



## CholiPEARL® Reduces Inclusion Rates, Lowers Feed Costs and Maintains Efficacy

### Introduction

Dairy cattle transitioning to lactation experience a negative energy balance. Negative energy balance is considered normal for cows starting lactation because a cow cannot eat enough dry matter to meet energy demands. The lack of dry matter causes body reserves to mobilize, resulting in excess levels of non-esterified fatty acids (NEFA). NEFA can be rebuilt into triglycerides and the storage of triglycerides results in fatty liver; fatty liver causes a cow to produce less milk. Excessive triglycerides in the liver also result in less fat being oxidized for energy which causes an elevation in the production of ketone bodies.

Currently, producers are feeding ReaShure® Choline (Balchem Corporation, New Hampton, NY) at a recommended feeding rate of 56 grams/head/day. Choline is a nutrient required for fat absorption, mobilization and metabolism.<sup>1,2</sup> Research indicates providing supplemental choline may reduce the chance of ketosis.<sup>3,4</sup>

This demonstration evaluated feeding CholiPEARL® (Kemin Industries, Des Moines, IA) at approximately half the feeding rate of ReaShure and the impact CholiPEARL may have on clinical ketosis levels.

### Materials & Methods

This demonstration was conducted at a Wisconsin commercial dairy. The herd consisted of 2,300 lactating Holsteins in a free stall facility milked three times daily. The Holsteins were fed a rumen protected choline from three weeks pre-fresh until calving. The time periods and feeding rate for this demonstration were:

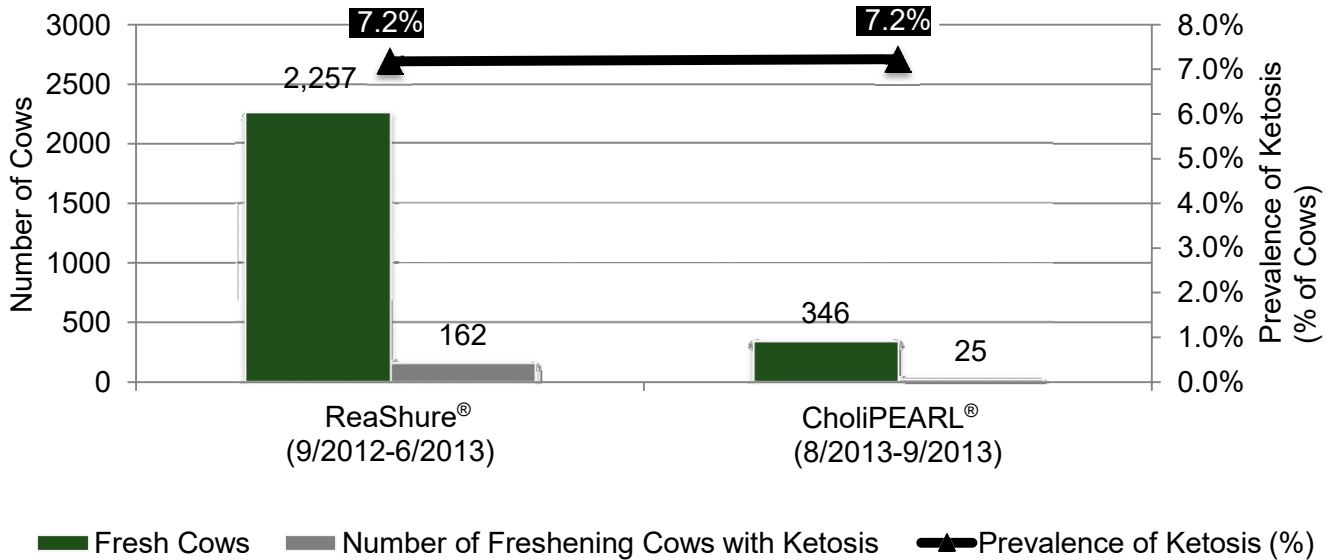
- ReaShure at 56 grams/head/day, 9/12/2012 through 6/19/2013 (baseline period)
- CholiPEARL at 28 grams/head/day, 6/20/2013 through 9/18/2013 (evaluation period)

During the baseline and evaluation periods, tests were conducted for the incidence of ketosis. The testing was conducted using  $\beta$ -hydroxybutyrate (BHBA) test strips, Precision Xtra® Meter (Abbott Laboratories, Abbott Park, IL) and blood samples in cow side tests. A cow was considered positive for ketosis if BHBA levels were greater than 1.3 mg/dl. Cows were tested at least once, the first time at 3-7 days in milk (DIM). If positive, the cow was again tested at 10-16 DIM. Positive animals were counted as one incident of ketosis even if testing positive on both test days.

### Results

A comparison was made between the prevalence for ketosis in cows freshened during the baseline period in which ReaShure was fed to the evaluation period in which CholiPEARL was fed at half the feeding rate of ReaShure (Figure 1). Cows freshened during July 2013 were not included in the final assessment; it was not possible to separate the cows receiving a combination of ReaShure and CholiPEARL from those receiving only CholiPEARL.

**Figure 1.** Comparison of ketosis prevalence in cows fed CholiPEARL at approximately half the feeding rate of ReaShure.



During the baseline period in which ReaShure was fed, 2,257 cows freshened. Of these cows, 162 or 7.2% tested positive for ketosis. During the CholiPEARL evaluation period, 346 cows freshened. Of these cows, 25 or 7.2% tested positive for ketosis. Due to the results of this demonstration, CholiPEARL was kept in the pre-fresh diets.

### Conclusion

Feeding ReaShure at a rate of 56 grams/head/day resulted in a 7.2% prevalence of ketosis and costs approximately \$0.30/head/day. Feeding CholiPEARL at a rate of 28 grams/head/day resulted in an equal prevalence of ketosis as ReaShure and saves the producer approximately \$0.15/head/day. Based on this demonstration and maintaining the herd's performance, CholiPEARL may save the producer approximately \$7,245 (\$0.15/head/day x 21 day feeding period x 2,300 cows) a year.

### References

1. National Research Council. 2001. Nutrient Requirements of Dairy Cattle. 7th rev. ed. Natl. Acad. Sci. Washington D.C.
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4. Fronk, T.J., Schultz, L. H. & Hardie, A. R. (1980) Effects of dry period over conditioning on subsequent metabolic disorders and performance of dairy cows. *Dairy Sci.* 63: 1080-1090.
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