Prepartum measurement of serum biomarkers reflecting osteoclastic and osteoblastic bone metabolism for predicting the risk of milk fever in dairy cows

Norio Yamagishi and Chiho Kawashima

SUPPLEMENTARY FILE

Supplementary Table S1. Ingredient and nutritional composition of the prepartum and postpartum rations during the study involving 58 Holstein cattle

Items	Prepartum ration[1]	Postpartum ration[2]
Ingredient (%DM)		
Grass silage	58.7	22.1
Corn silage	13.5	37.8
Grain[3]	0.2	1.9
Soy bean meal	0	3.8
Concentrate mix [4]	34.1	34.4
Vitamin and mineral [5]	2.0	0.1
Dry Matter (%)	31.5	39.3
Nutrition composition		
Crude Protein (%DM)	13.0	16.7
Ca (%DM)	0.86	0.53
P (%DM)	0.39	0.46
K (%DM)	1.85	1.70
Mg (%DM)	0.16	0.26
S (%DM)	0.48	0.25
Na (%DM)[6]	0.10	0.11
Cl (%DM)	0.44	0.49
DCAD (mEq/100g DM)	9.29	18.8

[1] From 28 d to 1 d prepartum.

[2] After calving to mid-lactation.

[3] Contained beat pulp, ground corn and rice bran

[4] Nutrient composition on a DM basis: 18% CP, 2.0% Crude Fat, 10% Crude Fiber, 0.50% Ca and 0.4% P; 74.0% TDN, including corn, corn gluten feed, corn distillers byproducts, grain soluble, bran, rapeseed and soy-bean cake; Doto Siryo Co., Ltd, Japan)

[5] Including vitamin E, Mepron, Calcium Carbonate, Calcium Sulfer and Vitamin mix

[6] A lack of Na intake was compensated by mineral salt block

Supplementary Table S2:

Supplementary Table S2. Actual sampling days before calving (mean and standard error of mean) of prepartum samples analyzed in each group or MF and non-MF cows

Groups/Cows	n	-3 wk	-2 wk	-1 wk
NP group	13	-20.6 $\pm$ 0.5	-13.7 $\pm$ 0.5	-6.5 $\pm$ 0.4
PP group	20	-20.5 $\pm$ 0.5	-13.3 $\pm$ 0.5	-6.6 $\pm$ 0.4
M2 group	13	-20.8 $\pm$ 0.4	-13.7 $\pm$ 0.4	-6.4 $\pm$ 0.4
M3 group	12	-20.6 $\pm$ 0.5	-13.5 $\pm$ 0.5	-6.5 $\pm$ 0.5
non-MF cows	17	-20.8 $\pm$ 0.4	-13.8 $\pm$ 0.4	-6.5 $\pm$ 0.4
MF cows	8	-21.0 $\pm$ 0.6	-12.9 $\pm$ 0.4	-5.8 $\pm$ 0.5

NP, nulliparous; PP, primiparous; M2, multiparous in 2nd lactation; M3, multiparous in 3rd−5th lactation; MF, milk fever.
There were no statistical difference in days at each timepoint among the groups (one way ANOVA) or between the cows (Student's t-test).