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Meat Productivity Of Young Rams At Using A New Feed Additive.

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ABSTRACT

The article presents data on the influence of different levels of the feed additive "M-Feed" in the rations of sheep on the energy of growth and meat productivity. It was found that the optimal and effective dose of feeding the feed additive "M-Feed" is 5.0 g per head per day. This dosage ensures stable and intensive growth of animals, increased meat production, an increase in the weight of the fat-tailed fish and an improvement in the morphological composition of carcasses (the amount of pulp increases significantly by 14.5%), its amino acid composition improves).

Keywords: sheep, fodder additive, growth, live weight, meat qualities, protein, fat, amino acids.

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INTRODUCTION

In modern conditions, one of the urgent problems is the strengthening of the fodder base and the organization of scientifically based full-fledged feeding of young animals of farm animals by using various biologically active additives that promote the manifestation of the physiological capabilities of the organism [2, 3, 4, 5].

One of such new generation additives, created in the Russian branch of the largest European company of livestock producers Olmiks, is the new natural feed additive - M-Feed.

The purpose of the study was to study the effect of different levels of the feed additive "M-Feed" in rations of ram cats of Kalmyk breed on energy of growth and meat productivity [6-12].

The new feed additive "M-Feed" is a high-tech combined and absolutely natural product created in the largest European company "Olmiks" using nanotechnology [1].

MATERIALS AND METHODS

The experimental part of the work was carried out in the conditions of the tribal plant of LLC "Agrofirma Aduchi" of the Tselinny District of the Republic of Kalmykia, Russia, according to the scheme presented in Table 1.

Table 1: Scheme of experience, n=15

Groups	Feeding conditions
Control	The basic general ration (BR)
1st experienced	BR +2.5 g M-Feed per head per day
2nd experienced	BR +5 g M-Feed per head per day
3rd experienced	BR +7,5 g M-Feed per head per day

The feed additive was thoroughly mixed with barley grass and other mineral additives and was set in the calculation for the whole group.

RESULTS AND DISCUSSION

The results of the observations showed that the sheep, from the second experimental group, fed 5 grams per head per day in the diet of the feed additive "M-Feed", throughout the entire experiment were significantly higher in the live weight of their peers from the other groups (Table 2).

Table 2: Dynamics of live weight of sheep, kg

Age, month.	Groups			
	Control	1st experienced	2nd experienced	3rd experienced
When staged for experience	36,13±0,12	36,66±0,32	36,33±0,32	36,0±0,29
7	39,90±0,17	40,53±0,32	40,20±0,38	40,00±0,29
8	44,00±0,22	44,73±0,46	44,46±0,45	44,26±0,39
9	48,20±0,23	48,90±0,46	48,93±0,57	48,66±0,48
10	51,80±0,28	52,71±0,42	53,06±0,62	52,53±0,54
11	55,00±0,38	55,97±0,50	56,60±0,51	55,93±0,45
12	57,95±0,41	59,06±0,52	60,00±0,35	59,20±0,40
13	60,20±0,51	61,60±0,63	63,33±0,45	61,87±0,46
14	62,14±0,50	63,80±0,72	66,06±0,43	64,33±0,48
15	64,00±0,51	65,86±0,78	68,73±0,45	66,66±0,52
16	65,88±0,54	67,80±0,80	71,13±0,44	68,80±0,58
17	67,73±0,54	69,80±0,80	73,46±0,48	70,93±0,66

18	69,64±0,53	71,80±0,80	75,90±0,54	73,06±0,73
Absolute increase	33,51	35,14	39,57	37,06
Additional increase	-	1,63	6,06	3,55

With practically the same staging live weight, the sheep from the second experimental group had a live mass of 75.9 kg by the end of the experiment, which is 6.26 kg more than in the control analogues (P <0.01), 4.1 kg than from the first experimental group (P <0.001) and 2.84 kg from the third group (P <0.01).

During the experiment period, the sheep from the second experimental group gave an absolute increase of 39.57 kg, which is higher than for the control ones by 6.06 kg.

It should be noted that in the first six months of cultivation, after the beginning of the experiment, the maximum values of the average daily growth were observed, with the highest increments observed in the second experimental group (113-149), who received M-Feed at a dosage of 5 g per head per day. In general, for the experiment, sheep from this group grew on average 109.9 grams per day, which is higher than the control ones by 16.84 grams, than in the first experimental - by 12.31 g and by 6.97 g than in the third group.

