

MAKE SURE YOU CAN LOOK THEM IN THE EYE WHEN YOU SAY THEY ARE WELL FED

LAND O LAKES
ANIMAL MILK PRODUCTS CO.

Everyone wants to raise healthy calves. It's a satisfying feeling to look over a bunch of frisky, sleek-coated, bright-eyed babies and know they represent the future of your herd.

But are you doing everything possible to maximize their health and performance, both today and in their forthcoming role as milk makers? You may be able to better equip your herd replacements with the biological tools to excel throughout their lifetimes, starting with the nutrition you provide them in their earliest days.

EARLY ATTENTION, LIFELONG IMPACT

Like all babies, calves are influenced into adulthood by the events that occur in their very early stages of development. Cornell University professor of animal sciences and noted calf nutrition researcher Mike Van Amburgh, PhD, suggests that nutritional "imprinting" during the first weeks of life establishes the metabolic hard-wiring that could affect a calf's immunological and cellular development – potentially impacting her lifelong health and performance.

That process begins with colostrum.

Feeding four quarts of clean colostrum from healthy, well-vaccinated dams – or the equivalent of a USDA-approved colostrum replacer – in the first hour of life, has become the industry standard for Holstein heifer calves. And studies have shown that calves who achieve passive transfer of immunity from colostrum are 20 percent more feed-efficient than their colostrum-deprived counterparts.

NUTRITION TIPS

For maximum launch of large breed heifers:

- 4 quarts of colostrum or USDA-approved colostrum replacer within one hour of birth.
- 28:20 milk replacer with soluble fiber technology, fed at 2.5 pounds of powder per day.
- Commensurately high-protein (20 to 22 percent) starter grain ration, offered beginning on day 2 to 3 of life, and refreshed daily.
- Free choice water, also introduced in the first few days of life.
- Continue with high-protein ration postweaning.
- No hay until 12 weeks of age (grain must have the proper built-in roughage).

Calves' metabolism and growth potential are at peak capacity in the first weeks of life. At that stage, their systems are turbo-charged to process nutrients and convert them into lean tissue that appears to enhance their milk producing ability. But that window of opportunity doesn't stay open forever. "Beyond weaning, feed efficiency and mammary tissue development begin to slow down," says Van Amburgh. "There really is no 'make-up' strategy that can replicate what we can do for those calves nutritionally and developmentally in their first eight weeks."

WHAT'S THE RIGHT PROGRAM?

Choosing a calf nutrition program entails a delicate balance of cost-versus-consequence. Many dairy producers are realizing first-hand what a number of recent research studies also have proven: that feeding wet calves at nutritional levels similar to those they would receive from their own dams reaps multiple rewards.

That means feeding a higher-protein (28 percent) milk replacer at about 2.5 pounds of powder per day, paired with a high-protein (20 to 22 percent) starter and free-choice water. Feeding three times a day instead of twice also more closely replicates maternal nutrition. Compared to a 20 percent protein, 20 percent fat feeding program, the 28:20 full potential feeding program recommended by Land O'Lakes Animal Milk Products Co. produces calves that are taller and longer; weigh an average of 56 pounds more at weaning and 139 pounds more at six months of age; and calve an average of 2.5 months earlier.

This full potential milk replacer feeding program may appear to be expensive at first look, but is lower in cost-per-gain when compared to a basic milk replacer. And that's just the beginning of the bonuses that follow.

OUTCOMES MATTER

Van Amburgh says the list of benefits from full-potential feeding continues to grow as the approach is more thoroughly researched and evaluated over time. In addition to enhanced stature growth and weight gain, among them are:

- Enhanced immune system support, particularly in cold weather, because calves have more available energy to both stay warm and mount an immune response to health nutritional challenges.
- Optimized response to vaccinations.
- Less need for feed-additive antibiotics, thanks to improved natural immunity.

PERFORMANCE BENCHMARKS

Keep reasonable goals in your sight as well:

- Double birth weight and grow four to five inches in stature by 60 days of age.
- 55 percent of the weight of mature cows in the herd by 11 to 12 months of age (ready for breeding).
- 82 percent of the weight of mature cows in the herd post-calving.

- Earlier calving and entry into the milking string, contributing more calves to the operation over time, as well as fewer days spent in the "asset-consuming" heifer lot and accelerated advancement to the "asset-contributing" lactating herd; and
- Greater first-lactation milk production, documented in at least seven university studies, which show increased milk ranging from 1,000 to 3,000 pounds per cow.

"Now that we have a growing population of adult cows that were raised on full-potential feeding programs as calves, we are better able to investigate the long-term influence of this heifer-development strategy," states Van Amburgh. "It's hard to argue with a program that can give us both healthier calves today, and more productive, profitable cows tomorrow."

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PROMOTE PRODUCTION PROGRESS

Genetic advancement is a noble goal toward which most dairy producers strive with each generation of progeny in their herd. Cornell University researcher Mike Van Amburgh, PhD, thinks increased milk production absolutely should be a primary goal for replacement heifers. But, he says, early life nutrition can influence exponential acceleration of future milk production compared to genetic selection.

Van Amburgh analyzed performance data of 1,244 first-calf heifers from the Cornell University Dairy Herd that had been raised on a full-potential milk replacer program. He found that the predicted difference in milk per pound of pre-weaned average daily gain was about 850 pounds of milk per head in the first lactation.

In other words, a heifer on the full-potential feeding program that gained 2.0 pounds per day preweaning would be expected to produce an extra 1,700 pounds of milk in her first lactation. More importantly, the effect of early life nutrition could be seen in subsequent lactations, meaning this is a life-time response.

Van Amburgh, M.E.; F. Soberon, J. Karzsies, and R.W. Everett. 2011. Taking the long view: treat them nice as babies and they will be better adults. Proc. 2011 Western Dairy Management Conference.

"Generally, genetic selection will increase milk yield by 150 to 300 pounds per lactation," he explains. "The affects of aggressive nutritional management are, conservatively, at least three to five times that amount."

"Genetic selection is important, without a doubt," Van Amburgh continues. "But it also makes sense to maximize that investment in genetic advancement by feeding calves to their full potential."

