The Nutritional CONSULTANT'S DIGEST Volume 8

Energy Booster 100® Adds Protein Value to Milk

A growing number of dairy producers now know that feeding fat supplements can increase milk yield, maintain or improve body condition, enhance reproduction, and combat heat stress. They also know that when it comes to choosing a fat, there are many factors to compare such as fatty acid content and type, palatability, effect on dry matter intake, digestibility, handling ease, price, and a host of other considerations. But what about milk composition?

New research[1] from a respected Midwestern University serves as a reminder to consider the value of the milk produced when selecting a fat. Among the two leading supplemental fats, it could mean the difference of $.56 per cow per day.

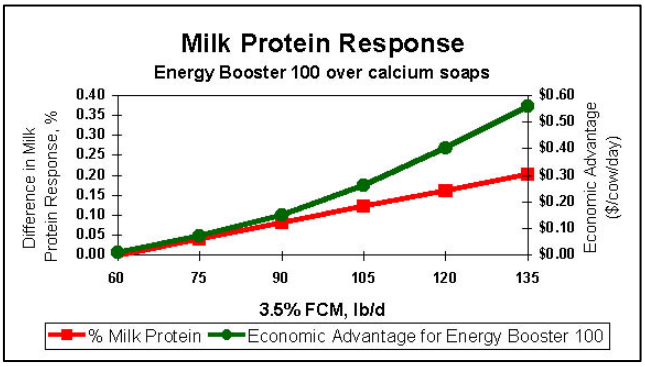
Study Clarifies Product Differences

In a six-week study involving 31 cows, researchers clearly demonstrated that high-producing cows fed Energy Booster 100® produced milk with higher concentrations of protein compared to a calcium soap (CA-SOAP). These results are consistent with other studies[2,3,4]. Also interesting to note, the difference in milk protein response between treatment groups increased as fat-corrected milk yield increased (*P < 0.05*).

All diets fed contained 2% added vegetable fat from whole cottonseed, 18.5% crude protein, 27.8% NDF, and 5% fatty acids At the beginning of the trial, cows were fed an adaptation diet containing 1.25% fatty acids from Energy Booster 100 and 1.25% fatty acids from Ca-SOAP. After a two week adaptation period, half of the cows were fed 2.5% fatty acids from Energy Booster 100 while the other half were fed 2.5% fatty acids from Ca-SOAP. Each group of cows was switched to the other diet for the final two weeks of the trial. On average, cows were fed 1.5 pounds of Energy Booster 100 and 1.8 pounds of CA-SOAP to provide equal amounts of fatty acids.

Cows fed Energy Booster 100 averaged 3.07% protein compared to 3.02% for cows fed Ca-SOAP (*P < 0.02*). The spread widened among higher producing cows (see Milk Protein Response graph).

Considering the value of milk protein and the cost of each fat supplement on an as-fed basis, a cow producing 120 pounds of Fat Corrected Milk netted $.40 more per day when fed Energy Booster 100 compared to Ca-SOAPS. Cows at the 135-pound production level earned $.56 more per day when fed Energy Booster 100.



Economic advantage based on 2001 average milk protein price ($1.9613/lb) and cost of each fat supplement ($0.45/lb for Energy Booster 100 and $0.375/lb for Megalac) fed in varying amounts to meet production level needs.

Other Findings:

- Cows fed Ca-SOAPS decreased dry matter intake significantly compared to cows fed Energy Booster 100 (58.6 vs. 60.2 pounds per day, respectively, *P < 0.002*).
- Cows fed Energy Booster 100 spent 5% more time ruminating (37.2% of day vs. 35.4%, *P* < 0.006) and 5% less time idle (not eating, drinking or ruminating; 46.5% vs. 48.3%, *P* < 0.007) than cows fed Ca-SOAP.
- Differences were detected in milk lactose concentrations (4.80% for cows fed Energy Booster 100 vs. 4.75% for cows on a Ca-SOAP diet, *P <0.002*).
- Differences in fat corrected milk, solids corrected milk, and milk fat yields between treatment groups were not statistically significant.
- Feed efficiencies were similar when body weight changes were factored into efficiency calculations (0.548 vs 0.535 mcal in milk and gain per lb of DMI for Energy Booster 100 and Ca-SOAP, respectively).
- There were no differences in responses observed between cows fed each fat for 4 weeks (first trial period plus adaptation period) or just for two weeks (second trial period).

Fat *Fast Facts*

- Energy Booster 100 significantly increased milk protein percent and lactose percent compared to Ca-SOAP.
- The magnitude of the difference in milk protein response increased as Fat Corrected Milk yield increased (see graph).
- Ca-SOAP significantly decreased DMI compared to Energy Booster 100.
- Feeding Energy Booster 100 resulted in cows spending more time ruminating and less time idle compared to cows fed Ca-SOAP.
- Researchers found no difference in feed efficiency between Energy Booster 100 and Ca-SOAP.

[1]Harvatine, K.J. and M.S. Allen. 2002. Saturation effects of rumen-inert fat sources on feed intake, milk production, and feeding behavior in lactating cows varying in milk yield. J. Dairy Sci 85(Suppl.1):141.
[2]Davis, C.L. 1993. A comparative evaluation of several specialty fat supplements for lactating dairy cows. Pg 1 *in* Proc. Fat Supplementation For the Superior Dairy Symposium, Jan 14-15, 1993, New Orleans, LA.
[3]Elliott, J.P., J.K. Drackley, and D.J. Weigel. 1996. Digestibility and effects of hydrogenated palm fatty acid distillate in lactating dairy cows. J. Dairy Sci. 79:1031.
[4]Grummer, R.R. 1998. Influence of prilled fat and calcium salt of palm oil fatty acids on ruminal fermentation and nutrient digestibility. J. Dairy Sci. 71:117.

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