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Can I feed my calves less milk replacer to save money? (switching from accelerated feeding to a traditional program)

Authors: Dianne Shoemaker, Extension Dairy Specialist, shoemaker.3@osu.edu, 330-533-5538; and Jason Hartschuh, Extension Educator, Crawford County, hartschuh.11@osu.edu, 419-562-8731

Feeding rate greatly effects average daily gain of pre-weaned calves and can impact age at first calving. Accelerated feeding programs are designed to achieve a pre-weaning growth rate of around 1.5 to 2 lb/day. This increased pre-weaning growth rate followed by appropriate nutrition post-weaning can result in heifers reaching breeding size 20 to 30 days earlier than calves raised using a traditional feeding system. In some studies, this was also related to increased milk production during first lactation. This increased milk production and fewer days to first calving often covers the higher cost of an accelerated feeding program.

Temporarily switching from a milk-replacer (MR) based accelerated feeding system to a more traditional program will decrease expenses in the short term. Longer term impacts will include increased space needs for heifers as they take 30 to 60 days longer to reach breeding size and then calve. A few changes in your future heifer raising system may be required. The biggest strategy change will be age at first breeding will increase, requiring room for heifers at a rate of about 5 more heifers per 120 milking cows. (UW Dairy Management tool, Heifer Replacement Tool, https://dairymgt.info/tools/heifer_replacement/index.php)

Temporary reductions in feed costs can be accomplished by feeding less of an accelerated MR formulation or switching to a “traditional” 20:20 type MR. Switching from a 27:20 MR to a 20:20 MR will save approximately $0.21/lb of MR (as fed) based on prices during the first quarter of 2020. In an accelerated feeding program, the high protein milk replacer (27:20) is balanced to optimize lean tissue growth (bone and muscle). In growing calves, a certain amount of fat (energy) and protein are needed to meet maintenance requirements. Additional fat and protein are needed to support gain.

Feeding the 20:20 MR increases fat deposition instead of lean tissue growth at higher rates of feeding. The second option is to feed less of your current high protein MR. When energy is the limiting nutrient, excess protein is wasted, making the 20:20 a better choice at lower MR feeding rates.

At a feeding rate of 1.0 lb/day of 20:20 MR dry matter (DM), a newborn, 90 lb calf consumes enough nutrients to gain 0.5 lb/day in 59 to 77º F weather (thermoneutral zone), but they will not gain weight in cold weather. The same calf on a 27:20 MR accelerated feeding program at a rate of 2 lb/day of MR DM receives enough nutrients to gain 1.75 lb/day.

Switching to a traditional protein (20:20) MR can save your operation money but will decrease rate of gain at most feeding rates compared to a 27:20 MR. At a feeding rate of 1.25 lb/day of MR DM, a 20:20 milk replacer will allow an 85 lb calf to gain 0.77 lb/day. At higher feeding rates, an 85 lb calf cannot maximize lean tissue growth as protein levels are not high enough compared to fat, leading to fat tissue deposition instead of muscle growth. Due to higher maintenance energy needs, 100 lb calves do not run out of protein for lean tissue growth until 1.5 lb/day of 20:20 MR DM, with an average daily gain (ADG) of 0.93 lb.

Switching from a feeding rate of 2 lb/day of a 27:20 MR to 1.5 lb/day of a 20:20 MR would decrease ADG by about 0.5 lb on 100 lb calves but results in short term savings of about $46 per calf. While ADG will be reduced, calves should still stay healthy and grow in the thermoneutral zone at this MR feeding rate compared to cutting feeding rates to 1.0 lb/day. When temperatures are outside a calf’s thermoneutral zone, their rate of gain will decrease as energy is needed to keep the calf warm or cool.

With any MR program, it is important to use the correct milk to water ratio. Feeding more or less MR without changing the amount of water can cause serious digestive issues.

Starter grain should be offered to calves within days of birth. It takes at least two weeks of grain consumption for the rumen to develop to the point where starter nutrients contribute to maintenance and gain. Clean free choice water will improve starter grain intake.

One week before her targeted weaning date, the calf should be cut back to a once daily MR feeding (half of her normal daily MR ration). Target weaning at five weeks of age or older when she is consuming at least 1.0 to 1.5 lb/day of starter grain. This strategy helps her transition from her MR, starter grain and water diet to her post-weaning starter grain and water diet.

Bottom Line:

Underfeeding calves compromises their growth and ability to fight environmental and pathogenic challenges and can impact future milk production potential. Minimum feeding rates in summer should be 1.0 lb/day of 20:20 milk replacer per calf. Recognizing that rate of gain will decrease, a moderate rate of 1.5 lb/day of 20:20 MR can decrease cost compared to high protein accelerated feeding programs while maintaining a reasonable rate of gain from birth to weaning. Cutting feeding rates of high protein milk replacer below 1.5 lb/day for a 100 lb calf does not maximize MR value. Review length of milk feeding period for opportunities to wean earlier and transition to a high-quality starter grain (see DIB# 9-20). Weaning at 5 or 6 weeks of age should be your first consideration, and secondly consider switching from accelerated growth to traditional MR at 1.5 lb/day of MR DM.

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