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### The effect of specific nutritional feed supplements on the quality of dairy cows products

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**Abstract:** This experimental trial explored the impact of incorporating specific nutritional feed into the diet of dairy cows and assessed their influence on the quality of products derived from the processing of raw whole milk. According to the obtained results, it was observed that there were differences in dry matter, crude protein, crude fat, ash, and fatty acid profiles between the two groups for produced dairy products. Both cheeses fabricated from the milk of EG cows had a lower content of saturated fatty acids and a higher content of unsaturated fatty acids compared to the CG, where the situation was the opposite. The n6:n3 ratio was lower in the Caş cheese from the EG compared to CG, while in the Telemea cheese, the observations also revealed inverted results.

**Keywords:** Caş cheese, Telemea cheese, chemical composition, unsaturated fatty acids

#### • Introduction

Milk is a very complex fluid. The milk chemical composition varies according to several factors such as: species, breed, diet, age, state of health, stage of lactation etc. In addition to variations in the concentrations of the composition of the fatty acid profile is strongly influenced by diet. The composition of cheese is strongly influenced by the composition of the milk, especially the content of fat, protein, calcium and pH.

#### • Material and method

A total of 20 dairy cows were equally distributed into two groups: the control group (CG) and the experimental group (EG). Both groups received balanced rations according to the INRA recommendations. The CG group received in diet a mixture of farm-produced feed concentrates (FC), while the EG received an FC including the specific nutritional feed. Next, the milk from the two groups was processed into two varieties of semi-soft cheese (Caş and Telemea).

For determinate the cheese chemical constituents: dry matter, protein, lipids, ash, and fatty acid profiles, standard methods was used.

The primary data obtained were processed by statistical methods with the help of the Microsoft Excel calculation application and for the statistical significance of the differences between the means of the studied characters, the Student test was used.

#### • Results and discussions

The results regarding the impact of the incorporation of specific nutritional feed in the diet of dairy cows on Caş and Telemea cheese chemical composition are shown in Figure 1 a, b, c, d.

Fatty acids in Telemea cheese are represented in Tables 1 and 2 for Telemea cheese, respective Caş cheese.

