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
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.

**Calf Growth**

- 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)

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

<table>
<thead>
<tr>
<th>Year</th>
<th>Average Daily Gain, kg/day</th>
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<tbody>
<tr>
<td>2018 Study</td>
<td>0.80</td>
</tr>
<tr>
<td>2022 Study</td>
<td>0.85</td>
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**Figure 2** Late gestation exposure to choline biomolecules increased DMI of milk replacer and starter during the first 21 d of age in heifers

- More milk replacer consumed in first 21 days by calves from dams fed ReaShure (RPC effect, P < 0.01; RPC effect × 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 × age interaction, P = 0.21)
Calf Health

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

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

Calf Survival

- 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.*

Balchem manufactures two versions of their rumen-protected choline product, ReaShure and a more concentrated form called ReaShure-XC. Both are designed to provide approximately 13 g/d choline ion when fed at the recommended feeding levels (ReaShure = 60 g/h/d, ReaShure-XC = 30 g/h/d). One or both of these products were used in the following trials.
Calf Health
& Growth
Choline is a Required Nutrient for Essentially Every Cow

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

Calf Health & Growth
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

Improved Colostrum Quantity
Zenobi et al., 2018a
Bollatti et al., 2020b
Swartz et al., 2022
Holdorf et al., 2023

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 to learn more.