

## **Use of Cereal Waste in Increasing the Protein Content of Mixed Feed Products**

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**Abstract:** In the food sector, corn grain is used in the production of flour, cereal, pickles, sweets, corn oil, starch-molasses, beer, alcohol. Omixta is used as a raw material for the production of fodder products, and its grain is used as a nutritious feed for livestock. Corn seeds make up 9-10% of protein, 4-6% of fat, 65-70% of carbohydrates, and 14% of vitamins. Wheat bran, chaff, and straw are very rich in proteins and carbohydrates. Wheat grain consists of 73.6% carbohydrate, 10.8% protein, 2.2% fat, 1.8% ash, and 12% water. Moss is the most protein-rich raw material in the preparation of Omixta fodder products. Mosh seeds contain 24-28% protein, 46-50% carbohydrates, 2-4% fat, 8% lysine, 7% arginine.

**Keywords:** mixed fodder, wheat, corn, mash, carbohydrate, protein.

### **INTRODUCTION**

The population's demand for food products and the industry's demand for raw materials are increasing day by day. In order to fully satisfy this, it is necessary to constantly develop agricultural production, in particular, its main sector, the livestock sector. The production of mixed fodder in our country is increasing year by year. Its range is expanding and its biological effectiveness is increasing. Rapid development of mixed fodder industry, becoming a developed industry, indicates that the use of mixed fodder is of great economic importance.

Animals need all active substances for normal life. When studying the composition of cattle cells, it was found that there are about 50 chemical elements of D.I. Mendeleev's periodic system. These are: nitrogen, carbon, iodine, oxygen, calcium and other substances. 95% of the body's mass is mainly made up of 4 elements, carbon, oxygen, hydrogen and nitrogen. A similar composition is found in plant cells. These four elements are present in animal and plant cells in different proportions and form many substances. The main task of mixed feed plants is to supply feed containing the necessary amount of substances for the normal growth and development of the animal organism.

### **LITERATURE ANALYSIS**

**Mixed fodder types.** There are several types of mixed feed products according to their physical condition. Examples of these are loose, briquetted, pelleted, and galetted feeds.[7]

**Spreadable mixed feed** is a fairly uniform ground product. The ingredients for the production of spreadable mixed feed are the same it is cleaned from impurities and dehulled, ground and prepared ingredients are passed through a rater and a mixer.[5]

**The briquetted mixed feed** product is usually produced as a complete ration. The shape of briquettes is octagonal, length 160-170 mm, width 70-80 mm, thickness 30-60 mm. For the production of mixed feed, a mixture of ground hay with ground ingredients is prepared. The resulting liquid mass is put into a special mixer, and at the same time, standardized and dispersed molasses is transferred from it. The ground ingredients, i.e., a mass consisting of a mixture of hay and molasses, are pressed into the press and briquetted.[1]

**A granular (granular) mixed feed** product consists of a small cylindrical shape with a certain diameter and height, which is a liquid mass called a pellet. In the production of granules, 2 methods are used: dry and wet. Granular mixed feed is often used to feed poultry and pond fish

**Galettes.** The product is a square-shaped pancake with a hole. For the production of the galette mixture fodder product, first, the soluble mixture fodder is taken, then the leavened dough is prepared from it, the galettes are prepared, baked and dried. Galentli mixed fodder products are divided into 2 main groups according to the composition and value of fodder: complete rations and concentrates. [7]

## ANALYSIS AND RESULTS

### IMPORTANCE OF DIFFERENT NUTRIENTS IN FEED

**Dry matter.** In the organization of normal feeding of animals it is necessary to take into account their need for dry matter and the amount of dry matter in the diet. The amount of dry matter in food or ration is an important indicator of satiety. The consumption of dry matter depends on many factors; ration depends on the variety of foods, ration structure (type of feeding), energy concentration, quality of foods, their taste and physical properties, their preparation for eating, how the nutrients are digested, etc. If the dry matter in the diet is more difficult to digest, animals, especially high-yielding cattle, consume less of it. For example, when feeding dairy cows, the amount of digestible dry matter in the ration should be at least 60%. The consumption of dry matter in the ration by animals also depends on the composition of the ration and its balance with necessary nutritious mixed fodder, water, dry matter, organic matter, inorganic matter, nitrogenous matter, non-nitrogenous matter, protein, amides, fats, carbohydrates, starch, non-nitrogenous extracts, and substances. 'liq. This is full value nutrition forms the basis. High-yielding cows are more demanding on the concentration of energy equivalent to 1 kg of dry matter of the ration.[6]

