UDC 636

EFFICIENCY OF ECOBENTOFODDER APPLIANCE IN PURE FORM AND IN THE COMPLEX WITH FEED ADDITIVE "GLIMALASK" IN THE DIETS OF LACTATING COWS

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The research is aimed at influencing the determination of food additives of ecobentofodder in pure form and in complex with "Glimalask" on organism of lactating cows. Applied food additives in ration of lactating cows in amount – 1 % from the mass of ecobentofodder and 1 % from the mass of ecobentofodder + "Glimalask" stimulated eatability of the bulk food. The higher ability of nutrient substances digesting was determined in comparison with analogs from control group. The animals which received studied food additives with ration had increasing of milk yield and also improvement of milk qualitative indexes. Using of ecobentofodder in pure form and in complex with food additive "Glimalask" is economically effectually and recommended for use in lactating cows rations.

Key words: food additive, ecobentofodder, "Glimalask", cow, ration, milk.

Material and methodology. Experimental researches were carried out in LLC "Aksai milk", Aksai region, Rostov region. Three groups of fresh cows were formed according to the method of analogue-pairs. Experimental cows were contained in milk operation section 20 heads in each. After milk operation conclusion the animals were moved to the milk manufacture group, where they continued to get test creep rations (table. 1).

Table 1 – Research scheme

Group	n	Test duration	Feeding conditions
Control	20	during lactation	basic diet
I experiment	20	during lactation	basic diet + 1% from the mass of ecobentofodder food
I experiment	20	during lactation	basic diet +1% from the mass of ecobentofodder food + "Glimalask"

ecobentofodder – ТУ 9283-199-10514645-13 [3]
"Glimalask" – ТУ 2639-182-10514645-12 [1]

Holding of cows was loose housing, in the daytime the animals were aired in the special inclosures. Cows feeding with silage, haylage, concentrated fodders was carried out in areas with hay – in barn yards. Watering was realized in areas from automatic drinking cups, in barn yards – from pans. Dung from cowshed was gathered by flight conveyer. Feeding of test cows was realized according to the norms of farm animal feeding, developed by Kalashnikov A.P. and others. (2003) [6]. Lactating cow ration in the period of experiment consisted of legume-grass hay – 4,5 kg, poaceous haylage – 15,0, corn silage – 10,0, corn mixture – 4,5, brewer pellet – 5,0 kg, sodium chloride – 99 g, disodic phosphate – 80,0 g. In the ration of test cows were 15,5 EFU, 17,1 kg of dry substance, 2296,4 g of crude protein, 4284,7 g of crude fiber, 2203,5 g of starch, 800,3 g of sugar, 501,8 g of crude fat. Ration food-value was corrected depending on milk yield level and their physiological state.

Research results. The results of lactating cows control feeding showed that ecobentofodder stimulated bulk food eatability (table. 2).

Table 2 – Actual intake of fodders and nutrient materials for lactation (per capita), kg by test cows

Index	Group		
	control	I experiment	II experiment
Legume-grass hay	1372,6	1400,1	1411,6
Poaceous haylage	4642,1	4786,0	4812,4
Corn silage	2857,8	2923,5	2946,4
Corn mixture	1464,2	1464,2	1464,2
Brewer pellet	1555,7	1555,7	1555,7
Sodium chloride	33,6	33,6	33,6
Disodic phosphate	27,4	27,4	27,4
Food additive ecobentofodder	–	8,4	–
Ecobentofodder + "Glimalask"	–	–	8,4
The ration contained:			
EFU	4666,5	4745,8	4755,2
Exchange energy, MJoule	44665,1	47458,3	47552,6
Dry substance	5167,7	5283,7	5355,8
Crude protein	672,5	693,9	698,4
Crude fiber	1220,0	1257,7	1272,2
Starch	671,0	686,9	691,0
Sugar	250,1	257,4	260,1
Crude fat	146,4	149,1	152,0
Calcium	36,6	27,6	26,7
Phosphorus	24,4	16,8	16,3
Magnesium	9,15	6,0	5,8
Kalium	79,3	54,9	54,1
Gray	9,4	6,9	6,7
Ferrum, g	1354,2	958,4	940,2
Cuprum, g	67,1	46,0	45,6
Manganese, g	305,0	217,1	213,4
Iodine, g	1,52	0,99	0,98
Carotene, g	195,2	138,9	138,0

