

# Potassium Carbonate Supplement to Alleviate Heat Stress and Prevent Milk Fat Depression in Lactating Dairy Cows

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Potassium (K) is an essential nutrient for the health and lactation performance in dairy cows. Potassium is the most abundant mineral in milk (higher than calcium, phosphorous, and sodium).

**Heat Stress** is an increasing challenge to modern dairies, as high producing cows are especially vulnerable to it. Heat Stress can lead to drops in feed intake, milk production, as well as pregnancy rate. During heat stress, cows lose large amount of K via sweating and urination. As a result, K supplement, especially as potassium carbonate, has been shown to help the cows to cope with heat stress while maintaining production. In addition, potassium carbonate can compensate for the need for buffer as salivary buffer was reduced due to drop in feed intake.

Research also shown that additional dietary K in the format of potassium carbonate might alleviate **milk fat depression (MFD)** via reducing the production of intermediate trans fatty acids that was known to be associated with MFD, while potassium chloride did not have the same effect (Jenkins et al., 2014). However, without protection or coating, anhydrous potassium carbonate is highly reactive with ambient moisture and the heat of hydration makes it a safety hazard on farms and in feed mills during storage and handling.

**K-Carb Plus** is a feed-grade protected granular potassium carbonate. The fatty acids coating provides protective barrier which stabilizes the hygroscopic and corrosive properties of anhydrous potassium carbonate, and protects the product from ambient moisture, highly basic and acidic ingredients. K-Carb Plus provides improved stability, shelf life, and better storage and handling capabilities for a safer working environment. K-Carb Plus can be handled in bags, totes, and even bulk tanks remaining free flowing, without bridging. The high K level of K-Carb Plus ( $\geq 53\%$ , compared to 48.5% K (both as-is basis) of a competitive protected potassium carbonate product) provides savings and values to the dairy producers.

## Reference

Addition of potassium carbonate to continuous cultures of mixed ruminal bacteria shifts volatile fatty acids and daily production of biohydrogenation intermediates. T.C. Jenkins, W.C. Bridges Jr., J.H. Harrison, K.M. Young. 2014. J. Dairy Sci., 97:975-984



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