



ULST Timisoara
**Multidisciplinary Conference on
Sustainable Development**
15-16 May 2025



Effect of season on milk chemical composition in Romanian buffalo

S. Baul¹, S.E. Erina¹, L.T. Csiszter^{1,2,*}, R.I. Neamt², D.E. Ilie²

¹Department of Animal Production Engineering, University of Life Sciences "King Mihai I of Romania" from Timișoara, 300645, Timișoara, Calea Aradului 119, Romania, ludoviccziszter@usvt.ro

²Research Department, Research and Development Station for Bovine, 310059, Arad, Calea Bodrogului 32, Romania

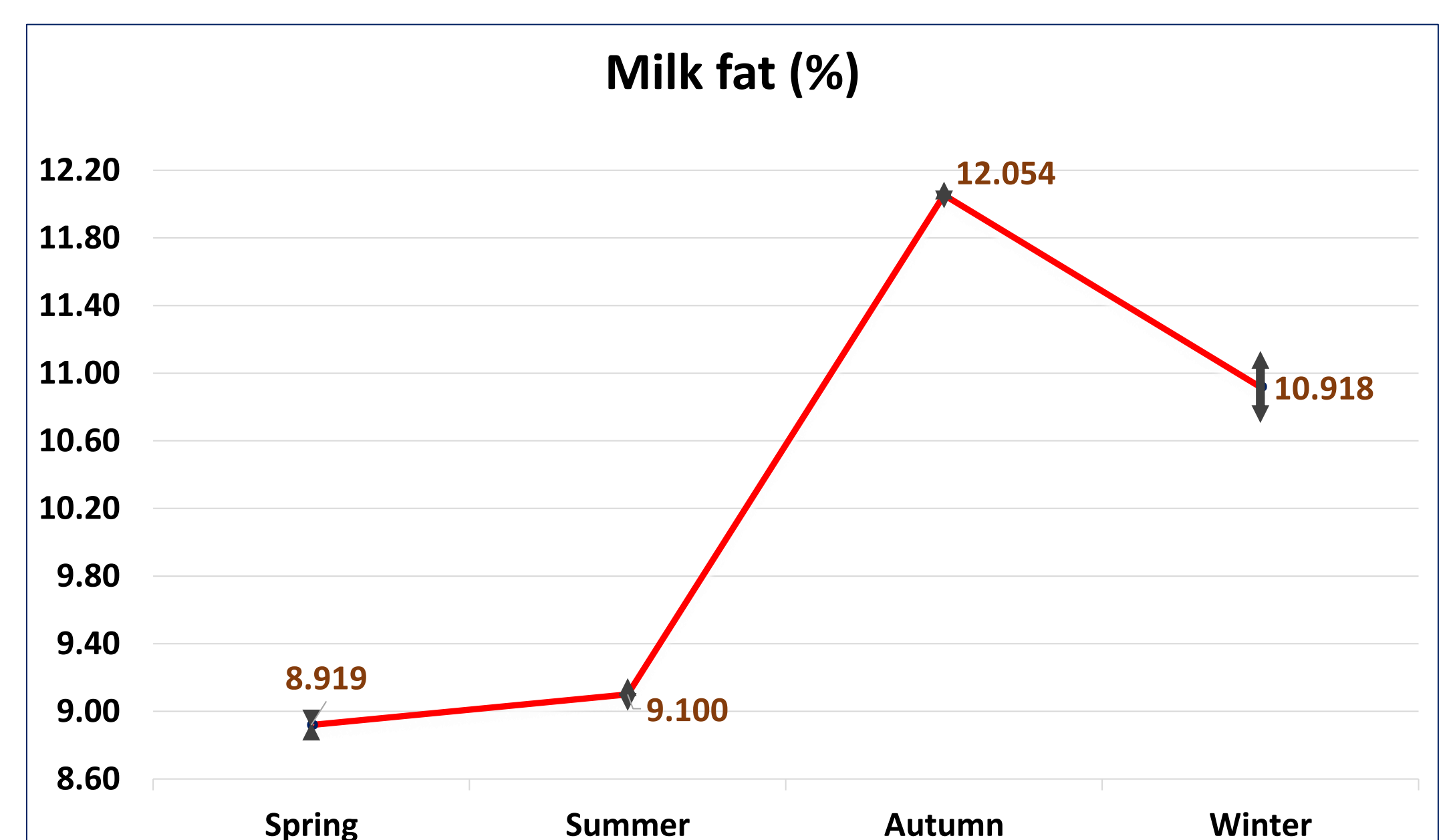
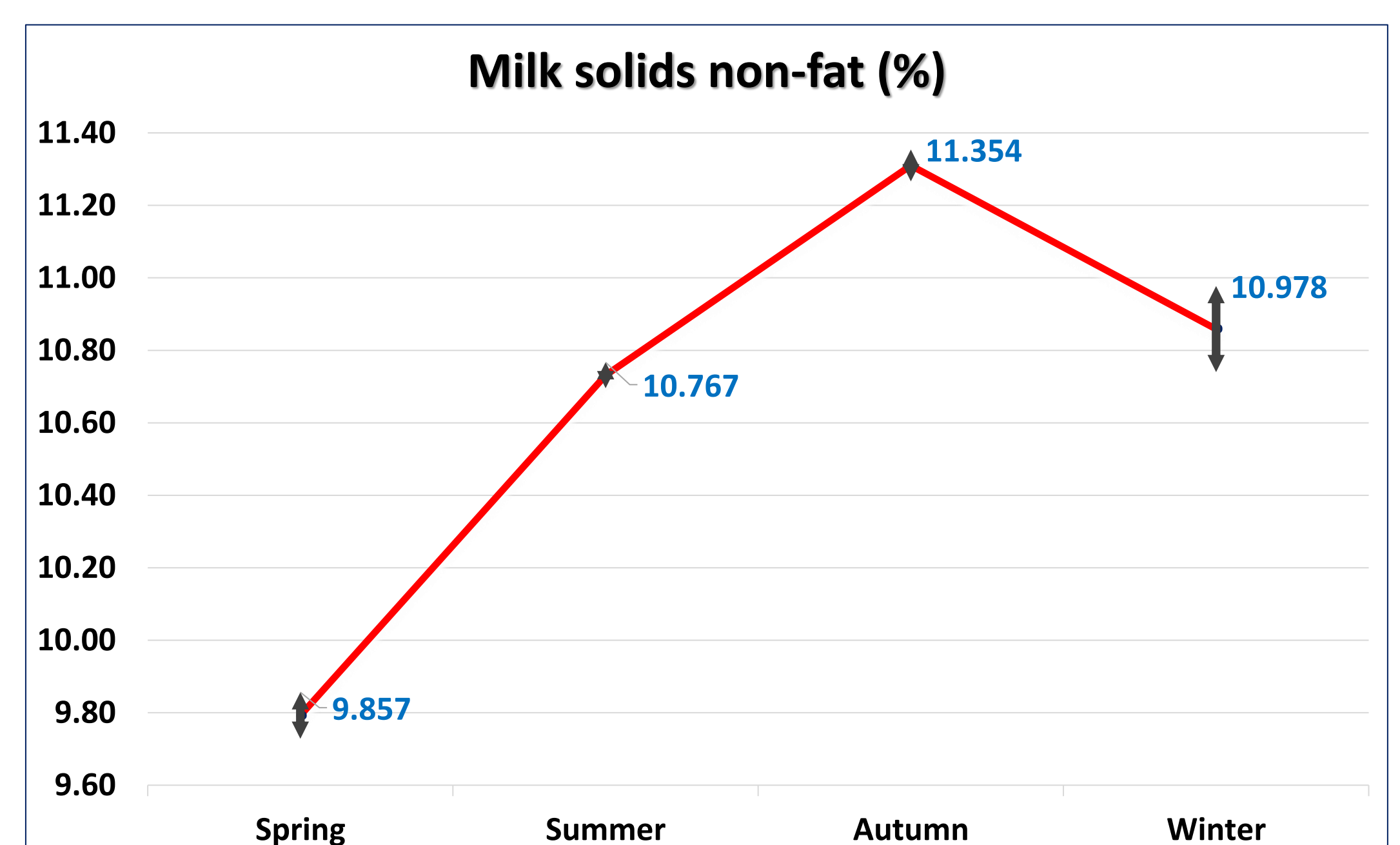
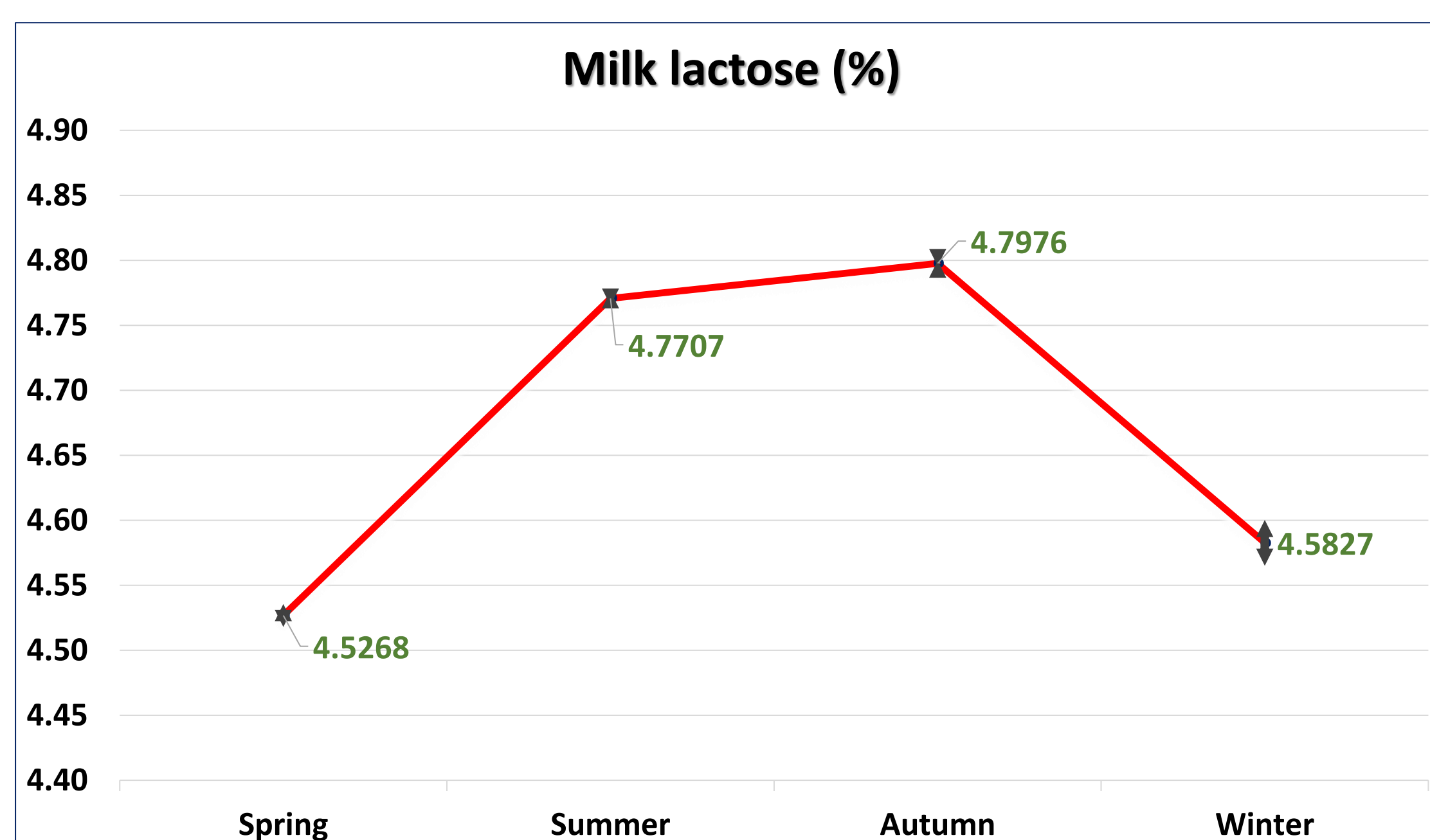
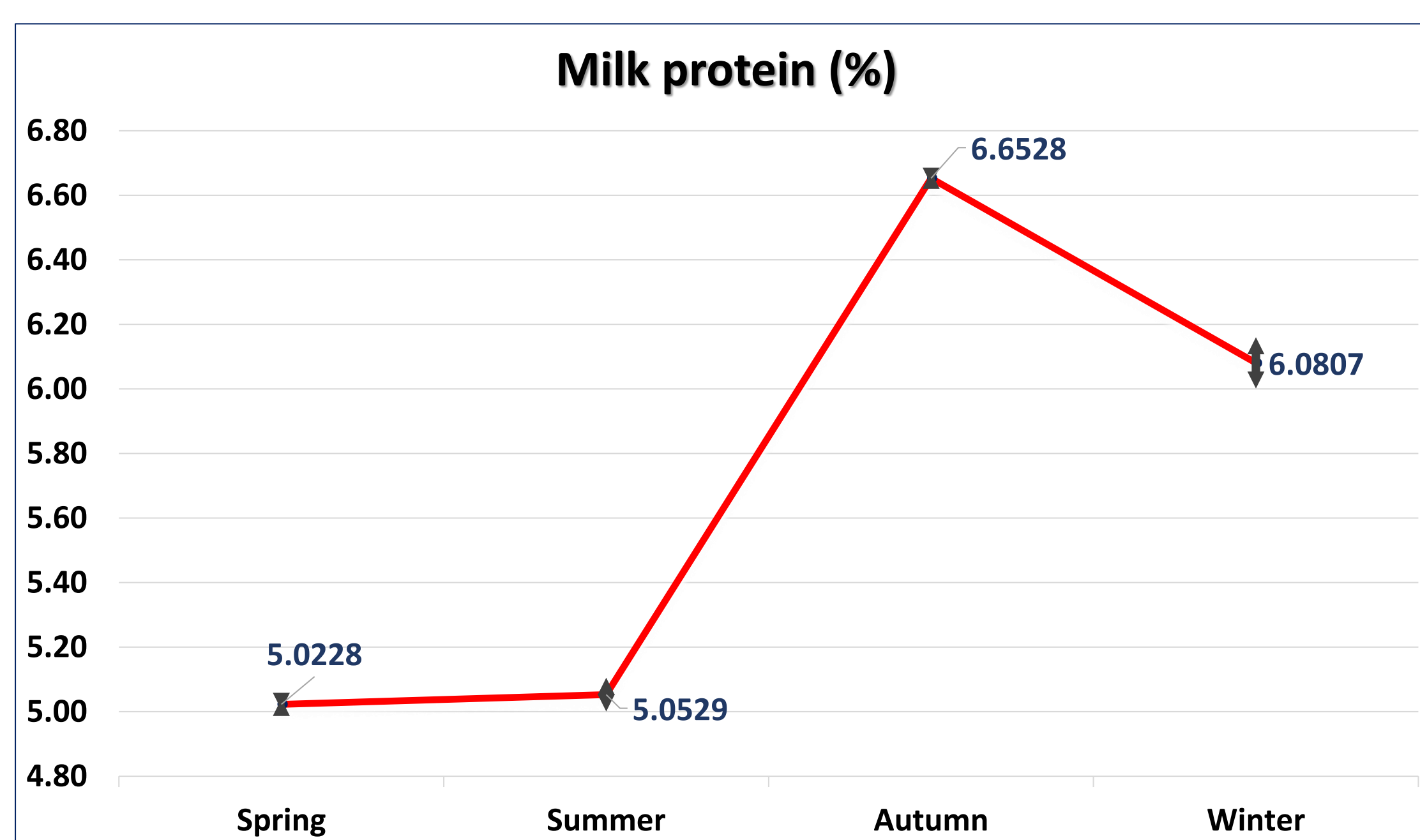
