

# Feedlot Section

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## For Better Health Ship Them Full

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Food animal health is not only important to the livestockman but to the American housewife as well. It saves both of them money.

Shipping fever is the number one health problem confronting the stocker cattle producer. This problem increases production costs and affects the consumer as the overall costs change. Historically, records show in our area that 40% of these cattle become sick, 5% die and 1% remains chronically ill.

A question frequently asked all of you is, "How much money do I lose when an animal becomes sick?" Death loss costs are easy to figure. We know there is some loss from morbidity, but determining a dollar and cents value is difficult. In order to obtain some facts upon which to determine costs, we conducted three trials involving 224 head. These animals were ear-tagged and monitored through the entire feeding period. At the end of 30 days, the calves that had not been sick at all had averaged gaining 2.32 pounds per head per day. The calves that got sick were pulled and treated for approximately three days. There were no animals included in the sick cattle that died or became chronic because we wanted to determine what it cost just if an animal became sick. At the end of 30 days, the sick calves had averaged gaining 1.9 pounds per head per day. This was a 42 pounds per head per day difference or approximately 12 pounds per head less gain for the sick animals. From 30 days on through the remainder of the feeding period, the sick cattle performed equal to the animals that did not get sick but they were never able to make compensatory gain and catch up. They were marketed 12 pounds per head lighter. On top of the decreased gain, you have the expense of drugs and labor. We conservatively estimate it costs between \$12 to \$15 per head for an animal to get sick.

To determine the physiological changes that occur in cattle during the stress of shipping, steers were bought on a farm near Lexington, Ky. Samples of blood and cultures of nasal swabs of every animal were taken at the farm. They were tested by Experi-

ment Station veterinarians at Texas A&M to determine what was normal for these animals. From random selection, half of the cattle were sent direct from the farm to Amarillo. Samples were again taken upon arrival of the cattle shipped direct to Amarillo from the farm. These calves were enroute approximately 24 hours. The other half were sent through two sale rings then shipped to Amarillo, as was the normal commercial practice at that time. I am sure this is again occurring with current cattle prices. These calves were approximately 72 hours in the marketing chain before arrival in Amarillo. The animals going through the marketing channels were sampled twice enroute and upon arrival at Amarillo all animals were sampled again at day 5 and blood glucose was back to normal for both groups. Thirty-two percent of the cattle shipped direct from the farm to Amarillo became sick and required treatment. The steers going through the same rings and then being shipped had a 60% morbidity. There was no death loss in the steers shipped direct and a 5% death loss in the stressed cattle. The only significant physiological change to occur during the marketing and shipping of these animals was a drastic drop in blood glucose in the animals stressed longer from going through the marketing channels.

Serum Glucose (mg%) Changes  
in Heavily Stressed Calves

	Origin	2nd Sale	1/2 Way	Arrival	Day 5
Direct	57	-	-	80	66
Stressed	62	49	64	36	57

Checking the correlation between the severity of shipping fever and blood glucose levels we found:

Serum Glucose as Related to Severity  
of Shipping Fever

	Severity		
	None	Average	Severe
No. calves	20	11	8
Range glucose mg%	53-102	57-93	26-50

Under severity "none" refers to cattle that did not get sick at all. "Average" refers to cattle that did get sick, were treated, responded well and were out of the sick pen in 3 to 4 days. There was no significant difference in the glucose levels between the normal and the average group. "Severe" refers to animals that required from 7 to 10 days' treatment. Those animals that did recover required a long convalescence before returning to normal. From this trial it appears that around 50 mg percent of glucose is a critical level. If blood glucose levels remain above this level the animal may or may not get sick but his response to treatment usually would be good, whereas in those animals having below 50 mg percent glucose level the response to treatment would frequently be poor.

In a cooperative effort between the Texas Agricultural Extension Service and the Texas Agricultural Experiment Station, trials were conducted to determine if the lowering of blood glucose could be lessened, using methods that would be practical enough for use in regular marketing channels.

The first place in the marketing chain that large numbers of cattle are assembled is the area auction barn. For this reason it was decided they would be the most practical place to work.

Three trials were conducted, each trial consisting of one truckload of cattle. There were 340 head total with an average weight of 370 pounds per head. To reduce the drop in blood glucose, a 55% concentrate ration containing 5% propylene glycol was formulated by Dr. Wally Koers and Dr. Cal Parrott. This ration was fed to half the cattle from arrival at the auction barn. The ration included ingredients that can be obtained from any area of the country with palatability being a major criteria. The remaining half of the stocker animals were fed good quality hay, the normal practice of most commission barns. The cattle were then shipped to the research feedlot near Amarillo, Texas, where the effect of preshipment feeding on health and performance was monitored.

Kentucky Preshipment Ration

	Lbs./1,000 Lb.
Corn	320
Cottonseed Hulls	450
Propylene Glycol	50
Molasses	40
Soybean Meal	70
Dical	3
Limestone	7
Vitamin & Trace	5
Salt	5
Avreo - 10	50
	1,000

Texas Agricultural Expt. Station, 1974

They were all fed a conventional feedlot diet upon arrival so that the only difference was the preshipment diet.

Consumption of this ration averaged 6 pounds per head per day. The cattle on hay consumed 5.7 pounds per head per day. From these three trials it appears feeding the ration for 24 hours prior to shipment is sufficient time since there was no significant difference in either sickness or death loss in animals eating the ration for a longer period.

**The trials were terminated at the end of 28 days, and cattle fed the grain ration prior to shipment averaged gaining 5.6 pounds per head more than the cattle receiving hay.**

The most important advantage was that the grain-fed cattle had a reduction of 16% in the number that got sick, and a 64% reduction in death loss.

Comparison of Preshipment Rations for Calves  
(Summary of Three Trials)

Item	Mixed Ration	Only Hay	Difference
No. Calves	170	170	
Morbidity %	35	42	-16
Mortality %	2.3	6.4	-64
No. Dead	4	11	

The experiment was repeated because conflicting data had been observed. It became obvious after this last trial that energy given prior to shipment gives the most profound effect when animals are severely stressed.

This trial was conducted in September 1978. The cattle were obtained from the Knoxville, Tenn., area. There were 160 head of cattle in the trial. The trial procedure and ration was the same as the previous experiments. These cattle had an additional stress because the first three days in Amarillo were cold and rainy. Consequently, the morbidity was high. This trial was also terminated at the end of 28 days and the cattle fed the grain ration prior to shipment averaged gaining 4.9 pounds per head more than the cattle receiving hay.

**The most important advantage gain was that the grain-fed cattle had a reduction of 23% in morbidity and an 81% reduction in mortality.**

Comparison of Preshipment Rations for Calves  
(Tennessee Trial)

Item	Mixed Ration	Only Hay	Difference
No. Calves	80	80	-23
Morbidity %	43.8	57.5	-23
Mortality %	2.5	13.8	-81
No. Dead	2	11	