Подсекция 15. Зооинженерия

THE EFFICIENCY OF CALVES GROWING DURING THE MILKING PERIOD

I. Lastovska, assistant professor, **L. Kosior, L. Pirova**, candidates of agricultural sciences, associates professor
Bila Tserkva National Agrarian University, Ukraine

Key words: whole milk substitute, individual houses, "milk-taxy", weight gains, live weight.

The efficiency of the beef production is in direct dependence on the progressive technology of animal keeping and stability of fodder base. And the milking period of calves growing is one of the most important stages on the way to receive the healthy conditioned young [1]. In order to save the bulls, the growing system should take into consideration the biological characteristics of the organism. Choosing the technology of calves growing in the milking period is very important for the livestock productivity [2-4]. Therefore our work is aimed at the researching of calves growing in the milking period.

The work purpose was to study the intensity of calves' growth during the milking period with keeping in the individual houses and foddering the milk substitute.

Materials and methods. The researches were conducted at "Agrobeef LLC Skvira region, Kyiv oblast. The young cattle come to the complex approximately 20 days' age with the average live weight 40 kg. For research fulfillment three groups of young bulls under the method pair of analog with 12 heads were formed. The calves were kept in individual houses; the ration was the whole milk substitute and starter mix fodder. The period of milking is 62 days. Animals of the First Group (Control group) were fed with whole milk, the Second Group (Experimental I) were fed with milk substitute «IN – K 1 E » of «Inntaler» Firm (Germany) and the Third (Experimental II) with replacer «CalvoStart» of «Nutrifeed» Firm (Netherland). During the milking period the calves were fed in accordance with the detailed norms, daily rations were balanced on the main indicators by additional feeding with granulated mixed fodder, which recipe is in Table 1

Table 1

Recipe of mixed fodder for the calves of milking period

Mixed fodder compound	%	Consist	Unit
Soybean meal	31	Feed Units	1.04
Sunflower meal	19	Digestible Protein	214.02
Barley	17	Exchange energy, MJ	10.60
Wheat	22	Calcium, g	2.74
Wheat offal	10	Phosphorus, g	5.69
Premix	1	Carotene, g	2.24
Total	100	Raw Fiber, g	69.27

The llive weight of animals was determined by weighting on stationary scales. Absolute growth was determined by formula:

$A = W_2 - W_1$, where

W_1 – live weight at the beginning of the period, kg

W_2 – live weight at the end of the period, kg.

The average daily weight is calculated by formula:

$B = \frac{A}{t}$, where

A – absolute growth, kg;

t – growing period, days.

The results of the researches and their discussion. The results of the researches of the calves' growth evaluations are represented in the tables.

Table 2

The growth of bulls on the milking period (M±m,n = 36)

Indicator	Group of animals		
	Control	Experimental I	Experimental II
The withers height, cm			
at the beginning of the research	81.0±1.73	79.6±0.97	78.6±0.73
at the end of the research	93.6±1.53	94.4±1.20	94.7±0.55
Oblique length of trunk			
at the beginning of the research	69.3±1.22	71.6±1.02	69.0±1.20
at the end of the research	90.2±1.66	90.4±1.57	91.0±0.46
Straight length of trunk, cm			
at the beginning of the research	54.2±1.70	55.1±1.75	55.6±1.12
at the end of the research	89.6±2.08	89.17±1.83	91.33±0.68
Chest girth behind the shoulder blades, cm			
at the beginning of the research	84.8±0.72	83.7±0.96	84.3±0.66
at the end of the research	102.5±0.92	103.0±0.93	102.3±1.1

The researches have established that the calves of Experimental II had the best growth indicators, where milk replacer «CalvoStart» (Netherland) was used for feeding. Thus, at the end of research they had 1.1 cm bigger withers height, 0.8 cm bigger oblique length of trunk, 1.73 bigger straight length of trunk in the comparison to the calves of Control group. Something less indicators of growth and development were observed in Experimental I, which 0,79 %, 0,33% and 0.17% overstated the Control. The general tendency of growing both Experimental groups testifies that, the milk replacer compound is optimal and it promotes the development of calves in milking period in the same degree as using the whole milk.

The data, set out in the table 3 evidence that, the calves live weight at the beginning of the research do not vary significantly between ourselves and were at the level of 39.5-40.3 kg, which evidences about the optimal selection of calves for research.

Table 3

The live weight and growth of bulls in the milking period (M±m, n= 36)

Indicator	Group of animals		
	Control	Experimental I	Experimental II
Live weight of calves at the beginning of research, kg	40.3±0.304	40.08±0.297	39.5±0.288***
at the end of research, kg	92.41±0.742	93.41±0.865	93.0±0.912
Absolute growth for the research period, kg	52.16±0.637	53.3±0.8	53.5±0.925
Average daily growth for the diary period, g	841.39±10.28	860±12.99	862.9±14.92

Note: ***P≥0.999

As well, it is not marked the significant difference in absolute and average daily growth of experimental animals in the process of their growing. The live weight of calves at the end of the research was at the level of 92.4-93.4 kg. The average daily growth in Control group were less than in Experimental II for 1.6% and for 0.8% less in comparison with Experimental I. Absolute growth in Experimental I were 1.1kg, and in Experimental II 1.3 kg more in comparison with Control group, which the whole milk was fed.

Conclusions. The keeping calves in the individual houses and using the milk substitute for foddering for the period of milking (62 days), enable to receive the growth gain at the level of 841.39-862.9g.

References

1. Solyanyk T.V.Grows and Safety of Calves Depending on Growing Conditions / T.V. Solyanyk // Actual problems of intensive cattle breeding development. Materials of XVII international scientific-practical conference on 80 anniversary of Zoogygiene, Ecology and Microbiology Department of Belarusian State Agricultural Academy 29–30 May 2014 – Gorky. – 2014. #17. Pg. 257–262.
2. Chumachenko I. Milk Substitutes for Calf Foddering / I. Chumachenko, U. Panasenko, L. Koropets // Ukrainian Cattle Breeding. – 2006. – #7. – Pg. 25–28.
3. Skvaruk V. Efficiency of Calves Growing During the Milking Period at Complexes / V. Skvaruk, P. Bortnovskiy, Y. Zaharchuk // Dairy and beef cattle breeding. – 1990. – #2. – Pg. 32–33.
4. Sudarev N. The Efficiency of Calves Keeping in Individual Houses / N. Sudarev // Dairy and beef cattle breeding. – 1996. - #7-6. – Pg. 10-11.