USEFUL TECHNOLOGY IN ABSOLUTE FEEDING DAIRY COWS OF IMPORTED CATTLE

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Abstract. *The article presents the results of scientific and economic experience to study the influence of different norms of feeding with green mass of rapeseed on its eatability, nutritional value of the diet, productivity of cows, efficiency of nutrient use and product quality.*

It was found that the introduction of rapeseed green mass into the diet of cows improves the overall, protein and carbohydrate supply of cows, contributes to an increase in milk productivity, a decrease in energy consumption and consumption of grain feed per unit of production.

Keywords: *livestock, diet, growth, milk, productivity, eatability, efficiency.*

Introduction

In the conditions of intensification of animal husbandry and transfer to a farm, the role of full-value feeding is especially important, which ensures, while reducing feed costs, to obtain high quality products.

The organization of full-fledged feeding of dairy cows should be based on knowledge of their need for energy, nutrients and biologically active substances necessary for milk synthesis, maintaining normal reproductive functions and health. The need for nutrients varies depending on the level of productivity, physiological state, age of animals and other factors [1.

During lactation, the nature and intensity of the processes associated with the formation of milk undergo significant changes. Especially high energy needs of high-yielding cows are manifested in the first period of lactation, when the nutrients of the diet do not cover the energy consumption for milk synthesis. In this regard, at the beginning of lactation, they often have a significant energy deficit, to cover which the body intensively uses the reserves of nutrients deposited in the body. A significant reduction in the energy deficit during this period can be achieved by introducing energy-rich forages into the diet, such as concentrates, grass cutting and high quality grass flour, root and tuber crops, green mass of catch crops, etc [2].

During the second period of lactation, the cow must replenish the supply of nutrients used earlier for milk synthesis. A decrease in productivity with the course of lactation should not be a reason for a decrease in the usefulness of feeding an animal, since during this period the fetus grows, for the formation of tissues and organs of which a significant amount of organic and mineral substances is consumed. It is especially important to meet the needs of pregnant cows in the last 3 months before calving, when intensive fetal growth occurs.

On average, cows consume 2.8-3.2 kg of dry matter per 100 kg of live weight, highly productive animals 3.5-3.8 kg and in some cases up to 4.0-4.7 kg. The higher the milk yield of cows, the more energy should be in 1 kg of dry matter of the ration. If the concentration of energy in the diet is reduced, the animal cannot eat enough feed to meet the energy requirement. It is inappropriate to reduce energy below 0.65 feed units, or 8 MJ of energy per 1 kg of dry matter. In lactating cows with a milk yield of 28 kg or more per day, the energy concentration can reach 1.05 feed units. or 11.4 MJ. exchange energy [14].

Milk productivity of cows is largely determined by the provision of diets with high-grade protein. The rate of digestible protein per 1 feed unit is 95 g with a daily milk yield of up to 10 kg of milk and gradually rises to 105-110 g with a milk yield of 20 kg or more. The optimal level of digestible protein for dry dry cows is 110 g per 1 feed unit.

The lack of protein in the diets of dairy cattle, up to 20-25% of the need, can be replenished by feeding urea concentrate and ammonium salts as part of compound feeds or by including them in feed mixtures directly on farms. The efficiency of protein use depends on the quality of feed (coarse, juicy, concentrated), the degree of solubility of protein in the rumen, the ratio of protein and non-protein nitrogen, energy and protein, sugars and protein, the provision of animals with all nutrients and biologically active substances.

The optimal amount of fiber in the diets of cows as a percentage of dry matter is 28 with a milk yield of up to 10 kg of milk, 24 with a milk yield of 11-20 kg, 20 with a milk yield of 20-30 kg and 18-16 with a milk yield of over 30 kg. The sugar-protein ratio should be 0.8-1 in the diets of pregnant dry cows, 0.8-1.1 in the diets of lactating ones, and the ratio of starch and sugars should be 1.1-1.3 for pregnant dry cows and on average 1.5 for milking cows.

The amount of fat in the diets of lactating cows should be 60-65% of their total daily milk yield. The content of crude fat in the diets of dairy and dry cows in the amount of 2-4% is considered optimal.

