

# MU Guide

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## Care of Newly Purchased Feeder Cattle

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The way cattle are handled shortly before loading, during hauling and the first two weeks in the feedlot has a great influence on the overall performance of feedlot cattle. There is no one program that will give best results for all feeder cattle, nor will the same results occur each year. "Cattle sense" is developed by close observation and experience.

Keep records on each bunch of cattle. These records will be useful in helping you provide the most practical and economical program for the next group of incoming cattle. Develop a program which fits your operation and area.

Post mortem examinations are worthwhile in ascertaining problems and the results should be considered for future health and management programs.

The following are general guidelines which should be helpful to you in deciding how to handle newly purchased feeder cattle.

### Considerations before purchase

1. Disease and parasite problems are more apt to occur, with greater severity, in calves under 400 lbs.
2. Bunching of cattle from several groups is conducive to introduction and spread of diseases and parasites.

### Number of Animals for Safe Loading

Cattle Per Truck

Average Weight	700	800	900	1000	1100
13-ft. truck	11	10	9	8	7
16-ft. truck	14	13	12	11	10
20-ft. truck	18	16	15	13	12
24-ft. truck	22	20	18	16	15
40-ft. truck	36	32	30	26	24



Close observation during unloading and during the following one or two weeks is very important. Well constructed facilities reduce handling time, stress and chances of injury.

3. Preconditioned calves usually are less likely to develop disease.
4. If possible, secure history of vaccinations and other pertinent information on cattle to be purchased.
5. Avoid purchasing sick calves or those exposed to sick cattle.



Feedlots should be in good repair and free of mudholes, stones and loose wire. Feed and water troughs should be readily available to newly arrived cattle.

## Reduce stress before and during shipment

1. If there is doubt about the health of cattle, take body temperature prior to loading. It is more economical to treat feverish cattle and delay the shipment.
2. Insist that cattle are assembled and held for shipment the shortest period of time possible.
3. Avoid overcrowding cattle during hauling. Overcrowding creates excitement, slipping, and falling. Calves weighing 500 lbs. each should have approximately 8 sq. ft. of floor space.
4. Trucks with wooden floors should be bedded with sand or sand and straw to help prevent slipping and falling. Straw should be used in trucks with aluminum floors to absorb excess moisture.
5. Don't use electric prods. Handle cattle as gently as possible when loading and unloading. Any excitement is stressful.
6. Buyers should insist that cattle be trucked from point of origin to feed yard in shortest time practical. Two drivers on long hauls has been shown to reduce morbidity and mortality after arrival at feedlot.

## Physical plant and management of new arrivals

1. Thoroughly clean and repair the lot and equipment for new cattle. Repair fences and fill mud holes. Remove wire, stones and other objects. These measures should reduce foot injuries and foot rot problems.
2. Provide unloading facilities and chutes so that cattle may be handled with least amount of stress. Chutes should be no more than 24 inches in width for cattle up to 1,000 lbs. Avoid frequent handling or movement of cattle until they have recovered from stress of shipment.
3. A small lot should be provided for treatment and isolation of sick animals. Individual, easily cleaned feed and water containers should be available. The lot should have a squeeze gate or some method to restrain animals for examination and treatment.
4. Keep animals from different sources separated as much as possible. New arrivals should be penned separately from cattle already in the lot. They should not be allowed to drink from the same water tank or eat from the same bunk.

5. Observe cattle frequently and at a distance before animals are aroused.
6. Watch for cattle that fail to eat, appear tired or show other signs of illness.
7. Take sick animals to sick pen for diagnosis and possible treatment by or upon the advice of a veterinarian.
8. Take body temperatures. Treat cattle with body temperatures over 103.5 degrees. An elevation of body temperature is often the first sign of sickness. Electronic thermometers are now available that will give an accurate body temperature within 15 seconds or less. Livestock temperatures can be taken without holding up processing.

## Vaccinations, medication, and parasite control

1. Consult local veterinarian for vaccination program.
2. Most feedlot operators and backgrounders revaccinate incoming cattle even though the cattle have been previously vaccinated. In most cases this practice appears to be economically beneficial and is worth the additional disease prevention.
3. In practice, preconditioning may not be as good as it sounds. This practice is not without its critics.