**Exchangeable energy and food units.** Carbohydrates, fats, and proteins taken into the animal body with food are considered as a source of energy metabolism. The amount of energy metabolism depends on the ratio and concentration of the main nutrients in the diet. In the new norms of livestock feeding, together with their need for energy exchange, the temporary energy rationing in the oat nutritional unit was also left

**Protein.** Protein is very important in animal nutrition. Proteins are the main component of every living organism. The life activity of animals is related to the creation and decomposition of protein substances in their organism. Cows need to get enough protein in their diet to make their own body protein and milk protein. The quality of dietary protein, called proteins, varies. Crude protein contains proteins and amides, that is, it is not characteristic of protein nitrogenous compounds will be present. Amino acids in food are only in protein not encountered, but also occurs in a free state. Free amino acids zootechnic.

According to the analysis, it belongs to the conditional group of amides. Some amino acids are non-exchangeable, that is, they cannot be replaced by others in food, and their deficiency leads to a decrease in animal productivity, a violation of metabolism. Non-exchangeable amino acids include lysine, tryptophan, histidine, leucine, isoleucine, phenylalanine, threonine, methionine, valine, arganine. These acids are not formed in the animal body from other nitrogenous substances. They are taken into the animal body only with food. Proteins that have little or no amino acids are called incomplete proteins. Some amino acids, such as glycine, serine, cystine,

proline, and tyrosine, can be formed in the animal body from nitrogenous compounds received from food.

In ruminant cattle, non-exchangeable amino acids are produced by microorganisms in the foregut. That is why such animals are less sensitive to protein quality compared to animals with a stomach and a chamber and poultry. The importance of methionine, tryptophan and lysine in the nutrition of productive cattle is extremely high. When feeding pigs, the amount of lysine and methionine should be normalized with cystine.

In addition to free amino acids, the group of amides contains nitrogen glucosides, amides of amino acids, organic bases, nitrates and ammonia includes salts. The satiety of amides varies. Amino acid nutrition is close to proteins, and the satiety of their amides is low. 25-30% of the total amount of protein in green, silage and root crops and more corresponds to the contribution of amides, and in mixed feeds protein mainly consists of proteins. In ruminants, the role of bacteria and infusoria in the large stomach is important in the assimilation of nitrogenous substances of food. These microorganisms use nitrogenous substances, carbohydrates and minerals in animal feed for nutrition. It should also be noted that bacteria use ammonia from nitrogenous substances to make their body's protein. The dying bacteria enter the food and enter the mouth and intestines and are digested together with the undegraded food protein. In some cases, some of the ammonia cannot be absorbed by the bacteria, and the ammonia is absorbed into the blood through the wall of the large intestine. In the liver, this ammonia is converted into urea, and after being retained in the kidney for some time, it is excreted in the urine. In addition, a certain part of urea is separated with saliva. The production of ammonia in the large intestine depends on many factors: the amount of protein in the diet, the ratio of protein and non-protein nitrogen, the degree of dissolution of nitrogenous substances, the ratio of nitrogenous substances and easily digestible carbohydrates. A sufficient amount of sugar and starch accelerates the activity of microorganisms. The new standards for feeding farm animals take into account their need for raw and digestible protein.

**Carbohydrates** - Carbohydrates are the main component of dry matter in plant feed and are the main source of energy for animals. According to zootechnical analysis, all carbohydrates are divided into two groups: crude fiber and nitrogen-free extractives.

Crude fiber consists of continuous fiber (cellulose), parts of hemicellulose and patterning substances (lignin, lignin, suberin). Cellulose plant cells form the basis of the bark. With the development of plants, as the cellulose sheath becomes saturated with the lignin substance, the cell walls harden. Hemicellulose consists of pentose and hexose sugars and is a reserve nutrient in plant cells. Nitrogen-free extractive substances include sugar, starch, a certain part of hemicelluloses, insulin, inorganic acids, glucosides and other substances. Among these substances, sugars and starch are of great importance for animal nutrition. Starch is a reserve source in plants, and it is found in the seeds, fruits and tubers of plants in small amounts and in the leaves and stems of plants. Carbohydrates are mainly found in the form of glucose, fructose, maltose, sucrose. There is lactose or sugar in the broth, and glycogen in the liver.