The addition of diets from the first experimental group "M-Feed" in the amount of 2.5 grams per head per day contributed to a slight increase, on average, for the experience of weight gain (by 4.8%) compared with the control analogs.

At the same time, the amount of the drug - 7.5 g / head per day, in the third test group contributed to an increase in this difference to 10.6%.

The results of control slaughter of animals showed that the sheep that received the feed additive "M-Feed" in the optimal amount not only grew better, but also had better slaughter indicators (Table 3).

Table 3: Indicators of control slaughter of rams

Index	Groups			
	Control	1st experienced	2nd experienced	3rd experienced
Number of animals	3	3	3	3
Live weight:				
- at the end of the experiment, kg	69,33±0,88	70,66±1,20	75,66±1,20	72,33±1,20
- before slaughter, kg	67,33±0,81	68,66±1,09	73,37±1,09	70,33±1,20
Weight of refrigerated carcass, kg	29,56±0,56	30,30±0,60	33,20±0,75	31,30±0,55
Chilled carcass yield,%	43,90±0,29	44,12±0,26	45,25±0,39	44,50±0,07
Weight of internal fat, kg	0,560±0,02	0580±0,02	0,720±0,04	0,600±0,02
Weight of a fat tail, kg	5,20±0,20	5,43±0,29	6,30±0,36	5,80±0,15
Slaughter weight without fat tail, kg	30,12±0,74	30,88±0,63	33,92±0,78	31,90±0,58
Slaughter weight with fat tail, kg	35,32±0,74	36,31±0,93	40,22±1,12	37,70±0,73
Slaughter yield without fat tail,%	44,73±0,28	44,96±0,28	46,22±0,40	45,35±0,08
Slaughter yield with fat tail,%	52,45±0,47	52,86±0,55	54,82±0,77	53,60±0,15

Among the experimental groups, the best indicators of slaughter were animals from the second experimental group. Thus, in baranchies from this group, the mass of the chilled carcass was 3.64 kg or 12.3% (P <0.05) higher than that of the control group, by 2.9 kg or 9.5% than from the first test group (P <0.05) and by 1.9 kg or by 6%, than from the third group.

The carcasses rams second experimental group treated with the additive «M-Feed» in an amount of 5 g per head per day contained more fat as compared to control animals x 160 g or 28.5% (P <0.05) from the first test group - by 140 g or 24% (P <0.05) and compared with the third group - by 120 g or by 20% (P > 0.05). It should also be noted that the sheep from the second experimental group had a more massive Kurdyuk. Its weight was 6.3 kg, whereas in the control group, the main diet without the drug was 1.1 kg lower (P <0.05) from the first test group by 0.87 kg (P > 0, 05) and from the third group - by 0.5 kg. (P <0.05).

The results of the carcasses performed by us showed that the "M-Feed" additive had a noticeable effect on the morphological composition of the carcasses (Table 4). It was found that the maximum amount of pulp in the carcass was from the second sheep's testicles. They outperformed the analogues from the control group by 2.44 kg or by 14.5% ($P < 0.01$), from the first test group by 1.85 kg or by 10.6% ($P < 0.05$) and from the third group by 1.36 kg or by 7.6% ($P > 0.05$).

Table 4: Morphological composition carcass of rams

Index	Groups			
	Control	1st experienced	2nd experienced	3rd experienced
Weight of chilled carcasses, kg	29,56±0,56	30,30±0,60	33,20±0,75	31,30±0,55
Flesh pulp with fat tail, kg	21,93±0,39	22,75±0,62	25,47±0,60	23,61±0,56
Flesh weight without fat tail, kg	16,73±0,23	17,32±0,33	19,17±0,40	17,81±0,41
Weight of bones, kg	7,26±0,14	7,16±0,03	7,30±0,14	7,28±0,04
Mass of cartilage and tendons, kg	0,37±0,02	0,39±0,01	0,43±0,01	0,41±0,01
Output of meat with fat tail,%	74,19±0,10	75,08±0,56	76,72±0,09	75,43±0,48
Output of meat without fat tail,%	56,60±0,52	57,16±0,10	57,74±0,15	56,90±0,34
Bone output,%	24,56±0,08	23,63±0,57	21,99±0,09	23,26±0,49
Output of meat with fat tail per 1 kg of bones,%	3,02±0,01	3,18±0,10	3,49±0,02	3,24±0,09
Output of meat without fat tail by 1 kg	2,30±0,03	2,42±0,05	2,63±0,01	2,44±0,06

The mass of bone tissue in all the groups except the first experimental group was approximately the same (7.26-7.30 kg), and in the first test group it was equal to 7.16 kg. However, it should be noted that the yield of bone tissue with respect to the mass of carcass - in the second test group was the lowest and amounted to 21.99%. This is 2.57% lower than in the control group ($P < 0.001$) by 1.64% than in the first test group ($P < 0.05$) and 1.27% than in the third test group ($P > 0, 05$).

