biopsy samples were taken from different places with ulcerative and erosive lesions of the stomach in the amount of 1.5 cm^3. After special processing, biopsy specimens were stained using immunohistochemical methods with hematoxylin-eosin and Lefler.

A histological examination of biopsy specimens revealed signs of helicobacteriosis in 17 horses, while pronounced erosive areas were observed in the studied animals, and minor hyperemia in the remaining 14.

The authors believe that the severity of the inflammatory response may be an independent factor stimulating cell proliferation. The proliferative activity of cells in the inflammatory infiltrate was greatest in the antrum. In biopsies from the body of the stomach, minimal expression of inflammatory cells was noted.

Key words: Helicobacter pylori, helicobacteriosis, horse, endoscopy, histology, abdomen, biopsy, catarrhal inflammation, desquamation, ulcer, infiltration.

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EFFECT OF DIFFERENT FEEDING LEVELS AND RATION STRUCTURE ON INCREASING SHEEP PRODUCTIVITY

Abstract

The article considers the process of identifying different amounts of cleavable and non-cleavable basic food in the scars of protein fractions of protein in the south-east of Kazakhstan. The main factors influencing feed intake during fattening are the physical form of the feed, the energy concentration in the dry matter of the diet and the live weight of the sheep.

When feeding granulated feed mixtures, feed losses in the form of scraps are reduced by 20-25%, dry matter consumption increases by 10-15% and amounts to 45-50 g per 1 kg of live weight, which allows increasing the total consumption of nutrients by 25-30%, obtaining more meat production by 26.20%, lamb wool by 15.65%, reducing feed costs per 1 kg of gain by 2 feed units or 30%.

The proteins most intensively broken down in the rumen of sheep are those of clover and alfalfa grass (83.5-84.6%), grass from foothill and mountain pastures (70.0-71.7%), alfalfa hay and haylage (76.6-81.3%), corn silage (78.6%), and oat and barley grain (84.0-85.3%).

Intensive fattening of fat-tailed meat-and-fat sheep using our detailed feeding standards, feed mixtures, and compound feeds ensures an average daily gain of 200-230 g, a carcass weight at slaughter of 23-26 kg, a meat-pulp yield of 76-78% with an expenditure of 6.0-7.0 feed units, 78-80 MJ of exchange energy per 1 kg of live weight gain.

Key words: *sheep, feeding amount, protein, granulated feed corn grains,*

Introduction

Sheep represent a significant animal genetic resource for rural farmers in developing countries. The growth of the human population, increase in purchasing power and consumer awareness are the main factors driving the demand for sheep products [1]. In Kazakhstan, sheep farming plays a significant role in the agricultural sector due to the country's natural conditions. The development of

sheep farming is a priority due to the provision of meat, meat products and wool [2]. The key problems of standardized feeding of farm animals are methods for assessing the overall nutritional value of feed and diets, determining the nutritional needs of animals and developing methods for standardized feeding. The development of scientific knowledge, the generalization of feeding practices, and the discovery of the patterns of physiological processes in the animal body served as incentives for improving feeding techniques and techniques and contributed to an increase in animal productivity [3].

Intensification of livestock farming is, first of all, an increase in the output per unit of feed. Therefore, proper standardization of feeding by nutritional elements is the basis for effective sheep farming. Changes that occur under the influence of feeding are manifested to a greater extent at an early age, that is, during the period of growth and development of animals. In young sheep at this age, the greatest assimilation of nutrients in feed occurs, which is expressed in rapid growth, live weight and wool. At the same time, the organization of lamb feeding has its own specific features and difficulties associated with the growth and development of a growing organism, during which the role and functions of the digestive organs change. In the process of development, the use changes, and ultimately the need for various nutrients and their ratios [4].

Advances in zootechnical science in the field of protein nutrition of ruminants and standardization of their needs for nitrogenous substances have led to a revision of existing standards. Research into the processes of digestion and assimilation of feed nutrients, processes of protein and fat biosynthesis in ruminant tissues have provided grounds for changing approaches to feed assessment and standardized feeding. Protein supply is the basis for determining the productivity of sheep [5]. When determining the animal's needs for energy and protein, it is necessary to take into account their needs for maintaining life, changing live weight, digging and fetal development.

