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Fall is a stressful time for calves. They are generally weaned at this time. Following weaning, they are often transported or moved to a sale barn or unfamiliar facility. Upon arrival, they may be mixed with other cattle, subjected to processing and forced to eat unfamiliar feeds. In addition, all of these stresses may be compounded by foul weather.

To combat the negative impacts of stress, cattlemen should strive to get new calves on feed as rapidly as possible. Proper nutrition and a consistent health program are essential when starting calves on feed. Proper nutrition is important from two standpoints. First, the success of any health program is highly dependant on the nutritional status of the calf. In order for the immune system of the calf to form antibodies in response to vaccination programs, sufficient protein, energy, vitamins and minerals must be available. The second reason is more obvious. The calf simply needs to consume feed in order to grow and thrive. Ownership and facility costs are generally high. Feeder cattle need to gain weight in order to make money for cattlemen.

Newly arrived or recently weaned calves do not readily eat upon arrival in a feedlot. Texas data (Hutcheson, 1980) suggests that a surprisingly high percentage of cattle do not eat during the first few days in the feedlot. Table 1 shows that on day one in the feedlot, only 21.7% of the cattle eat. On day

Table 1. The percentage of calves eating during the first 10 days after arrival.[a]

Day	Calves eating, %	Range, %
1	21.7	0-50
2	36.7	10-60
3	56.7	30-90
4	61.7	30-90
5	66.7	40-90
6	68.3	40-90
7	70.0	60-90
8	71.7	60-90
9	73.3	60-90
10	85.0	60-100

[a] Hutcheson, 1980.

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three, over 40% of the cattle will not eat. On day seven, 30% of the cattle will not eat. And on day 10, an average of 15% of the cattle will not eat. These data suggest that getting cattle started on feed is a major problem.

Three problems need to be addressed in order to get cattle started on feed. First, recently weaned or newly arrived cattle will generally not recognize the feed bunk and may not recognize water troughs. Second, new cattle may not recognize the feed that the producer wishes to feed him. Finally, feed intake by new cattle will likely be low due to stress. The remaining sections of this paper focus on managing around these problems. Additional sections include discussions of feed additives, commercial receiving, or weaning rations and health programs.

Starting Calves on Feed

When cattle first arrive at an unfamiliar facility, they will spend considerable time circling the pen. They walk the fence line, often for hours and sometimes days, searching for a way out. If feedbunks and water troughs are located in the center of the pen, it may be days before some of the cattle stumble across them. Feedbunks and water troughs should be located along the fence line so that as cattle circle the pen, they are forced to walk past them.

Feeding pens for new cattle should be of the proper design. In South Dakota, feedlots should be designed to reduce mud and wind chill problems. Properly constructed mounds, wind breaks, feeding aprons, and feedbunks are a must. Producers are urged to consult the Beef Housing and Equipment Handbook published by Midwest Plan Service. This book is available through the Agricultural Engineering Department at SDSU.

Some cattlemen use an older calf, that is familiar with the facility, to train the newly arrived or weaned cattle. This leader calf knows the location of the feed bunks and knows how to drink out of waterers. Presumably, the new cattle will follow the example of the older calf and begin to eat and drink a bit sooner. Recent research at Oklahoma State University (Hays et al., 1988) demonstrated no benefit to using a leader calf to train new cattle.

Preconditioned calves or calves that had been creep fed generally know what a feedbunk is and will start on feed much sooner than non-preconditioned or non-creep fed calves. Feedlot operators who have difficulty starting calves on feed or who need to spend more time on the combine or at some other task may wish to purchase preconditioned calves. They will start on feed more quickly and will likely perform better for them during the first 30 days on feed.

A three year South Dakota State University study showed that preconditioned calves consumed 1.75 lbs more dry matter and gained .24 lbs more weight per head daily than non-preconditioned calves during the first 28 days in the feedlot (Table 2). However, advantages in feedlot performance due to preconditioning generally disappear by the time cattle are slaughtered.