Thus, cows of I and II experienced groups in comparison with analogue from control ate legume-grass hay more on 2,00 and 2,85%, poaceous haylage – on 3,10 and 3,67%, corn silage – on 2,3 and 3,10%. For 305 days of lactation food consumption EFU by cows, which took ecobentofodder with ration, was higher than analogs from control, on 1,7 and 1,9%, dry substance – on 2,21and 3,60%, crude protein – on 3,19 and 3,86%. Analogous regularity is also determinated according to consumption of energy, cellulose, starch, macro and microelements.

To expose the influence of ecobentofodder on the character of ration nutrient materials digestibility we conducted physiological experiments. In the performance of physiological experiment the animals were given farm ration. The ration of the experimental animals was consisted of 4,0 kg of legume-grass hay, 15,0 kg of poaceous haylage, 10,0 kg of corn silage, 4,5 kg of corn mixture, 5,0 kg of brewer pellet and necessary mineral creep rations.

In the course of researches it was determined that bulk food eatability of the animals received ecobentofodder as in pure form so in combination with food additive "Glimalask" was more intense. However, the cows of I and II experienced groups in comparison with analogs from control consumed more dry substance on 1,31 and 1,97%, organic matter – on 1,31 and 1,97%, protein – on 1,47 and 3,54%, fat – on 1,75 and 3,08%, cellulose – on 0,71 and 0,93%, NFE – on 0,52 and 0,75%

(table. 3).

Table 3 – Nutrient materials daily intake, g

Index	Group		
	control	I experiment	II experiment
Dry substance	16951,9±19,11	17172,9±20,07	17284,9±17,37
Organic matter	15906,1±18,46	16108,2±19,84	16213,2±18,11
Protein	2231,6±13,91	2264,4±21,60	2310,6±12,75
Fat	491,5±21,82	500,1±19,60	506,6±11,30
Fiber	4149,2±17,57	4178,6±16,96	4187,5±17,04
NFE	8864,8±14,79	8910,3±15,61	8931,2±14,83

The animals consumed ecobentofodder as in pure form so with food additive "Glimalask" have higher ability for nutrient materials digestion in comparison with analogs. The cows from the experient groups digested more dry substance than analogs from control group on 3,76 (P<0,01) and 5,05% (P<0,01), organic substance – on 3,60 (P<0,01) and 5,50% (P<0,01), protein – on 2,44 (P<0,05) and 5,19% (P<0,05), fat – on 3,20 (P<0,05) and 5,49%, cellulose – on 2,52 and 4,14%, NFE – on 3,09 (P<0,001) and 4,84% (P<0,01) (table. 4).

Table 4 – Digestibility of nutrient substance for 24 hours, g

Index	Group		
	control	I experiment	II experiment
Dry substance	11205,2±18,48	11626,0±19,20	11771,0±17,63
Organic substance	10573,6±17,64	10953,6±18,82	11154,7±18,11
Crude protein	1410,3±3,07	1444,7±3,58	1483,4±2,94
Crude fat	318,9±1,61	329,1±1,85	336,4±1,89
Fiber	2082,9±5,68	2135,3±4,11	2189,1±4,60
NFE	5895,1±10,70	6076,8±11,35	6180,4±11,42

In connexion with higher consumption and better digestibility of nutrient substances the experienced group cows had higher coefficients of digestibility. The animals consumed ecobentofodder had higher coefficients of dry substance digestibility than analogs from control group, on1,6 (P<0,05) and 2,0% (P<0,05), organic substance – on 1,5 (P<0,01) and 2,3% (P<0,05), crude protein – on 1,5 (P<0,05) and 1,9% (P<0,05), crude fat – on 1,3 and 1,9% (P<0,05), crude fiber – on 0,9 and 1,6% (P<0,05), NFE – on 1,7 (P<0,05) and 2,7% (P<0,01).

