

# USE OF A NEW GENERATION RUMEN-PROTECTED CHOLINE FOR IMPROVED TRANSITION HEALTH AND PERFORMANCE

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## Introduction

- During the transition period, many metabolic diseases are linked to the negative energy balance and an impaired liver health. Rumen-protected choline (RPC) has been shown to support cows in this critical period.
- A recent meta-analysis showed using RPC in the transition period increased ECM production on average with 1.6 kg/d, regardless the production level<sup>3</sup>.

## Objectives

- CholiGEM™ (Kemin Europe, Belgium) is a new generation RPC with highest choline concentration and bioavailability<sup>4</sup>.
- University trials confirmed the positive effect of CholiGEM™ on ECM production in cows (+1.7 kg/d<sup>5</sup> and +2.3 kg/d<sup>6</sup>), but also reproduction (56.8% vs. 65.6% of cows pregnant at 150 DIM<sup>6</sup>).
- Goal of this field study was to verify these effects under typical European farm conditions.

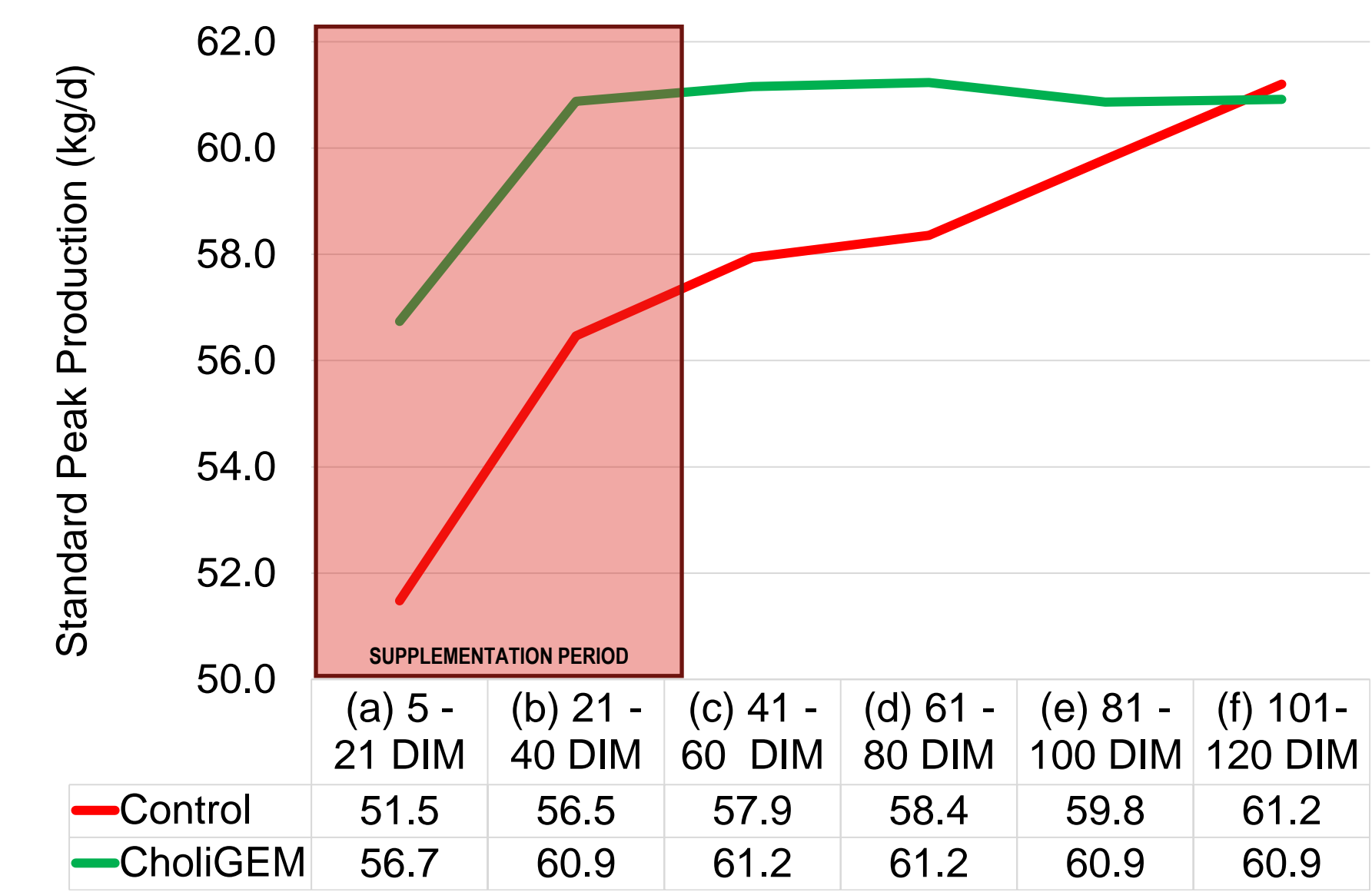
## Material & Methods

- Two field trials were conducted on 2 typical dairy farms in Belgium.
- In Farm 1 (n = 150, OFF-ON), 30 g/d CholiGEM™ was fed 14 days pre-partum until 40 days post-partum in pelleted feed. Milk production, fertility and health were monitored.
- In Farm 2 (n = 75, randomized block design), 30 g/d CholiGEM™ was fed from calving until 60 days post-partum. Only milk production was monitored.