Of all the feeds that are fed to cattle, good quality grass hay is the one commodity that most closely resembles the calves' natural environment. Most calves will nibble at and eat grass hay soon after arriving at the lot or shortly after weaning. Good quality, long stem grass hay that is free from mold, excessive weeds, and other foreign matter should be placed in the feedbunk the first few days in order to entice the cattle to the bunk. Many feeders would prefer to use large round bales in their feeding program. However, small square bales work very nicely for starting calves. Hay can be placed into the bunk more easily from a small square bale. Once the cattle are on feed, ground hay may be used facilitating the use of larger hay packages.

The receiving or weaning ration should be sprinkled on top of the grass hay. Use between .5 and .75% of the calf's body weight to start out. This will force the cattle to eat through the concentrate to get to the long stem grass hay. In the process of nibbling at the hay, the calf will get a taste of the ration. This feed should be highly palatable. The calf should like what he is eating and should want to come back for more.

Some producers use silage, haylage, or alfalfa hay very aggressively when starting new calves. However, silages, haylages, and alfalfa hay may not be familiar to the calf. He may not recognize them as being good to eat. The fermented smell of silage and haylage may limit intake. In addition, alfalfa may lead to bloat problems. Many feeders may wish to introduce silages, haylages or alfalfa hay in to the feeding program gradually. On the second day in the lot, provided that the cattle are eating, begin by sprinkling a few crumbles of silage, haylage, or alfalfa hay in the bunk. Increase to 2 lb per head the next day.

Table 2. Effect of preconditioning on feedlot performance (day 1-28).[a]

Item[b]	Treatment	
	Control	Preconditioned
ADG, lbs.	2.89	3.13
DDMI, lbs.	11.71	13.46
F/G	4.05	4.30

[a] Adapted from Pritchard et al. (1987).

[b] ADG = Average daily gain, DDMI = Daily dry matter intake and F/G = Feed/gain.

Substitute about 2 lb of silage, haylage, or alfalfa hay for the long stem grass hay each day until the desired amount is being fed.

Receiving or Weaning Rations

New cattle will likely not eat very much when they first arrive in the lot. Therefore, it is important that each bite of feed they take contain significant amounts of protein, energy, vitamins, and minerals. Even though the cattle may eventually end up on a relatively high roughage growing program, it is important that new calves be fed a relatively high concentrate ration during the first 2-4 weeks in the lot. After the cattle have started eating well, they can be gradually switched to the high roughage program.

Energy content. Starter rations should contain from 50 to 70 percent concentrate. If the cattle are destined for a high roughage program, the starter ration should be about 50 percent concentrate. If the cattle are destined for a high grain program or if the cattle have been stressed, the starter program should be 60-70 percent concentrate.

South Dakota State University research has demonstrated that cattle fed a high energy (app. 60% concentrate) receiving ration consumed more feed and gained more weight during the first 28 days in the feedlot than cattle consuming a low energy (app. 40% concentrate) diet (Table 3). Feed conversion favored the low energy group. This was probably due to fill differences.

Iowa State University data (Loy et al., 1986) suggested that unstressed cattle or cattle fed at the farm of origin may experience some digestive disorders as a result of grain overload if too much concentrate is fed. Calves (395 lb) fed a 75% concentrate diet consumed less feed and gained less weight than cattle fed a 60% concentrate diet (Table 4).

Crude protein. Crude protein content in the starter diet should also be relatively high. The starter or weaning ration should contain about 14% crude protein on a dry matter basis. Calves are not capable of utilizing urea or other non-protein nitrogen sources very efficiently. In addition, as urea decomposes in the feedbunk it gives off an ammonia odor. The smell of ammonia in the bunk may reduce intake. This reduction in intake is detrimental for the new calf.