In addition the cows from the II experiment group, consuming ecobentofodder in complex with food additive "Glimalask", had higher nutrient substance digestibility coefficients than analogs from the I experiment group, accordingly on 0,4; 0,8; 0,4; 0,6; 0,7 and 1,0% (table. 5).

Table 5 – Nutrient substances digestibility coefficients, %

Index	Group		
	control	I experiment	II experiment
Dry substance	66,1±0,48	67,7±0,34	68,1±0,37
Organic substance	66,5±0,30	68,0±0,49	68,8±0,50
Crude protein	62,3±0,42	63,8±0,32	64,2±0,39
Crude fat	64,5±0,53	65,8±0,40	66,4±0,37
Crude fiber	50,2±0,48	51,1±0,38	51,8±0,26
NFE	66,5±0,34	68,2±0,51	69,2±0,48

Consequently, including of ecobentofodder into the ration of lactate cows positively influenced on digestibility of rations nutrient substances. More significant increasing of nutrient substances digesting indexes were observed at the animals, consumed ecobentofodder in a complex with food additive "Glimalask".

As it is known, nitrogen balance in the animal organism may be the important index of nutrient metabolism. Thus, the cows of I and II experiment groups at an average took more nitrogen for 24 hours, than analogs from control on 5,2 g or 1,46%, and 18,0 g, or 5,04% (P<0,01). The cows of I and II experiment groups digested more nitrogen accordingly on 8,4 g , or 3,73% (P<0,05), and 17,9 g, or 7,94% (P<0,01) (table. 6).

Table 6 – Nitrogen balance in the organism experiment groups, g

Index	Group		
	control	I experiment	II experiment
Accepted with fodder	357,1±1,82	362,3±2,04	375,1±1,97
Excreted with faeces	131,5±1,48	128,3±1,71	131,6±0,66
Digested	225,6±1,90	234,0±2,18	243,5±1,63
Excreted: with stale	141,0±1,53	144,9±1,75	149,4±2,03
with milk	77,2±0,68	80,5±0,51	83,8±0,46
Saved in a body	7,4±0,19	8,6±0,16	10,3±0,21
Used for milk manufacture, %:			
From accepted	21,6	22,2	22,3
From digested	34,2	34,4	34,4
Used in a whole, %:			
From accepted	23,7	24,6	25,1
From digested	37,5	38,1	38,7

The animals which consumed ecobentofodder in pure form and in a complex with food additive "Glimalask", excreted with stale more nitrogen, than analogs from control group, on 3,9 g, or 2,77%, and 8,4 g, or 5,96% (P<0,05), with milk – on 3,3 g, or 4,28% (P<0,05), and 6,6 g, or 8,55% (P<0,01). In a whole the cows of experiment groups excreted more nitrogen, than analogs from control group, on 7,2 g, or 3,30% (P<0,001), and 15,0 g, or 6,88% (P<0,001). Consequently, nitrogen balance in the organism of the experiment cows was positive. Thus, usage of nitrogen on synthesis of milk by the cows of I and II experiment groups in comparison with control was higher from approved on 0,6 and 0,7%, from digested – on 0,2 and 0,2%. In a whole the cows from experiment groups in comparison with control used more nitrogen from accepted on 0,9 and 1,4%, from digested – on 0,6 and 1,2%.

Therefore, the food additives under study contributed to activation of nitrogen usage in the organism of experiment group cows. Mineral substance deficit metabolism of which is closely connected in the organism of animals induces decrease of their productivity, natural resistibility. Thus, mineral elements, coming into organism with fodder, contribute to synthesis of milk and influence on reproductive functions. It should be noted that such mineral elements as calcium and phosphorus compose the most significant weight fraction in the organism of cows.

The results of our researches showed that the cows consumed ecobentofodder with ration ate more coarse and succulent fodders. Herewith, the cows of I and II experiment groups received more calcium than analogs from control group, accordingly on 6,2 g, or 5,04% (P<0,05), and 7,3 g, or 6,17% (P<0,05).

