West Virginia University Extension Service

Forage Management

Feed Management for Preconditioning Calves on Pasture

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Weaning and preconditioning calves on pastures can reduce stress, improve health, and add value to the calves at sale.

During preconditioning, we would like calves to be gaining more than 2 pounds per day. If we left the calf on the cow, it would gain about 2.25 pounds per day. The preconditioned calf should gain at least that much to have the same calf weight at sale time. Good preconditioning gains are an indication of calf health and low stress and are related to the calf's ability to respond to the vaccinations given before weaning. When the value of calf gain is greater than the cost of supplements fed to get that gain, we make money.

WVU Extension, working with farmers selling calves in Beef Quality Assurance marketing pools, found that it takes 4.26 pounds of commercial (byproduct based) starter pellets or 3.31 pounds of corn to produce 1 pound of additional calf gain. We also found that increasing pasture total digestible nutrients (TDN) 10-percentage points increases calf gain by 0.86 pounds per day. This is achieved by having young, rapidly growing forage rather than older forage available at grazing. Also, decreasing pasture neutral detergent fiber (NDF) 10-percentage points increases calf gain 0.49 pounds per day. This is achieved by having 25 to 35 percent legume in the pasture rather than pure grass. Feed management includes pasture and supplement management.

Another on-farm study in West Virginia found that pastures vary considerably in forage quality. Table 1 shows the percentile ranking of pasture quality across the state. Producers managing at the 75-percentile level (25 percent of pastures were higher and 75 percent were lower than this level) had pastures containing 21.9 percent crude protein (CP) and 67 percent TDN. At the 50-percentile level, there was 18.6 percent CP and 64.1 percent TDN in the pasture dry matter.

When we combine these two studies, we can look at the effect of pasture quality and level of supplementation on calf gain. Using the 25-, 50-, and 75-percentile levels of pasture quality and three levels of supplementation (none, moderate, and high), we can estimate what calves would gain per day over a 42-day preconditioning period.

Table 1. The percentile ranking of pasture quality across West Virginia from 1997 to 2001.

Percentile	Ht	CP	TDN	NDF	ADF
75	7.5	21.9	67.0	47.5	27.3
50	5.0	18.6	64.1	52.1	30.9
25	3.0	15.3	60.5	56.9	33.9

Table 2. Effect of pasture quality and level of supplementation using corn or a commercial supplement on expected daily gain of calves being preconditioned on pasture.

	Pasture TDN Value		
Lbs corn	60.5	64.1	67.0
	Expected calf daily gain		
0.0	0.71	1.02	1.27
4.6	1.92	2.23	2.48
5.8	2.22	2.53	2.78
Lbs commercial supplement			
0	0.71	1.02	1.27
5.6	1.91	2.22	2.47
7.0	2.22	2.53	2.78

This shows that calves respond to supplementation and higher quality pasture. Calves respond to energy on high-quality pasture since the protein exceeds their energy needs. Corn is higher in energy than byproduct supplements, which are based on high- fiber grain by-products. If pasture quality and availability are low, the calves will respond better to the commercial supplements since they contain a high-quality fiber and the protein needed for gain on low-quality pasture.

So how do we manage pasture to get high quality and quantity for preconditioning calves?

1. Choose a pasture or hay meadow on your best, most fertile soil. Thirty calves need 6 to 17 acres of pasture for a 42 day preconditioning period, depending on rainfall and level of supplementation. Prepare the larger area and use the leftovers as fall grazing for the cows after the calves are shipped.
2. Five to six weeks before weaning, graze or hay this area to clean it up by removing older growth. Stagger the cleanup of the area so that the calves always have forage that is five to six weeks old during the preconditioning period.
3. If the area has a good stand of legumes (25-35 percent clover), no fertilizer will be needed. If there is little legume apply 50 lbs/acre of available nitrogen as urea, ammonia nitrate, or poultry manure.
4. At weaning, give calves access to one-sixth of the area. Calves can be put into another sixth of the area each week. If water is available at one location, allow calves to go back to the water. Don't make the calves graze the pasture closer than 4 inches. After calves are shipped, the cow herd can clean up the remaining forage as part of their fall grazing.

By planning ahead producers can provide high-quality pasture for preconditioning calves. Improved gains on high-quality, low-cost pasture will help increase net income at sale.