

# RUMINANT'S PERIPARTUM PERIOD

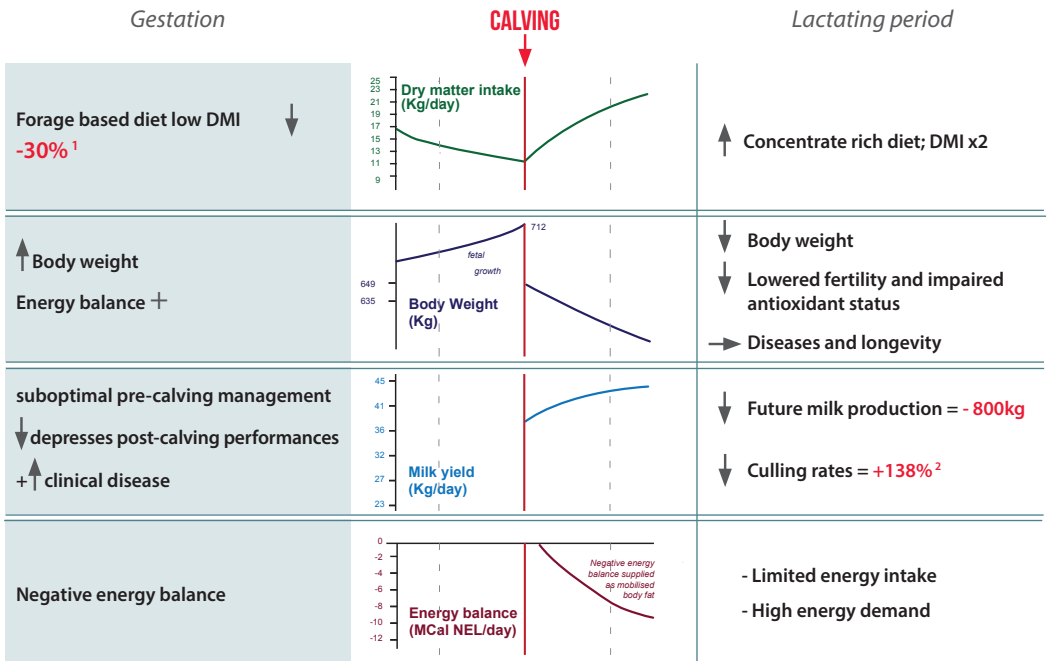
## CONTEXT

The last three weeks before parturition are key to successfully manage this period. In early lactation, dam must adapt to tremendous dietary and physiological challenges including:

- > **Negative energy balance:** As the amount of rapidly fermentable sugars increases, rumen health might be challenged by acidosis. The scenario often results in poor feed intake and deficient energy supply while demand for milk production and body weight is high.
- > **Inflammation patterns and oxidative stress:** Impaired rumen function adds to metabolic changes, generates inflammation patterns and increases oxidative stress. This can translate into lower immunity and higher occurrence of diseases, poor colostrum quality, high somatic cell count and lower fertility rates.



SCAN TO LEARN MORE !



## ○ WHY IS RUMEN EFFICIENCY KEY DURING TRANSITION ?

During the peripartum period, dietary changes can negatively affect rumen efficiency, impacting performance and profitability. The rumen drives feed digestion and energy supply.

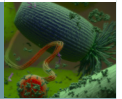
## ○ LEVUCELL SC RUMEN SPECIFIC LIVE YEAST EXCELS FROM THE DRY-OFF PERIOD

- > When fed continuously, LEVUCELL SC has been shown to improve feed efficiency. It improves rumen pH with less risk of acidosis and increases fiber digestion.
- > Pre-partum supplementation (30 days before calving), LEVUCELL SC shows a positive effect on highly challenged rumen microbiota during transition. The beneficial effects have been proven in cows and ewes. LEVUCELL SC alleviates negative energy balance, helping extract more energy from the diet.

