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ReaShure®

Precision Release Choline

CHOLINE: NOT JUST FOR FAT COWS

Choline for Every Body

Choline continues to generate interest as a required nutrient due to the critical role it plays in the normal function of many cells. There are dietary requirements established in swine, poultry, companion animals and many other species. Choline has long been considered essential for most animals, and there was recently a dietary requirement established for humans. In human nutrition, studies have shown choline's impact on metabolic processes, athletic performance and stamina. Studies also show the *in utero* impact choline can have, where higher prenatal choline intake was suggestive of improved infant cognitive function[1] and reduced instance of neural tube defects[2].

Choline for Dairy Cows

Choline has many roles in the biology of all dairy cows.

METABOLIC REGULATOR

1. Choline is intricately involved in methyl group transfer, playing a role in energy and protein metabolism, gene expression and neurotransmission.
2. Choline is an important precursor for synthesis of phosphatidylcholine, a constituent of all cell membranes as well as milk fat globule membranes.
3. Of particular importance is phosphatidylcholine's role in the synthesis of very low-density lipoproteins (VLDL), which are responsible for exporting fat out of the liver for delivery to the mammary gland and other tissues rather than be stored as fat in the liver or converted to ketones.
4. If phosphatidylcholine is limiting, VLDL production is limited and consequently, fat storage and ketone production may be increased. This leads to an increase in fatty liver and many other issues within the transition cow.

New research confirms that all cows benefit from supplemental rumen-protected choline.

Choline for All Dairy Cows

Choline has developed a reputation for helping fat cows transition more smoothly into lactation, but new research shows it's equally important for thin cows. Research from the University of Florida[3] clearly shows that all cows, regardless of body condition score (BCS), respond to supplemental rumen-protected choline through increased milk production and components, improved feed efficiency and reduced incidence of metabolic disorders.

Increased Milk Volume and Components

Cows that received ReaShure had increased daily milk yield of 3.98 lbs., energy-corrected milk (ECM) increase of 4.19 lbs. and fat-corrected milk (FCM) increase of 4.63 lbs. This increase was seen across all body condition scores, meaning that cows that were thinner prepartum responded to choline supplementation at the same level as fat cows (Figure 1).

Improved Feed Efficiency

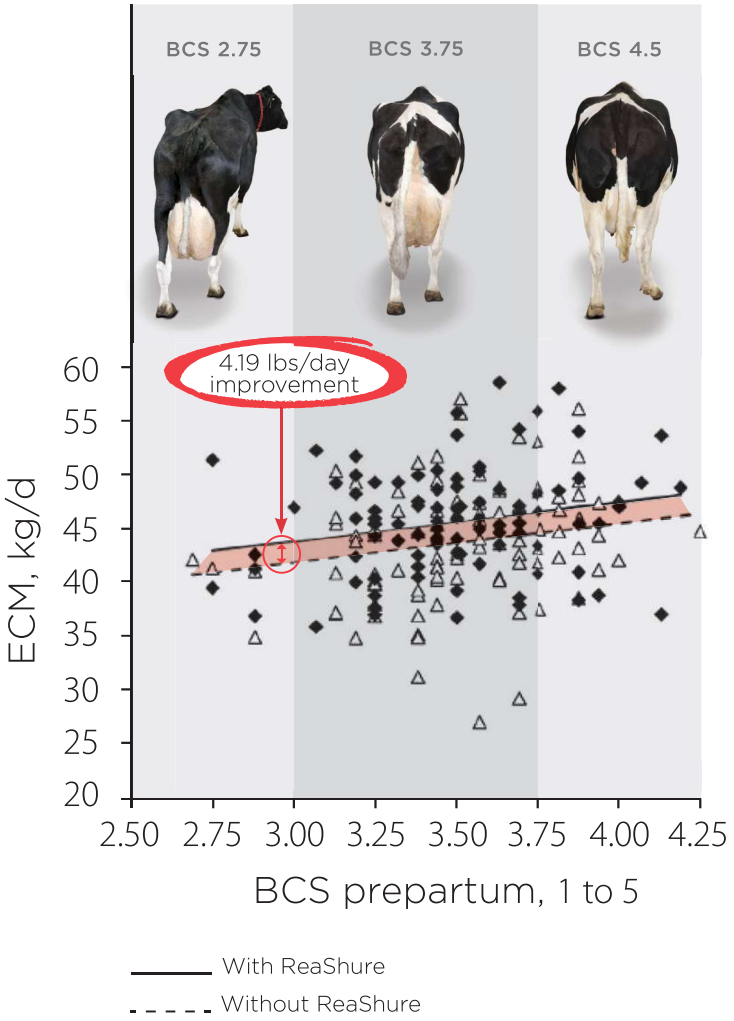
In the same research studies, cows fed ReaShure were more efficient in converting dietary dry matter (DM) to ECM. Feed efficiency was increased by ReaShure supplementation and was actually better in cows with higher BCS.

Reduced Metabolic Disorders

Though the incidence rates of clinical disease were not affected in these studies, there was a numerical decrease in the incidence of subclinical milk fever. Plasma tCa decreased postpartum as prepartum BCS increased.

FIGURE 1

THE INFLUENCE OF PREPARTUM BODY CONDITION SCORE ON ENERGY-CORRECTED MILK



Choline–It's Required

Choline is essential for all cows as they transition from dry cow to the milking string. Cows need choline to manage mobilized fat, to make milk and milk components, to support calf development and health and to ensure a successful lactation.

Research shows that all cows, irrespective of body condition, will benefit from supplemental choline. Though not all cows respond the same, research proves that delivering choline during transition leads to a substantial return from a small investment. All cows need choline.

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[1]Caudill, M.A. et al. *FASEB J.* 32, 2172-2180 (2018). [2]Shaw, G.M. et al. *Epidemiology.* 714-719 (2009). [3]Bollatti, J.M. et al. *J. Dairy Sci.* 103:2272–2286.