In the process of fodder digestion the organism of cows excreted calcium with faeces accordingly by groups from 80,8 to 82,6 g. It is established that the cows which consumed ecobentofodder with ration in pure form and in a complex with food additive "Glimalask", digested more of

this microelement in comparison with analogs from control group on 4,8 g, or 12,8% (P<0,01), and 5,5 g, or 14,6% (P<0,01). Herewith, the organism of experiment group cows excreted more calcium with milk in comparison with analogs accordingly on 4,8 g, or 16,1% (P<0,01), and 5,5 g, or 18,5% (P<0,001) that is apparently connected with higher milk yields in these groups (table. 7).

Table 7 – Calcium balance in the organism of experimental animals

Index	Group		
	control	I experiment	IIexperiment
Accepted with fodder, g	118,4±1,67	124,6±1,45	125,7±1,38
Excreted with faeces, g	80,8±1,52	82,2±1,40	82,6±1,23
Digested, g	37,6±0,51	42,4±0,46	43,1±0,58
Excreted, g: with stale	3,8±0,02	3,7±0,03	3,4±0,01
with milk	29,8±0,48	34,6±0,51	35,3±0,36
Saved in a body, g	4,0±0,02	4,1±0,04	4,4±0,02
Used for milk from accepted, %	25,2±0,17	27,8±0,14	28,1±0,23
Used in whole from accepted, %	29,5±0,29	31,1±0,22	31,6±0,19
Used for milk from digested, %	79,3±0,11	81,6±0,17	81,9±0,14
Used in whole from digested, %	89,9±0,23	91,3±0,16	92,1±0,25

Herewith, more calcium depositioned in the bodies of experiment cows in comparison with analogs from control group accordingly on 0,1 g, or 2,50%, and 0,4 g, or 10,0% (P<0,001). In the result, the cows, consumed ecobentofodder with fodder as in pure form so in complex with food additive "Glimalask" used more calcium on synthesis of milk than analogs, from accepted on 2,6 and 2,9%, from digested – on 2,3 and 2,6%. In the result of researches was also established that the cows of I and II experiment groups in comparison with analogs from control group consumed more phosphorus accordingly on 4,1 g, or 5,97%, and 5,0 g, or 7,28% (P<0,05). Lactating cows of experiment groups, received ecobentofodder and ecobentofodder in combination with food additive "Glimalask", digested more phosphorus than analogs, accordingly on 2,5 g, or 11,63% (P<0,01), and 3,1 g, or 14,42% (P<0,001). Herewith the basic amount of digested phosphorus was excreted from the organism of cows with synthesized milk. Thus, the cows of experiment groups used more phosphorus on synthesis of milk than analogs from control group, accordingly on 2,4 g, or 17,0% (P<0,01), and 3,0 g, or 21,28% (P<0,01) (table. 8).

Table 8 – Phosphorus balance in the organism of experimental animals

Index	Group		
	control	I experiment	II experiment
Accepted with fodder, g	68,7±1,94	72,8±1,68	73,7±1,27
Excreted with faeces, g	47,2±1,31	48,8±1,46	49,1±1,71
Digested, g	21,5±0,29	24,0±0,23	24,6±0,28
Excreted, g: with stale	4,6±0,03	4,3±0,04	4,1±0,02
With milk	14,1±0,39	16,5±0,42	17,1±0,31
Saved in a body, g	2,8±0,01	3,2±0,03	3,4±0,02
Used on milk release from accepted, %	20,5±1,16	22,7±0,98	23,2±1,33
Used in whole from accepted, %	24,6±1,48	27,1±1,37	27,8±1,56

Thus, the cows of I and II experiment groups used more phosphorus on milk release from accepted on 2,2 and 2,7% and in whole in their organism more on 2,5 and 3,2% in comparison with control group. However, effect was higher in cow groups which received ecobentofodder in complex with food additive "Glimalask". The results of researches evidence on ecobentofodder positive

effect on anatomical and biochemical blood compositions of experiment cows [2, 4, 5]. Thus, hematologic indexes of cow groups were marginally differed before an experiment. After conclusion of the milking operation (90 days) certain distinctions were determined according to anatomical and biochemical compositions. Thus, concentration of erythrocytes in the blood of cows, consumed ecobentofodder, increased accordingly on 4,85 g/l, or 4,43%, and 5,69 g/l, or 5,19%. Also insignificant tendency of leucocytes excess concentration in the blood of experiment cows was determined (table. 9).