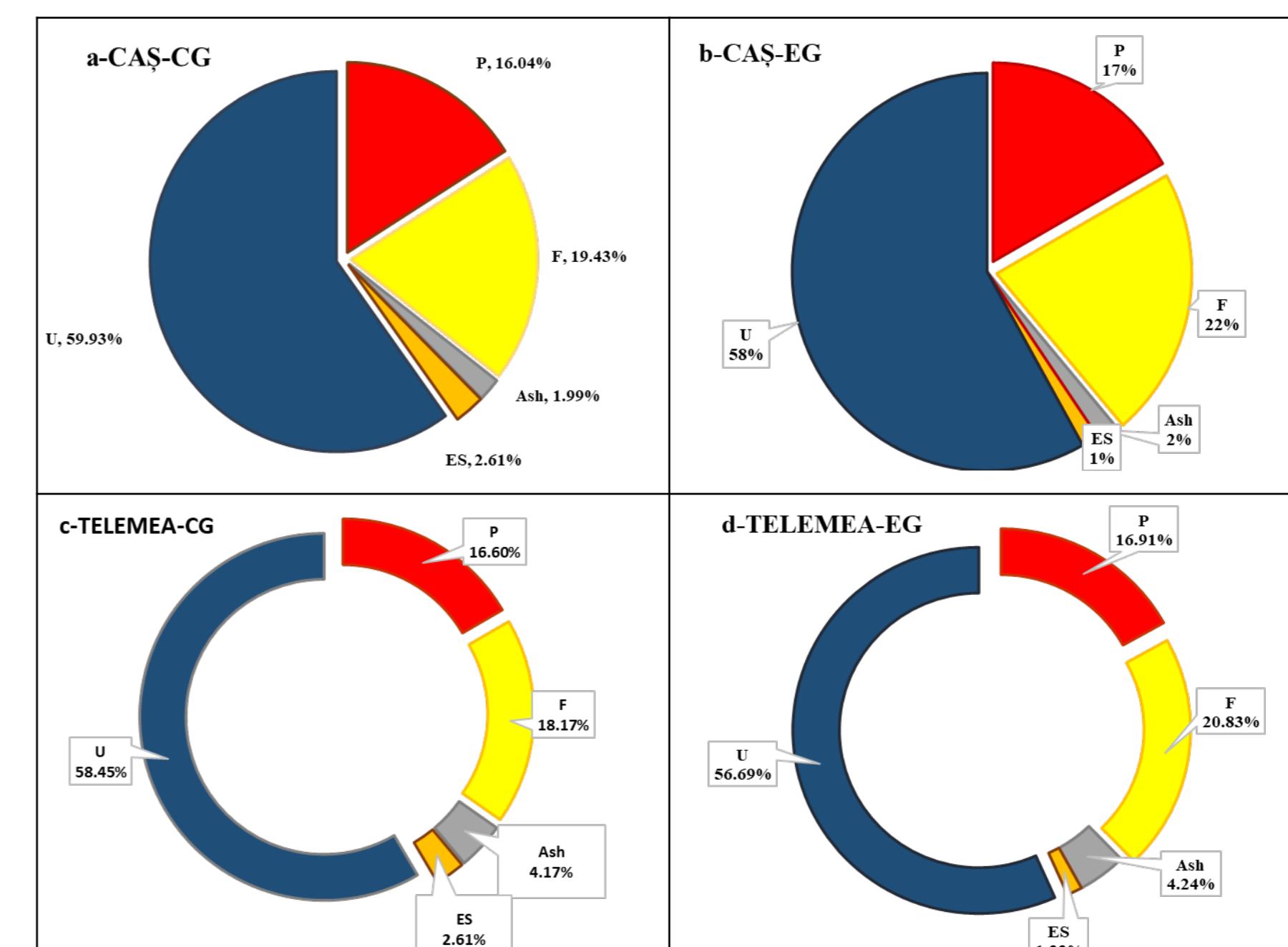


Figure 1-The chemical composition of cheese: a- Caş CG; b-Caş EG; c-Telemea CG and d-Telemea EG

Table 1. Fatty acids in Telemea cheese

Specificeare	Acidul gras	n	LM $\bar{x} \pm SD$	LE $\bar{x} \pm SD$	p value
	C4:0 acid butiric (%)	3	2.289 0.519	3 1.361 0.136	0.040
	C6:0, caproic acid (%)	3	1.326 0.295	3 0.876 0.115	0.069
	C8:0, caprylic acid (%)	3	0.708 0.131	3 0.496 0.098	0.178
	C10:0, lauric acid (%)	3	0.240 0.219	3 0.261 0.147	0.153
	C11:0, acid undecanoic (%)	3	0.749 0.200	3 0.647 0.185	0.551
	C12:0, lactic acid (%)	3	1.131 0.160	3 0.873 0.210	0.166
	C13:0 acid tridecanoic (%)	3	0.879 0.233	3 0.636 0.556	0.513
	C14:0/C14:0, myristic acid (%)	3	3.207 0.329	3 1.882 1.542	0.219
	C15:0/C15:0 pentadecanoic acid (%)	3	0.292 0.025	3 0.170 0.055	0.025
	C16:0/C16:0, palmitic acid (%)	3	7.149 0.522	3 4.775 4.059	0.418
	C17:0/C17:0 heptadecanoic acid (%)	3	0.190 0.008	3 0.117 0.069	0.144
	C18:0, acid stearic (%)	3	2.680 0.122	3 2.699 0.441	0.973
	C20:0, acid arachidic (%)	3	0.162 0.055	3 0.109 0.051	0.224
	C22:0, acid behenic (%)	3	0.401 0.087	3 0.467 0.273	0.711
	C23:0, acid tricosanoic (%)	3	1.753 0.403	3 1.845 0.133	0.725
	C24:0, acid lignoceric (%)	3	0.001 0.000	3 0.085 0.146	0.423
ESFA (%)		3	24.051	1.597	17.854
			6.753	0.197	
C14:1, acid myristoleic (%)		3	0.326	0.043	0.176
C15:1, acid pentadecenoic (%)		3	0.120	0.016	0.046
C16:1, acid palmitoleic (%)		3	0.485	0.049	0.270
C17:1, acid heptadecenoic (%)		3	0.228	0.051	0.176
C18:1C:T, acid oleic (%)		3	7.253	0.476	3 3.819 0.395
C20:1n9, acid eicosanoic (%)		3	0.220	0.031	0.120
C22:1n9, acid erucic (%)		3	0.412	0.096	0.296
C24:1n9, acid nervonic (%)		3	7.861	11.303	3 7.191 11.399
SMUFA (%)		3	16.923	11.633	3 12.106
			7.681	0.581	
C18:2C:T, n6, acid linoleic (%)		3	3.018	0.665	3 2.815 2.401
C18:3n6, γ-Linolenic (%)		3	0.367	0.149	3 0.111 0.020
C18:3n6, α-Linolenic (%)		3	0.429	0.311	3 0.086 0.055
C20:2, n6, acid eicosadienoic (%)		3	11.799	2.043	3 13.556 1.051
C20:3n6, C21:0 Homo-γ-Linolenic (%)		3	0.893	0.203	3 0.646 0.528
C20:4n6, acid arachidonic (%)		3	0.475	0.091	3 0.506 0.151
C20:5n6, acid eicosapentaenoic (%)		3	0.978	0.222	3 0.994 0.183
C20:5n3, Acid Docosahexaenoic (%)		3	1.551	0.353	3 1.016 0.819
C22:2, n6, acid Docosadienoic (%)		3	39.117	8.463	3 50.107 2.545
C22:6n3, acid docosahexaenoic (%)		3	0.390	0.032	3 0.100 0.131
ΣPUFA (%)		3	55.999	10.963	3 67.225
			2.413	0.214	
ΣUF (%)		3	72.932	1.608	3 79.331
			8.979	0.342	
ΣFA (%)		3	96.983	6.665	3 97.185
			2.401	0.895	
n3		3	2.784	3	1.838
n6		3	56.234	11.339	3 68.206
			2.470	0.129	
n6/n3		3	20.058	2.158	3 44.879
			26.290	0.248	

