге негізделеді және де оларға ұтымды және толыққанды азықтандыруды ұйымдастыру негізгі мүдделердің бірі болып табылады. Толыққанды азықтандыру жануарлардың өнімділігін едәуір арттыруға, сол арқылы мал басының және алынған өнім мөлшерінің ықтимал шығындарын азайтуға мүмкіндік береді. Сиырлардың сүт өнімділігі 50-60%-ға жануарларға берілетін азық-жемнің сапасымен және толық азықтандырылуымен қамтамасыз етіледі. Біздің зерттеулеріміздің нәтижесінде «Есбол» ШҚ азықтың қоректілік деңгейі, құрғақ зат көлемі бойынша 2023 жылғы көрсеткіш 2022 жылғымен салыстырғанда қысыр сиырларда тең, ал сауын сиырларда 1,02% жоғары, қорытылатын протеин қысыр сиырларда 1,30%, сауын сиырларда – 1,12% жоғары болды. Азықтың құрамындағы шикі май, шикі күл, кальций, фосфор көрсеткіші 2023 жылғы қоректендіру деңгейі бойынша да қоректік заттар деңгейі жоғары болды. Шикі жасұнық және оның фракцияларының азық құрамындағы жоғары болуы азықтың ағзаға сіңірілу деңгейін төмендететіні айқын.

РЕЗЮМЕ

Ведущая роль в повышении продуктивности сельскохозяйственных животных, в том числе в развитии молочного скотоводства, заключается в создании кормовой базы, знании потребности растущего организма в энергии, питательных веществах, витаминах и других биологически активных веществах с учетом физиологического состояния, уровня продуктивности и цели использования, а также рациональном использовании. Организация полноценного кормления является одним из основных моментов, которые следует учитывать. В результате наших исследований показатели 2023 года по уровню питательности кормов, объему сухого вещества КХ «Есбол» по сравнению с 2022 годом был на 1,02% выше, у дойных – на 1,30%, у дойных-на 1,12% выше. Уровень сырого жира, сырой золы, кальция, фосфора в корме также был высоким по уровню питания в 2023 году. Очевидно, что сырая клетчатка и высокое содержание ее фракций в кормах снижают уровень усвояемости корма организмом. Ведь полноценное кормление позволяет значительно повысить продуктивность животных, тем самым снижая возможные потери поголовья и количества получаемой продукции. Молочная продуктивность коров на 50-60% обеспечивается качеством и полноценным кормлением животных. В результате наших исследований в КХ «Есбол» по определению уровня питательной ценности кормов было установлено, что объем сухого вещества у яловых коров был на одинаковом уровне, у дойных коров оказался на 1,02% выше, переваримый белок у яловых коров на 1,30%, у дойных коров на на 1,12% выше по сравнению с показателями 2022 года. Уровень сырого жира, сырой золы, кальция, фосфора в кормах также был выше в рационе 2023 года. Очевидно, что сырая клетчатка и высокое содержание ее фракций в кормах снижают уровень усвояемости корма организмом.