

## THE NEED TO IMPROVE THE FEEDING PARAMETERS OF CATTLE

Uskenov R.B.<sup>1</sup>, c.a.s.,

Boltianska N.I.<sup>2</sup>, c.t.s.

<sup>1</sup>*Kazakh Agro Technical University S. Seifullina, Astana, Kazakhstan*

<sup>2</sup>*Dmytro Motornyi Tavria state agrotechnological university, Melitopol, Ukraine*

The problem of increasing the use of feed by farm animals in order to increase the level and quality of products obtained from them is one of the most important problems of agricultural biological science. Therefore, the change in the norms of agricultural feeding animals and the revision of methods for assessing the nutritional value of feed in world science is a continuous process. The need to improve the parameters of feeding and evaluation is explained primarily by the development of physiological and biochemical bases of feeding biology and obtaining scientific information that allows to reconsider known facts, determine and clarify the need of animals for nutrients and ways to meet these needs. This is also facilitated by a significant increase in animal productivity, improvement of feeding techniques and feed procurement technologies [1-3].

The scientific basis for increasing the use of feed nutrients is the physiology of nutrition of farm animals, which is based on knowledge of the patterns and relationships of digestive and metabolic processes. The initial stage of metabolism in animals is digestion. It is a complex physiological and biochemical process by which food entering the digestive tract is subjected to physical and chemical changes, and the nutrients contained in it are absorbed into the blood and lymph.

One of the important ways to increase the efficiency of feed nutrients is to increase its digestibility, which can be achieved only on the basis of knowledge of physiological and biochemical processes of feed digestion and taking into account the relationship of these processes with diet and physiological condition of the animal [4,5].

The development of normalization of nutrients in our country was mainly in the direction of increasing the number of normalized and controlled indicators. Until a certain point, such tendencies were justified, but mainly for monogastric animals. Currently, the needs are determined and rationing is carried out only in crude digestible substances. It is known that animals do not need food as such and not their chemical components for life and productivity, but metabolic substances that are formed in the processes of digestion and intermediate metabolism. It is also known that ruminants have fundamental differences in physiology and metabolism, which modify the quantitative and qualitative characteristics of almost all components of feed. Microbiological processes in the pancreas change the

amount and composition of feed amino acids, feed carbohydrates are converted into volatile fatty acids, fat and higher fatty acids are synthesized from non-lipid components. The synthesis of vitamins, assimilation of mineral substances has the features. The currently developed new nutrition system based on substrate metabolism is designed to largely solve this problem. Based on knowledge of physiological and biochemical processes of feed digestion, amounts of absorbed nutrients, their distribution, assimilation and further processing, it will allow more efficient use of feed, reduce metabolism, the number of diseases associated with metabolic disorders, which will extend the time economic exploitation of highly productive animals. Unlike metabolic-based power systems, this system divides the energy components into the main substrates used in metabolism.

It is known that most of the substrates that are directly involved in metabolism are formed and absorbed in the digestive tract, while the other is formed in the processes of intermediate metabolism in organs and tissues. Therefore, the basis of the new system is the digestion unit, which calculates the quantitative composition of absorbed nutrients. The future performance of the entire system will depend on how accurately these indicators will be calculated. In this regard, it is necessary to further study the digestive processes on issues related to the formation of the final products of digestion, and which are still insufficiently defined in quantitative terms. The ultimate goal of these works was to obtain quantitative characteristics of the main digestive processes in different parts of the gastrointestinal tract, to clarify the key factors and their translation into dependent variables [6,7].

The study of domestic and foreign scientists to study the peculiarities of digestion in ruminants has accumulated a large amount of experimental material, shows the important role of the pancreas in the conversion and absorption of nutrients in food. The final hydrolysis of nutrients capable of absorption and transition into the internal environment of the body occurs mainly in the intestine. In this regard, it is important to clarify and clarify the relationship between digestion of food in the pancreas and their subsequent hydrolysis and assimilation in the intestine. Deep knowledge of the processes of digestion of food in the gastrointestinal tract will allow a more reasonable organization of rational feeding of animals.

