AN174

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Get Calves Ready for the Long Haul[1]

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Transporting beef calves post weaning to a feedlot facility is quite stressful. Short-term but significant reductions in feed and water intakes can result. Data compiled in Texas feed yards over seven years showed that healthy cattle consumed more feed during the first seven, 28, and 56 days after arrival than their non-healthy counterparts. When feed intakes are low, i.e., less than one percent of body weight, it is nearly impossible to formulate any kind of diet that will adequately meet animal requirements. However, transport-stressed calves will, when given a choice, consume greater quantities of high-energy diets and diets that are higher in concentrates than their unstressed mates. Normal levels of dry matter intake will not be observed until sometime during the third week after arrival which indicates that a 21-day receiving period is optimal.

Although stress can be induced rapidly, it does not go away as quickly. The known stress hormone cortisol has been shown to remain persistently elevated in cattle for up to three weeks after they arrive in the feedlot. Mother Nature can also provide some additional challenges that affect calf performance after arrival, especially when calves experience complete environmental changes as they are likely to do when they are moved from the sub-tropical climate of Florida to more arid regions of the Texas and Oklahoma panhandles and southwest Kansas. It is clear that the nutritional status of the calf prior to transport can be significant with respect to its ability to resist disease-causing agents. An animal's response to therapeutic treatment, when treatment is necessary, may also be influenced by its previous and current nutritional status.

Whether ownership is retained or calves are sold outright at weaning, preconditioning for as few as seven to fourteen days will likely improve the value of calves to a greater extent than the incremental cost of backgrounding. The improved value may come in various forms including recovery of some weight lost during weaning, or better performance and health of calves on arrival which can be very beneficial, since it can lead to a better perception of a particular herd's overall management. The improvement in performance after arrival may be a bargaining tool and increase competition for the calf crop in subsequent years. According to data compiled in the development of the Texas Value Added Calf Management Program (TEX-VAC), calves that were handled according to program guidelines were worth a premium on the market of $2.00 to $6.00 per hundred pounds (cwt.).

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Ultimately, the components of a preconditioning program may be rather variable depending on ranch goals, available labor, available equipment, etc. However, in order to optimize performance, health, and ranch reputation, calves should be weaned and well rested before transport (or sale), in good body and nutritional condition, and adequately vaccinated (work with a veterinarian to develop an appropriate vaccination program). Calves should also be trained to eat from a bunk or feeder and be able to recognize automatic water basins. Following is a table displaying recommended nutrient concentrations of a post-weaning, preconditioning diet.

Table 1. Suggested nutrient concentrations in a pre-conditioning diet for beef calves[1]

			Daily nutrient intake (550 lb calf)[2]		
Nutrient	Unit	Range	Unit	0-7 days	0-14 days
Dry matter[3]	%	80.0 – 85.0	lb	8.54	10.46
Crude protein	%	12.5 – 14.5	lb	1.06 – 1.23	1.31 – 1.52
NEm	Mcal/kg	1.3 – 1.6	Mcal	4.84	4.84
NEg	Mcal/kg	0.8 – 0.9	Mcal	0.01 – 0.8	0.6 – 1.6
Calcium	%	0.6 – 0.8	G	23.0 – 31.0	29.0 – 38.0
Phosphorus	%	0.4 – 0.5	G	16.0 – 19.0	19.0 – 24.0
Potassium	%	1.2 – 1.4	G	47.0 – 54.0	57.0 – 67.0
Magnesium	%	0.2 – 0.3	G	8.0 – 12.0	10.0 – 14.0
Sodium	%	02. – 0.3	G	8.0 – 12.0	10.0 – 14.0
Vitamin A	IU/kg	4,000.0 – 6,000.0	IU	15,500.0 – 23,250.0	19,000.0 – 28,500.0
Vitamin E	IU/kg	400.0 – 500.0	IU	97.0 – 291.0	119.0 – 356.0

[1]Adapted from Nutrient Requirements of Beef Cattle (NRC), 7th Rev. Ed., 1996

[2]Intake levels are based on DMI of 1.55% for day 0 through 7, and DMI of 1.90% for days 0 through 14.

[3]Dry matter is not a nutrient, but an important part of this representation.