Minerals. Calcium content of the starter diet should be .67%, phosphorus content should be .45% and magnesium content should be .25% of dry matter. Potassium content should be at least .80%. Hutcheson (1986) suggested that .80% potassium was adequate for unstressed cattle. Cattle that suffered excessive shrink (>5%) and that were highly stressed may require up to 1.4% potassium in the diet. Providing adequate potassium will aid cattle in recovering the weight lost as shrink more quickly. Forages are generally good sources of calcium and potassium. Grains are poor sources of calcium and potassium and a good source of phosphorus. Since relatively high concentrate diets should be used, mineral supplements fed to starter calves should be relatively high in calcium and potassium. Once the cattle are started on feed and worked to a growing program, the mineral supplement needs of the cattle will change, particularly if more forages are used in the growing program.

Trace minerals are required by cattle in small amounts. Zinc, copper, selenium, and iron have been shown to play an important role in the immune response. To meet trace mineral requirements, trace mineral salt should be provided to the cattle at the rate of .5% of dry matter. Mixing the trace mineral salt in with the supplement is preferred over providing it free choice. Intake of minerals and salt are more consistent.

Under most circumstances in southeastern South Dakota, providing trace mineral salt will meet the

Table 3. Effect of starter ration energy content on feedlot performance (day 1-28).[a]

Item[b]	Treatment	
	40% Concentrate	60% Concentrate
Initial wt., lbs.	484	486
ADG, lbs.	2.82	2.90
DDMI, lbs.	12.09	13.84
F/G	4.62	5.18

[a] Pritchard (1987).
[b] ADG = Average daily gain, DDMI = Daily dry matter intake and F/G = Feed/gain.

Table 4. Effect of starter ration energy content on feedlot performance (day 1-28).[a]

Item[b]	Treatment	
	60% Concentrate	75% Concentrate
ADG, lbs.	2.53	2.27
DDMI, lbs.	10.40	10.00
F/G	3.91	4.42

[a] Loy (1987).
[b] ADG = Average daily gain, DDMI = Daily dry matter intake and F/G = Feed/gain.

trace mineral needs of cattle raised locally. Soils, and as a result feeds, in some areas of the country may be low in certain trace minerals and may be high in others. In northwest South Dakota, the soil contains excess molybdenum. Molybdenum interferes with normal absorption and metabolism of copper. Cattle originating out of this area may need additional copper supplementation. Cattle originating from several counties immediately west of the Missouri river may exhibit signs of selenium toxicity or alkali disease. Care should be taken so additional selenium is not provided to these cattle. Cattle originating in southwest South Dakota may show signs of a selenium deficiency.

Many individuals advocate superfortifying diets with trace minerals. Caution should be exercised when doing this. Excess levels of certain trace minerals may be toxic to cattle and may interfere with the absorption and metabolism of other minerals. Hutcheson and Cummins (1987) suggested that the trace mineral levels reported in Table 5 were adequate in the diets of stressed calves.

Vitamins. The vitamin A content of the ration should also be relatively high. Provide about 2500 International Units (IU) of vitamin A per lb of ration dry matter. Vitamin E supplementation for calves may reduce stress associated with weaning, trucking and processing. Kansas research (Lee et al., 1985) demonstrated that calves fed 400 IU vitamin E per head daily gained more weight and tended to be more efficient than calve fed no supplemental vitamin E (Table 6). Hutcheson (1986) reported that calves fed 300 IU vitamin E per head daily gained more weight than calves fed 0, 50, or 100 IU per head daily vitamin E. Receiving diets containing between 25 and 35 IU vitamin E per lb of dry matter may promote improved performance. Additional research is needed in this area.

The B complex vitamins are generally synthesized in sufficient quantities in the rumen of cattle and usually do not need to be provided. However, if the cattle have been off feed for some time supplemental B vitamins, particularly niacin and thiamine may be beneficial. Kansas data (Lee et al., 1985) suggests that calves fed supplemental B vitamins (600mg niacin, 200mg thiamine and 750 mg choline) plus vitamin E gained more weight than calves fed vitamin E alone or no supplemental vitamin E (Table 6). Data by Hutcheson (1986) also supports providing supplemental niacin to calves. However, Zinn et al. (1987) demonstrated no improvement in performance with supplemental niacin.