The main normalized macronutrients include calcium, phosphorus, sodium and chlorine (table salt), magnesium, potassium and sulfur. The need of cows for them depends on the live weight, the level of productivity and the physiological state.

Diet of cows must be carefully monitored for trace element content. Serious violations of the reproductive functions of cows occur with a lack of manganese: sexual heat is weakly manifested, fertility decreases, and the number of abortions increases. Iodine deficiency causes delayed puberty, cobalt - abortion and infertility of cows, copper - gastrointestinal disorders and spinal cord damage, zinc - growth retardation, etc.

Dairy cows especially need to be fed with carotene, vitamins D and E. Providing diets with vatamines is necessary for obtaining high productivity of cows, obtaining vitamin milk, improving reproductive functions, and normalizing metabolism. A variety of feeds in diets and their high quality are indispensable for enhancing nutritional value and improving nutrient utilization. [14].

Currently, in the farms of the Fergana Valley, it is widely used as a catch crop - rapeseed, which provides a high yield of green mass with good nutritional qualities, but little has been studied as a fodder in farms, this prompted us to conduct relevant research.

The stability of rapeseed to low temperature conditions makes it possible to use it in critical conditions in the autumn as a supplement to dairy cattle, which will increase the biological value of cows rations. In addition, feeding rapeseed green mass will improve the protein and carbohydrate nutritional value of the diet, since compared to silage, the main feed for dairy cattle, it contains more crude protein and a small amount of fiber. In 1 kg of green mass of rape 0.21 c.u., 30 g of crude protein and 15.8 mg of carotene [1].

Sufficiently high nutritional qualities of the green mass of rape determined the need to study the effectiveness of its use as a top dressing for lactating cows in the autumn.

Objects and research methods

The scientific and economic experiment was carried out on 4 groups of cows-analogs of the black-and-white breed for 60 days in the farm "Shukurdavlat" of the Fergana region. We

studied the influence of different feeding rates of green mass of rapeseed on its consumption, nutritional value of the diet, productivity of cows, efficiency of nutrient use and the amount of production. In the diets of cows in the experimental groups, part of the corn silage was replaced with green mass of rapeseed (% by weight): in I-40, in II-60, and III-100.

Research results

Replacement of corn silage with green mass of rapeseed improved the total, protein and carbohydrate nutritional value of the diets of cows in the experimental groups.

Studies have noted that feeding dairy cows in the first days after calving depends on their condition and the nature of feeding before calving. If calving went well, and the new cow feels good, then there is no need to make any restrictions in feeding, especially if the feed intake was not reduced before calving. Hay, silage and high quality silage can be fed at this time. However, the full rate of concentrates and root crops should be given no earlier than a week after calving. Limiting the feeding of these feeds is a preventive measure against excessive stress in the work of the mammary gland and its possible inflammation [3].

It has been revealed that the breeding of first-calf cows is more effective when, along with the amide concentrate additive, crushed barley after preliminary barothermal treatment is included in their diets. In the studies of Yurgin S.A., Merzlyakov O.G. it was found that with the silage-hay type of feeding in the first 100 days of lactation, the share of grain feeds in the structure of the diet should be at least 41-48%, in the second 20 and the third 5-15% in terms of nutritional value. This provides an increase in the milk productivity of cows by 304-289 kg of 4% fat milk compared to the same distribution of grain feeds over lactation periods, mainly due to an increase in the productivity of animals in the first 100 days after calving. Differentiation of the level of concentrate feeding of cows by lactation periods allows to reduce the consumption of grain feed per unit of production by 40-45 g [1].

In our experiments, with a partial replacement of silage with green mass of rapeseed, the content of which in a unit of dry matter of energy increased by 0.07-0.09 c.u., crude protein by 7.9-10.8%, and the level of fiber decreased by 13.1 -16.7%. With the complete replacement of silage, the concentration of energy per unit of dry matter increased by 0.17 c.u., crude protein by 18.4%, the level of fiber decreased to 19.2% versus 26.2% in the control. Considering that the value of silage carotene is significantly lower than that of green mass, feeding of green mass of rape had a positive effect on the biological activity of the diet. Similar results were obtained in the experiments of other researchers [1].

