

“ **SCIENTISTS  
SAY**

Choline is  
a Required  
Nutrient for  
Supporting  
**Calf Health &  
Performance**

“ *Calves born to choline-supplemented  
dams have the added benefit of  
improved growth and health.*

**-Dr. Heather White,**  
*Tri-State Dairy Nutrition Conference, 2023*



# ReaShure<sup>®</sup>-XC

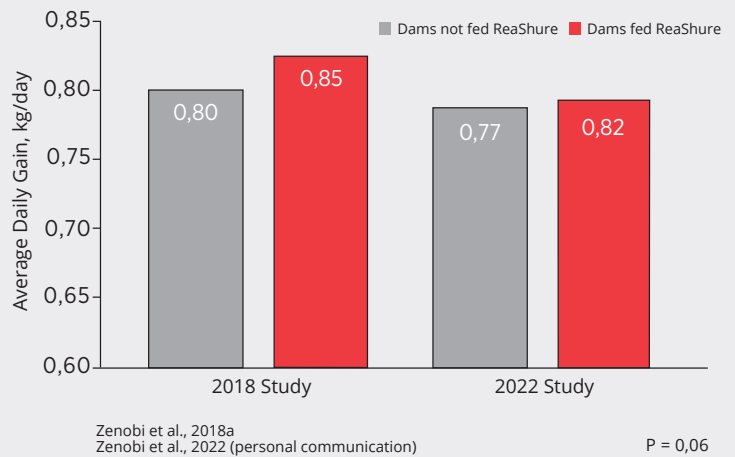
Precision Release Choline

New science demonstrates choline is a required nutrient that can help improve calf health and growth. New research from the University of Florida and the University of Wisconsin shows that calves from dams supplemented with ReaShure grew faster and were healthier than those from cows that did not receive ReaShure.

- 0,04 kg/d increase in average daily gain (0 – 350 d) from calves born to dams fed ReaShure during late gestation – Zenobi et al., 2018a
- 0,05 kg/d increase in average daily gain (0 – 350 d) from calves born to dams fed ReaShure during late gestation – Zenobi et al., 2022 (personal communication)

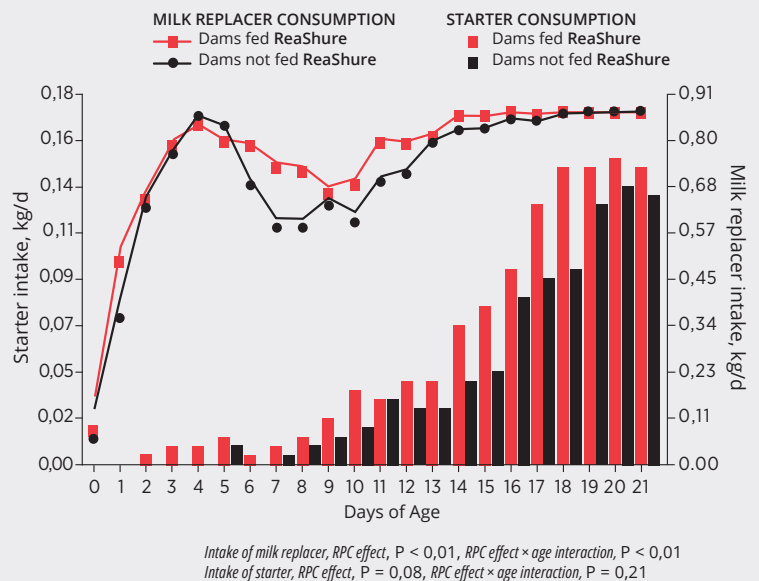
## CALF GROWTH

Figure 1 Summary of average daily gains for Holstein heifers through 350 days from two independent studies



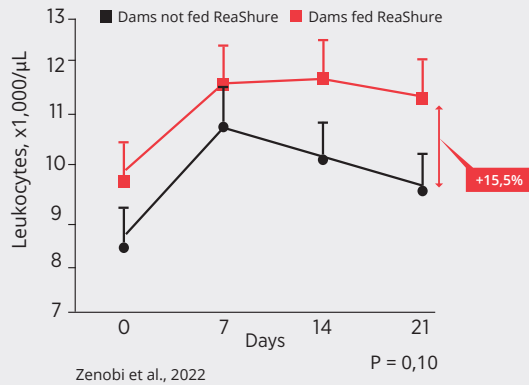
- More milk replacer consumed in first 21 days by calves from dams fed ReaShure (RPC effect,  $P < 0,01$ ; RPC effect  $\times$  age interaction,  $P < 0,01$ )
- More starter feed consumed in first 21 days by calves from dams fed ReaShure (RPC effect,  $P = 0,08$ ; RPC effect  $\times$  age interaction,  $P = 0,21$ )

Figure 2 Late gestation exposure to choline biomolecules increased DMI of milk replacer and starter during the first 21 d of age in heifers