Table 7 summarizes the suggested nutrient concentration (excluding trace minerals shown in Table 5) in starter diets for newly arrived or recently weaned calves. These numbers were either calculated from NRC (1984) values or were obtained from the research trials previously discussed.

Table 8 shows some suggested starter diets for starting calves on feed. Alfalfa hay and corn silage should be introduced gradually to the calves. Use of higher fiber grains such as oats, barley, or ear corn may be preferred over use of corn. Fiber in these commodities is more slowly digested than the starch in corn. These commodities may result in less acidosis problems and may be safer to feed.

Coarsely ground or rolled grain is preferred over whole grain during the receiving period. Once the calves are started on feed, whole grain may be gradually substituted for a portion or all of the processed grain. Feeding processed grain will help the cattle start on feed more quickly. Whole grain may be used during the growing and finishing phases of production if the economic situation does not favor grain processing. Differences in feed conversion are difficult to predict but will likely be approximately

Table 5. Suggested trace mineral levels in starter diets.[a]

Mineral[b]	Range
Copper	10-15
Iron	100-200
Manganese	20-30
Zinc	50-75
Cobalt	.1-.2
Selenium	.1-.2

[a]Hutcheson and Cummins (1987).
[b]Parts per million.

Table 6. Effect of vitamin E and B complex vitamins on feedlot performance during the receiving period.[a]

	Treatment		
Item[b]	Control	Vitamin E	Vitamin E + B complex
ADG, lb	2.65	2.79	2.94
DMI, lb as-fed	16.74	16.50	15.56
F/G	6.43	6.11	5.46

[a]Lee et al. (1985).
[b]ADG = Average daily gain, DDMI = Daily dry matter intake and F/G = Feed/gain.

Table 7. Suggested composition of starter diets.[a]

Item	Concentration
Concentrate, %[b]	50-75
NEm[c], mcal/lb	.82-.90
NEg[c], mcal/lb	.46-.56
Crude protein, %	14
Calcium, %	.67
Phosphorus, %	.45
Potassium, %	.80-1.40
Magnesium, %	.25
Trace mineral salt, %	.50
Vitamin A, IU/lb	2500

[a]Dry matter basis.
[b]Net energy for maintenance.
[c]Net energy for gain.

Table 8. Suggested starter diets for new calves.[a]

	50% Conc.					60% Conc.					70% Conc.				
Ingredient	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Oats					21.9					26.4					30.9
Barley				22.1					26.7					31.2	
Corn	43.2	15.4		22.9	22.7	51.9	25.7		27.6	27.3	60.7	37.5		32.3	32.0
Ear corn[b]			50.5					61.6					71.9		
Grass hay[c]	24.6	11.0	19.8	24.8	24.8	19.7	9.4	13.4	19.8	19.8	14.8	7.6	7.4	14.9	14.9
Alfalfa hay[d]	25.4	11.4	20.5	25.6	25.6	20.4	9.8	13.8	20.5	20.5	15.2	7.9	7.7	15.4	15.4
Corn silage[e]		55.4					47.4					38.2			
Supplement[f]	6.8	6.8	9.2	4.6	5.0	8.0	7.7	11.2	5.4	5.9	9.3	8.8	12.9	6.2	6.8

[a]Percentage as-fed basis.
[b]88% dry matter, 11% crude protein.
[c]85% dry matter, 17% crude protein.
[d]35% dry matter, 8% crude protein, 50% concentrate.
[e]Supplement formulation shown in Table 9. Supplements for oats and barley diets contain about 32% crude protein, 4.8% calcium, 2.5% phosphorus, 1.5% potassium, 1.2% magnesium, 9.0% salt and 48,000 IU/lb vitamin A. Supplements for the other diets contain 36% crude protein, 3.6% calcium, 2.0% phosphorus, 1.7% potassium, .8% magnesium, 6.3% salt and 32,000 IU/lb vitamin A.

5% in favor of the rolled or ground grain during the growing phase. The decision whether to grind or roll the grain during the growing phase should be based on whether processing costs are less than the savings due to improved feed efficiency (5% of total diet costs). The impact of grain processing on feed intake and potential acidosis problems needs to be addressed when considering grain processing for finishing cattle.