The protein of the feed ration is used for microbial synthesis in the forestomachs, and the unbroken part passes into the lower sections, serves as the main source of amino acids for the host animal, determining the level of its productivity. Since ancient times, it was believed that the amino acid needs of the ruminant organism are satisfied by the microbial protein synthesized in the rumen.

Recent studies have shown that microbial protein alone is insufficient to meet the needs of highly productive animals (e.g. cows producing 20-25 kg of milk per day, sheep 6-7 kg of natural wool per year) for amino acids. Therefore, much attention is paid to research on preserving valuable feed protein from destruction in the rumen. Various methods are proposed to protect feed protein from decay in the rumen. The most promising method of regulation is the selection and development of recipes for compound feeds with a relatively low decay rate. Crossing significantly improves the meat productivity of sheep; however, it is unclear whether hybridization changes the qualitative characteristics of lamb meat [6]. Digestion of nutrients and the efficiency of nitrogen, calcium, and phosphorus use by rams when including feeds with different degrees of decay in the rumen in their diet have been determined. Sheep meat comes from a wide variety of farming systems, from extensive to intensive indoors, with slaughter of animals of different ages [7]. In this regard, the study of the protein fraction of feed and, based on it, the development of diets for highly productive animals with the optimal ratio of protein components broken down in the rumen is of theoretical and practical interest. Multidimensional methods were also used to reduce group and discriminatory variables [8].

The main objective of the work was to develop and improve rational technological principles for keeping young animals, to study the influence of feed rations with different ratios of protein fractions in the diet on the productivity and physiological processes of meat-fat rams in relation to the specific natural, climatic and economic conditions of the Almaty region.

Materials and research methods

Scientific research was conducted on sheep of the kazakh fat-tailed coarse-wool breed bred in the Almaty region, primarily in the «Yerzhan» farm.

The decomposition of protein from various feeds in the rumen of young rams with chronic fistula was studied in detail using the nylon bag method.

Based on the experimental data obtained, scientifically based recommendations were given on the most rational use of feed protein in feeding young rams.

Results of the discussion

One of the characteristic features of meat-fat sheep is their pronounced natural-geographical zonality. In most cases, such zones are allocated for their breeding, the natural conditions of which cannot be developed by other breeds of sheep.

In order to develop the sparse pastures of the south-east of the Republic and produce cheap competitive high-quality mutton and non-uniform wool (an excellent raw material for the manufacture of felt - felted products), it is necessary to breed such a breed of sheep that solves such problems. The productivity of sheep meat is closely related to the amount of body weight and slaughter quality. This is due to the degree of intensity of growth of body tissues that form the meat content of the carcass. [9,10].

Therefore, the development of a scientifically based technology for the production of environmentally friendly sheep products for the development of science and technology in the agricultural sector of the Republic of Kazakhstan is an urgent problem. The live weight of animals at birth is an important selective trait that serves as an indicator of the further development of the organism [11].

The main feeds of the south-east of Kazakhstan contain different amounts of protein fractions that are split and not split in the rumen. The proteins of clover and alfalfa grass (83.5-84.6%), grass stand of foothill and mountain pastures (70.0-71.7%), alfalfa hay and haylage (76.6-81.3%), corn silage (78.6%), oat and barley grains (84.0-85.3%) are most intensively broken down in the rumen of sheep. Proteins of semi-desert pastures, alfalfa hay flour, soybean grains are broken down within 60-65%, proteins of hay, straw, corn grains, soybean cake, corn on the cob within 31.8-55.3%. (table 1).

