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Christine Julien, Laurine Desmaris, Patrice Dubois, Michel Vagneur,  
Jean-Pierre Marden, Laurent Alvès de Oliveira

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# High dosage of live yeast for transition dairy cows: nutrition and health benefits

C. Julien<sup>1</sup>, L Desmaris<sup>2</sup>, P. Dubois<sup>2</sup>, M. Vagneur<sup>3</sup>, JP. Marden<sup>1</sup>, L. Alves de Oliveira<sup>4</sup>

<sup>1</sup> Phileo Lesaffre Animal Care, 59700 Marcq-en-Baroeul, France. <sup>2</sup> Service Promotion Elevage Laitier (Rhône Conseil Elevage) 18, avenue des Monts d'or 69890 La Tour de Salvagny

<sup>3</sup> 10 rue de Boyse 39300 Champagnole. <sup>4</sup> Vetagro-sup Campus Vétérinaire de Lyon, 69280 Marcy-l'Étoile

## CONTEXT AND OBJECTIVE

« Increased understanding of the biology of the transition period should decrease health problems and increase profitability of dairy cows » Drackley, 1999

Transition dairy cows (-21d to +21d relative to calving, Drackley, 1999): a major challenge for controlling the animal's health and optimizing its zootechnical performance.

**The objective is to study the effect of the use of live yeasts distributed peri-partum on milk performance at the beginning of lactation and on the prevention of subclinical ketosis.**

## MATERIAL ET METHODS

- Commercial dairy farm (GAEC des Crêtes, Yzeron, 69, France)
- Two groups of 23 cows were constituted: Control vs. Live Yeast
- Yeast cows received 10 g/d of live yeast (*Saccharomyces cerevisiae* Sc47 CNCM I-4407, Phileo Lesaffre Animal Care, France) during close-up phase and 20 g/d/cow for 21 d postpartum.
- Individual milk yield was recorded daily whereas fat and protein contents were evaluated monthly.
- Blood BHB content was evaluated +8 and +22 d after calving (Free Style Optium, Abbott).
- Body condition score (BCS) was evaluated -22, +8 and +22 days.
- Ruminal filling (RFS) was also evaluated on the basis of a scoring scale (1 to 5).
- Means comparison was done by student or Chi<sup>2</sup> test with significant difference reported for  $P \leq 0.05$  and trend discussed for  $0.05 < P \leq 0.15$ .

## RESULTS AND DISCUSSION

- The cows calved on average on 01/21/2016 with a mean lactation rank of 2.11 with no difference between the Control and Live Yeast groups ( $P > 0.9$ ).
- Averaged milk yield during the first 3 months of lactation (Figure 1) is numerically higher for Live Yeast group ( $34.6 \pm 7.8$  kg/d) than for Control group ( $32.6 \pm 10.2$  kg/d).
- The technological quality of the milk (fat and protein contents) is not affected by the treatment during the first 3 months of lactation, which eliminates any dilution effect of milk by dietary addition of live yeast.
- The BHB content of the blood at +22 days was significantly lower ( $P = 0.024$ ) for the cows in Live Yeast group: 0.79 mmol/L vs. 1.41 mmol/L (Figure 2).
- Blood glucose content is not affected by treatment at +8 and +22 postpartum days: 46.9 mg/100 mL, on average.
- The RFS and BCS were significantly higher ( $P < 0.01$ ) for cows of Live Yeast group than cows of Control group 8 days postpartum: respectively 2.81 vs. 2.10 and 2.94 vs. 2.42 (Figure 3).
- First artificial insemination (AI1) for cows in the Control and Live Yeast groups were at 120 days of lactation on average, whatever the group was ( $P > 0.9$ ). Peripartum supplementation with live yeast tends to improve reproductive performance, particularly the success rate at IA1 (Table 1).

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for more details



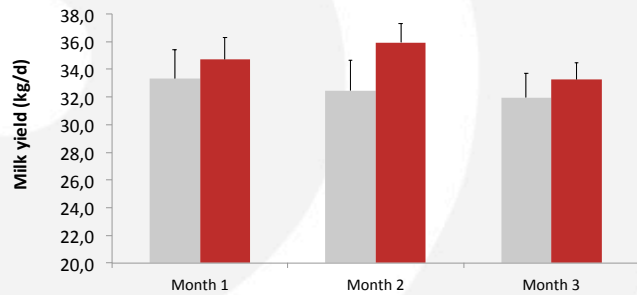
## CONCLUSIONS

- ❑ Dietary supplementation with a high dose of live yeast for transition cows induces a numerical increase in milk production at the beginning of lactation without any dilution.
- ❑ High dosage of live yeast in peri-parturient dairy cows goes beyond the nutritional impact. The circulating BHB content is reduced and BCS is increased implying less lipomobilization in the first weeks of lactation, conferring prevention from subclinical ketosis and better fertility.

# Results



**Figure 1. Milk yield over the first 3 months of lactation (error bar corresponds to standard deviation)**



Control group Live yeast group



**Figure 2. Blood BHB content 22d post-partum on average (error bar corresponds to standard deviation)**



**Tableau 1. Rate of success at first insemination for cows returned to breeding**

Control	Live Yeast	
27.8%	50.0%	$P = 0.13$

**Figure 3. Averaged values of BCS and RFS 8d post-partum (error bar corresponds to standard deviation)**

