KENPAL FARM PRODUCTS INC

Beef Briefs

The Latest Information on Beef Cattle Nutrition

Starting Calves off Right on Solid Feed

Laura Martin, M.Sc

Getting calves off to a good start should be the goal of every beef producer. These calves are the core of the business – either as replacement animals or as fattening animals to sell. What happens to calves when they are young affects them for the rest of their lives. Transitioning calves from milk to solid feed without them going backwards can be a struggle. There are many different theories on the best way to get calves eating solid feed, from feeding no forages at all to feeding fermented forages. Recent research has helped shed some light on this problem.

For the first phase of growth, milk is the calf's main source of nutrients. The anatomy of the young calf is designed such that milk bypasses the rumen and goes directly to the true stomach, the abomasum. This allows for the calf to get as many nutrients from the milk as possible (without having to share it with the rumen microbes). After 12 weeks this esophageal groove no longer functions and any milk consumed enters the rumen for fermentation. This coincides nicely with milk production from the cow. Most cows can provide enough milk to meet the nutritional needs of the calf up to 90 days after calving, after that additional nutrients are required to meet the needs of the growing calf, and this is where the debate over fermented feed vs grains comes in.

Research from the University of Guelph's Overvest et al. (2015), looks at how the type of feed affects dry matter intake and growth of calves. This study fed either calf starter alone, calf starter with hay (85% starter to 15% hay), or a corn silage based TMR to calves. The research showed that calves fed a corn silage based TMR did not eat as much feed or grow as well as calves fed calf starter, either with hay or without (Table 1). The low gains observed in calves fed TMR are closely linked to the lower dry matter intakes. Overvest concluded that the high moisture and fibre content of the TMR limited intakes in the calves, and that calves would have needed to eat about 75% more of the TMR to get the same level of energy of the calves fed calf starter. That intake would likely be impossible for calves of that age due to limited rumen

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- **Cows like the taste, and will readily eat it free choice.**
- **Economical to use.**

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capacity.

A good quality creep feed should be introduced to calves several weeks before weaning, this gives plenty of time for the calves to get used to the different textures, tastes and smells. Kenpal's King of Creep program provides a highly palatable, nutritious feed to get the calves eating solid feed. King of Creep is available in a complete feed (grains, proteins and minerals), a protein supplement (proteins and minerals) to mix with grain on farm, or a vitamin/mineral premix to make creep feed on farm. The products are formulated with optimal levels of Selenium and Vitamin E to help improve immune response, and highly digestible protein and energy sources to help increase rate of gain and reduce digestive upsets. Finding a high quality feed that is palatable to calves is important to getting them eating and getting the rumen developed. A source of water should also be offered to calves before weaning. As milk consumption tapers off, fluid intake will also be lower and it is important to have a clean, fresh source of water available to calves at all times.

The combination of quality creep feed and water will help develop the rumen. When a calf is born, the rumen is still developing and the calf is unable to digest forages like an adult ruminant. Feeding creep feed to calves before weaning allows time for the rumen to grow in terms of volume, microbe population and the surface area of the lining. Grain-based feeds are needed to develop the many folds and finger-like projections that form the rumen lining. Roughage doesn't produce the right volatile fatty acids to encourage the rumen lining to develop. As a result, feeding only roughage to pre-weaned calves may slow rumen development (Figure 1).

Research has shown that calves fed creep feed have higher weaning weights than calves not fed creep feed. In years of poor pasture, or low milk production (for example, extreme cold), calves really benefit from creep feed. The economics of feeding creep feed to calves is shown in Table 2.

Getting calves on solid feed and off to a good start can be a challenge. As tempting as it might be to mix up fermented feeds while feeding the rest of the herd, calves really do better on grains to start. The high moisture and fibre levels of fermented forages can limit intakes and growth of calves. Feeding Kenpal's King of Creep, with or without hay, can help turn calves into money makers for the farm.

Table 1: Intakes and Gains of Calves on Different Feeds

	Starter	Starter with Hay (Mixed)	Starter with Hay (Fed Separate)	TMR
Pre-Weaning				
Solid Feed Intake (kg of DM/d)	0.08	0.10	0.09	0.03
ADG (kg/d)	1.1	1.1	1.1	1.0
Weaning				
Solid Feed Intake (kg of DM/d)	0.46	0.50	0.52	0.19*
ADG (kg/d)	0.40	0.50	0.50	0.20*
Post-Weaning				
Solid Feed Intake (kg of DM/d)	2.68	2.67	2.87	1.78*
ADG (kg/d)	1.20	1.20	1.20	0.70*

Overest, et al. (2015) *values differ significantly due to effect of treatment ($P < 0.05$) Calves fed calf starter alone, or with the hay fed separtely, pre-weaning were switched to the calf starter with hay mixed in post-weaning.

Figure 1: Comparison of Rumen Lining of Calves Fed: Milk, Milk + Hay, Milk + Grains

Source: Pennsylvania State University

Table 2: Economics of Creep Feed

	No Creep	Creep Feed
Weight of Calf (lbs)	450	500
Selling Price (4/lb)	2.85	2.85
Returns per Head ($)	1282.5	1425.00
Creep Feed Consumed/head (lbs)*		250
Cost of Creep feed/head ($)		41.25
Return over Feed Cost ($)	1282.5	1383.75
Net Return from Creep Feed ($)		101.25
Return on Investment (ROI)		2.5:1

*Assumes a 5:1 Feed conversion (lbs of feed : lbs of additional gain)

Overvest, M.A., R. Bergeron, D.B. Haley, and T.J Devries. 2015. Effect of feed type and method of presentation on feeding behaviour, intake and growth of dairy calves fed a high level of milk. J. Dairy Sci. 99: 317-327.

Get Results with Kenpal's Beef Nurse Cow

Get Your Calves Off To The Right Start With Kenpal's Beef Nurse Cow

Harold and Josh Butler of Croton, Ontario have been using Kenpal's Beef Nurse Cow Mineral for almost two years and really appreciate the results they are seeing on their farm!

"Before we started with Kenpal, we had to help the calves get up and nurse. Now the calves start nursing on their own." The Butler's now have to process the calves as soon as they are born because they are off and running right away and hard to catch after that!

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