



eNutra Betaine HCL 95

Betaine alleviates negative effects of heat stress on performance

THE DOUBLE FUNCTION OF BETAINE

Betaine is a natural methyl donor in the liver of animals, taking part in the local transmethylation metabolism. Although betaine is not essential, as it can be synthesized out of choline in the mitochondria of the cell, supplementary betaine levels act beneficial on this transmethylation cycle. Secondly, betaine has a well-known protective osmolyte function, which can combat heat stress from a cellular level. To prevent dehydration during stress conditions, cells can accumulate betaine. Betaine will improve the water retention in cells, relieve pressure on the sodium and potassium pumps, protect cell structures and preserve cellular activity (Hall et al., 2016). As a result, the performance of animals will be better supported during specific stressful circumstances such as heat stress.

SUPPLEMENTARY BETAINE SUPPORTS PERFORMANCE

Although betaine is not essential, beneficial effects on performance have been shown when betaine is supplemented in diets. Various studies have seen increases in production parameters when betaine is supplemented at a dosage of 15-150 g/head/day.

Supplementary betaine levels have been shown to:

- Improve milk yield (Shah et al., 2020)
- Increase milk fat levels (Wang et al., 2010)
- Increase lactose and milk protein levels (Zhang et al., 2014; Hall et al., 2016)

Furthermore, betaine has shown to have positive effects on rumen fermentation. Betaine has shown to increase total VFA production in dairy cows (Wang et al., 2010) and also serves as a source of rumen available nitrogen.

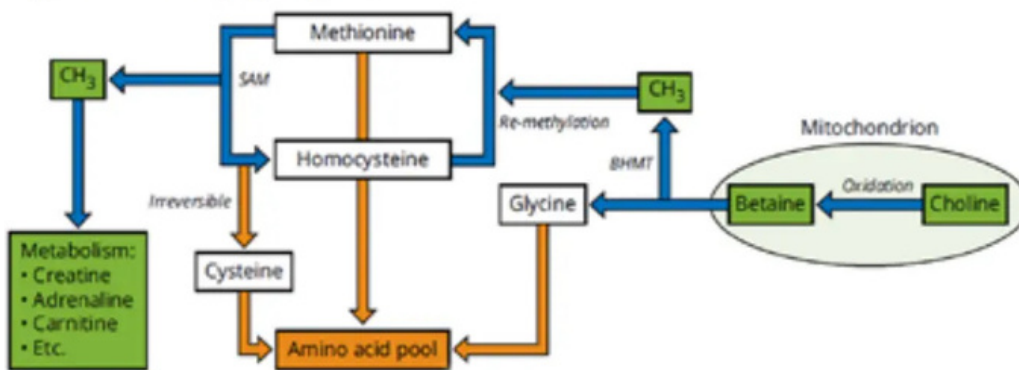


eNutra Betaine HCL 95

An excellent betaine source!

eNutra 95 is a high-quality source of betaine anhydrous and betaine HCL, specified to fulfill the needs of the US feed market. The free flowing, solid product with a high concentration of 95% betaine/HCL provides customers with an easily usable and economical solution to improve animal performance and combat heat stress. With registration in the OMRI Products List, eNutra Betaine HCL 95 is also allowed for use in accordance with National Organic Program (NOP) standards and thus suitable for use in organic feed production within US.

Figure 1 - Methyl group metabolism.



Excellent source of betaine at a high concentration (95%) of active ingredients (Betaine + HCL)

OMRI listed for use in organic settings

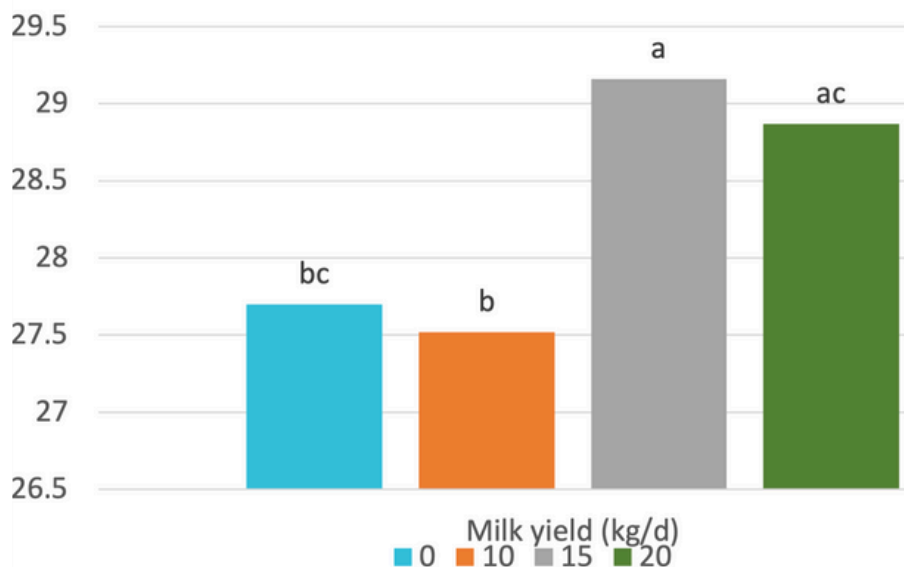
Supports health and performance, especially during times of heat stress

Recommended feeding rate:

- 15 g/head/day for heat stress
- 10 g/head/day for maintenance

Packaged in 25 kg bags

ALLEVIATE NEGATIVE EFFECTS OF HEAT STRESS ON PERFORMANCE



Supplementation of betaine at 15 g/head/day improved ($P \leq 0.05$) milk yield in dairy cows subjected to heat stress (Zhang et al., 2014).

Support animal performance during specific stressful circumstances such as heat stress.