ACUMEN: INTERNATIONAL JOURNAL OF MULTIDISCIPLINARY RESEARCH
ISSN: 3060-4745 IF(Impact Factor)10.71 / 2025 Volume 2, Issue 10

ANALYSIS OF CATTLE FEEDING CONDITIONS.

Maxmudov Farhod Baxodir o‘g‘li

TerDMAU talabasi

farxodmaxmudov@gmail.com

Telefon raqam: *+99893 215 53 06*

Xaydarova Yulduz Bahodirovna
TerDMAU talabasi
haydarovayulduzcha@gmail.com
Telefon raqam: +99891 235 80 66

Annotation: *The article discusses the impact of animal feeding on their metabolism, milk production levels, and overall health. It analyzes the compliance of feed rations with the norms of feed units, dry matter, fiber, and essential nutrients (protein, calcium, phosphorus, carotene, etc.). Diseases resulting from a decrease or increase in the feeding level (osteodystrophy, ketosis), as well as the influence of ration structure and fiber content on digestion processes, are examined. In addition, the article presents feed quality indicators (organoleptic, chemical, mycological, bacteriological, and toxicological analyses), along with the quality requirements for silage, haylage, hay, and other feeds. The normative amounts of nitrates and nitrites, the requirements for identifying harmful and toxic substances, and the scientific principles for developing safe rations for animals are also provided.*

Keywords: *Feeding level, ration structure, fiber, dry matter, milk production, feed quality, silage, haylage, hay, nitrate, nitrite, toxicological control, animal health.*

To determine the effect of feeding on animal metabolism and milk production, the level and type of feeding, as well as the degree to which the requirements for essential nutrients and biologically active substances are met, are evaluated. The feeding level is determined by comparing the total feed units in the ration with the norms established by the Uzbek Research Institute of Animal Husbandry and Feed Production (UzCHITI). This level may be normal, increased, or decreased. A decreased feeding level leads to **osteodystrophy**, while an increased level causes **ketosis**. One of

the characteristic signs of a high feeding level is the excessive fattening of most animals.

The **ration structure** is the percentage of each feed type relative to the total feed units in the ration. The total annual feed composition based on nutritional value is called the general feeding type. In **concentrate-type feeding**, an average of 400 g or more of concentrated feed is used per 1 kg of milk with 4% fat content; in **semi-concentrate feeding**, 200–300 g; in **low-concentrate feeding**, 110–120 g; and in **roughage-type feeding**, up to 100 g of concentrate is used.

When analyzing animal feeding, determining the amount of **fiber relative to dry matter** is of great importance. For this purpose, the quantities of dry matter and fiber in the ration are measured.

Dry matter content per 1 kg of feed: in coarse feeds – 0.35 kg, in green feeds – 0.18 kg, in silage – 0.2 kg, in root crops – 0.1–0.12 kg, in concentrates – 0.9 kg, and in cereals and legumes – 0.88–0.9 kg.

Fiber makes up the following percentage of dry matter: in alfalfa hay – 27–33%, in straw – 32–45%, in green feeds – 16–20%, in silage – 22–28%, in mixed feeds – 7–10%, in cereal grains – 2–10%, in legume grains – 4–7%, and in root crops – about 1% (Table 2).

Calculation of the fiber content in the ration of cows producing 25 kg of milk.

Composition of the ration	Total amount, kg	Amount of dry matter, kg		**Amount of fiber**	
		1 kg da	In the ration	**%**	kg
Hay	5	0,85	4,25	35	1,488
Silage	25	0,2	5,0	25	1,25
Compound feed	8	0,9	7,2	10	0,72
Sugar beet	10	0,12	1,2	1	0,012
Total	48		17,65		3,482

The amount of fiber in the ration (3.428:100) × 1885 = 18.85%. The fiber content can also be determined based on tabular data. A lack of fiber in the ration leads to

disturbances in digestion in the rumen and disrupts metabolic processes, which causes a decrease in the acidity level of milk. Excessive fiber content in the ration, on the other hand, reduces the digestibility of nutrients in the feed.

To determine how well the animals' nutritional requirements are met, the rations of all types of livestock are examined zootechnically, analyzing dry matter, feed units, digestible protein, calcium, phosphorus, carotene, sugar, and the ratios of calcium to phosphorus and sugar to protein. If necessary, the contents of magnesium, sulfur, potassium, trace elements, and vitamins D and E are also determined.

When analyzing the ration, attention is paid to the composition of compound feeds and their components. By analyzing the ration and comparing the quantities of nutrients and other substances in the feed with standard values, conclusions are made about whether the feeding is complete or not.

The quality of the feed is determined based on organoleptic, chemical, mycological, bacteriological, and toxicological tests. The quality of hay (from leguminous, cereal, mixed, and natural grasses) is evaluated according to its color, smell, dry matter content (should not be less than 85%), the amount of toxic substances (should not exceed 1%), and mechanical impurities. The fiber content in hay should be 27–33%. The category of hay is determined by the amount of crude protein in dry matter (depending on the type of grass). If the crude protein content is 16–17%, it belongs to the first category; 13–10% — second; and 9–7% — third. According to metabolizable energy and feed unit:

1st category hay: 9.2–8.9 MJ or 0.68–0.64 feed units;

2nd category: 8.8–8.5 MJ or 0.63–0.58 feed units;

3rd category: 8.7–7.9 MJ or 0.57–0.50 feed units.

