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INFLUENCE OF AN INTEGRATED FODDER ADDITIVE ON PRODUCTIVITY AND METABOLIC HOMEOSTASIS OF BLACK-MOTLEY BREEDS IN TRANSIT PERIOD.

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Introduction

The transition period is the most stressful for dairy cows in terms of metabolic rate and characterized by dynamic changes in the hormonal profile, loss of appetite, negative energy balance, nutrient and vitamin deficiencies, compromised immunity and oxidative stress.

The aim of the research was to balance the increase in cows' productivity and the consumption of nutrients from the feed during the transition period through the use of energy feed additives (EFS), high protein feed concentrate (PFC) in combination with biologically active (BA) substances.

Material and methods

Thirty-six dairy cows of black-motley breed were divided into 3 groups: (1) The main diet (G0, n = 12), not supplemented with additives, (2) additive 1 (G1; supplemented with 0.5 kg EFS / cow per day, n = 12), (3) additive 2 (G2; supplemented with 0.5 kg EFS; 0.5 kg PFC and 0.06 kg BA / cow per day, n = 12). The experimental part of the feeding lasted for 20 days before calving and the first 100 days after calving (DPP). Blood samples were collected during the first and the third months after calving. The biochemical analyzer was used to measure blood serum components. The milk yield was recorded monthly throughout lactation.

Results

BCS losses from 7 days prior to calving to 28 DPP were -0.29 for Gr2, -0.42 for Gr1 and -0.60 for Gr0. Feeding with additive 2 (Gr2) increased milk yield ($p \leq 0.05$) in the first 100 DPPs and ($p \leq 0.001$) 305 DPPs compared to G0. The number of samples with $SCC \geq 500\ 000$ / ml. per 100 DPP was 51% in the Gr0 group, 27% in Gr1, 25% in Gr2. Also, microbiological control showed an excess of Bacterial cells in the milk of cows from group G0, which correlates with SCC indicators. Cows from Gr2 had a lower content of ketone bodies ($P \geq 0.001$) and higher ($P \geq 0.001$) antioxidant activity of blood serum compared to Gr0. Cows from Gr2 had an increase in ALT activity by 1.4 times ($P < 0.05$) from the first to the third months after calving

Picture 1. inhibitory effects of Rhodotorula spp (LYR) on the activation and viability of the bacterial cells at $28 \pm 0.5^\circ\text{C}$.

Index	Group		
	Control	Exp-I	Exp-II
Milk for 100 days of experience			
Milk yield of natural fat, kg	2583±27,9	2652±34,8	2704±49,4 ^b
The average daily milk yield of natural fat, kg	25,8±1,3	26,5±1,3	27,0±1,0
The fat content in milk,%	4,03±0,35	4,06±0,30	4,08±0,32
The protein content in milk,%	3,08±0,13	2,89±0,03	3,05±0,12
The lactose content in milk,%	5,48±0,07	5,16±0,05	5,38±0,12
For the period of a lactation - 305 days			
Milk yield of natural fat, kg	6070±124	6588±182 ^a	7046±119 ^c
The average daily milk yield of natural fat, kg	19,9±0,61	21,6±0,59 ^a	23,1±0,48 ^a
The fat content in milk,%	3,98±0,06	4,06±0,05	4,06±0,06

Conclusion: In general, our study has showed that feeding with additive 2 can increase productivity in dairy cows, reduce immobilization of body tissue reserves, and support metabolic homeostasis.

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