DIFFERENTIAL MANAGEMENT OF DAIRY COWS IN THE FIRST 21 DAYS POSTPARTUM: IMPACT ON MILK PRODUCTION, BODY CONDITION SCORE AND OVARIAN CYCLICITY

Mendina GR[1]*, Meikle A[3], Rivoir C[2], Mattiauda D[2], Chilibroste P[2], Adrien ML[1]

ICAR2020+2 Bologna, Italy

Facultad de Veterinaria Universidad de la República Uruguay

UNIVERSIDAD DE LA REPÚBLICA URUGUAY

Objectives

The aim of this work was to evaluate the immediate and residual effect of short-term differential management (first 21 days in milk, DIM) in primiparous (L1) and multiparous (L2) cows on milk production, body condition score (BCS) and the proportion of cows cycling.

Materials and methods

After calving, Holstein cows were randomly distributed in two treatments: **T0**, grazing + supplementation (total mixed ration, TMR) (L1: n=8, L2: n=10), or **T21**, confinement in compost barn with TMR ad libitum during the first 21 DIM (L1: n=7, L2 n=13). At 22 DIM the **T21** cows were managed as T0 cows. Milk production was measured daily and, BCS was evaluated weekly, from calving and up to 60 DIM. The proportion of cycling cows was determined by the presence of a corpus luteum at 21, 40, and 60 DIM by ovarian ultrasonography. Milk production was analysed using Mixed procedure, and the other variables were analysed using the Glimmix procedure SAS®.

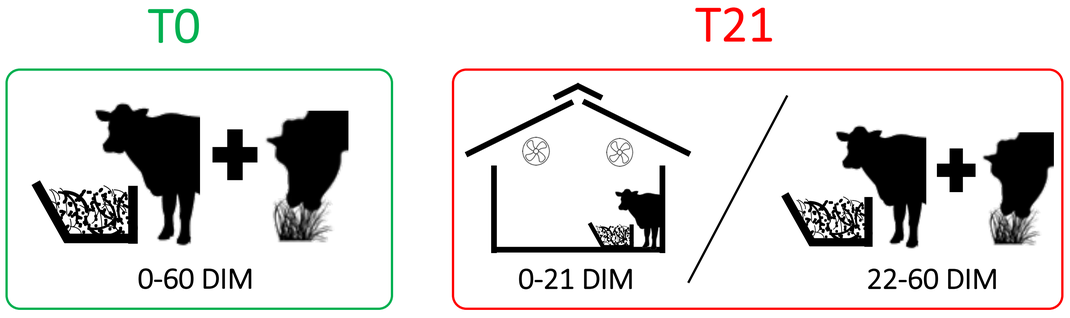

Figure 1. Representative scheme of treatments T0 and T21

Results

Milk production tended to be affected by treatment (P=0.07), with an average of 33.9±0.5 and 35.3±0.6 L/day for **T0** and **T21**, respectively, during the entire experimental period (60 DIM). However, it was affected by the interaction treatment*parity (P=0.04) as milk production of **T21-L2** cows was higher than **T0-L2** (41.1±0.6 vs 38.1±0.7 L/day, P<0.01). No differences were observed in L1 cows (T0-L1=29.8±0.8 vs T21-L1=29.6±0.9 L/day, P=0.9).

Table 1. Average milk production (L/day) for immediate (0-21 DIM) and residual (22-60 DIM) experimental period for primiparous (L1) and multiparous (L2) in treatments T0 and T21

	0-21 DIM			22-60 DIM		
	T0	**T21**	**P-value**	**T0**	**T21**	**P-value**
L1	27.8±1.3	29.1±1.5	NS	31.8±0.8	30.0±0.9	NS
L2	37.7±1.1	42.0±0.9	0.06	38.5±0.7	40.1±0.6	NS
Average	32.7±0.8	35.6±0.9	0.08	35.1±0.5	35.1±0.6	NS

Cows of **T21** presented a higher BCS compared to **T0** (3.1 vs 3.0±0.04, respectively; P=0.02), and a tendency treatment*parity was observed (P=0.07), where **T21-L2** cows had higher BCS than **T0-L2** cows (3.2 vs 3.0±0.05, respectively; P<0.01), while no differences were observed in L1 cows (3.0±0.06).

The proportion of cows cycling at 21 DIM, was affected by the interaction between treatment*parity (P=0.03), being lower in **T21-L2** than **T0-L2** (23 vs 70%, P<0.05), while the proportion in L1 cows did not reach statistical significance (**T21-L1**=57% vs **T0-L1**=25%, P=0.2). No other differences were found.