Spoiled feeds (hay, straw) are characterized by a musty, moldy, or rotten smell, and their color changes. Such feeds are unsuitable for animals. Hay and straw containing more than 1% of toxic or harmful substances, or contaminated with soil, sand, or other foreign materials, are also considered unfit for feeding.

High-quality silage should have a **pH value of 3.8–4.3** and **moisture up to 75%**. Such silage is yellowish-green or yellow, has a fruity smell, and retains the original structure

of the plants. The total acid content is **1.0–2.5%**, of which about **60%** are lactic and acetic acids, with no butyric acid present.

Medium-quality silage is brown and smells of acetic acid. Poor-quality silage is dark brown or black, has a pungent ammonia or spoiled cheese smell, and the feed structure is destroyed. Its **pH** ranges from **4.7 to 6.0**, with lactic acid below 29%, acetic acid above 50%, and butyric acid above 21%. Spoiled silage appears muddy green, smells like manure, the plants start decomposing, and the **pH** exceeds 5. Such silage is unfit for animal feeding.

Silage with a normal pH, containing **up to 50% acetic acid** or **10–20% butyric acid**, may be fed to animals when mixed with root crops or after steaming. However, this type of silage should not be given to pregnant or calving cows.

High-quality **haylage (senage)** has a fruity smell, characteristic color, **moisture content of 45–55%**, and **pH of 4.2–5.4**. Its color ranges from light brown or rusty to dark brown (in alfalfa haylage). Poor-quality and spoiled haylage is dark brown or black, has an unpleasant, manure-like smell, and a **pH of 6–8**, making it unsuitable for feeding. Haylage with more than **55% moisture** is classified as silage.

In addition to these indicators, silage and haylage are also evaluated for contamination with soil and other impurities.

The degree of mold contamination is also taken into consideration. Feeds that are mixed with soil or affected by mold are removed from the ration.

Animals should be given freshly prepared distillery residue (bard). Distillery residue that has been stored for a long time or kept in open pits must not be fed to animals. Such residue becomes dark brown in color and emits a rotten odor. In this case, up to **25%** of the acids present are lactic acid, more than **25%** are acetic acid, and up to **50%** are butyric acid. The total amount of butyric acid should not exceed **0.6%**.

High-quality compound feeds have a characteristic color and odor, with a moisture content not exceeding **15%**. The amount of harmful impurities (toxic weeds, mold, and ergot fungi) in cereal feeds should not exceed **1%**, and foreign weed seeds should not exceed **8%**. The presence of metal fragments or glass particles is strictly prohibited. Mineral impurities (such as sand or soil) in cereal feeds should not exceed **0.1–0.2%**, and in compound feeds, flour, and groats — no more than **0.8%.**

The standard amounts of nitrates and nitrites in feeds (in milligrams per 1 kg of feed as fed).

Mold and highly toxic fungi must not be present in grains, compound feeds, or flour-based feeds. Sprouted grains are considered unsuitable for feeding. The amount of free gossypol in cottonseed cake should not exceed **0.02%**.

When evaluating root crops used as feed, attention is paid to their contamination with

Type of feed	Nitrates (as NO_3)	Nitrites (as NO_2)
Green forages	200	10
Roughages (hay, straw)	500	10
Silage, haylage	300	10
Beet	800	10
Potato	300	10
Compound feed for cattle and small ruminants	500	10
Compound feed for pigs and poultry	200	5
Grain feeds	300	10
Dry mash	800	10
Oilcake, meal	200	10
Grass meal	800	10

soil, decay, and mold. Rotten, moldy, frozen, or soil-contaminated root crops must not be fed to animals. The presence of harmful and toxic substances, as well as the permissible levels of pesticides, nitrites, and nitrates in feeds, must be taken into account. The permissible residual amounts of nitrates and nitrites in animal feeds are established according to the standards approved by the **Main State Veterinary Department of the Republic of Uzbekistan**.

CONCLUSION

Proper feeding of animals is a key factor in ensuring their health and productivity. When the feeding level and structure of the ration deviate from the established norms, metabolic disorders and diseases may occur. The amount of fiber is one of the main

indicators for maintaining stable digestion processes. The organoleptic and chemical quality indicators of feeds, as well as compliance with permissible limits for nitrates and nitrites, must be ensured. Through high-quality feeding, it is possible to achieve high productivity in animals and maintain their overall health.

References

1. Targirov K.J. Akusherlik va hayvonlarni sun'iy urug'lantirish darslik 2023

2. Bakirov B. Xayvonlarda modda almashinuvining buzilishlari va jigar kasalliklari. Monografiya. Samarqand F.Nasimov X/K.2016.254 B.

3. Bakirov B., Daminov A.S., Ro'ziqulov N.B. Hayvonlar kasalliklari. Ma'lumotnoma. Samarqand. F.Nasimov X/K. 2019.552 B.

4. Bakirov B., Ro'ziqulov N.B..Safarov M.B. Mahsuldor qoramollarni uyg'un dispanserlash bo'yicha uslubiy qo'llanma. Samarqand. F/Nasimov X/K.2012.80

5. Bakirov B., Tangirov K.J. "Mahsuldor qoramollarni dispanserlash" 2022 201 B

6. Tangirov K. J. Davirova J. G. Orolov. O. O. Karimov. A. D. Asatova. N. T. Mahmudov. F. B. "Qoramollarni dispanserlash". Toshkent 2025-yil.