The absolute content of cartilage and tendons in carcasses of sheep from the second and third groups was the largest and amounted to (0.43-0.41 kg).

The analysis of the average sample of barley meat showed (Table 5) that in meat of animals from the second test group, there is less moisture at 1.5% $P < 0.001$) than in the control group, by 1.58% ($P > 0, 05$) than from the first test group and 0.92% ($P > 0.05$) than from the third test group.

Table 5: Chemical composition and energy value of rams meat

Index	Groups			
	Control	1st experienced	2nd experienced	3rd experienced
Moisture,%	66,82±00,28	66,88±0,35	65,30±0,47	66,22±0,16
Protein,%	18,39±0,14	18,50±0,15	19,67±0,38	18,90±0,15
Fat,%	13,87±0,18	13,66±0,24	14,08±0,26	13,92±0,04
Ash,%	0,92±0,01	0,96±0,02	0,95±0,02	0,96±0,03
Caloric content, MJ	8,55±0,08	8,49±0,11	8,86±0,12	8,66±0,03

However, it should be noted that the meat of the sheep from the second group contained more protein and fat than all the other groups. By the amount of protein in the meat, they exceeded the peer group from the control group by 1.28% ($P < 0.05$), from the first test - by 1.17% ($P < 0.05$) and from the third test group - by 0.77% ($P > 0.05$), and by the content of fat, respectively - by 0.21% ($P > 0.05$); 0.42% ($P > 0.05$); and 0.16% ($P > 0.05$).

The energy value of the meat is also higher in the sheep from the second experimental group who received M-Feed in the optimal amount, which was 8.86 MJ, which is 0.37 MJ higher than that of the control group's counterparts by 0.37 MJ, than from the first test group and by 0.2 MJ, than from the third test group.

The mass fraction of amino acids was determined in medium samples of the longest muscle in three animals from each group.

Thus, the meat of these lambs exceeded the meat of the control analogs by the content of lysine by 0.78% ($P < 0.01$), histidine by 0.89% ($P < 0.001$), leucine by 1.1% ($P < 0.01$), isoleucine by 0.8% ($P < 0.05$), methionine by 0.33% ($P > 0.05$) and threonine by 0.74% ($P < 0.01$), tryptophan - by 0.07% ($P < 0.05$).

In general, the percentage of essential amino acids in the meat of the sheep from the second test group exceeded the control peer meat by 6.85% ($P < 0.001$), the first test group by 5.39% ($P < 0.001$) and the third test group by 3% ($P < 0.001$).

The same trend was observed in the content of non-essential amino acids. Thus, in the longest muscle of the sheep of the second experimental group, the concentration of alanine was higher than in the muscle of the control analogs by 0.46% ($P > 0.05$), tyrosine by 0.18% ($P < 0.05$), cystine - by 0.12% ($P < 0.01$), glycine by 0.11% ($P > 0.05$), serine by 6.5% ($P < 0.05$) and glutamic acid by 0.65% ($P > 0.05$), hydroxyproline by 0.06% ($P > 0.05$), aspartic acid by 1.17% ($P < 0.001$).

In general, in the meat of the sheep all groups there is a high content of glutamic acid (10.02-10.95%) and aspartic acid (7.27-8.44%). The content of cystine and proline in the meat of the sheep of all groups is insignificant (1.05-1.17%) and (1.20-1.25%).

The total number of interchangeable amino acids in the meat of the sheep of the second experimental group is 3.95% higher than in the control group ($P < 0.05$), 3.92% than in the first test group ($P < 0.001$) and 2.27% than from the third group ($P < 0.001$).

The amino acid index, i.e. the biological value of the meat protein of the sheep meat of the second test group is 0.07% higher than the meat of the sheep pellets of the control group by 0.02% and 0.01% than the meat of the animals of the first and third test group.

CONCLUSIONS

In order to improve the quality of feeding young sheep, increase their productivity, normalize metabolic processes in the body, it is recommended to add a new feed supplement "M-Feed" in the amount of 5 grams per head per day once a day.

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