Grinding the hay and including it directly into the entire ration is preferred. Calves perform better if a completely mixed diet is fed. Feeding a completely mixed diet prevents some of the calves from eating predominately hay while others are prevented from eating predominately concentrate. Wagner et al. (1988) showed that heifers fed a completely mixed diet gained approximately 10% more weight (1.82 vs 1.65 lbs/head/day) and were about 13% more efficient than heifers fed a non-mixed diet.

The supplements used for the oats and barley diet should contain about 32% crude protein. The supplements used for the other diets should contain about 36% crude protein. Producers wishing to use the diets listed in Table 8 to start calves on feed may want to shop for the commercial supplement that most closely matches the supplement composition foot noted at the bottom of the table. If a custom made supplement is used, the specific supplement formulations are displayed in Table 9.

Feed Additives

Several feed additives are available for use in receiving diets. Factors to consider when deciding which of these to use include the impact of the additive on feed intake, performance, and health of the cattle in relation to cost. Caution should be used when using combinations of feed additives. Certain combinations may interact with one another. Other combinations may not be legally fed together. Producers should consult their veterinarian, feed dealer or extension agent prior to combining two or more feed additives.

Ionophores. Rumensin and Bovatec belong to a class of compounds called ionophores that enhance feed efficiency through alterations in rumen fermentation. Rumensin tends to be more potent than Bovatec. A lower dosage of Rumensin is required and feed intake is reduced to a greater extent with Rumensin than with Bovatec. Some proponents of using Bovatec claim that Bovatec does not reduce feed intake. Despite this claim, Bovatec reduces feed intake during the receiving period (Table 10).

Depending upon the circumstances, the reduction in intake associated with feeding Rumensin or Bovatec may or may not be desirable. A step up program is

Table 9. Starter diet supplement composition.[a]

Ingredient	50% Conc.					60% Conc.					70% Conc.				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Soybean meal[b]	77.26	83.09	81.49	66.46	69.35	78.15	82.34	82.24	67.54	70.40	78.80	81.66	82.73	68.33	71.18
Dical[c]	9.90	7.03	7.33	13.58	12.39	8.12	6.39	5.91	11.01	9.99	6.82	5.82	4.96	9.10	8.22
TM salt[d]	6.58	4.38	4.85	9.77	9.02	5.56	4.15	4.03	8.32	7.66	4.81	3.94	3.49	7.24	6.66
Molasses[e]	3.40	2.27	2.51	5.06	4.66	2.87	2.15	2.09	4.30	3.96	2.49	2.04	1.80	3.75	3.45
Vit ADE premix[f]	1.11	.74	.82	1.65	1.52	.94	.70	.68	1.40	1.29	.81	.66	.59	1.22	1.12
Mag oxide[g]	.98	.54	.79	1.49	1.43	.92	.60	.74	1.40	1.35	.87	.65	.70	1.34	1.29
Limestone	.77	1.95	2.20	1.99	1.63	3.45	3.68	4.32	6.03	5.34	5.41	5.22	5.73	9.03	8.09

[a]Percentage as-fed basis.
[b]44% crude protein.
[c]Dicalcium phosphate, 18% phosphorus.
[d]Trace mineralized salt, minimum composition (%), NaCl 96.0, Zn .350, Mn .209, Fe .200, Mg .150, Cu .003, I .007 and Co .005.
[e]Beet molasses.
[f]Vitamin A 3,000,000 IU/lb, Vitamin D 1,000,000 IU/lb, Vitamin E 5000 IU/lb.
[g]Magnesium oxide.

