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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 that fits your operation and area.

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

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

Considerations before purchase

- Disease and parasite problems are more apt to occur, and with greater severity, in calves under 400 pounds.
- Bunching of cattle from several groups is conducive to the introduction and spread of diseases and parasites.
- Preconditioned calves usually are less likely to develop disease.
- If possible, secure a history of vaccinations and other pertinent information on cattle that are to be purchased.
- Avoid purchasing sick calves or those exposed to sick cattle.

Reducing stress from shipment

- If there is any doubt about the health of cattle, take the body temperature prior to loading. It is more economical to treat feverish cattle and to delay shipment.

- Insist that cattle are assembled and held for shipment for the shortest period of time possible.
- Avoid overcrowding cattle during hauling. Overcrowding creates excitement, slipping and falling. Calves weighing 500 pounds should have approximately 8 square feet of floor space each.
- Trucks that have wooden floors should be bedded with sand, or straw and sand, to help prevent slipping and falling. Straw should be used in trucks that have aluminum floors in order to absorb excess moisture.
- Don't use electric prods. Handle cattle as gently as possible when loading and unloading. Any excitement is stressful.
- Buyers should insist that cattle be trucked from point of origin to feed yard in the shortest time practical. Two drivers on long hauls has been shown to reduce morbidity and mortality after arrival at feedlot.

Managing new arrivals

- Thoroughly clean and repair 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.
- Provide unloading facilities and chutes so cattle are handled with least amount of stress. Chutes should be no more than 24 inches in width for cattle up to 1,000 pounds. Avoid frequent handling or movement of cattle until they have recovered from stress of shipment.
- 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.
- Keep animals from different sources separated as much as possible. New arrivals should be penned apart from cattle already in the lot and kept from drinking the same water or eating from the same bunk.
- Observe cattle frequently and at a distance before animals are aroused.
- Watch for cattle that fail to eat, appear tired or show other signs of illness.
- Take sick animals to sick pen for diagnosis and possible treatment by or upon advice of a veterinarian.
- Take body temperatures. Treat cattle with temperatures over 103.5 degrees Fahrenheit. A temperature elevation 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.

Medication

- Consult veterinarian for vaccination program.
- 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.
- 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, as compared to leaving them on the cow without feed. Preconditioned calves tended to have poorer feed efficiencies in the feedlot in comparison 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 the cattle feeder would be leaving the calf on the cow and limit feeding 1 to 3 pounds of creep feed per head daily for the last 30 to 60 days before shipping, according to Cole. Calves should be castrated and dehorned. The use of high-energy feeds both prior to shipping and on arrival for animals under 400 pounds seems to be consistently beneficial.

- 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.
- 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.
- 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 to 500 pounds 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 that have not received worm treatment should receive one of the nontoxic worm treatments as a part of the overall treatment.

- External parasite control mainly involves lice and grubs. 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 to 48 hours when they arrive at the feedlot. They have a reduction and shift in their rumen bacteria population that makes them susceptible to digestive upsets. University of California work indicated that after 48 hours of starvation, rumen bacterial numbers were reduced to 10 to 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 use 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

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

One method is to feed a low-energy ration such as a low-quality roughage. This type of ration will satisfy the third objective since rumen disorders are usually kept to a minimum. However, such rations 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 build-up 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

- 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.
- 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.
- 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 typing down float on water tank. In extreme cases cattle may be turned to a stream or pond to get them to drink.
- 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. 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. Calves were found to eat 0.5 to 1.0 percent of their body weight 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 to 75 percent concentrates worked best for highly stressed calves weighing 275 to 400 pounds. 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 stress 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 to 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 pound 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 2 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 pounds 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 pounds will continue to perform better on natural versus 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, 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 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 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 0.3 to 0.5 percent.

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

Adding the ionophores Rumensin® or Bovatec® 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 (decoquinate) 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 0.4 to 0.8 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.

Table 1
Number of animals for safe loading

Cattle per truck (by weight in pounds)					
Average	700 pounds	800 pounds	900 pounds	1,000 pounds	1,100 pounds
13-foot truck	11	10	9	8	7
16-foot truck	14	13	12	11	10
20-foot truck	18	16	15	13	12
24-foot truck	22	20	18	16	15

40-foot truck	36	32	30	26	24
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Table 2
Receiving rations

Percent concentrate:	62	65	65	58 ¹
Ground corn	42.5	49.75	42.0	0.85
Soybean meal	13.5	9.0	16.9	5.2
Molasses	5.0	5.0	4.0	0.17
Alfalfa meal, dehydrated	7.5			
Alfalfa hay		15.0		
Fescue hay		20.0		
Cottonseed hulls	30.0			
Corn cobs			34.6	
Corn silage (33 percent DM)				93.0
Dicalcium phosphate	0.35	0.35	0.4	0.15
Limestone	0.75	0.5	1.1	0.35
Potassium chloride			0.6	0.1
Trace mineral salt	0.4	0.4	0.4	0.18
Coccidiostat or ionophore	+	+	+	+
Vitamin A, D and E ²	+	+	+	+

¹The 7 pounds of concentrate fed with the 93 pounds 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.

²Provide 3,000 IU of Vitamin A, 350 IU Vitamin D and 50 IU Vitamin D per pound of ration.

Table 3
Composition DM basis

Protein	14.2	14.0	14.1	13.4
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TDN	69.6	71.9	70.5	70.1
Ca	0.67	0.69	0.7	0.68
P	0.35	0.36	0.35	0.36
K	1.05	1.17	1.25	1.23

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Related MU Extension publications

- G2090, Growth Stimulants (Implants)
<http://extension.missouri.edu/publications/DisplayPub.aspx?P=G2090>
- G2095, Backgrounding Calves Part 1: Assessing the Opportunity
<http://extension.missouri.edu/publications/DisplayPub.aspx?P=G2095>
- G2096, Backgrounding Calves Part 2: Herd Health and Feeding
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