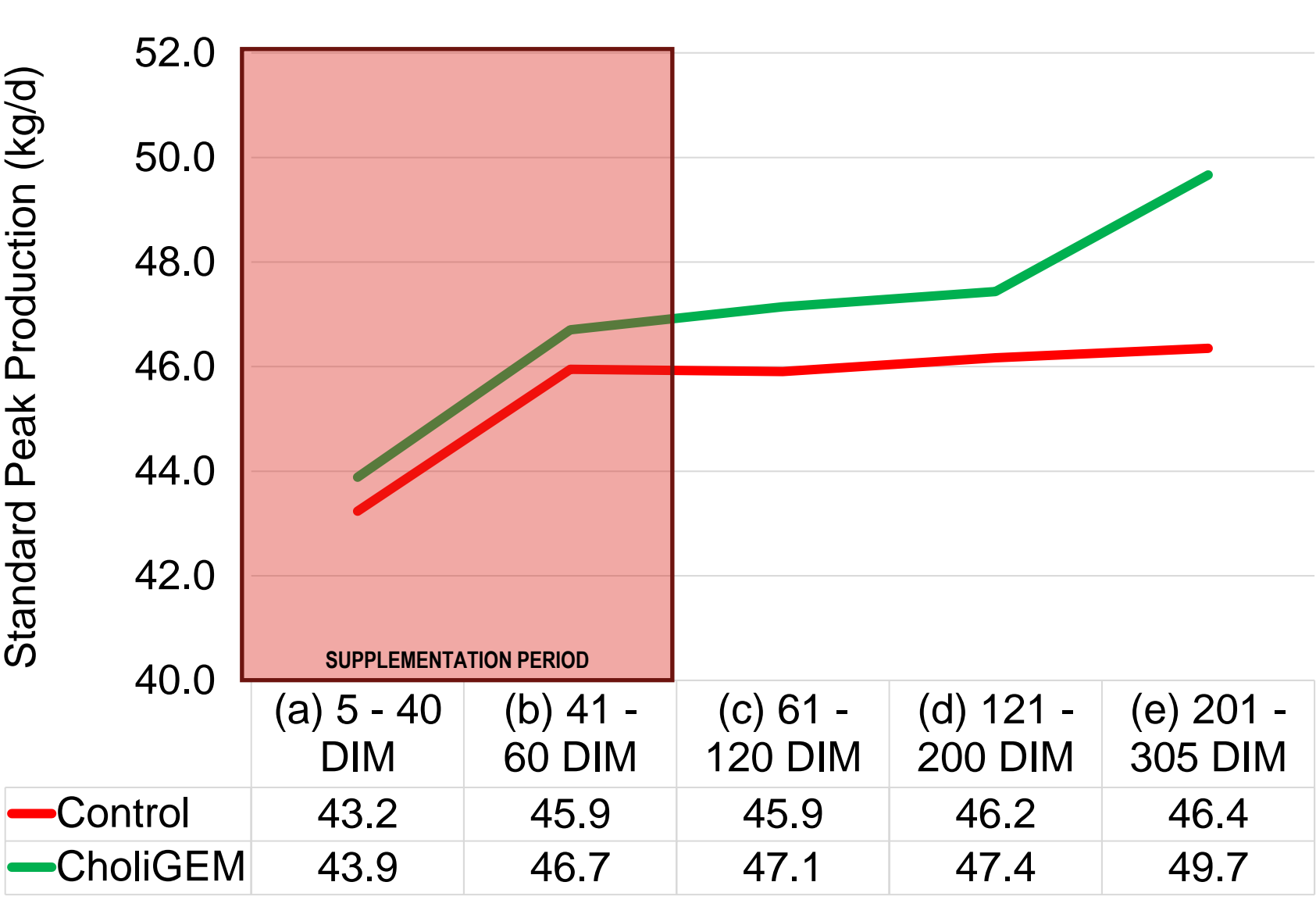
## Results

The supplementation of CholiGEM™ improved transition health and performance in both farms:

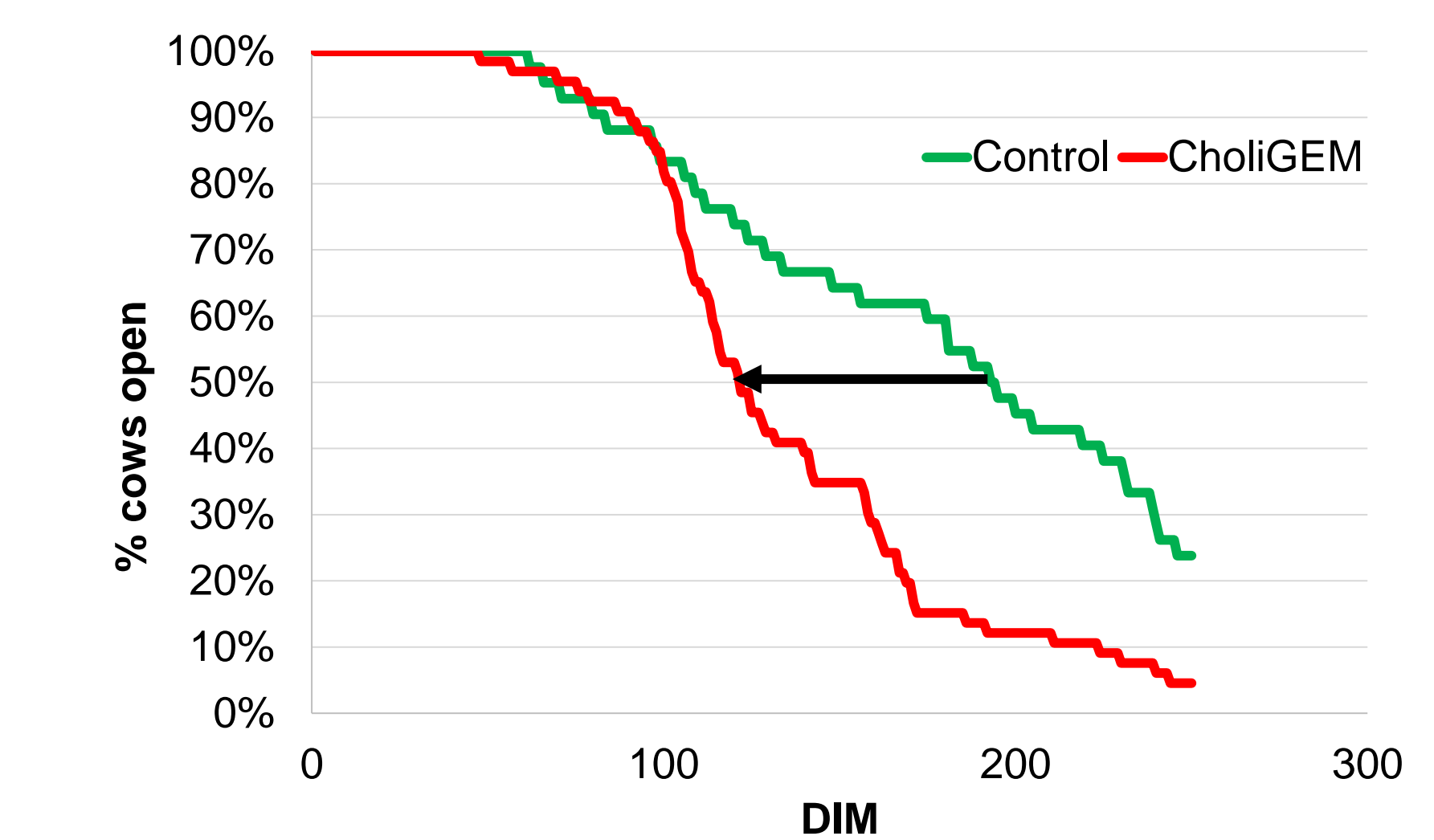
- In Farm 1, cows produced 2.3 kg/d ECM more for the first 120 DIM. Standard Peak Production (SPP) increased with 2.7 kg over that period.
- In Farm 2, cows produced 1.4 kg/d ECM more for the first 180 DIM, while SPP increased with 0.9 kg over that period.
- Both farms showed a long-term carry-over effect after supplementation was stopped.
- In Farm 1, cows receiving CholiGEM™ took 55 days less to conceive and required 24% fewer services per conception. Conception at first service increased from 31% to 38%.
- Regarding ketosis in Farm 1, no clinical cases (BHBA >2 mmol/L) were detected during the CholiGEM™ supplementation, while 13% of control cows showed clinical ketosis.



