The Nutritional CONSULTANT'S DIGEST Volume 15

Feed a Pound, Earn a Ton with High Forage Ration

Cows walk a fine line when fed lower forage diets for increased energy density and intake. Crossing that line can result in rumen dysfunction and hoof issues as well as lower milk fat % and decreased fat and energy corrected milk production. A recent Utah State University study revealed an alternative to increasing energy density without lowering forage levels: Feeding a high forage ration with one pound Energy Booster 100® per head per day.

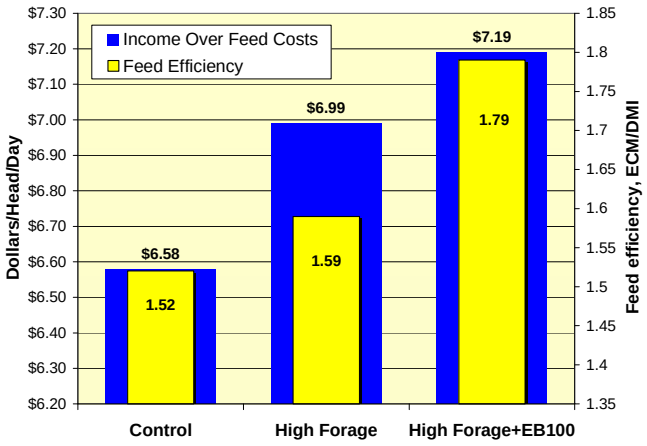
Researchers compared a high forage + Energy Booster 100 ration to a high forage ration without fat and a high grain, no fat control ration. Forty-five cows, including 15 first-calf heifers, were blocked and assigned to these three treatments after being fed a standard ration the first 15-20 days after calving. For 15 weeks, cows were individually fed a TMR containing 43, 56, and 56 % forage on a dry matter basis for control, high forage, and high forage + Energy Booster 100 treatments, respectively. Alfalfa hay and corn silage dry matter ratio was 3:1. Energy Booster 100 was fed at 1.6 percent of dry matter (about one pound). Energy was formulated to be equal for both the control and high forage rations while high forage + Energy Booster 100 was 3.2 percent higher. Metabolizable protein was similar across treatments.

When ration energy density increases, cows have options: they can eat more, the same, or less, depending on rumen fill, palatability, metabolism, and how they partition the energy. In this case, cows fed high forage + Energy Booster 100 ate less (P<0.06) and produced a similar amount of energy-corrected milk (ECM) as the high forage treatment. They also had greater ECM yield (P<0.01) compared to the control. Consequently, feed efficiency (ECM/DMI) was greater for high forage + Energy Booster 100 than the control and the high forage diet (P<0.01). Body weight gain (P>0.13) was highest for the control diet and lowest for the high forage diet. Cows fed the high forage diet + Energy Booster 100 diet gained double the body weight compared to the high forage diet.

	Control	High Forage	High Forage + EB 100	P<
DMI lb/day	55.7^{ab}	57.5^{a}	50.9^{b}	0.06
ECM lb/day	80.2^{a}	86.8^{b}	85.7^{b}	0.01
Fat %	3.53	3.67	3.71	0.17
Protein %	2.88^{a}	2.76^{b}	2.77^{b}	0.03
Fat yield lb/day	2.80^{a}	3.17^{b}	3.19^{b}	0.001
Protein yield, lb/day	2.27	2.38	2.33	0.44
Body weight gain, lb	80.0	26.6	58.4	0.13
Feed efficiency, ECM/DMI	1.52^{a}	1.59^{ab}	1.79^{b}	0.01

Milk fat % did not significantly (P<0.17) differ among treatments. There was a numerically higher milk fat content with higher forage, which resulted in more fat pounds produced by both high-forage diets (P<0.001). Because fermentable energy was reduced by 60 percent in the two high forage treatments (due to reduction of steam-flaked corn), milk protein percent decreased for both treatments (P<0.03); however, protein yield was the same across all treatments. Furthermore, total tract DM and NDF digestibilities were similar among treatments.

Income Over Feed Costs* and Feed Efficiency



The bottom line is income over feed costs: The high forage + Energy Booster 100 ration generated the greatest return with $222,650 per year per 1000 cows over control and $73,000 per year per 1000 cows over high forage.

Fat *Fast* Facts

Feed a pound of Energy Booster 100 with high forage rations to:

- Increase feed efficiency and income over feed costs

**Based on prices representative of Idaho and Utah prices: Fat $1.48/lb, protein $2.30/lb, and SNF $.18/lb*

- Help minimize problems associated with lower forage rations: Help reap benefits of higher forage rations

[1]Richards, B. F., T. R. Dhiman, D. R. Mertens, A. J. Young, and L. C. Solorzano. 2006. Feed a pound of fat strategy to improve productivity of dairy cows. ADSA/ASAS Annual Meeting, Minneapolis. J. Dairy Sci. Abstr. #M169.

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