SUPPLEMENTAL MATERIAL

Mastitis has a cumulative and lasting effect on milk yield and lactose content in dairy cows

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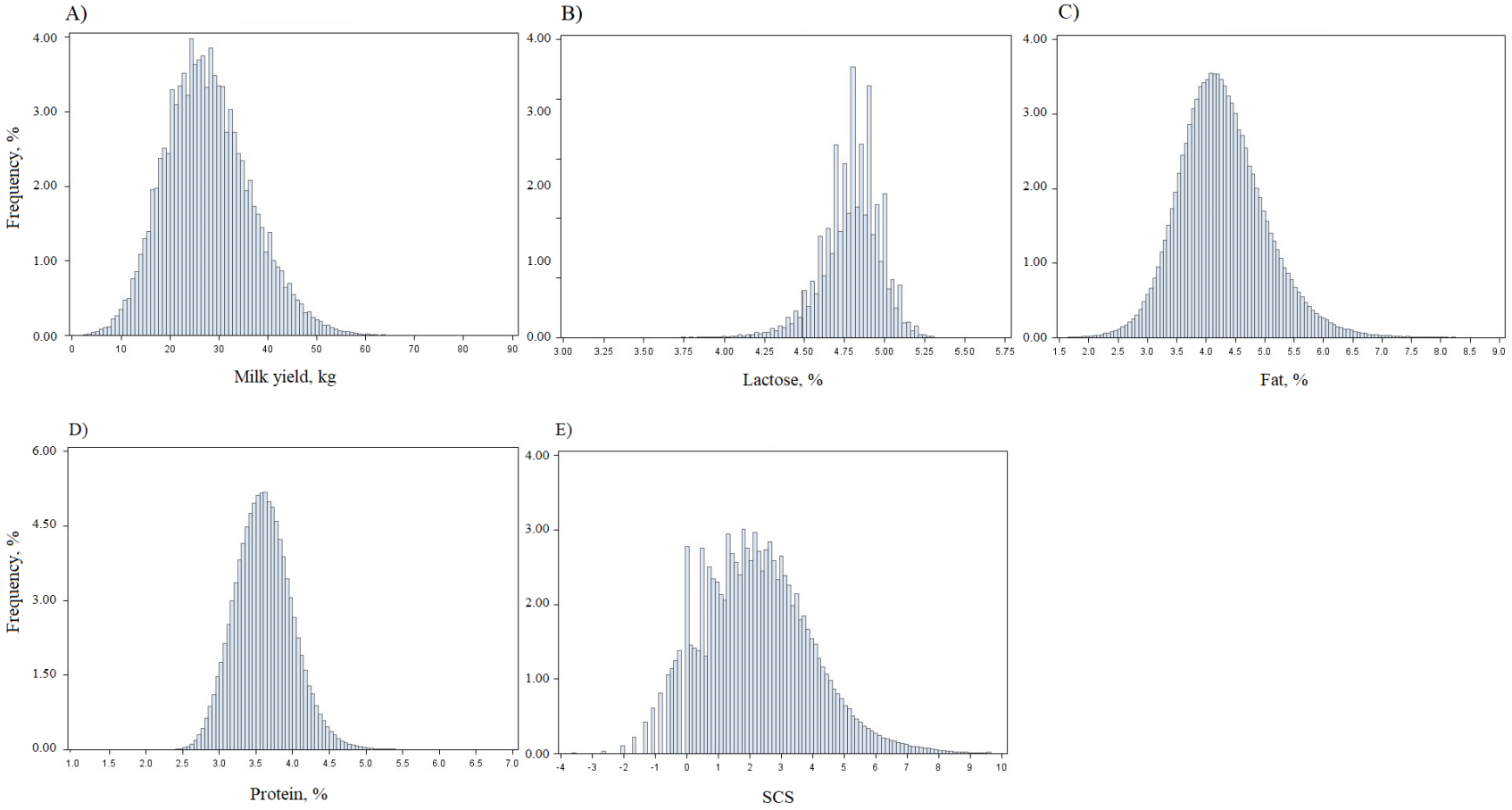
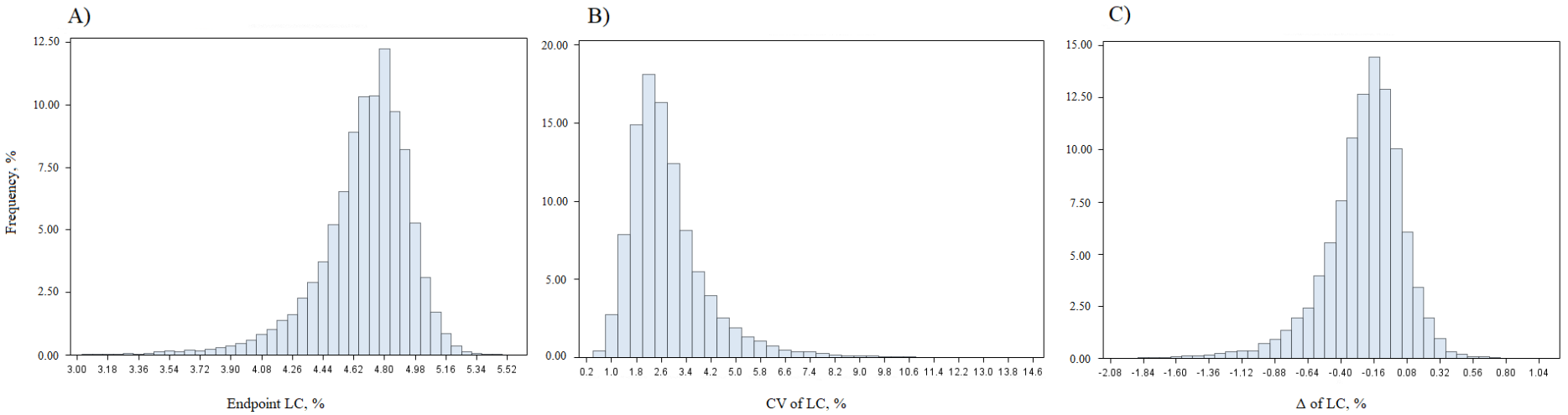
Supplemental Figure S1. Distribution of A) milk yield, B) lactose content, C) fat content, D) protein content, and E) SCS for the 18,404 Austrian Fleckvieh cows involved in the study (432,839 test-day records).