### NEW UNDERSTANDINGS OF RUMEN DYNAMICS



LEVUCELL SC EFFECTS ON RUMEN MICROBIOTA AND FUNCTION AROUND PARTURITION



LEVUCELL SC promotes the abundance of fibrolytic populations in the rumen <sup>3,4</sup>



LEVUCELL SC reinforces rumen epithelium (thanks to higher tight junction gene expression before the challenge) <sup>3</sup>



At rumen level, LEVUCELL SC increases resistance to lipopolysaccharides (LPS) challenge leading to less inflammation after calving <sup>3</sup>



RUMEN FUNCTION ENHANCEMENT



LEVUCELL SC supports the immunity transfer from the ewe to the lamb through an increased colostrum quality (IgG). <sup>5</sup>

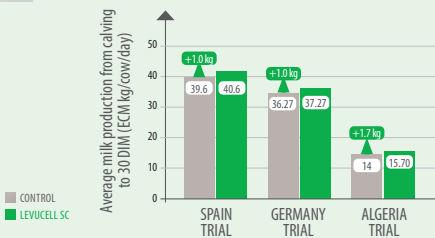
## ○ LEVUCELL SC POSITIVE OUTCOMES



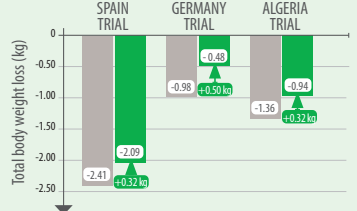
➔ DRY MATTER INTAKE (+2.5kg/cow/day<sup>3</sup>)



➔ ENERGY CORRECTED MILK (+1.2kg/cow/day<sup>6</sup>)



➔ BODY WEIGHT LOSS AFTER CALVING (+0.4kg/day<sup>6</sup>)



➔ POSITIVE FERTILITY EFFECTS<sup>7</sup>

## ○ WHY IS ANTIOXIDANT STATUS KEY FOR THE DAM?

Antioxidant status can be deficient around calving. Related enzyme activity can also be low (superoxide dismutase, SOD<sup>®</sup>) and immune function can be impaired. The primary consequences are high somatic cell count, increased mastitis occurrence and a high risk of retained placenta and metritis, which can lead to lower fertility.

## ○ ANTIOXIDANT SOLUTIONS TO STRENGTHEN ANTIOXIDANT STATUS



> **ALKOSEL SE yeast:** high selenium bioavailability in cow tissues and maternal transfer through colostrum and milk – as compared to inorganic selenium sources.



> **MELOFEED:** natural source of superoxide dismutase, a primary antioxidant of body tissues synergistic with selenium and vitamin E.

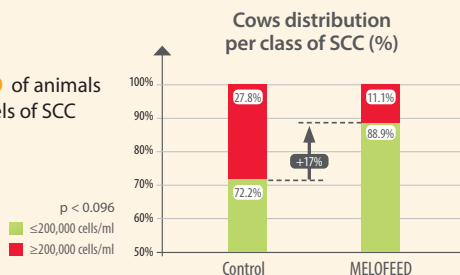
## ○ ALKOSEL AND MELOFEED POSITIVE OUTCOMES

### ➤ MILK QUALITY<sup>9,10</sup>



☀️ **-45%** of somatic cell count (SCC) ( $p < 0.05$ )

☀️ **+17%** of animals with low levels of SCC



### ➤ ANTIOXIDANT STATUS<sup>9</sup>



☀️ Antioxidant supplementation improved total antioxidant capacity **+15%** around parturition, thanks to improved maintenance of total antioxidant status.

