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Once-daily milking does not change milk fatty acid profile in cows in equilibrated energy balance

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Once-daily milking (ODM)

- Mainly used and studied in N. Z.
- Potential interest in emerging context
  (quotas, decreasing milk price, life style …)
- ↘ milk yield, ↗ fat content,
  ↗ energy balance (review Rémond & Pomiès, 2005)

? Effect on milk fatty acid (FA) composition ?

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Materials and Methods

- 5 groups of 11 cows (5 Ho + 6 Mo)
- 6 weeks with ODM (or Twice-DM)
- *Ad libitum* grass silage or hay

Concentrates	Normal	Low	LowLow
Twice-DM	INRA Recommandations for TDM	INRA Recommandations – 3kg / d	
Once-DM	INRA Recommandations for TDM	INRA Recommandations – 3kg / d	INRA Recommandations – 6kg / d

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Results: milk yield, energy balance and plasma NEFA*

Milking frequency :	TDM		ODM		
Concentrate level :	N	L(-3)	N	L(-3)	LL(-6)
Milk energy *(4% FCM kg/d)*	23^{a}	21^{b}	18^{c}	17^{c}	14^{d}
Energy balance *(MJ/d)*	+1^{b}	-3^{b}	+13^{a}	+9^{a}	-1^{b}
Plasma NEFA *(µM)*	159^{b}	221^{a}	120^{bc}	100^{c}	122^{bc}

** For detailed results, see Rémond et al, 2005, Renc. Rech. Rum., 12: 229-232*

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Results: milk FA composition

(g/100g FA)*

Milking frequency :	TDM		ODM		
Concentrate level :	N	L(-3)	N	L(-3)	LL(-6)
C10-C14	21.4	19.4 ↘	22.3	21.2	21.2
C16:0	31.2	31.0	30.9	32.9	32.2
C18:1 *cis*9	15.8	18.0 ↗	15.7	14.9	15.5
C18:2 n-6	1.8	1.5	1.6	1.3	1.1
CLA c9,t11	0.5	0.5	0.5	0.5	0.5

** Measured (Loor et al, 2005) on pooled milk from each group (wk 6)*

Conclusions

- ODM *per se* does not change milk FA profile

- with low concentrate diets :

  TDM cows mobilize body fat,
  which ↗ milk oleic acid, and ↘ C10-C14

  ODM cows yield less milk,
  and do not mobilize body fat

Thank you for your attention

Now, I am happy with ODM !