Abstract The aim of the study was to determine the effect of season on the milk chemical composition in Romanian buffalo. A database of 812 test day milk records collected during four years, from a farm located in Timiș county was used. The studied chemical components were: solids non-fat (SNF), fat (MF), protein (MP), and lactose (ML) percentages in buffalo milk. A one-way ANOVA was used to find out the season effect on milk components. Generally, the season had a significant effect on milk chemical composition of buffalo milk ($p < 0.01$). Solids non-fat was not significantly influenced by the season ($p > 0.05$) even though the SNF in winter was double than in the other seasons (23.04% vs. 9.97% in spring, 10.73% in summer, and 11.31% in autumn). Milk fat was significantly influenced by the season ($p < 0.001$). The highest MF was observed in autumn (12.0%), followed by winter (10.92%), summer (9.11%), and spring (8.91%). Also, protein content of buffalo milk was significantly influenced by the season ($p < 0.001$), with the highest percentage in autumn (6.65%) followed by winter (6.08%), summer (5.05%) and spring (5.02%). Season had a significant effect on buffalo milk lactose ($p < 0.001$). The highest ML percentage was obtained in autumn (4.80%), followed by summer (4.77%), winter (4.58%) and spring (4.53%). In conclusion, we could state that season had a significant influence on buffalo milk composition except for solids non-fat, and autumn milk had the highest content in fat, protein and lactose.

• Material and method

- Database: 812 test-day milk records for chemical composition
- From 2021 to 2024 in a farm located in Arad County
- Data collected at irregular time intervals
- Chemical components studied
 - Solids non-fat (SNF)
 - Milk fat (MF)
 - Milk protein (MP)
 - Milk lactose (ML)
- One-way ANOVA model to find the effect of season on buffalo milk composition
- Year was introduced into the model for correction

• Results and discussions

- Chemical composition of buffalo milk varied significantly from one season to another ($p < 0.01$)



• Conclusions

- Season had a significant influence on buffalo milk composition, except for solids non-fat
- Autumn milk had the highest content in fat, protein and lactose