Nitrogen-free extractives, particularly sugars and starches, are for animals only instead of being a nutritious substance, it is present in the stomach of animals, it is considered a nutritious substance for microorganisms and by them used in bacterial protein synthesis.

Carbohydrates in the large stomach of animals are sugar, starch, hemicellulose, it is accepted in the form of cellulose and some other compounds. Complicated

Carbohydrates are broken down by large intestinal microorganisms into simple sugars, which in turn are broken down into acetic, fatty, propionic and other acids. Sugars excellent energy for animals and their ruminal microorganisms is the source. The optimal ratio of sugars and proteins in the diet of animals creates very favorable conditions for the development of microflora in their foregut zone, the synthesis of amino acids, fatty acids and vitamins of group B in the large stomach is improved.

Starch is one of the main sources of energy in the diet, and sugars in the body performs the same function as Kletchatka performs the task of normalizing food digestion in the large stomach. It is broken down by microorganisms in the foregut and small intestine. Fiber in the diet has a positive effect on increasing the milk content of ruminants. However, the excessive amount of clechatka in the diet of animals reduces the digestibility of nutrients and the effectiveness of their use.

**Oils.** When feeds are analyzed zootechnically, their crude fat is also determined. Crude oil includes wax, chlorophyll, tar (vegetable sap), coloring matter, organic acids, phosphatites, sterol and other compounds, in addition to real oil. Oils contain various combinations of carbon, hydrogen and oxygen. Compared to other nutrients, fats release 2.25 times more energy than carbohydrates due to the fact that they contain less oxygen and more carbon and hydrogen than other nutrients. That is why fats have high calories. The role of fats is not limited only to their energy value. Fats are part of the protoplasm of cells as a structural material. Certain fatty acids (linoleic, arachidonic, linolenic acid) are necessary for the growth and development of animals, for the normal course of metabolic processes, and must be taken by them with food. The average amount of dietary fat is important for good appetite of animals, digestion and normalization of intestinal movement. Along with food fat, fat-soluble vitamins are taken into the body. Due to the lack of fat in food, it is fat-soluble in the body of animals. Deficiency of A.D.E.K vitamins occurs. When increasing feed products, it is necessary to increase the content of proteins and carbohydrates in them.[6]

Protein-vitamin supplements (OVK) are protein concentrates, minerals and vitamins. They are intended to be added to other nutrients (coarse grain feeds) and are prepared on the basis of medical products with a high protein content, based on caramide concentrate. OVK contains the same biologically active substances used for mixed feed these premixes are added only a few times more. Urea concentrates are used to replace protein in the production of OVK for large horned animals.

There are many useful elements in the grain of the mosh plant. For example, the amount of amino acids, magnesium, calcium, sulfur, sodium, iron, manganese, copper, boron, cobalt, nickel, iodine and phosphorus salts is very high. (the nutritional value of 1 kg of grain is equal to 1.34 nutritional units), blue mass (1 kg of product contains 13.6-14.6 g of digestible protein and equal to 0.18-0.39 nutritional units), corn silage and grain, crushed and preserved, are used as valuable feed. Paper, linoleum, viscose, insulating materials, and synthetic film are produced from corn stalks, cobs, and husks. (Picture 1)



**Picture 1. The appearance of a grain of corn.**

Wheat bran is considered highly concentrated fodder for farm animals, and bran is used to prepare mixed fodder. The amount of digestible protein in wheat is higher than barley grain.



**Picture 2. The appearance of a grain of wheat.**

**Conclusion.** In short, mixing is the preparation of useful protein-rich products from feed products. The benefit of this is to increase the milk and meat yield of livestock and animals by enriching hay with protein and vitamins. Amishta feed products are distinguished by their richness in proteins and vitamins and their nutritional value. . The livestock industry provides the population with high-calorie food products (meat, milk, fat, eggs), food and raw materials for the food industry, and increases soil fertility in agriculture.

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