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ANALYSIS OF QUALITATIVE MILK PARAMETERS ON A DAIRY FARM IN SOUTHERN ROMANIA

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Abstract: This study examines the milk production quality of Montbéliarde dairy cows at Moara Domneasca farm, in 2024, focusing on key indicators such as fat, protein, lactose, dry matter, and somatic cell count. The study highlights variations in these parameters throughout the year, with factors like diet, season, and cow health influencing the results. Data analysis, including frequency analysis and statistical methods (mean, standard deviation, and coefficient of variation), was used to assess monthly trends. The results show variations in milk quality parameters content, indicating possible dietary imbalances or health issues. The study underscores the importance of maintaining optimal cow health and diet for milk quality and production efficiency.

• Introduction

Milk quality is crucial for both animal health and food safety, as well as for the production of dairy products. Indicators like fat, protein, and lactose levels reflect milk's nutritional and technological value, though issues such as subclinical mastitis can affect processing, emphasizing the need for somatic cell monitoring. In Romania, despite a decline in overall milk production, increased collection by processors and rising urban demand—especially in Bucharest—highlight the need to improve cow productivity and milk quality through better nutrition and herd management to sustain the sector's economic and nutritional importance.

• Material and method

This study, conducted in 2024 at the Moara Domneasca farm, focuses on Montbéliarde dairy cow qualitative milk parameters. Milking was performed twice daily, and individual milk samples were collected bi-monthly throughout the year. Only healthy cows were included in the sampling. Analyses were conducted by accredited laboratories using standardized methods and equipment. The results regarding milk quality parameters were statistically processed using central tendency and dispersion indicators, as well as ANOVA (Fisher test) to assess monthly variations.

• Results and discussions conclusions

The results of qualitative milk production parameters from the farm during the research period are presented in the following Figures.