In the scientific and economic experience of S.A. Yurgina, T.S.Goldyreva. It was revealed that an increase in the norms of protein nutrition of dry cows in the last month of pregnancy by 10-15% in comparison with the norm of VIZ is the most effective method of organizing their full-fledged feeding. This provides an increase in the milk productivity of cows by 243 kg compared to feeding according to the VIZ standards and by 68 kg compared to an increase of 15-20% in the norms of energy nutrition. With such feeding, there is no disturbance in the reproductive function of animals [1].

The results of studies were carried out to study the effectiveness of compound feeds prepared according to new recipes for highly productive cows. The new recipes were drawn up taking into account the prospects for the development of forage production in Western Siberia and with the aim of increasing the biological value of animal nutrition. They reduced the amount of

wheat to 20-25% and increased the amount of oats and peas for dry cows. For the purpose of enrichment in protein, BVK-eprin (7% by weight) was introduced. There was revealed a tendency of better use of nutrients in diets by experimental animals compared to control animals and an increase in productivity by 9.3-14.8% [1].

An increase in A, D, E - vitamin nutrition of dairy cows by 1.5 and 2 times higher than the recommended norms (taking into account the content of vitamins in feed) has a positive effect on the digestibility of nutrients in rations. Improved nutrient utilization of the diets contributed to higher productivity in cows fed with increased vitamin levels. [23].

The materials of scientific and economic experience by N.A. Vyaznikov are presented. and Burdin Yu.M., conducted in the Krasnoyarsk Territory, that a high level of feeding contributes to the better development of the reproductive apparatus of heifers and allows them to mate at an early age (14-15 months). In turn, such a level of feeding and early mating periods do not have a negative effect on the course of pregnancy and labor of heifers, reproductive function, health status and the quality of the offspring of first-calf heifers [7].

In the experiments of Guglyago V.G. and Eranova A.M. it was found that feeding heifers from rape seeds without preliminary hydro-barathermic treatment in an amount of 15-30% of the protein content in the diet did not have a negative effect on metabolic processes and provided an intensive average daily gain in live weight of animals [9].

A.S. Evteev the results of a scientific and economic experiment, carried out for 55 days on 4 groups of lactating cows, to study the effectiveness of feeding green mass of spring rape are presented. It has been established that the introduction of the diet in cows with green mass of rape improves the general, protein and carbohydrate provision of animals, contributes to an increase in milk productivity of cows, a decrease in energy consumption and consumption of grain feed per unit of production. The average daily milk yield when feeding in the diet of 12.2; 17.8 and 28.5 kg of green mass of rape increased by 0.1; 1.5 and 4.0 kg in comparison with the control group. Consumption of grain feed per 1 kg of milk decreased, respectively, by groups by 2, 36 and 70 g [12].

In the scientific and economic experience of Naumova M.A. it was found that the level of protein nutrition of replacement heifers can be reduced by 10-15% in comparison with the VIZ norm. An increase in the energy value of the diets of replacement heifers by 10-15% against the VIZ norm, even with a 10-15% lower protein nutrition rate, ensures the digestibility of organic matter at the level of 64.2%, allows heifers to reach 550-555 kg of live weight by the age of 25 months and to milk 4410 kg of milk per lactation from first-calf cows [20].

The effectiveness of various levels of energy nutrition of animals by stages of lactation has been studied. It was found that an increase in the share of easily digestible energy due to grain feed in the first third of lactation to 45% of the nutritional value of the diet provides an increase in milk productivity per lactation by 22%. For the conditions of typical feeding of lactating cows, the following ratio of the energy of the bulky part of the ration to concentrates for the lactation periods is recommended: in the first 55:45; in the second 75:25 and the third 94: 6. Such feeding is the most rational and provides lactation productivity at the level of 4785 kg of 4% fat milk [19].

The full value of the nitrogen complex of perennial plants in the early, optimal for harvesting, phases of the growing season is higher compared to the phase of seed formation. The study of the use of protein by animals depending on the method of preserving forage crops showed that the digestibility, balance and use of nitrogen in diets containing hay and granules of perennial

grasses were higher than those where silage and haylage were included. This indicates a more valuable quality of the protein of hay and granules in comparison with the protein of haylage and silage [18].