Table 10. Effect of Bovatec on Performance of cattle during the receiving period (days 1-28).[a]

Item[b]	Bovatec level (g/ton)			
	0	10	20	30
ADG, lbs	3.26	3.40	3.49	3.66
DFI, lbs	21.62	20.60	20.50	20.51
F/G	6.90	6.45	6.10	5.84

[a]Bovatec Technical Manual.
[b]ADG = Average daily gain, DFI = Daily feed intake (as-fed basis) and F/G = Feed/Gain.

recommended by the manufacturer for starting calves on Rumensin. A similar step up procedure should be used when starting calves on Bovatec also. If a producer is having trouble starting a group of calves on feed, Rumensin and Bovatec should be left out of the diet until the cattle are eating well.

Sometimes it may be desirable to limit feed consumption by cattle during the first few days in the lot. This is particularly true when yearling cattle of uncertain origin are brought into the lot or when calves of several different origins are started on feed. Under these circumstances some of the cattle may overeat and may be susceptible to digestive upsets. Use of Rumensin in the receiving diet will limit consumption and possibly help to avoid digestive upsets.

Coccidiostats. Coccidia are protozoal organisms found in the intestine of cattle. Coccidiosis may become a problem characterized by low appetite and poor performance followed by bloody scours when cattle are stressed. Coccidiostats are compounds that are fed to cattle to help prevent an outbreak of coccidiosis. They can not cure the disease once an outbreak of bloody scours has occurred.

A coccidiostat should be included in the receiving diet when cattle are coming from an area known to have coccidiosis. Producers with a history of coccidiosis at their own place should also include a coccidiostat in their starter diet. Deccox, Amprolium, and Bovatec are approved for use as coccidiostats in cattle diets.

Antibiotics. Oral antibiotics are often included in receiving programs for cattle. The primary response appears to be a reduction in stress and a slight increase in performance. Oral antibiotics will not prevent shipping fever and should not substitute for sound health programs for new cattle. Antibiotics may be fed for 21 or 28 days at the rate of 1 gram per head daily. Some nutritionists and veterinarians would prefer to feed antibiotics at higher dosages for shorter periods of time (5 mg per cwt body weight for 5-7 days).

Rust (1987) reviewed several papers concerning the use of antibiotics during the receiving period and reported that feeding Aureomycin - Sulfamethazine (Aureo-S700) for 14-28 days improved average daily gain by 14.8% (.28 lbs/day) and feed efficiency by 16.6%.

Probiotics. Probiotics are microbial products that are added to feed or administered with a bolus or gel into the rumen of cattle. Probiotics are designed to re-establish a favorable population of rumen microorganisms. This is supposed to reduce stress in new cattle and increase feed intake.

Conflicting research results from probiotic use have been reported. Rust (1987) reviewed the literature concerning probiotic use and found 12 trials showing a favorable response and 7 trials showing no benefits associated with their use. The probability of cattle responding to probiotic use appeared to be related to the distance the cattle were trucked. Cattle trucked greater than 290 miles seemed to show a greater response than cattle hauled for shorter distances.

Research workers in this area have also postulated that the degree of additional stress cattle were subjected to influenced whether they would respond to probiotic use. A trial conducted at the Southeast South Dakota Experiment Farm (Wagner, 1987) demonstrated no advantage for using probiotics in the receiving program even though the cattle were subjected to considerable stress. Average daily gain, dry matter

intake and feed conversion were not improved through probiotic use (Table 11). Very little sickness was observed for any of the cattle in the experiment.

Commercial Feeds

Most commercial feed companies market a complete receiving or weaning feed for calves. These products are not all alike. Some are formulated more cheaply than others. The resulting performance from most of these products is very good to excellent. However they are generally more expensive than home grown or purchased feed commodities. Before deciding whether or not to use one of these products, carefully consider the cost versus benefit of these products. If used properly, complete feeds are very helpful when starting calves on feed. Producers who have difficulty starting calves on feed or who need to spend time on the combine or at some other task, may wish to use a complete receiving feed. Producers who have the time and ability to closely manage new cattle may not need to purchase a complete feed.

Specific feeding instructions are included on the tags of these commercial products. In general the best way to handle these products is to start out in a manner similar to that previously discussed. Feed long stem grass hay in the bunk to encourage the cattle to eat. Top dress the commercial receiving feed on the grass hay. Gradually increase the amount of receiving feed offered to the cattle until the recommended maximum is fed. Exceeding this recommended maximum is very costly. This maximum varies according to the specific brand selected from about 10 lbs per head daily or 2% of body weight up to 3% of body weight or about 15 lbs per head daily.