### ➤ SELENIUM TRANSFER FROM DAM TO CALF<sup>11</sup>

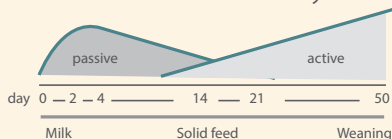


#### Calves blood serum Se concentration ( $\mu\text{g/ml}$ )

	Control	ALKOSEL
Immediately after birth	0.026	0.040
At 8 <sup>th</sup> day of life	0.027	0.047

$p < 0.05$

#### Good health & immunity



## CONCLUSION



RUMEN MICROBIOTA  
BALANCE



EATING  
BEHAVIOR



BODY CONDITION  
SCORE



INFLAMMATION  
BIOMARKERS



MILK  
YIELD



COLOSTRUM  
BIOACTIVES MOLECULES

### RUMEN SPECIFIC YEAST

#### What is LEVUCCELL SC doing?<sup>3,4,5,6,7</sup>

- Helps stabilize rumen microbiota with more fibrolytics and higher rumen pH
- Reduces rumen epithelium inflammation
- Increases feed intake
- Improves feed efficiency
- Helps limit negative energy balance
- Improves milk yield

### ANTIOXIDANTS

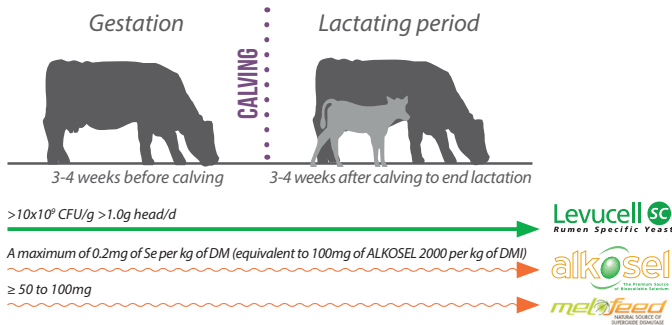
#### What is ALKOSEL doing?<sup>10,11,12</sup>

- Provides highly bioavailable selenium
- Helps maintain the antioxidant status of animals
- Supports the transfer of high bioavailable selenium from dam to calf

#### What is MELOFEED doing?<sup>8,9</sup>

- Helps maintain the antioxidant status of animals
- Alone or in combination with organic trace minerals, improves milk quality by reducing somatic cell counts
- Helps improve reproductive performance and quality of offspring

## LALLEMAND PROGRAM FOR A SAFE TRANSITION



1. Hayirli et al. 2002. *J Dairy Sci*, 86(5):1771-1779, [https://doi.org/10.3168/jds.S0022-0302\(03\)73762-x](https://doi.org/10.3168/jds.S0022-0302(03)73762-x) 2. Carvalho et al, 2019. *J Dairy Sci*, 102(12): 11701-11717. <https://doi.org/10.3168/jds.2019-17025> 3. Bach et al. 2019. *J Dairy Sci*, 102(7):6180-6198, <https://doi.org/10.3168/jds.2018-16105> & Bach et al. 2018. *J Dairy S*, 101(3):2631-2640, <https://doi.org/10.3168/jds.2017-13212> (for more information, ask for trial summary IRTA, Spain, 2019) 4. Dunière et al., 2021. *J Fungi*, 7, 6:447, doi: <https://doi.org/10.3390/jof7060447> & also presented at the 8th Beneficial Microbes Conference 2021 5. Dunière et al., 2021. *BioRxiv*, <https://doi.org/10.1101/2021.10.14.464371>, presented at INRAE ROWETT Symposium 2021 (for more information, ask for trial summary INRAE, France, 2020) 6. Average results from trials. For more information, ask for trial summaries: -Bach, IRTA, Spain, 2012 -F.J. and Ehle T., University of Weihenstephan, Germany 2002 - Temim, Veterinary college of Alger, Algeria 2009 7. F.J. and Ehle T., University of Weihenstephan, Germany 2002 8. Adela et al. 2006. *Bulletin USAMV-CN*, 63/2006 (130-135), ISSN 1454-2382 9. Commercial farm, Germany, 2021. For more information, ask for the trial summary 10. Malbe et al. 1995. *Zentralbl Veterinarmed A*, Apr;42(2):111-21. <https://doi.org/10.1111/j.1439-0442.1995.tb00362.x> 11. National Research Institute of Animal Production, Poland, 2017. For more information, ask for the trial summary 12. Weiss and Hogan. 2005. *J Dairy Sci*. 88:4366-4374.

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