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GROWTH AND DEVELOPMENT OF CALVES OF HOLSTEIN BREED IN THE DAIRY COMPLEX OF THE BAYSERKE-AGRO LLP

Abstract. Advance in genetic potential and nutritional needs of animals has accelerated growth rates. Genetic selection for high dairy productivity implies a higher ability to grow and, therefore, requires an increase in nutrients. Nutrition management from birth is crucial for growth and development, as well as a formation of physiological characteristics of young animals affecting their health.

The article focuses on the influence of feeding and nutrition from birth to 6 months of age on the growth and development of calves of the Holstein breed, as well as monitoring and determining the average daily gain in the preweaning period of young animals of different age groups (n = 96 goals) in the dairy complex of Bayserke-Agro LLP.

Keywords: cattle, heifer, growth, development of mammary glands, feeding, diet, calf management, colostrum, milk yield.

Relevance. It is known that the growth and development of the body of young animals in the womb and after birth occurs according to certain biological laws. It was found that the formation and growth of bone tissue are more pronounced in the uterine period of fetal development, and growth of muscle tissue - at the age of 9-14 months, adipose tissue begins to be deposited at a later date. Taking into account these patterns of growth and development, in addition to high-grade diets, In dairy cattle breeding rational feeding and keeping regimes of both mothers and offspring are used, which affect the enhanced development of those tissues, individual systems and organs that influence the subsequent dairy productivity of cattle [1-3].

For example, stimulation of the enhanced development of the digestive organs, starting from the early training of calves and eating more plant forage, and development of the mammary gland - from the organization of proper feeding during the period of intensive development, that is, from the time of sexual growth and in the second half of pregnancy [4].

The main conditions for growing young animals for the full replacement of the dairy herd are as follows:

- organization of full and balanced feeding in all age periods of growing of young animals;
- creation of rational methods of technology for keeping with meeting zoohygienic requirements;
- obtaining and selecting for growing calves from the best animals by genotype, as well as from healthy parents;
- disease prevention by organizing and conducting appropriate veterinary actions;
- control over the growth and development of calves [5].

The most important period when growing young animals is the period of milk growing. The body of calves in the first months of life is growing vigorously. There is an intensive formation of skeleton,

muscles, a development of the gastrointestinal tract and other internal organs with the use of vital substances like protein, fat, minerals, carotene from fed colostrum feeds, milk and fodder products. Especially in the first two months after the birth of a calf, if the required conditions of keeping and inadequate feeding are not met, their body is easily susceptible to respiratory and digestive diseases; leading to reduced productivity and even death.

Aim of the research. The effect of feeding and nutrition from birth to 6 months of age on the growth and development of calves of the Holstein breed, as well as monitoring and analysis of the average daily gain of young animals of different age groups in the highly power-driven automated dairy farm of Bayserke-Agro LLP in Almaty region.

The basis for research and the source of funding. Targeted financing program of the Ministry of Agriculture of the Republic of Kazakhstan for 2018 - 2020 "Transfer and adaptation of technologies for the automation of technological processes for the production of livestock products based on a model farm of the Bayserke-Agro LLP in dairy cattle breeding from 100 cows".

Research methods. The object of the research was young stocks available at Bayserke-Agro LLP. Young animals were weighed monthly at the same time every month, in the morning – before watering and feeding the animals, on the basis of which the average daily gain was calculated [6-8].

Research results. Growing calves is necessary, first of all, for the successful obtaining of strong, healthy and highly productive animals. Therefore, it is necessary to determine the scheme (feeding rates and rearing with milk) of calf growing.

At Bayserke-Agro LLP, when raising calves during the preweaning period, the following technology for maintenance and feeding was adopted (table 1).

Table 1 – Diagram of the keeping and feeding of calves in the preweaning period

| Age, days | The method of keeping | Daily feedration, kg | | | | | | |
|-----------|------------------------------------|----------------------|---------------|------|---------------|-----------|-----|-----------|
| | | colostrum | | milk | | Grain mix | Hay | Mono feed |
| | | kg | rearing rates | kg | rearing rates | | | |
| 1-5 | Individually in the maternity ward | 5 | 2 | – | – | – | – | – |
| 06-30 | Individually in houses | – | 2 | 6 | 2 | 0.3 | 0.5 | – |
| 31-45 | Individually in houses | – | – | 7 | 2 | 0.6 | 0.5 | – |
| 46-50 | Group of 14 animals | – | – | 7 | 2 | 1 | 1 | – |
| 51-100 | Group of 18 animals | – | – | 6.0 | 2 | 1.5 | 1.5 | – |
| 101-120 | Group of 18 animals | – | – | 4.5 | 2 | 2 | 3 | – |
| 121-135 | Group of 18 animals | – | – | – | – | 2 | 3 | 3 |
| 136-150 | Group of 50 animals | – | – | – | – | – | 3 | 8 |
| 151-165 | Group of 80 animals | – | – | – | – | – | 3 | 10 |
| 166-180 | Group of 80 animals | – | – | – | – | – | 3 | 12 |

Calves at birth for 5 days stayed in the maternity ward of a cowshed. Feeding was carried out by two times of colostrum rearing from a mother in the amount of 5 liters per day (2.5 liters each).

From the age of 5 days, calves were transferred to individual houses indoors, where they stayed for 45 days.

Feeding during this period comprised 5 liters of milk (2.5 liters 2 times a day).

From the age of 15 days, they began to accustom to eating crushed grain mixture and high-quality alfalfa hay. Until the end of the period, these feeds were constantly in the feeders. Also, a prerequisite was daily drinking of clean water in an amount of 0.5-1.0 liters.