Supplemental Figure S2. Distribution of A) the endpoint, B) the CV, and C) the Δ of the lifetime[1] milk lactose content (LC) for the 18,404 Austrian Fleckvieh cows involved in the study.



[1] For each cow: the endpoint was the LC measured at the last available TD in the lifetime; the overall CV of LC was calculated using all the cows' TD available; and the Δ was the absolute difference between the LC measured in early (parity 1 and < 100 DIM) and late productive life (last available TD).

Supplemental Table S1. Spearman (above diagonal) and Kendall correlations (below diagonal) calculated among milk lactose content (LC, %), milk yield (MY, kg/d), and cumulative mastitis[1] on raw data. Unless otherwise stated[2], the correlations were significant ($P < 0.001$).

Trait	LC	MY	SCC_{200}	SCC_{400}	AM	CM	AM+CM
LC	-	0.204	-0.276	-0.219	-0.102	-0.065	-0.115
MY	0.139	-	-0.005	-0.002^{ns}	0.038	0.012	0.036
SCC_{200}	-0.211	-0.004	-	0.775	0.279	0.169	0.304
SCC_{400}	-0.171	-0.001^{ns}	0.713	-	0.293	0.176	0.313
AM	-0.083	0.030	0.255	0.275	-	0.158	0.873
CM	-0.053	0.010	0.156	0.166	0.155	-	0.557
AM+CM	-0.093	0.029	0.276	0.293	0.864	0.547	-

[1]SCC_{200} = cumulative n. lifetime test-day records with SCC ≥ 200,000 cells/mL; SCC_{400} = cumulative n. test-day records with SCC ≥ 400,000 cells/mL; AM = cumulative n. acute mastitis; CM = cumulative n. chronic mastitis; AM+CM = cumulative n. acute plus chronic mastitis.

[2] *ns* = not significant.

Supplemental Table S2. LSM of test-day lactose content and milk yield for the fixed effect of parity. Estimates with different letters within trait differ significantly ($P < 0.05$)**.**

Parity	Lactose, %	Milk yield, kg/d
1	4.818 [a]	21.707 [e]
2	4.752 [b]	24.986 [d]
3	4.728 [c]	26.781 [c]
4	4.714 [d]	27.363 [b]
5	4.704 [e]	27.664 [a]
6 to 10	4.688 [f]	27.340 [b]