Some companies recommend feeding the receiving feed at the recommended maximum level for 21 or 28 days. This practice may be necessary to ensure adequate antibiotic or feed additive intake, but it also is costly. One alternative might be to begin substituting the regular growing ration for the receiving feed once the recommended maximum feeding level is met. Make this substitution at the rate of 1 or 2 lbs per head daily. Following this program a producer may be able to achieve the benefits associated with starting cattle on these commercial feeds but also may be able to cut the cost somewhat. If label instructions are not followed, consult feed manufacturer to ensure that no illegal feed additive combinations or undesirable nutrient balances are being fed.

Health Programs

Bovine respiratory disease complex (BRDC) can hit cattle of all ages when the conditions are right. Radostits and Blood (1985) state BRDC has been proven to be associated with environmental stresses such as weather, weaning, sale, travel, and processing that make the animals susceptible to the viruses, bacteria, mycoplasma, and other infectious agents thought to cause BRDC. The leading cause of mortality in the feedlot appears to be post viral infection with Pasteurella haemolytica or multocida. Generally, the greater the viral infection, the greater percent that have secondary bacterial superinfection.

In studies conducted by Martin et al. (1981), using vaccines against respiratory disease in times of stress appears to increase the risk of mortality. Mixing of cattle groups has also been found to increase mortality. Newly received cattle are often upset physiologically and do not demonstrate normal feed intake until the third week after arrival in the feedlot.

Preconditioning programs have been designed to address the above mentioned conditions. These programs have been used as guidelines for most preventive health practices in the cattle industry. The preconditioning programs are formed to identify cattle that have been handled in a specific manner.

The administration of effective vaccines against common feedlot pathogens, control of internal and external parasites, and dehorning and castration prior to the stress of weaning or shipping have been successful practices. Smith (1966) stated castration and dehorning are very stressful when performed. Castration and dehorning, when done in the feedlot, can reduce performance up to 90 days and has shown up to 11% reduced performance in the overall feeding period.

Table 11. Impact of probiotic administration and feeding on the performance of newly arrived feedlot cattle (day 1-28).[a]

Item[c]	Treatment[b]				
	Control	1	2	3	4
ADG, lb	4.06	3.62	3.61	3.71	3.92
DDMI, lb	9.71	9.70	9.71	9.73	9.91
F/G	2.41	2.69	2.70	2.63	2.53

[a] Wagner, 1987.

[b] Control = no intraruminal injection, no feed additive; 1 = intraruminal injection, no feed additive; 2 = intraruminal injection, feed additive at 500 x 10^6 organisms per head daily; 3 = intraruminal injection, feed additive at 2 x 10^9 organisms per head daily; 4 = intraruminal injection, feed additive at 20 x 10^9 organisms per head daily.

[c] ADG = Average daily gain, DDMI = Daily dry matter intake, F/G = Feed/gain.

Cole (1985) demonstrated weaning prior to feedlot entry reduced sickness by 17%.

An area for restraint is needed to provide routine handling during the feeding period. Flooring which provides good traction and non-abrasive surface is necessary to prevent injury. A hospital area providing proper shelter, bedding, and easy observation and handling can improve the rehabilitation of sick animals.

If processing must be done at the time of feedlot arrival, stress should be held to a minimum. All animals in the feedlot should be identified to origin, individual, and feedlot pen. Healthy animals can be vaccinated with clostridial bacterins, IBR, PI_3 vaccines (intranasal, killed, or modified live), or BVD vaccines (killed or modified live vaccines). Pasteurella, Haemophilus, and BRSV bacterins and vaccines are frequently used. Revaccination in 2-4 weeks post-vaccination is required when using the killed vaccines. Consultation with a veterinarian aware of the feedlot management, facilities, and cattle's health is recommended before vaccination selection is made.

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