As a result of the research of Yurgina S.A. and Merzlyakova O.G. to study the effectiveness of different levels of concentrate nutrition of lactating cows by lactation periods, the following conclusions were made:

rations of Simmental cows, consisting of oat and pea silage, hay and grain concentrates, ensure the productivity of animals in the range of 3300-3600 kg of milk per year at 27% of the nutritional level of grain feed;

an increase in the share of grain feeds in the structure of the diets of lactating cows in the first 100 days of lactation to 41-48% in terms of nutritional value increases the productivity of animals for the period by 359-423 kg of milk of 4% fat content in comparison with rations, in which grain fodder is 30% in terms of nutritional value;

for the conditions of typical feeding of lactating cows, the following level of concentrate nutrition (% by nutritional value of the diet) is recommended: from 1 to 100th day of lactation 41-48, from 101 to 200th 20, from 201 to 305th 5-12, which provides good nutrition of cows with a productivity of 3575-3590 kg of milk per year at the cost of grain feed per 1 kg of milk at the level of 277 g [27].

Results of researches Yurgina S.A. and Goldyreva T.S. allow us to conclude that it is advisable to increase the norms of protein nutrition of highly productive cows during the dry period [28].

The introduction of vitamins into rations has a positive effect on the digestibility of nutrients in rations, the assimilation of nitrogen and an increase in milk productivity [23].

An abundant level of feeding during the rearing and gestation period of Simmental animals with a balanced ratio of nutrients in the rations provides a better development of the reproductive organs of heifers [7].

The use of rapeseed meal as a grain part of the diet, without preliminary hydrobarothermal treatment, does not cause pathological changes in the metabolism of animals and provides a high average daily gain in live weight and milk productivity [9].

Thus, feeding green mass improves the supply of energy to cows, which is of certain importance for normalizing the process of utilization of intermediate and final products of feed digestion, increasing the efficiency of biosynthetic processes in the body and mammary gland of cows.

In conditions of controlled feeding, the increase in the efficiency of biosynthesis processes in the body of cows was expressed in an increase in the average daily milk yield in cows of the experimental groups. During the period of the experiment, the average daily milk yield of 4% fat in the control group was 13.4 kg, and in the experimental groups, respectively, 13.8; 14.8 and 16.3 kg.

The improvement of metabolic processes in the body of experimental groups of cows is evidenced by data on energy consumption per unit of production. The cows of the experimental groups consumed less energy per unit of production than the control ones, and the decrease in the level of energy consumption per 1 kg of milk of 4% fat content was greater in those groups where the share of green mass of rapeseed in the diet was higher. So, cows of the III group spent 0.82

CFU per 1 kg of milk of 4% fat, while the control one - 0.98 CFU. In groups I and II, the level of energy consumption was 0.94 and 0.89 k.u. respectively.

In our studies, very consistent results were obtained, indicating that the introduction of rapeseed green mass into the diet of lactating cows helps to reduce the consumption of grain feed. If for 1 kg of milk of 4% fat, the cows of the control group consumed 322 g of grain feed, then in the II and III experimental groups it was 39 and 72 g less. Feeding dairy cows with rapeseed green mass did not negatively affect the fat content in milk, technological and taste qualities of butter.

Average daily milk yield when feeding as part of the diet 12.7; 18.3 and 29.2 kg of rapeseed green mass increased by 0.2, 1.7 and 4.1 kg, respectively, in comparison with the control group. Consumption of grain feed per 1 kg of milk decreased by 2.1, 39 and 72 g, respectively.

Conclusion

The results of the experiment give reason to believe that the green mass of rape is superior in nutritional quality to corn silage. Feeding it to lactating cows as part of the diet in the autumn provides an increase in milk productivity of cows and economical use of grain feed. The introduction of rapeseed green mass into the diet of cows improves the overall, protein and carbohydrate supply, contributes to an increase in milk productivity, a decrease in energy consumption and the consumption of grain feed per unit of production.

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