The Nutritional CONSULTANT'S DIGEST

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Boost Peak Milk to Increase Total Milk

Getting cows off to a good start after calving can mean the difference between a good lactation and a great one. That means getting them to eat enough to minimize the effects of typical lactation cycle patterns, where milk production peaks sooner and higher than dry matter intake (DMI) resulting in negative energy balance that leads to loss of body condition and weight. Feed intake plays a key role in energy balance, peak milk and persistency of production.

The main factor determining when cows return to positive energy balance is net energy of lactation (NE_L) intake. The product of DMI x NE_L density, NE_L intake is most affected by the energy density factor – as long as increasing energy density does not decrease DMI.

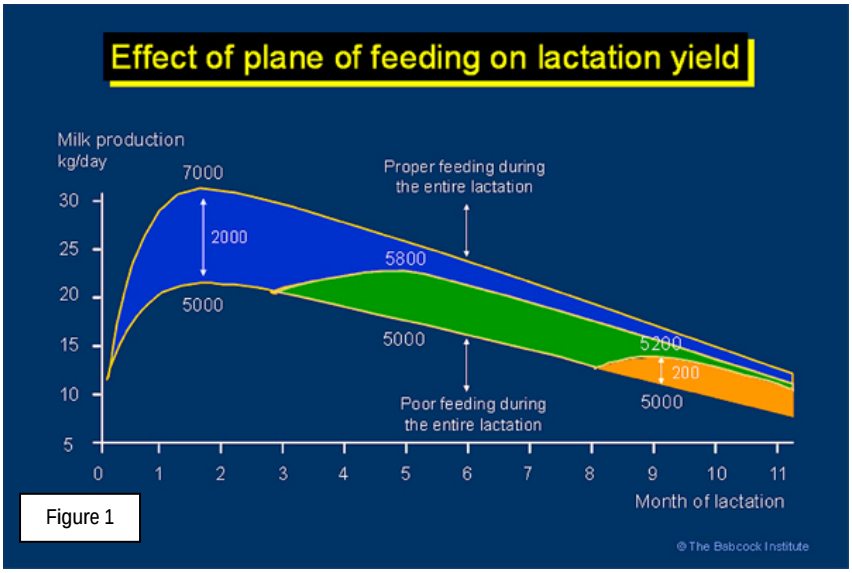

Figure 1

Peak and early milk yield have tremendous impact on total lactation milk yield (Figure 1) as shown in this standard lactation curve. The earlier and higher peak yield occurs, independently of level of milk production, the higher the total lactation yield. For each pound more milk achieved in peak yield, total lactation yield increases 200 to 250 lb.

Note that proper feeding during early lactation and throughout the entire lactation resulted in the greatest lactational milk yield (7,000 kg in this example). If cows are not fed well and peak 10 kg lower, total lactation milk yield declines to 5,000 kg. With improved feeding beginning in the third month of lactation, milk yield improves some (from 5,000 to 5,800 kg) as depicted on the graph by the green area; however, this improvement in feeding does not make up for milk lost earlier in the lactation. If improved feeding begins in the eighth month, only an additional 200 kg of milk (orange area) occurs over the following three months of lactation. It is clear that limited nutrition prevents cows from reaching their genetic potential for milk yield.

Thus NE_L intake must be maximized in early lactation to minimize negative energy balance and to maximize peak and total lactation milk yield. Fat supplementation can increase energy and total NE_L intake, but only if it does not decrease DMI. Liquid fats, calcium soaps of fatty acids (CSFA), and feedstuffs containing unsaturated fatty acids all can result in reduced DMI (Allen, 2000). Chilliard's 1993 review found that adding saturated fat vs non-fat control diets resulted in an average daily increase of 4 pounds of milk, whereas CSFA-added diets only increased milk production by 2 pounds. Saturated free fatty acid sources, such as Energy Booster 100®, do not decrease DMI.

So how does one calculate the value of avoiding a DMI decrease while increasing peak milk yield? If milk is worth 15 cents per pound, an increase of 2.0 pounds of peak milk earned by feeding Energy Booster 100 vs CSFA can yield an additional 500 pounds of milk (2 x 250) or $75 over a 305-day lactation. If the added cost of feeding Energy Booster 100 vs CSFA is $18 per cow (additional cost of 6 cents per day x 305 days), an additional $75 in milk income is a great return!

Fat *Fast* Facts

- Boosting peak milk produces more milk.
- Feed fat supplements that do not decrease DMI and peak milk.
- Energy Booster 100 BOOSTS total milk by providing the energy to increase peak milk without decreasing DMI.

REFERENCES

Chilliard, Y. 1993. Dietary fat and adipose tissue metabolism in ruminants, pigs, and rodents: A review. J. Dairy Sci. 76:3897-3931.

Allen, M. S. 2000. Effects of diet on short-term regulation of feed intake by lactating dairy cattle. J. Dairy Sci. 83:1598-1624.

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