Table 9 – Anatomical blood compositions of experiment cows

Index	Group		
	control	I experiment	II experiment
Before the experiment			
Erythrocytes, 10 /l	6,47±0,11	6,50+0,08	6,46+0,05
Leucocytes, 10^9/l	7,31+0,08	7,27+0,06	7,30+0,08
Hemoglobulin, g/l	108,91±1,97	108,86+2,36	109,03+2,14
After 90 days of creep ration feeding			
Erythrocytes, 10 /l	6,52+0,06	6,83+0,11	6,901+0,13
Leucocyte, 10^9/l	7,24+0,07	7,30+0,05	7,35+0,07
Hemoglobulin, g/l	109,67+2,75	114,52+3,18	115,36+3,04

Consumption of ecobentofodder in the ration of experiment cows as in pure form, so in complex with food additive "Glimalask" influenced on protein content and separate fractions in blood serum. It should be noted that amount of crude protein and albumen fraction in the cow blood serum of all experimental groups increased for a period of milking operation in connection with advanced feeding. However, cows of experiment groups had more significant alterations. Thus, crude protein content in the blood serum of animals from control group increased on 0,95 g/l, or 1,16% ($P<0,05$), I experiment group – on 3,2 g/l, or 3,89% ($P<0,001$), II – on 3,57 g/l, or 4,34% ($P<0,001$), albumins – accordingly on 4,05 g/l, or 11,82% ($P<0,001$); 6,11 g/l, or 17,74% ($P<0,001$), and 6,73 g/l, or 12,69% ($P<0,001$). However relation of albumins to crude protein in the cow blood of experiment groups in comparison with analogs from control was higher on 1,34 and 1,57% (table. 10).

Table 10 – Biochemical composition of experiment cows blood serum

Index	Group		
	control	I experiment	II experiment
Before the experiment			
Crude protein, g/l	82,34±0,13	82,41±0,18	82,37±0,17
Albumins, g/l	34,29±0,10	34,45±0,12	34,18±0,15
Relation to crude protein, %	41,65	41,81	41,50
Globulins	48,05±0,07	47,96±0,12	48,19±0,15
Relation to crude protein, %	58,35	58,19	58,50
After 90 days of creep ration feeding			
Crude protein, g/l	83,29±0,11	85,61±0,18	85,94±0,14
Albumins, g/l	38,34±0,06	40,56±0,09	40,91±0,09
Relation to crude protein, %	46,04	47,38	47,61
Globulins, g/l	44,95±0,07	45,05±0,11	45,03±0,05
Relation to crude protein, %	53,96	52,62	52,39

After 90 days of studied food additive feeding there was more protein in the animals blood serum of I and II experiment groups than in the control group on 2,22 g/l, or 2,79% ($P<0,001$), and

2,65 g/l, or 3,19% (P<0,001), albumins – accordingly on 2,22 g/l, or 5,79% (P<0,001), and 2,57 g/l, or 6,71% (P<0,001).

Feeding of ecobentofodder to cows positively influenced on mineral substance contain in the blood of cows experiment groups. In the results of researches it was established that blood of the cows experiment groups contained more mineral substances and carotene. Mineral substances content in cow blood ranged within physiological standard. The blood of cows which consumed ecobentofodder with ration during 90 days contained more calcium than analogs from control group accordingly on 0,22 mmol/l, or 8,34%(P<0,05), and 0,26 mmol /l, or 9,85%(P<0,01), phosphorus – on 0,28 mmol/l, or 17,18% (P<0,01), and 0,31 mmol/l, or 19,02% (P<0,001). Significant differences were determined in terms of ferrum, cuprum and zinc content in favor of experiment group cows (table. 11).