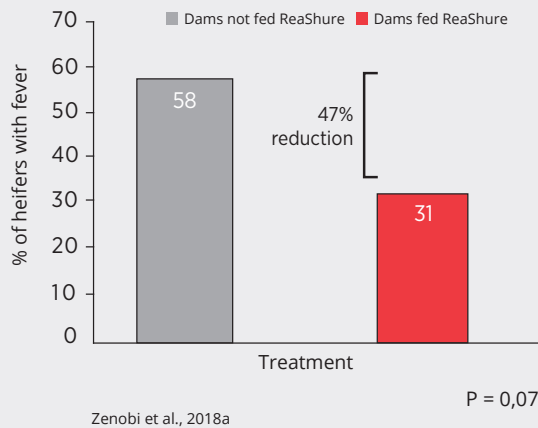
## CALF HEALTH

Figure 3 Heifers born from ReaShure-supplemented dams had increased concentrations of white blood cells (*In Utero* Effect)



- White blood cells tended to be higher (15.5%) in calves from dams fed ReaShure, which is indicative of an elevated immune response

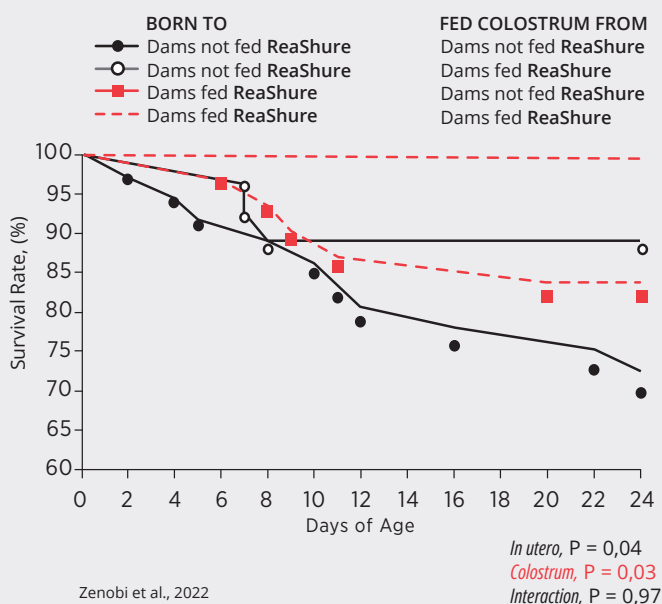
Figure 4 Fever incidence during the first 21 days of life



- Incidence of fever in the first 21 days of life tended to be less (47%) in calves from dams fed ReaShure

## CALF SURVIVAL

Figure 5 Survival curves by treatment



- Calves experienced significant health challenges and mortality during the trial period
- Calves from cows fed ReaShure and that consumed colostrum from cows fed ReaShure had no mortality
- Calves from cows NOT fed ReaShure and that consumed colostrum from cows NOT fed ReaShure had a 30% death loss
- The other two treatments were in the middle with 16% and 18% mortality

Choline is recognized by scientists as a required nutrient that can contribute to fetal programming and gene expression. Research continues to demonstrate the far-reaching benefits of supplementing choline during the short, but crucial transition period. Supplementing the transition cow with ReaShure can be a sound investment for the future of virtually every dairy.\*

Download the complete research summary featuring three studies by snapping the QR code at right.



# “SCIENTISTS SAY

## Milk Production

Zenobi et al., 2018a  
Arshad et al., 2020  
Bollatti et al., 2020a  
Holdorf et al., 2023  
Swartz et al., 2023

## Healthy Transition

Lima et al., 2012  
Zenobi et al., 2018b  
Arshad et al., 2020  
Arshad et al., 2022  
Poindexter et al., 2023

## Choline is a Required Nutrient for Essentially Every Cow

Zenobi et al., 2018a  
Zenobi et al., 2018b  
Arshad et al., 2020  
Bollatti et al., 2020a  
Bollatti et al., 2020b  
Potts et al., 2020  
Swartz et al., 2022  
Holdorf et al., 2023  
Swartz et al., 2023  
Poindexter et al., 2023

## Calf Health & Growth

Zenobi et al., 2018a  
Zenobi et al., 2022  
Holdorf et al., 2023

## Improved Colostrum Quantity

Zenobi et al. 2018a  
Bollatti et al. 2020b  
Swartz et al. 2022  
Holdorf et al. 2023



**ReaShure®-XC**  
Precision Release Choline

This new science changes everything we thought we knew about choline's impact on the cow and her calf. ReaShure® *Precision Release Choline* is the original and most researched rumen-protected choline source, so you can be sure you're getting the benefits you expect. Trust ReaShure and Balchem to impact her for generations.

**Visit [Balchem.com/ReaShure-XC](https://Balchem.com/ReaShure-XC) to learn more.**



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