The practice of weaning calves three to four weeks before shipment and feeding them a preconditioning ration was not economical for either the cow-calf producer or the cattle feeder in a summary of 20 experiments, according to Dr. Andy Cole, USDA Agricultural research Service, Bushland, Texas.

In feeding studies, calves were weaned and fed a concentrate diet for 30 days prior to weaning compared to leaving them on the cow without feed. Preconditioned calves tended to have poorer feed efficiencies in the feedlot compared to the control group.

Recent studies at Iowa State University indicated that, in general, preconditioning by cow-calf producers was not profitable for either the cow-calf producer or the cattle feeder.

An alternative program to preconditioning that could be economical for both the cow-calf producer and cattle feeder would be leaving the calf on the cow and limit feeding 1 to 3 lbs. of creep feed per head daily for the last 30 to 60 days before shipping, according to Cole. Calves should be castrated and dehorned. Vaccination of the calf 2 to 4 weeks before weaning tends to develop better immunity than waiting to vaccinate after the calf has been stressed in the marketing process. Calves should be re-vaccinated when they come to the feedlot. The use of high energy feeds both prior to shipping and on arrival for animals under 400 lbs. seems to be consistently beneficial.

4. The use of antibiotics before shipment has not proved to be consistently beneficial. However, cattle that have been in sale barns or holding facilities for 72 hours or more should be closely checked for fever and other indications of illness and treated before shipment if so indicated.
5. Vaccinate at time of arrival if cattle are healthy. If cattle are sick or extremely stressed or fatigued processing should be delayed 24 to 48 hours. A suggested program is to vaccinate on arrival against IBR, BVD, PI3, BRSV, 7-way clostridial and lot tag and implant. It is somewhat debatable whether to deworm, and back pour for grubs and lice at this time or delay until cattle are settled in or when the second round of vaccinations for IBR, BVD, PI3 and BRSV are given at 5 to 14 days post arrival. The same can be said for castration and dehorning. In fact horn tipping should be highly considered versus dehorning.
6. Internal parasites reduce the appetite of cattle. Cattle with reduced appetites gain less, are more susceptible to disease, and are slower to recover from disease. The greatest benefit from worm treatment is derived during the early phase of the feeding period.

Practically all calves weighing 400-500 lbs. off grass should be treated for internal parasites. It may not be necessary to treat yearling cattle. Several effective dewormers are available either as drenches, injectables or pour-ons. The cost and overall effectiveness should be considered. The best time is before shipment to the feedlot. The next best time is when they are being vaccinated and worked through a chute following arrival at the feedlot.

Sick cattle which have not received worm treatment should receive one of the non-toxic worm treatments as a part of the overall treatment.

7. External parasite control involves lice and grubs mainly. Consult a veterinarian concerning cutoff dates on use of organic phosphates for grub control and the probable side effects if these dates are ignored. Serious ill effects or even death may occur if organic phosphates and phenothiazine are administered within a month of each other.

## Nutrition

Most cattle have been without feed for 24-48 hours when they arrive at the feedlot. They have a reduction and shift in their rumen bacteria population which makes them susceptible to digestive upsets. University of California work indicated that after 48 hours of starvation, rumen bacterial numbers were reduced to 10-15 percent of normal. The chance of

lactic acid build-up in the rumen was greatly increased in starved cattle that were offered energy feeds. Lactic acid-producing bacteria had a good survival, whereas bacteria that utilize lactic acid were completely absent.

The following goals for a feeding program to start new cattle explain why it is difficult to outline a system that is best for all situations. Rations that satisfy one goal may be wrong for one or more of the other goals. Thus, starting rations usually wind up being a compromise.

## Goals

1. To provide maximum energy input to restore health and disease resistance.
2. To provide for rapid restoration of rumen function and rapid adjustment to growing or fattening rations.
3. To prevent rumen disorders.

One method is to feed a low-energy ration such as a low-quality roughage. This type ration will satisfy the third objective because rumen disorders are usually kept to a minimum. Such rations, however, do not provide maximum energy to restore health and disease resistance (Goal 1), or condition animals to high-energy growing or finishing rations (Goal 2).

