



Cow Calf Technical Bulletin

CREEP FEEDING CALVES

Historically, creep feeding beef calves has largely been a matter of offering free-choice grain to maximize weaning weights. While this approach can boost calf gains, it is seldom cost-effective. However, recent research has re-evaluated the place of creep feeding in beef herds, identifying not only more effective management schemes, but also additional benefits of creeping calves.

No one will argue with the fact weaning weights can be significantly increased when calves have unlimited access to grain; a review of over 50 university trials showed an average improvement of 58 lb per head. Efficiencies (pounds of creep feed per pound of additional gain), however, are often very poor. Typical F:G for grain creep is about 10, and values as high as 31 pounds of feed to one pound of gain have been reported! In these situations the creep is being substituted for forage intake, and at the same time being consumed at a level that will inhibit digestion of what grass is consumed. Acidosis can be a related problem. Additional economic concerns include the costs of delivering the creep feed, and the potential effect on the price per pound that the calves will eventually receive. Calves consuming large amounts of grain may become fleshy, reducing their perceived value as stocker cattle. And live markets typically exhibit a price slide with heavier calves receiving less per pound.

The types of gains seen with traditional creep feeding programs can also be detrimental to future replacement heifers. Mammary fat deposits initiated at this young age can reduce lifetime milk production potential. Multiple studies have shown that females that were heavily creeped subsequently weaned lighter calves.

A Better Way

Backed by improved understanding of calf nutrition and physiology, several alternative creep feeding programs have been examined. Limit-feeding creep, using feedstuffs which are more complementary to a forage diet, and creep feeding for a limited time period may singly or in combination yield better net returns for the cow/calf producer.

Limiting creep feed consumption to one to 1 ½ pounds per head per day has resulted in moderate increases in calf gains, at reasonable conversion efficiencies (3 – 5 lbs of feed per lb of added gain). While these rates of gain may not provide as many total pounds to sell at weaning, risks of over-conditioning and acidosis are removed. This approach is also a particularly good fit for replacement heifers; while producers need to avoid over-feeding future breeding females, they also must provide for enough growth to ensure puberty by 12-14 months.

As with cows or stocker cattle on high-forage diets, the nutritional status of calves can be improved with supplementation that enhances, rather than inhibits, forage utilization. Protein, especially rumen-degradable protein, can stimulate increased intake and digestion of grass or hay by older calves.

This is particularly true of marginal-quality roughages, including late-summer and fall pastures. This effectively increases the supply of both protein and energy to the animal. Energy can also come directly from supplemental feed, but overall dietary efficiency can be impacted by the carbohydrate (energy) source provided. When relatively large amounts of starch - the primary carbohydrate in grains- are added to a roughage-based diet, fiber digestion is depressed, and forage intake often reduced. On the other hand, the energy from either sugar or degradable fiber has been shown to enhance ruminal fermentation and utilization of roughages. Molasses, in particular, is a good source of soluble sugars. Creep feeds high in protein (>20% crude protein, dry matter basis) and/or non-starch degradable carbohydrates encourage moderate increases in calf growth, without undesirable fattening.

Reduced Grazing Pressure

A calf's preference will always be for milk first, then a palatable creep, and finally forage. When grass is limited, creep feeding will reduce grazing activity by calves, leaving more forage available for the cows.

Compensate for Inadequate Milk

While a calf may try to get as many nutrients as possible from suckling, his dam's milk supply can be limited by both genetics and nutrition. Creep feed can help fill the gap, and allow calves to reach their genetic growth potential.



Pre-weaning "Preconditioning"

An increasing body of evidence shows significant post-weaning advantages to creep feeding. In one study, calves that had received creep gained more than .2 lb per day more than those that hadn't; in another, gains during the first month after weaning were 20 pounds greater for calves that had been creeped. Additionally, treatment days per calf were significantly lower for the previously creep-fed groups.

Several factors probably contribute to this improved post-weaning performance:

- ☞ Creep feeding "teaches" calves to eat new feeds, from a new source (lick tank or bunk) allowing them to adapt gradually, before the stress of weaning (NOTE: this is most effective when the creep feed is similar to the starter feed)
- ☞ The digestive system can adapt to these feeds
- ☞ Creep feed can be used to improve the calf's mineral status prior to weaning
- ☞ Ionophore may be provided in the creep feed, helping control or head off coccidiosis

Providing available minerals in the creep feed may be particularly helpful to the newly weaned calf. Stress, such as weaning, often compromises trace mineral status: intake is reduced, and excretion accelerated. Yet these minerals are critical to the health and growth of these animals. In particular, copper, zinc and selenium are needed in adequate amounts for proper immune response, while manganese and cobalt are needed for rumen function. Research has shown that calves with higher liver stores of zinc and copper exhibited lower post-weaning morbidity, and needed far fewer retreats and repulls.

Liquid Creep Feeds

QLF liquid supplements can be the basis for efficient, successful creep feeding programs. Lick-wheel tanks offer an ideal method for creep feed delivery, as the combination of feed formulation and delivery mechanism can be used to effectively limit individual intake. QLF molasses-based liquid feeds provide the 'high' protein level and sugar energy needed to enhance forage utilization, and promote moderate calf gains. These feeds are also highly palatable, encouraging initial consumption.

Liquid feeds also make excellent carriers for available, stable forms of minerals and vitamins. In particular, the relatively high levels of phosphorus, potassium, and essential trace minerals that can be provided by a liquid creep feed can help better prepare a calf for the stresses of weaning. Bovatec™ can also be delivered in liquid supplements such as QLF's *Super 24 Bov*.

Past research conducted by QLF has shown calves receiving a liquid creep supplement improved gains by nearly 1/2 lb per head daily. The conversion of supplement to gain was 1.9:1; in other words, the additional .44 pound of gain only required ¾ lbs of liquid creep. The returns over creep feed cost in this trial averaged approximately \$61.00 per calf.

In a trial from Florida, calves receiving a molasses-based creep feed gained more weight with less supplement at a much lower cost than calves receiving a cottonseed meal-based supplement. The authors stated, "Compared to grain-based creep feed, liquid creep feeds can be easier to manage, require less labor, do not require high salt concentrations to limit intake, and may be more easily adjusted to control intake."

Response to Limit Creep Feeding (60 Days) of Cottonseed Meal or Molasses			
	Control	CSM	Molasses
Creep intake, lb/d	0	0.44	0.77
Daily gain, lb	1.46	1.68	1.87
Added gain, lb		0.22	0.41
Feed/added gain, lb		2.00	1.88
Cost/added gain, \$/lb		0.26	0.09
<i>Data from T. Weaver, U.S. Sugar Corp</i>			

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