Table 1- Content of degradable and non-degradable proteins in feeds

Food	Amount of crude protein, g	They contain				Coef-t transl. raw protein, %	The amount of digestible protein, g
		Protein breakd own, g	%	Protein non-degradatio n, g	%		
Green herbs							
Mountain pastures	31,0	22,2	71,7	8,8	28,3	74,7	23,1
Foothill pastures	35,0	24,5	70,0	10,5	30,0	65,0	22,7
Semi-desert pastures	54,0	34,0	63,0	20,0	37,0	58,2	31,4
Desert pastures	59,0	30,3	51,4	28,7	48,6	38,5	22,7
Alfalfa	59,0	49,9	48,6	9,1	15,4	77,5	45,7
Clover	23,0	19,2	83,5	3,8	16,5	68,0	15,6
Hay							
Mountain	91,0	47,8	52,6	43,2	47,4	58,0	52,8
Zhitnyakov	79,0	43,5	55,1	35,5	44,9	55,0	43,5
Meadow grass with mixed herbs	63,0	36,2	57,4	26,8	42,6	48,3	30,4
Steppe kovylnoe	80,0	44,2	55,3	35,8	44,7	64,4	51,5
Alfalfa	158	121,0	76,6	37,0	23,4	66,0	104,3
Hay flour							
Alfalfa	161,0	105,1	65,3	55,8	34,7	55,3	89
Herbal flour							
Alfalfa	139,0	75,2	54,1	63,8	45,9	80,0	111,2
Straw							
Spring wheat	46,0	19,0	41,4	27,0	58,6	19,5	9
Barley	49,0	18,0	36,7	31,0	63,3	29,0	14,6
Haylage							
Alfalfa	103,0	83,7	81,3	19,3	18,7	68,9	71
Silage							
Corn	22,0	17,3	78,6	4,7	21,4	45,4	9,9
Corn							
Yellow corn	105,0	38,0	36,2	67,0	63,8	72,0	75,6
Barley	124,0	105,8	85,3	18,2	14,7	75,0	93

Soft wheat	16,0	11,7	73,1	4,3	26,9	86,0	13,8
Corn on the cob	82,6	31,7	38,3	50,9	61,7	58,1	48
Oats	135,0	113,4	84,0	21,6	16,0	78,0	105,3
Soybeans	26,2	16,1	61,4	10,1	38,6	88,0	230,5
Cake							
Soy	418,0	212,7	50,9	205,3	49,1	94,0	393
Cotton	399,0	274,5	68,8	124,5	31,2	79,9	319
Sunflower	400,0	314,4	78,6	85,6	21,4	81,2	325

Development of recipes for compound feeds - concentrates with different ratios of decomposable protein. Complete feeding of farm animals, including sheep, is closely related to the production of compound feeds.

Up to now, there is a system of standardization of protein nutrition of ruminants, based on crude and digestible protein, according to which it is proposed that digestible protein is completely absorbed by the animal organism.

However, as established in studies, this situation is true only for monogastric animals. In this regard, determining the level of degradable protein in feed, searching for the optimal level of degradable protein in diets and, on this basis, establishing the protein norm for feeding sheep is very promising. In this matter, a decisive role is played by compound feeds - concentrates, which can help regulate the level of degradable protein in the diet.

Therefore, based on the level of degradable protein in the feed included in the winter diet of rams, we developed and tested recipes for compound feeds - concentrates, applicable to the hay-silage-concentrate type of feeding (table 2).

Table 2- Recipes for compound feeds - concentrates for rams (% of weight)

Component	Recipe	
	№ 1	№ 2
Wheat bran	25,0	25,0
Corn shit	44,0	56,5
Soybean meal	25,0	12,5
Molasses (solution)	5,0	5,0
Premix	1,0	1,0
Total	100	100
1 kg of feed contains:		
Feed units	1,15	1,14
Exchange energy mJ	11,0	11,5
Dry matter, g	862,5	835,0
Crude protein, g	198,9	154,3
Including decaying, g	116,6	84,8
Indestructible, g	82,3	69,5
Digestible protein, g	160,7	118,2
Crude fat, g	37,9	38,7
Crude fiber, g	56,5	52,5
BEV, g	535,7	430
Including starch, g	281,5	335
Sugar	112,7	110,8
Calcium, g	3,55	3,27
Phosphorus, g	6,34	6,16
Magnesium, g	2,55	2,29
Sulfur, g	2,16	2,99
Iron, mg	243	254
Copper, mg	8,49	6,76
Manganese, mg	41,44	37,3
Cobalt, mg	од	0,09
Iodine, mg	0,63	0,58

As can be seen from the data in table 2, the main composition and nutritional value of the combined feeds of both recipes were almost the same, the difference was in the ratio of individual components that contribute to the creation of different levels of degradable protein in the diet; recipe No. 1 contained 58.6%, No. 2 - 54.9% of degradable protein. The main feeds of the southeast of Kazakhstan contain a number of degradable and non-degradable protein fractions in the rumen. The most intensively degraded in the rumen proteins are clover and alfalfa grass (83.6-84.6%), foothill and mountain pasture grass (70.0-71.7%), alfalfa hay and haylage (76.6-81.3%), corn silage (78.6%), oat and barley grain (84.0-85.3%). Proteins of semi-desert pastures, hay flour, alfalfa, soybean grains decompose within 60-65%, proteins of hay, straw, corn grain, soybean meal, corn on the cob - 31.8-55.3%.