The other extreme is to use a high-quality roughage with various combinations of grain. These higher-energy rations provide quick restoration of health and disease resistance (Goal 1), hasten the return to normal rumen function, and rapidly adjust the animal to high-grain rations (Goal 2). But higher-energy rations increase the danger of something going wrong to cause rumen disorders (Goal 3).

High-energy rations tend to cause a rapid buildup of lactic acid-producing organisms in the underpopulated rumen. These bacteria often produce more acid than can be used by other organisms or dissipated by the animal. Acid accumulation causes a sharp drop in rumen pH. The resulting acidosis in the system of the animal can cause it to go off feed, become sluggish, have diarrhea, and become dehydrated.

## Water

1. It is advisable to use shallow pens or a temporary fence across the pen to keep new cattle close to water tanks and feed bunks.
2. Highly stressed cattle offered water only for the first 6 to 8 hours after arrival at the feedlot and then given feed consumed more feed the first day than

cattle offered feed followed by water 6 to 8 hours later in studies at Texas Tech University. Giving both feed and water on arrival produced intermediate results on feed intake for the first day.

3. Most cattle are not accustomed to drinking from automatic waterers. You may need to add stock tanks to receiving pens. If possible use running water to attract cattle by tying down float on water tank. In extreme cases cattle may be turned to a stream or pond to get them to drink.
4. Waterers should be kept clean and free of algae and waste feed.

## Receiving Rations

Getting calves to eat enough of a receiving ration at the start is a problem. New calves ate intermittently in Texas studies. One-half of the calves did not eat any feed on the third day after arrival. About 85 percent of the calves were coming to the feed trough daily by the 10th day. They found calves to eat 0.5 to 1.0 percent of their bodyweight as feed the first week and 1.5 to 2.0 percent during the second week. Thus, receiving rations must be palatable and highly fortified with nutrients if stressed calves are going to consume close to their daily nutrient needs the first two weeks after arrival.

Extensive studies at the University of California and New Mexico State University have indicated a receiving ration with 70-75 percent concentrates worked best for highly stressed calves weighing 275 to 400 lbs. A ration with 50 percent concentrate was best for receiving yearling cattle. The incidence of Bovine Respiratory Disease (BRD) in highly stressed calves increased with higher levels of energy in receiving rations. Providing long stem grass hay or alfalfa hay free-choice for the first week with 70 to 75 percent concentrate rations reduced the effect of high energy on the occurrence of BRD. Other hays that have been used successfully for new cattle include oat, wheat and Sudan grass.

Milo and barley, which are lower in energy than corn, were used in these 70-75 percent concentrate rations. In Iowa State University studies, when corn was used with soybean meal to supply the concentrate, a 60 percent concentrate ration was superior to a 75 percent concentrate ration for starting newly weaned calves that had not been stressed through market channels. This 60 percent concentrate ration had similar energy to the 75 percent concentrate rations used in the California and New Mexico studies.

Corn cobs were used for the 25 to 40 percent roughage in dry milled rations while corn silage and alfalfa hay were the source of roughage in conventional cornbelt starting rations in the Iowa trials. Results were similar with the two types of receiving



rations showing that corn silage can be used successfully in receiving rations for calves. However, starting calves on a 60 percent milled diet and then converting them to silage during the third week gave 1.0 lb per head more daily gain the first two weeks compared to starting calves directly on a diet of 86.4 percent corn silage and 13.6 percent supplement on a dry matter basis.

Grass hay plus two pounds of protein supplement per head daily gave lower performance than 50 to 75 percent concentrate milled rations fed with free-choice prairie hay in New Mexico work. However, results at the University of Oklahoma showed their best receiving diet for highly stressed calves was free-choice prairie hay and 2 lbs. of a pelleted, 30 to 40 percent protein supplement.