Table 11 – Mineral content in the blood of experimental cows (M±m)

Index	Группа		
	control	I experiment	II experiment
Calcium, mmol /l	2,64±0,04	2,86±0,03	2,90±0,04
Phosphorus, mmol /l	1,63±0,02	1,91±0,03	1,94±0,02
Ferrum, mcmol/l	23,06±0,94	26,52±0,81	26,54±0,90
Cuprum, mcmol /l	13,54±0,82	15,81±0,73	15,90±0,67
Zinc, mcmol /l	13,98±1,13	16,92±1,25	17,04±1,08

Research of lysozymic, bacillicidal, phagocytic activity of experimental cows leucocytes was conducted in the period of the highest organism tension (milking operation).

In the process of researches it was determined that ecobentofodder significantly influenced on indexes of cow experimental groups autarcesis. Thus, lysozymic activity of cows which ate ecobentofodder was higher in comparison with analogs from control group on 0,45 and 3,06% (P<0,01), bacillicidal – on 2,25 (P<0,01) and 3,60% (P<0,01), phagocytic – on 2,39 (P<0,01) and 2,64% (P<0,01) (table. 12).

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Table 12 – Indexes of experimental cows organism autarcesis (n=3)

Index	Group		
	control	I experiment	II experiment
Lysozymic activity, %	34,78±0,28	35,23±0,37	36,84±0,32
Bactericidal activity, %	45,36±0,30	46,61±0,43	47,96±0,40
Phagocytic activity, %	38,45±0,47	38,84±0,35	39,89±0,42
Phagocytic index	4,83±0,06	4,98±0,04	5,04±0,06

Phagocytic index of cows experiment groups was higher accordingly on 0,35 (P<0,01) and 0,53 (P<0,01). Consequently, entering of ecobentofodder in lactating cow ration contributed to increasing of their autarcesis. The highest results were observed during the conjunctive use of ecobentofodder with food additive “Glimalask”.

The results of our researches showed rather high efficiency of food additive using of ecobentofodder in lactating cows rations as in pure form, so in complex with food additive “Glimalask”. The animals which received studied food additives with ration had higher milk yield and improvement of milk qualitative indexes. Thus, the cows which consumed with ration ecobentofodder and ecobentofodder in complex with food additive “Glimalask”, excelled analogs from control group by milk yield accordingly on 169,4 kg, or 3,51%, and 317,0 kg, or 6,56% (P<0,05). According to fat weight fraction in milk the cows of I и II experiment groups excelled analogs accordingly on 0,04 and 0,06% (P<0,01), protein – on 0,04 and 0,07%. The cows from I and II experiment groups at an average for a lactation gave more on 8,6 kg, or 4,62%, and 15,3 kg, or 8,21% (P<0,05), pro-

tein – on 7,3 kg, or 4,82%, and 13,6 kg, or 8,97% (P<0,05) in comparison with analogs which did not consume creep ration (table. 13).

Table 13 – Milk production of experiment cows

Index	Group		
	control	I experiment	II experiment
Milk yield for 305 days of lactation, kg	4832,3+86,55	5001,7+84,19	5149,3+91,76
Fat weight fraction, %	3,86+0,03	3,90+0,02	3,92+0,02
Fat amount,kg	186,5+3,68	195,1+3,91	201,8+4,19
Protein weight fraction, %	3,14+0,02	3,18+0,03	3,21+0,03
Protein amount, kg	151,7+2,93	159,0+3,62	165,3+3,40

Consequently, entering of ecobentofodder in the ration of lactating cows contributed to increasing of milk yield, milk fat and protein content. However ecobentofodder expressed the highest efficiency in complex with food additive "Glimalask". The results of milk analysis collected from the cows of I и II experiment groups after 90-days consuming of ecobentofodder, showed that fat weight fraction in their milk was higher than analogs' from control group on 0,07 and 0,08%, protein – on 0,05 and 0,07%, including casein – on 0,05 and 0,08%, dry substance was more on 0,16 and 0,21% (P<0,05), DNMR – on 0,09 and 0,13% (P<0,05) (table. 14).