In winter diets of breeding rams from local feeds, the degree of protein breakdown in the rumen is 70-75% and does not ensure high productivity of animals. Reducing the level of protein breakdown in the diet of the control group from 75.5% to 64.0 and 58.2% in the experimental groups, by adding compound feed - concentrate, reliably increased all productivity indicators.

As a result of a 90-day scientific and economic experiment, in animals of the second experimental group, in comparison with the control, the gains of rams increased - by 24.0-29.5%, the shear of washed wool from 1 head increased by 190-250 g, feed consumption per 1 kg of gain decreased by 1.12 feed units. The use of the diet of the second experimental group, in comparison with the control, improved the processes of digestion and metabolism: protein digestibility increased by 2.5-3.8%, nitrogen deposition in the body by 3.2-3.3 g, the percentage of phosphorus deposited in the body from that taken in by 11.3-25.8.

Studies have shown that it is possible to balance rations to the required level of protein degradation only by combining feeds. The use of soybean and corn meal in the amount of 5-10% does not reduce the degradation of protein in both the compound feed and the ration as a whole. The minimum amount of corn meal in the compound feed should be at least 60%, and soybean meal 17%. The costs associated with the use of compound feed - concentrate in the diets of rams are economically justified. In the experimental groups, the net income per 1 head was higher by 677-1069 tenge in the first and 633-1125 tenge in the second experiment compared to the control. The best productivity indicators among the experimental groups were shown by animals of the II experimental group, receiving compound feed №2. The use of compound feeds composed of components with low natural protein breakdown in the rumen contributed to more complete absorption of feed nutrients.

Conclusion

Carrying out intensive fattening of meat-fat fat-tailed coarse-wool sheep using the detailed feeding standards, feed mixtures, and compound feeds developed by us ensures an average daily gain of 200-230 g, a carcass weight at slaughter of 20-23 kg, a meat-pulp yield of 76-78% at a cost of 6. 0-7.0 feed units, 78-80 MJ. metabolic energy per 1 kg of live weight gain. Production testing of an intensive feeding system for meat-fat fat-tailed coarse-wool sheep using new feeding standards has shown that with the same feed costs, animal productivity increases by 12-15% due to a better balance of diets and the use of feed nutrients.

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ҚОЙ ӨНІМДІЛІГІН АРТТЫРУДАҒЫ ӘРТҮРЛІ АЗЫҚТАНДЫРУ ДЕҢГЕЙІ ЖӘНЕ РАЦИОНАЛАР ҚҰРЫЛЫМЫНЫҢ ӘСЕРІ

Аңдатпа

Мақалада Қазақстанның оңтүстік-шығысындағы ақуыз фракцияларының тыртықтарында ыдырайтын және ыдырамайтын әртүрлі мөлшердегі негізгі азықтар көрсетілген үдерісі назарға алынды. Бордақылау кезіндегі азықты қабылдауға әсер ететін негізгі факторларға азықтың физикалық формасы, рационның құрғақ затындағы энергияның концентрациясы және қойдың тірі салмағы жатады.

Түйіршіктелген азық қоспаларын азықтандыру кезінде азық қалдықтары 20-25% - ға азаяды, құрғақ заттарды шығыны 10-15% - ға артады және 1кг тірі салмаққа 45-50г құрайды, бұл жалпы қоректік заттарды шығынын 25-30% - ға арттыруға, ет өнімдерін 26,20% - ға, қозы жүнін 15,65% - ға көбейтуге, азық шығындарын азайтуға мүмкіндік береді. 2 азыққа 1 кг өсім.бірлік немесе 30%.

Беде және жоңышқа шөптерінің ақуыздары (83,5-84,6%), тау бөктері мен тау жайылымдарының шөптері (70,0-71,7%), жоңышқа шөптері мен пішендері (76,6-81,3%), жүгері сүрлемі (78,6%), сұлы мен арпа дәндері (84,0-85,3%) қой қарында ең қарқынды түрде ыдырайды.