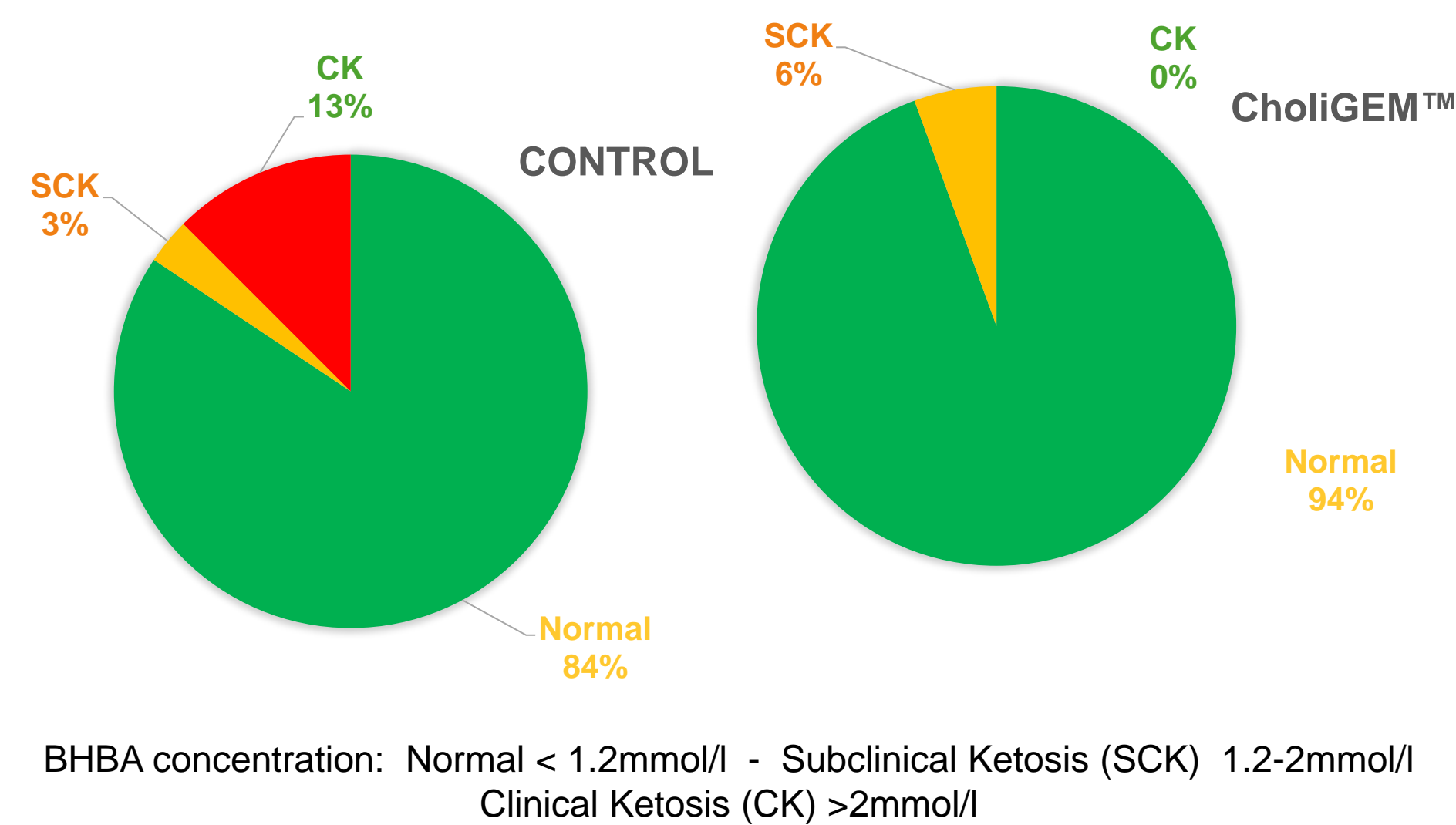
Graph 1: Standard Peak Production in Control group vs. CholiGEM™ group in Farm 1: an average increase of 2.7 kg/d over first 120 DIM.