Table 14 – Milk quality indexes of experiment cows on 3rd month of lactation

Index	Group		
	control	I experiment	II experiment
Fat weight fraction, %	3,84±0,02	3,91±0,03	3,92±0,03
Protein weight fraction, %	3,13±0,03	3,78±0,02	3,20±0,02
Including casein, %	2,72±0,01	2,77±0,02	2,80±0,04
Lactose, %	4,73±0,03	4,76±0,02	4,78±0,03
Dry substance, %	12,42±0,06	12,58±0,07	12,63±0,06
DNMR, %	8,58±0,04	8,67±0,05	8,71±0,03
Ashes, %	0,72±0,001	0,73±0,002	0,73±0,002
Density, g/cm^3	1,029±0,005	1,029±0,004	1,030±0,002
Titratable acidity, ^{o}T	17,36±0,06	17,33±0,08	17,34±0,07
Rennin coagulation property, min.	40,65±2,32	38,10±2,97	38,41±1,73
Heat stability group	I	I	I
Body cell content, thous./ cm	123,8±3,67	119,5±2,96	116,7±4,19

Density of experiment group milk cows was virtually equal. Titratable acidity was lower and milk rennin coagulation property was more intense in experiment group cows. Content of body cells was lower in the milk of cows, consuming ecobentofodder accordingly on 3,47 and 5,73. Using of ecobentofodder in pure form and in complex with food additive "Glimalask" is economically effectually. Thus, calculations showed that extra charges on ecobentofodder and food additive "Glimalask" acquirement comprised 740,0 and 820 roubles (table. 15).

Table 15 – Milk production economic benefit

Index	Group		
	control	I experiment	II experiment
Milk yield in physical weight, kg	4832,3±86,55	5001,7±84,19	5149,3±91,76
Milk yield (fatness 3,4%), kg	5486,1	5737,2	5997,4

Running costs, roubles.	68723,0	69663,0	61527,3
Cost price of 1 kg of standard fatness milk, roubles.	12,57	12,51	11,63
Amount of milk realization, roubles.	82294,1	86058,0	89961,0
Profit, roubles.	13371,1	16395,0	20218,0
Level of profitability, %	19,4	23,5	29,0

The cost of realized milk, received from control group cows comprised 82294,1 roubles and was lower than from analogs of experiment groups on 3763,9 and 766,9 roubles, the milk realization profit of experiment groups was higher in comparison with control group on 3023,9 and 6846,9 roubles, level of profitability – on4,1 and 9,6%.

According to the results of the research positive influence of ecobentofodder food additives in pure from and in complex with "Glimalask" on lactating cows organism was determined. Food additives applied into lactating cows ration in definite quantity (1% from ecobentofodder mass fodder and 1% ecobentofodder mass fodder + "Glimalask") stimulated eatability of bulk. The higher ability of nutrient substances digesting was determined in comparison with analogs from control group. The animals, received studied food additives with ration, had higher milk yield and better quality milk indexes. Using of ecobentofodder in pure form and in complex with food additive "Glimalask" is economically effectually and recommended for use in lactating cows ration.

References

1. *Gorlov I.F.* Sorption capacity of ecobentofodder / Gorlov I.F., Zelenkova G.A., Verovsky A.A., Pakhomov A.P. // The news of agrouniversity complex. Volgograd: № 1 (33), 2014.
2. *Gorlov I.F.* The use of new food additives for youngster meat productivity increasing / Gorlov I.F., Kuznetsova E., Randelin D. Komarova Z. // Milk and beef farming. 2012. №8.
3. *Zelenkov P.I.* Cattle breeding / Zelenkov P.I., Zelenkov A.P. etc. Rostov-on-Don, 2006.
4. *Zelenkova G.A.* Fodder bentonite for farm animals and birds (ecobentofodder) / Gorlov I.F., Zelenkova G.A. // Technical conditions ТУ 9283-199-10514645-13-2013.
5. *Zelenkova G.A.* The influence of ecobentofodder on metabolism of cows milk productive direction / Zelenkova G.A., Osrtikova E.E., Zelenkov A.P. // Veterinary pathology. 2014. №3-4.
6. *Kalashnikov A.P.* The norms and feeding rations of farm animals / Kalashnikov A.P., Fesinin V.I., Shcheglov.V.V etc. M., 2003.

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