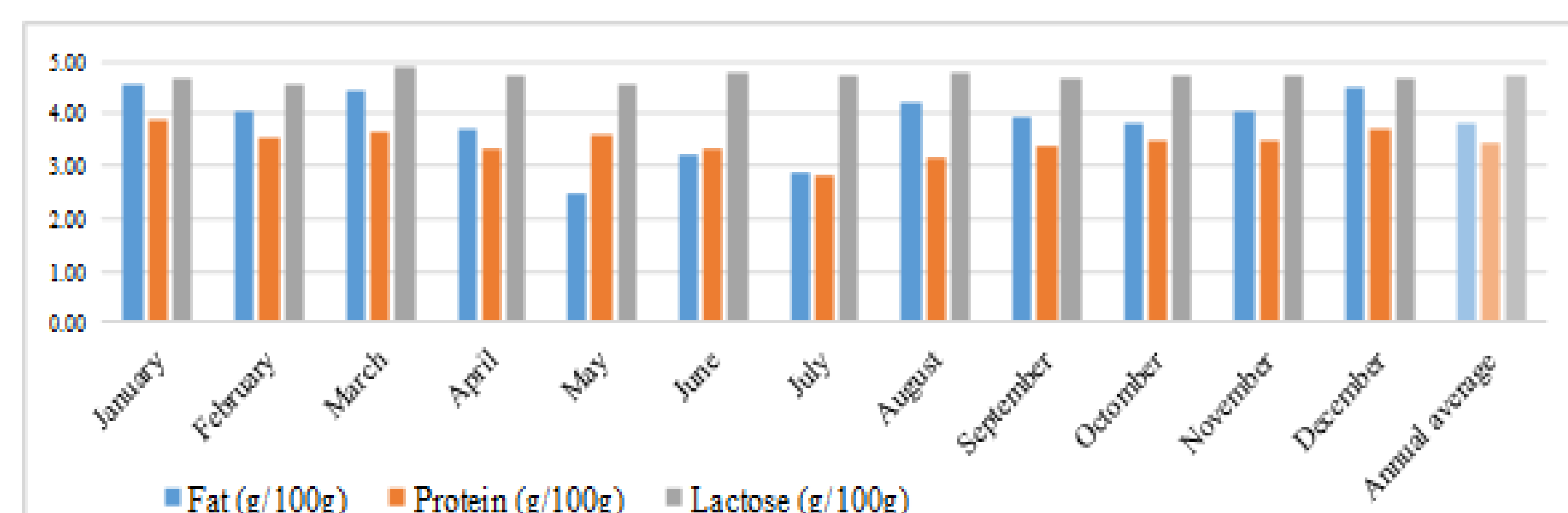


Figure 1. Monthly averages for fat, protein, and lactose from January to December 2024

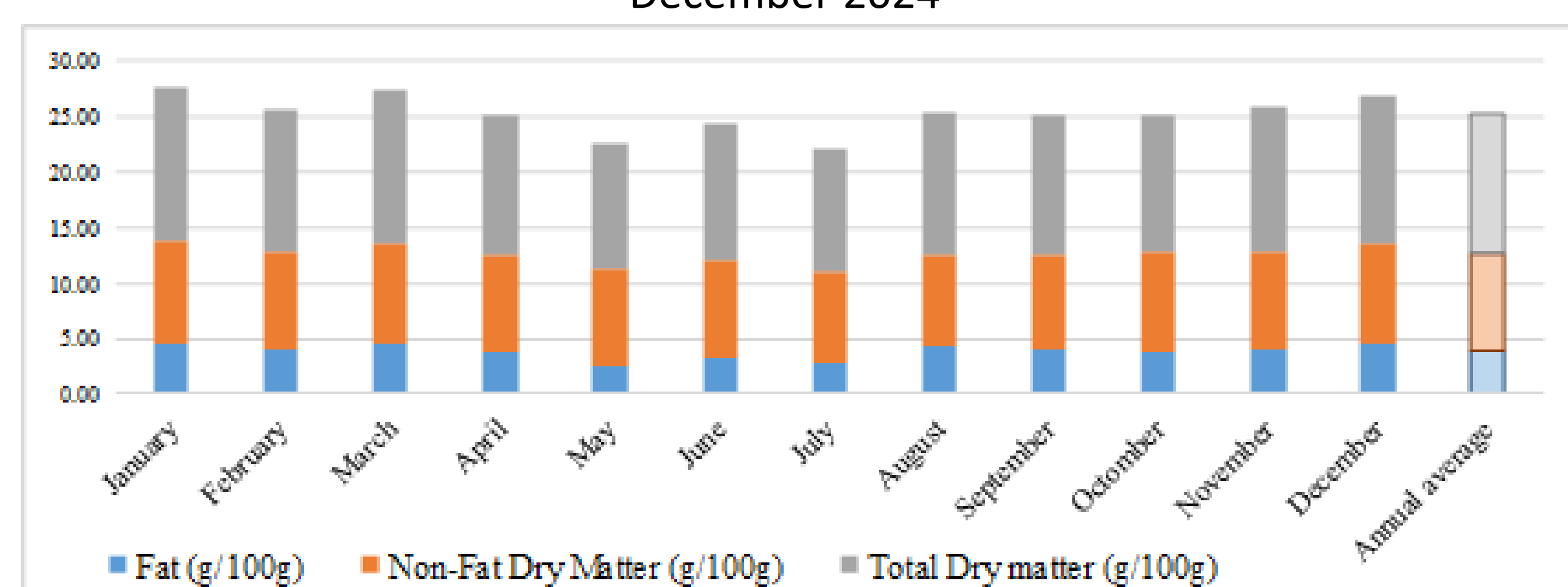


Figure 2. Monthly averages for fat, total dry matter, and non-fat dry matter, from January to December 2024