Біздің әзірленген егжей-тегжейлі азықтандыру мөлшерлерін, азық қоспаларын және құрама азықтарды пайдалана отырып, етті-майлы құйрықты қойларды қарқынды бордақылауды жүргізу орташа тәуліктік өсім алуды 200-230 г, сойылған кездегі ұшаның салмағы 23-26 кг, етті целлюлоза шығымы 76-78% құны 6,0 -7,0 азықтық бірлік, 78-80 МДж. 1 кг тірі салмақтың өсуіне метаболикалық энергия.

Кілт сөздер: қойлар, азықтандыру мөлшері, ақуыз, түйіршіктелген жем жүгері дәндері.

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ВЛИЯНИЕ РАЗНОГО УРОВНЯ КОРМЛЕНИЯ И СТРУКТУРЫ РАЦИОНОВ НА ПОВЫШЕНИЕ ПРОДУКТИВНОСТИ ОВЕЦ

Аннотация

В статье рассмотрен процесс выявления различного количества расщепляемых и не расщепляемых основных кормов питания в рубцах белковых фракций протеина на юго-востоке Казахстана.

Основными факторами, влияющими на потребление корма при откорме, являются физическая форма корма, концентрация энергии в сухом веществе рациона и живая масса овец. При скармливании гранулированных кормосмесей сокращаются потери кормов в виде обедьев на 20-25%, увеличивается потребление сухого вещества на 10-15% и составляет 45-50 г на 1 кг живой массы, это позволяет увеличить общее потребление питательных веществ на 25-30%, получить больше продукции мяса на 26,20%, поярковой шерсти на 15,65%, сократить затраты кормов на 1 кг прироста на 2 корм.ед. или 30%.

Наиболее интенсивно расщепляются в рубце овец протеины клеверной и люцерновой травы (83,5-84,6%), травостоя предгорных и горных пастбищ (70,0-71,7%), люцернового сено и сенажа (76,6-81,3%), кукурузного силоса (78,6%), зерна овса и ячменя (84,0-85,3%).

Проведение интенсивного откорма мясо-сальных курдючных овец с применением разработанных нами детализированных норм кормления, кормосмесей, комбикормов обеспечивает получение 200-230 г среднесуточного прироста, массу туши при убое 23-26кг, выход мяса-мякоти 76-78% при затрате 6,0-7,0 корм.ед., 78-80 Мдж. обменной энергии на 1 кг прироста живой массы.

Ключевые слова: овцы, размер кормления, белок, гранулированный корм кукурузные зерна.

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WOOL PRODUCTIVITY OF LOCAL GOATS OF KARAKALPAKIA

Abstract

The article presents the results of a study indicating the development of a trend towards a decrease in the fineness of down and, consequently, an increase in the quality of raw materials depending on the intensity of growing young local goats.

The analysis and conclusions are made on the study of the shearing and quality of wool of local goats of Karakalpakstan, age dynamics, and their morphological features of wool such as types, lengths, elasticity of extensibility of wool fibers of local goats, which give an average of 100-150 g of fluff when carded, rarely up to 200 g, 5-7 cm long and 14-16 microns thin.

Until recently, goats were not combed for fluff in most areas of Uzbekistan. The length of the guard hair of local goats is 12-15 cm. The fineness is from 60 to 100 microns and more. The hair has weak scaling, due to which, unlike sheep wool, it almost does not fall out. Goats are sheared once a year in May. The average shearing of goats is 430-490 g, and of bucks - 530 g.

The influence of intensive rearing technology on the fineness of the wool fibers of local goats was studied in the natural geographic and climatic conditions of the Bakhrom Shabandoz farm in the Karauzyak region.

Key words: *goats, shearing, wool length, down, guard fibers, transitional hair.*

Introduction

Improving the economic efficiency, competitiveness and national economic significance of the goat breeding industry is closely linked to increasing productivity and improving the quality of products obtained from goats.

Goat breeding has become a developing industry in Karakalpakstan at present. This is due to the fact that in recent years the republic has been actively restoring the gene pool of local coarse-wooled goats. The population has increased both in private farms and in production cooperatives. Local coarse-wooled goats are unpretentious, have a strong constitution, are well adapted to the harsh climate of sharp continentality and at the same time give biologically complete products (meat with good taste, milk with high fat content, as well as down, coarse wool and skins).

Goat breeding is a branch of animal husbandry that can produce a wide variety of products and raw materials. In the old days, goats were called "poor man's cows" due to their undemanding nature