In the system of complete feeding of farm animals, the provision of their protein is of great importance. In recent years, in our country and abroad, special attention has been paid to the issue of protein nutrition of ruminants. This is due to the fact that the lack of feed protein remains another major problem in the feeding of farm animals. Under such conditions, along with increasing the production of high-quality protein feeds, it is equally important to develop ways to increase the efficiency of their use.

Studies in recent years have convincingly shown that the solution of the issues of rational feeding of ruminants is impossible without sufficient knowledge of the processes of decomposition of feed protein and synthesis of microbial protein in the rumen. Particular importance is attached to the

development of scientifically sound feeding of highly productive animals. If the need of low-yielding animals for protein can be met by the synthesis of microbial protein in the rumen and the qualitative composition of feed protein does not play a special role, the need of high-yielding animals is met by microbial protein and high-quality protein feed that has not broken down in the rumen. In this regard, the elucidation of conditions conducive to the intensive synthesis of microbial protein in the rumen due to simple nitrogen compounds, as well as reducing the breakdown of high quality feed proteins and increasing their entry into the stomach, is an important task in developing measures to improve feed efficiency and animal productivity.

Experimental data on the peculiarities of nitrogen metabolism in ruminant pancreas, knowledge of physicochemical properties of protein, processes of microbial protein synthesis in the rumen and the latter's contribution to the amino acid supply of animals became the basis for a new approach to normalization of protein nutrition in ruminants. As a result, new protein nutrition systems have been developed and implemented in many countries.

In ruminants, as in monogastric animals, the need for nitrogenous components is met by amino acids that are absorbed in the small intestine. They come in microbial protein, undigested feed protein, and endogenous proteins. The need of rumen microorganisms in nitrogen is met through the use of non-protein forms of nitrogen and the fraction of decomposing feed protein, the rate and magnitude of decomposition of which are important factors determining the overall digestibility of nutrients in rumen and efficiency of ruminant nitrogen. Indicators of the rate and magnitude of the breakdown of feed protein are determined along with the physicochemical properties of the protein, proteolytic and cellulolytic activity of the scar environment and the rate of evacuation of the contents of the pancreas into the intestine. Currently in the literature there is a small amount of data on the influence of the scar environment on the rate and magnitude of the breakdown of crude feed protein. As a result of these studies, it was noted that the degree of protein breakdown in the rumen of ruminants is regulated mainly by the outflow of scar contents. However, in some cases, researchers do not detect the effect of outflow rate on protein breakdown. In this regard, it is important to clarify the conditions under which such exposure occurs depending on the composition of the protein fractions and the diet as a whole. The same questions are relevant in terms of the influence of the composition of the diet and the conditions of the scar environment on the breakdown of the fractions of fiber, starch, sugar and lipids from individual feeds.

When formulating rations for ruminants, in order to ensure a sufficient level of non-degradable protein, the fractional composition of feed protein and the decay rate constant of its insoluble degradable fraction should be taken into account. Reducing the pH of the scar environment below 6.3, due to increased fermentation of non-structural carbohydrates in the diet, reduces the rate constant of protein breakdown, which leads to a change in the level

of decomposition of the feed. New systems of feeding cows allow to estimate need and to carry out rationing of feeding taking into account formation of substrates in a digestive tract in processes of digestion of a forage and an intermediate exchange in an organism after absorption. It is believed that only on this basis it is possible to proceed to forecasting the chemical composition of milk. It is known that the main part of the substrates that are directly involved in metabolism, is formed and absorbed in the digestive tract, while the smaller is generated in the processes of intermediate metabolism in other organs and tissues.

Therefore, the basis of the new system is the digestion unit, which calculates the quantitative composition of individual absorbed nutrients, rather than digestible raw nutrients. The future performance of the entire system will depend on how accurately these indicators will be calculated. In this regard, there is a need to study the processes of digestion on issues related to the development of the final products of digestion.

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