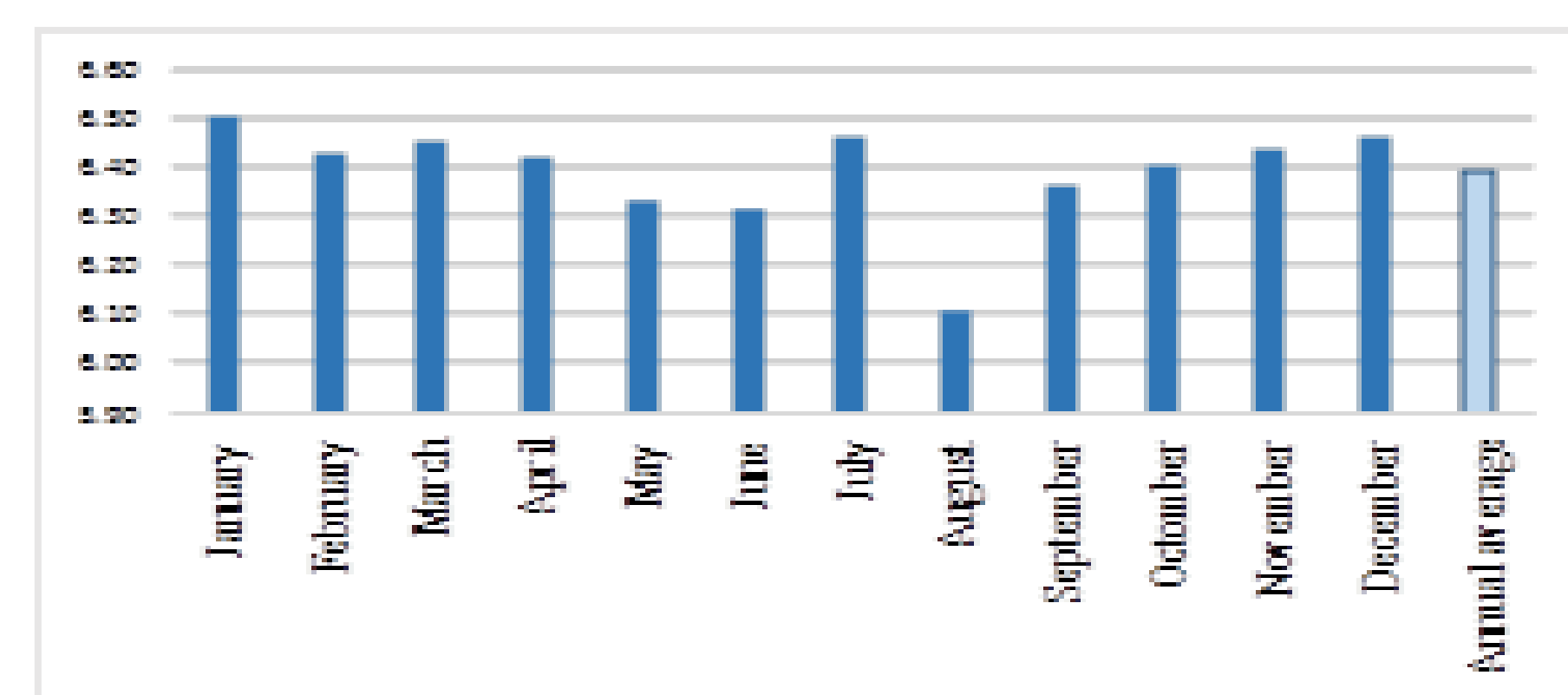


Figure 3. Milk pH from January to December 2024

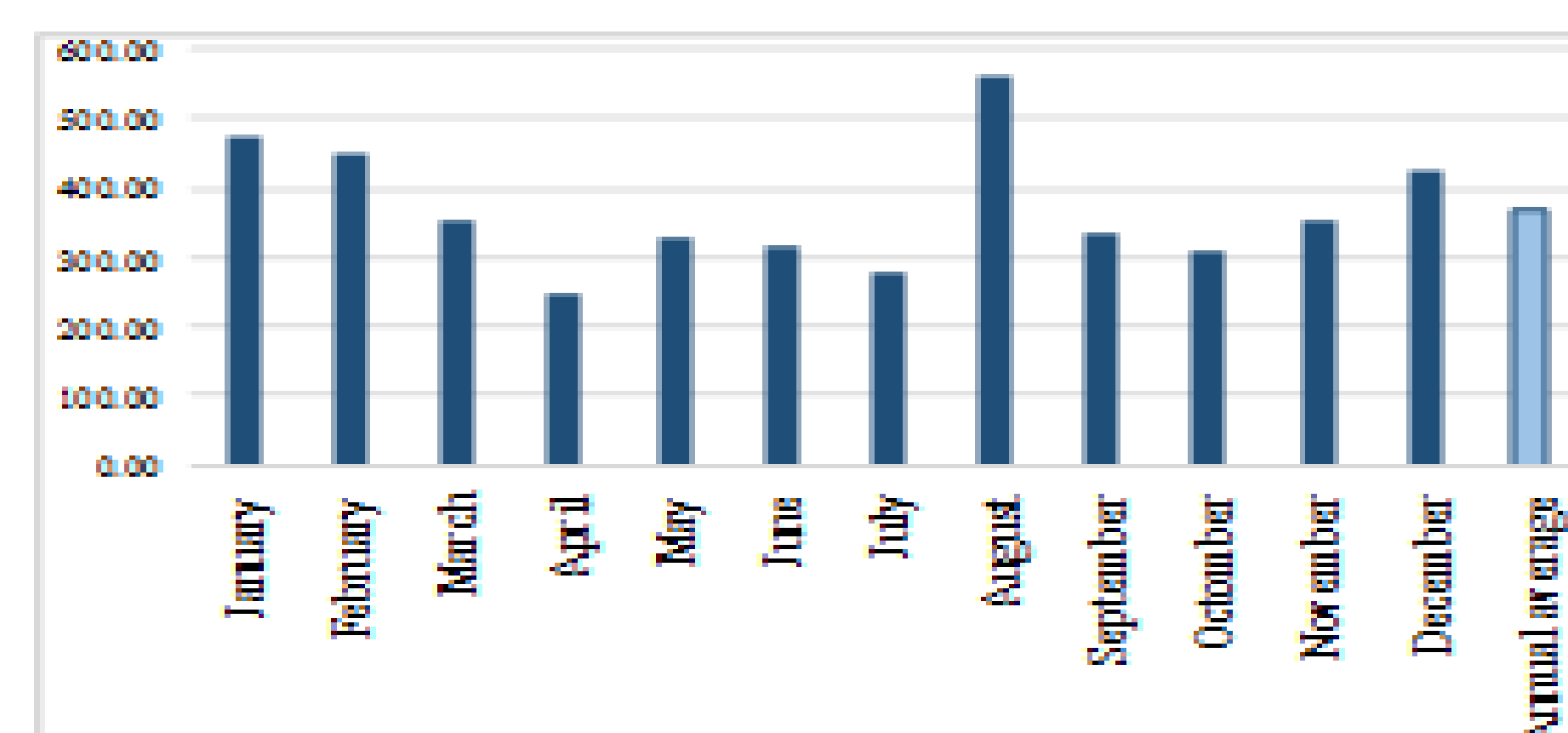


Figure 4. Monthly averages for somatic cell count from January to September 2023

• Conclusions

During the study period, the herd exhibited monthly fluctuations due to physiological status, calvings, and health conditions. Overall, milk quality parameters—fat, protein, and lactose—remained within normal limits, although milk fat content varied more markedly, likely influenced by diet composition, season, or metabolic factors. Protein and lactose stability suggests consistent nutritional management, while variations in total dry matter and milk pH reflect seasonal and physiological influences. Somatic cell counts (SCC) generally remained below the accepted threshold, with deviations linked to isolated health issues. However, significant monthly differences in SCC and pH indicate periods of increased udder stress, possibly due to mastitis or environmental stressors. These findings highlight the need for optimized feeding strategies, health monitoring, and preventive herd management to ensure consistent milk quality throughout the year.

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