Graph 2: Standard Peak Production in Control group vs. CholiGEM™ group in Farm 2: an average increase of 0.9 kg/d over first 180 DIM.



Graph 3: Survival plot for cows in Control group vs. CholiGEM™ group in Farm 1: median for days open decreased from 192 to 115 days.



Graph 4: Proportion of cows having no ketosis (BHBA <1.2 mmol/L), subclinical ketosis (BHBA 1.2-2 mmol/L) or clinical ketosis (BHBA >2 mmol/L) in the Control group vs. CholiGEM™ group in Farm 1.

## Conclusion

A strategy using a new generation rumen-protected choline like CholiGEM™ will support cows through the transition period to boost milk production beyond the supplementation window, enhance liver function, and drive lasting improvements in reproductive performance — delivering measurable, long-term gains for herd health and productivity.

## References

- <sup>3</sup>Arshad, U., Zenobi, M. G., Staples, C. R., & Santos, J. E. P. (2020). Meta-analysis of the effects of supplemental rumen-protected choline during the transition period on performance and health of parous dairy cows. *Journal of dairy science*, 103(1), 282-300.
- <sup>4</sup>Kihal, A., Rodriguez-Prado, M., Marques, C., & Calsamiglia, S. (2022, January). Bioavailability of 2 different rumen-protected choline products for dairy cattle measured with the area under the curve method. *Journal of dairy science*, (Vol. 105, pp. 403-403).
- <sup>5</sup> Marques, T. C., Monteiro, H. F., Melo, D. B., Coelho Jr, W. M., Salman, S., Marques, L. R. & Lima, F. S. (2024). Effect of rumen-protected choline on dairy cow metabolism, immunity, lactation performance, and vaginal discharge microbiome. *Journal of Dairy Science*, 107(5), 2864-2882.
- <sup>6</sup>Wollentarski, M. J., Marques, T. C., Monteiro, H. F., Melo, D. B., Coelho Jr, W. M., Menezes, C. S., Ueda, A., Raffrenato, E., Dubey, D.K., & Lima, F. S. (2025). Effects of feeding rumen-protected choline 21 days prepartum to 100 days postpartum on lactation, health, reproduction, and culling of Holstein dairy cows. *Abstract submitted for ADSA meeting 2025*.