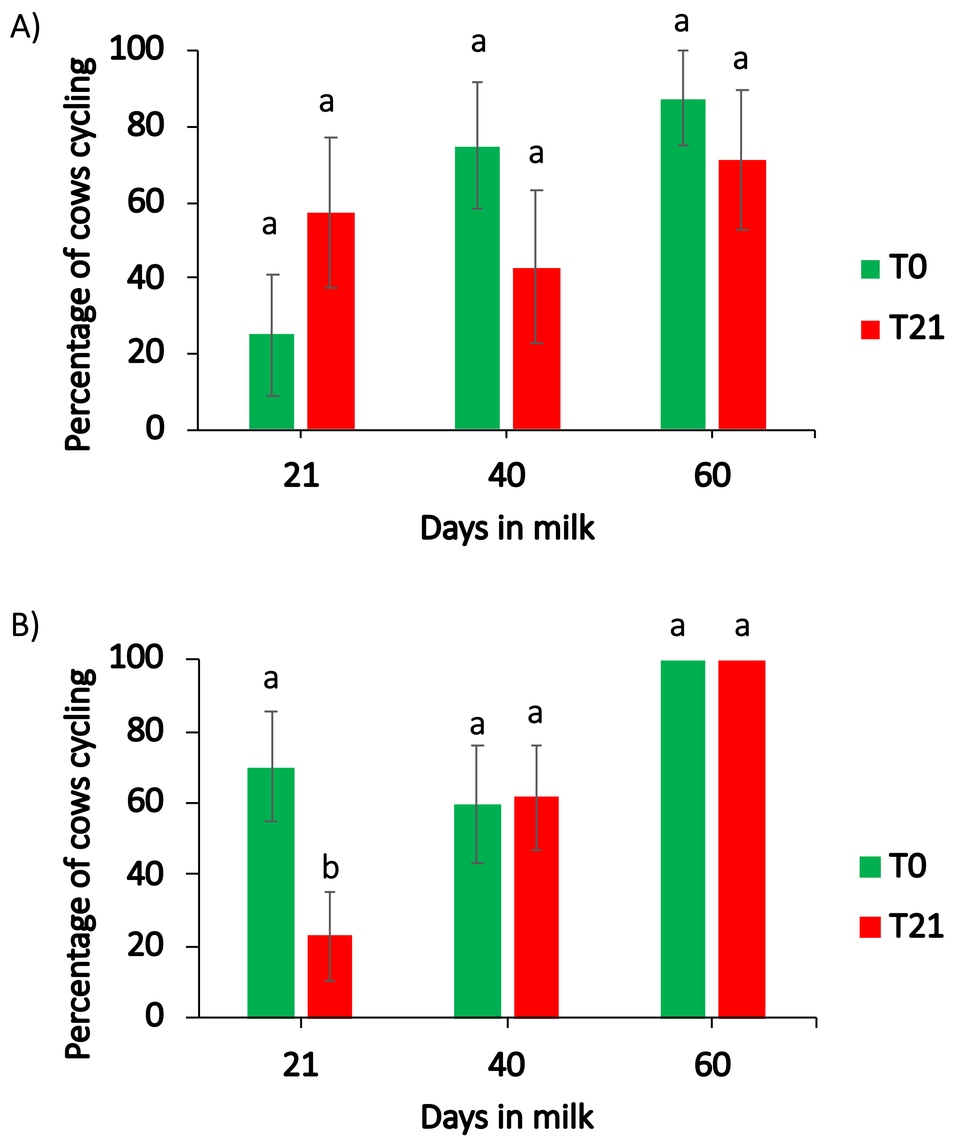

Figure 2. Percentage of primiparous (A) and multiparous cycling of T0 (green) and T21 (red) at 21, 40 and 60 days in milk. Different letters indicate significative differences (P<0,05) between treatments

Conclusion

The data suggest that the T21 management was depending on parity, as in multiparous cows favoured the nutrient partitioning towards milk production in the first 21 DIM affecting negatively the reproductive axis (delaying the first postpartum ovulation), while this was not the case in primiparous cows probably explained by the lower decoupling of the somatotropic axis.

[1]Facultad de Veterinaria, Ruta 3 km 363, Paysandú, Uruguay.
[2]Facultad de Agronomía, Ruta 3 km 363, Paysandú, Uruguay.
[3]Facultad de Veterinaria, Ruta 8 km 18, Montevideo, Uruguay.
*g.rmendina@gmail.com

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FMV_1_2021_1_166318

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