Table 2. Fatty acids in Caş cheese

Specificeare	Acidul gras	n	LM $\bar{x} \pm SD$	LE $\bar{x} \pm SD$	p value
	C4:0 acid butiric (%)	3	2.824	1.326	2.343 1.061
	C6:0, caproic acid (%)	3	1.807	0.746	0.425 0.629
	C8:0, caprylic acid (%)	3	0.171	0.071	0.040 0.153
	C10:0, decanoic acid (%)	3	1.913	0.512	1.391 0.763
	C11:0, acid undecanoic (%)	3	0.452	0.262	0.804 0.535
	C12:0, lauric acid (%)	3	1.604	0.702	1.255 0.719
	C13:0 acid tridecanoic (%)	3	0.799	0.651	0.926 0.563
	C14:0/C14:0, myristic acid (%)	3	5.266	0.685	3.478 1.697
	C15:0/C15:0 pentadecanoic acid (%)	3	0.380	0.030	0.272 0.073
	C16:0/C16:0, palmitic acid (%)	3	11.903	1.160	3.838 2.789
	C17:0/C17:0 heptadecanoic acid (%)	3	0.231	0.057	0.138 0.011
	C18:0, acid stearic (%)	3	3.892	0.350	3.641 3.013
	C20:0, acid elicosanoic (%)	3	0.188	0.115	0.127 0.075
	C22:0, acid behenic (%)	3	0.354	0.116	0.294 0.213
	C23:0, acid tricosanoic (%)	3	1.122	0.778	1.756 0.413
	C24:0, acid lignoceric (%)	3	0.181	0.073	0.131 0.051
ΣPUFA (%)		3	33.889	0.073	33.533 0.112
ΣUF (%)		3	13.082	0.778	7.319 1.881
			3.826	2.474	1.969 3 0.883
C14:1, acid myristoleic (%)		3	0.162	0.168	0.365 0.161
C15:1, acid pentadecenoic (%)		3	0.555	0.399	0.106 0.026
C16:1, acid palmitoleic (%)		3	0.172	0.045	0.297 0.142
C17:1, acid heptadecenoic (%)		3	0.273	1.506	0.961 1.193
C18:1C:T, acid oleic (%)		3	0.181	0.029	4.304 2.035
C20:1n9, acid eicosanoic (%)		3	0.889	0.144	0.285 0.025
C22:1n9, acid erucic (%)		3	0.262	0.350	0.458 0.127
C24:1n9, acid nervonic (%)		3	13.005	0.755	0.547 0.078
ΣMUFA (%)		3	13.082	0.778	7.319 1.881
			3.826	2.474	1.969 3 0.883
C18:2C:T, n6, acid linoleic (%)		3	2.66523	0.826	