### Guides for receiving rations

Natural protein is superior to urea for the first four weeks of the starting period for calves. Cattle under 600 lbs. will continue to perform better on natural vs. urea protein supplements. A 70 percent concentrate ration should contain 14 percent crude protein (dry matter basis). A protein blend of blood meal and corn gluten meal, high bypass protein sources, caused stressed calves to regain their purchase weight 15 percent faster than those fed cottonseed meal in California comparisons. These high bypass protein sources, or cottonseed meal or a blend of cottonseed meal and bypass protein were superior to urea for the first 4 weeks for new calves in Texas

Receiving Rations				
Percent Concentrate:	62	65	65	58**
Ground corn	42.50	49.75	42.00	.85
Soybean meal	13.50	9.00	16.90	5.20
Molasses	5.00	5.00	4.00	.17
Alfalfa meal, dehy.	7.50	-	-	-
Alfalfa hay	-	15.00	-	-
Fescue hay	-	20.00	-	-
Cottonseed hulls	30.00	-	-	-
Corn cobs	-	-	34.60	-
Corn silage (33% DM)	-	-	-	93.00
Dicalcium phosphate	.35	.35	.40	.15
Limestone	.75	.50	1.10	.35
Potassium chloride	-	-	.60	.10
Trace mineral salt	.40	.40	.40	.18
Coccidiostat or ionophore+		+	+	+
Vitamin A, D & E*	+	+	+	+
Composition DM Basis				
Protein	14.2	14.0	14.1	13.4
TDN	69.6	71.9	70.5	70.1
Ca	.67	.69	.70	.68
P	.35	.36	.35	.36
K	1.05	1.17	1.25	1.23
<p>*Provide 3,000 I.U. of Vitamin A, 350 I.U. Vitamin D and 50 I.U. Vitamin D per pound of ration.  **The 7 lbs. of concentrate fed with the 93 lbs. of silage has this formula. Ground corn 121.43, soybean meal 742.86, molasses 24.29, Dical 21.43, limestone 50, potassium chloride 14.29, trace salt 25.71. The ratio of the concentrate to corn silage should change in the same ratio that silage dry matter changes from 33 percent.</p>				

Tech University studies. Texas A&M University studies showed calves that are to go through marketing and transit stresses should be fed a low (8 percent) protein diet prior to transport and a high (15 percent DM) protein diet upon arrival at the feedlot.

Cattle lose body water and body potassium during transit. Receiving rations with around 1.3 percent potassium (dry matter) for the first two weeks after arrival have tended to increase the weight recovery and improve the health of stressed calves over rations with lower levels of potassium. After the first two weeks the potassium can be lowered to 0.8 to 1.0 percent. A calcium level of 0.65 percent and a phosphorus level of 0.33 percent in the dry matter of the ration are recommended. Salt is usually added at .3 to .5 percent.

Vitamin A should be added at 2,500 to 3,500 I.U., Vitamin D at 350 I.U., and Vitamin E at 50 to 100 I.U. per pound of ration. The daily per head supplementation of these vitamins would be: Vitamin A 30,000 I.U., Vitamin D 3,000 I.U. and Vitamin E 400 I.U. Results with B-complex vitamins in receiving rations have been variable. Positive results were obtained by adding 600 mg niacin, 200 mg thiamin, and 750 mg choline per head daily plus minor quantities of the other B-complex vitamins to receiving rations for stressed 450-lb. calves at a Kansas Experiment Station.

Adding the ionophores Rumensin<sup>R</sup> or Bovatec<sup>R</sup> to receiving rations has increased performance.

Bovatec is added at 30 grams per ton of ration. Rumensin may cause a noticeable decrease in feed intake until cattle become accustomed to it. Add 10 grams of Rumensin per ton to receiving rations for the first two weeks and then increase to 25 to 30 grams per ton thereafter.

Coccidiosis can be a problem in feeder cattle. Infected cattle fed a coccidiostat (Decoquate<sup>®</sup>) for the first 28 days in a Texas trial had increased performance and less mortality. Bovatec and Rumensin will aid in controlling coccidiosis in cattle. The reduced level of Rumensin recommended for starting rations reduces its effectiveness as a coccidiostat. Feeding .4 to .8 grams of an antibiotic per head daily for three to four weeks has decreased sickness and improved rate of gain and feed efficiency for cattle starting on feed. Some of this extra gain may be lost later in the feeding period.

Consult with your veterinarian about the use of high levels of antibiotics in receiving rations to be sure it doesn't interfere with the therapeutic use of medicines that he is prescribing.

Probiotics is the concept of inoculating the digestive tract of an animal with beneficial organisms. Probiotics can be administered through the feed or through pastes, gels, drenches and the drinking water. Research results have varied on the use of probiotics to improve the performance of cattle coming into the feedlot. Further developments should be watched to determine the value of this practice.



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