From 46 to 100 days of age, calves were transferred to group loose keeping on a deep straw litter of 14 animals in each group with water from a drinking bowl, as well as alfalfa hay on self-feeders. The diet consisted of 7 liters of milk (3.5 liters twice a day), a grain mixture of 2.0-2.5 kg and hay of 2.0-2.5 kg.

Calves at the age of 100 to 120 days were kept in groups of 18 goals. With the same method as in the previous group. In this case, feeding was carried out by a gradual supply of milk until the end of the period, and a supply of vegetable feed increased.

From 121 to 135 days of age, calves were kept in groups of 18 animals, and from 136 to 150 days - in a group of 50 animals each. During these periods, the diet consisted of vegetable feed of grain mixture of 3 kg and hay in the amount of 4-4.5 kg.

From 151 to 180 days, calves were kept in groups of 80 animals. During this period, feeding was carried out with a mono-feed intended for cows with middle productivity (with a milk yield of 20-23 kg per day). The structure of the composition of the mono-feed in the dry matter of the diet: corn silage - 40%, alfalfa hay - 14.2%, grain mix - 30% and rape - 16.2%.

For all periods of growing calves, during housing, they were provided with dry and clean straw litter.

The weighing results of dairy calves, as well as the nature of their growth of energy in the preweaning period, are presented in table 2.

Table 2 – Nature of the growth energy of calves in the preweaning period

| No | Bull-calves | | | | Heifer-calves | | | |
|----|-------------------|-----------|-----------------|-----------------------|-------------------|-----------|-----------------|-----------------------|
| | Number of animals | Age, days | Live weight, kg | Average daily gain, g | Number of animals | Age, days | Live weight, kg | Average daily gain, g |
| 1 | 15 | 76.7±2.5 | 89.3±3.1 | 837.2±287 | 19 | 74.3±3.0 | 82.1±2.6 | 771.3±30.0 |
| 2 | 18 | 138.4±5.2 | 156.7±4.8 | 1001±38.3 | 12 | 137±1.7 | 163±4.7 | 1012±42.0 |
| 3 | 16 | 160.8±6.3 | 180.2±7.9 | 962.6±15.8 | 16 | 193.7±5.9 | 194.2±5.9 | 877.1±29.2 |

As can be seen from table 2, under such keeping and feeding conditions, bull-calves reached 180.2 kg of live weight by the age of 161 days with an average daily gain of 933 grams over the entire growth period. Heifers by the age of 195 days reached 194 kg with an average daily gain of 887 grams.

The existing growth standard for young stock of the Holstein breed used in the republic is for bulls at the age of 6 months - 165 kg, of 12 months - 280 kg, of 15 months - 335 kg, of 18 months - 390 kg. For heifers, respectively by age - 150, 260, 305 and 350 kg.

Conclusions. The results of monitoring the development of young animals showed high growth energy during the preweaning period. Under the feeding and keeping conditions, the live weight of calves at the age of 161 days was 180.2 kg with an average daily gain of 933 grams, heifers by the age of 195 days reached 194 kg, with an average daily gain of 887 grams. While maintaining this growth energy, the live weight of calves in 12 months will be 340 kg, in 15 months - 424 kg and in 18 months - 508 kg. Heifers will have, respectively - 324, 403 and 483 kg. These data far exceed the growth standards of the young stock of the Holstein breed.

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«БАЙСЕРКЕ-АГРО» ЖШС ГОЛШТИН ТҰҚЫМЫНЫҢ 6 АЙҒА ДЕЙІНГІ БҰЗАУЫНЫҢ ӨСУ ЖАҒДАЙЫ

Аннотация. Жоғары сүтті өнімді ірі қара малды өндіру үшін генетикалық сұрыптау ұсыну бойынша, олардың өнімділігін жоғары деңгейге өсуіне мүмкіндік береді, сондықтан қоректік заттардың ұлғайуын талап етеді. Бұзаулардың дұрыс деңгейде өсіп-жетілу үшін, туғаннан бастап тиімді тамақтандыру бойынша, олардың денсаулығына және физиологиялық ерекшеліктерін қалыптастыру үшін маңызы зор.

Мақалада «Байсерке-Агро» ЖШС-нің сүт кешеніндегі голштин тұқымындағы бұзаулардың өсуіне өсуі мен дамуына туғаннан 6 айлық жасқа дейінгі азықтандыру мен тамақтанудың әсеріне баса назар аударылды (n = 96 бас).

Түйін сөздер: ірі қара мал, бұзау, өсу, сүт бездерінің дамуы, азықтандыру, рацион, бұзау өсіру, уыз, сүт сауымы.

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РОСТ И РАЗВИТИЕ ТЕЛЯТ ГОЛШТИНСКОЙ ПОРОДЫ В МОЛОЧНОМ КОМПЛЕКСЕ ТОО «БАЙСЕРКЕ-АГРО»

Аннотация. Прогресс в генетическом потенциале и пищевых потребностях животных ускорил темпы роста. Генетический отбор для высокой молочной продуктивности предполагает более высокую способность к росту и, следовательно, требует увеличения питательных веществ. Управление питанием с рождения имеет решающее значение для роста и развития, а также формирования физиологических особенностей молодняка влияющих на их здоровье.

В статье основное внимание уделено влиянию кормления и питания от рождения до 6 месячного возраста на рост и развитие у телят голштинской породы, а также проведение мониторинга и определение среднесуточного привеса в молочный период молодняка разных возрастных групп (n = 96 гол.) в молочном комплексе ТОО «Байсерке-Агро».

Ключевые слова: крупный рогатый скот, телка, рост, развитие молочных желез, кормление, рацион, выращивание телят, молозиво, надой молока.

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