

FALL MANAGEMENT PAYS OFF



Marketing Outlook

The success of any beef cattle operation is largely dependent upon management practices and decisions. The following editorial section centers around management practices cattlemen will need to be aware of as fall approaches. While several articles are oriented toward commercial cow-calf production, purebred producers can also benefit from the thoughts of our authors. Contributors to this section were Dr. David Kirkpatrick and Dr. Douglas L. Hixon, both University of Tennessee extension beef cattle specialists, and Dr. John Herrick, Iowa State University extension veterinarian. A little forethought will not only make fall chores run smoother, but could also make the difference in profit margins.

The short term outlook for feeder cattle includes the following positive factors:

1. Fed cattle prices are expected to decline only slightly in the third quarter and possibly show some strength late in the year.
2. Cattle feeders have rebuilt some equity in recent months and remain current in their marketings.
3. Total 1982 meat production will be down around 4 percent from last year as declining pork output will more than offset rising beef supplies.
4. Competing pork prices are expected to remain firm into the fall.
5. An abundance of relatively cheap feed and good grazing conditions exists throughout most of the west.
6. Available supplies of feeder cattle are no larger than last year.

Negative Aspects

Some negative aspects of the current market situation are as follows:

1. Profit margins on cattle feeding will narrow, particularly in the September-October period.
2. The equity positions of most cow-calf producers have been sharply eroded.
3. The cost of financing remains high with financing availability a problem for many producers that may wish to retain ownership of feeder cattle this fall.
4. Beef production is expected to increase in the last half of 1982 and in 1983.
5. Unfavorable general economic conditions—high unemployment and interest rates, along with slow growth.

Marketing Alternatives

Generally good to excellent range and pasture conditions prevail throughout the

West which allows producers several marketing options for feeder cattle this fall. Normal seasonal highs for feeder cattle prices occur in the first and early second quarter of the year.

In some areas cow-calf producers may project a positive return by holding calves over winter. Other producers may want to consider backgrounding their calves this winter to prepare them for feedlots. However, current cost projections indicate that 700 pound yearlings in the first quarter must be at least \$60 per cwt. to cover out-of-pocket expenses, excluding labor and fixed costs.

It is extremely difficult to pencil in a profit from retained ownership of yearling feeders when using the spring futures as a hedging device. Prudent producers should not let opportunities to forward contract slip past, if profitable.

The equity position of cow-calf producers has been sharply eroded. Prices for calves this fall are expected to be in the low-to-mid-50's which means that many cow-calf producers will remain in the red for 1982. Although retaining ownership provides producers with more flexibility and time to evaluate different marketing alternatives, it may be best to cut losses by marketing calves this fall. Many lenders will be hesitant to finance retained ownership of cattle this fall unless some form of forward contracting is used.

Although the outlook for feeder cattle prices this fall and into 1983 is not optimistic for the cow-calf producer, there remains a possibility for limited price strength. Producers must examine each marketing alternative carefully in terms of their own individual costs, opportunities and ability to assume risk.—WESTERN LIVESTOCK ROUNDUP

Are you aware of the benefits of preconditioning calves?

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By John B. Herrick

A misunderstood term in the cattle industry is preconditioning; yet as a program, it is changing the industry around to a standardization of management. Lenders and farm managers working with cow-calf producers **should** know some facts about the feeder calf industry. The following startling facts bring this problem into focus:

Over 80% of all feeder calves produced in the United States originate from herds with less than 50 cows. This is true of states the size of Texas. Many of these herds have inadequate management programs because 50 cows do not exist as an economic entity for a sole income; consequently, other enterprises such as "jobs in town" detract management from improving these small cowherds.

A high proportion of these herds have an average calf crop of 75 to 85%; the majority of calves weigh near 300 pounds at weaning age (205 days) and many herds have cows calving over a four to five month calving period.

The majority of these calves are taken from their mothers and immediately enter the channels of trade without being weaned, started on feed, vaccinated, dewormed or debrubbed.

The result? National studies reveal that 2% of all calves and 11 1/2% of all yearlings die after entering the feedlot. Further, 30 to 40% need some type of treatment for various ailments, particularly the Bovine Respiratory Disease Complex (shipping fever) that is triggered by the stresses of movement and feedlot adaptation.

Preconditioning is changing the industry around to a standardization of management.

There is sufficient technology available that the cow-calf producers, properly using all facets of production, can have a 95% calf crop weighing 500 to 600 pounds at weaning. A good many of the top 20% of cow-calf producers are now achieving this goal. They are selling pounds of beef with genetic material and degrees of health that allow the calves to gain well in the feedlot. Feeders want crossbred calves, not short, chuffy animals that finish at a light weight.

The preconditioning program started in Iowa 12 years ago and in 1981, over 600,000 calves were processed. Minnesota, North Dakota, Missouri and Ohio have sizeable programs in action. Similar programs exist in several other states.

The program involves having the calves weaned for 30 days and started on feed, vaccinated three weeks before movement, castrated, dehorned, dewormed, grub treated, implanted and identified with a special tag. These calves are accompanied by a certificate verifying the above.

How's the program going? First, for the cow-calf producer, the vaccinations and other treatments will cost from \$5 to \$7; feed for 30 days will vary in locality, but \$20 to \$25 will cover it in most areas. Records on thousands of calves reveal that they will gain from 40 to 80 pounds during this period. This more than pays the cow-calf man for his efforts. Further, sales of strictly preconditioned calves bring from \$2.50 to \$3 more per 100 pounds.

How does the feeder fare? Records from over 10,000 head of preconditioned calves sold to Iowa cattle feeders reveal a .3% death loss, less than 10% required treatment and the feeders were more satisfied with them. "They started out immediately on feed," "Never had to touch them" and "They had less shrink" are statements from many feeders.

Preconditioning is designed to condition the calf on its production site so the calf can better withstand the stress of movement through the channels of trade leading to the feedlot. It is a management program. Cow-calf men on the program are proud of their product. They don't take the calf from its mother and place it in the channels of trade without processing and following up on the performance of the animals in the feedlot. They quickly adapt to other management programs.

More and more cow-calf producers now are vaccinating their cows before breeding season, castrating and implanting calves the first few days of their life, plus following numerous other recommended programs.

Preconditioning is a management program. It is a program every producer should follow. We can have Grade A milk, certified seed and standards for other agricultural commodities. It's time the cow-calf producer in the United States establish some Standards. It's time the cow-calf producers and cattle feeders unify and support a program that's a betterment for the entire industry.

Next time a cattle feeder is seeking advice or a loan from you, ask him these questions: How many head died from the last group he fed? What was the cost of treatment? What was the shrink? How soon did they start on feed? Maybe the best question you can ask—Why not?



Selection and Development of Replacement Females

Dr. F. David Kirkpatrick

The objective in selection and development of replacement heifers is to successfully make functional and efficient beef cows. A functional beef cow is one that reproduces and weans a five calf every 12 months. An efficient beef cow is one that produces the maximum pounds of calf weaned at the least possible cost. These two factors influence the profitability of commercial and purebred beef cattle production.

Efficiency of production dictates that replacement heifers should be selected and developed to calve first as 2-year-olds. Numerous research studies have shown that heifers bred to calve first as 2-year-olds produce

from 1 to 1.1 more calves in a lifetime than heifers bred to calve first as 3-year-olds.

Selection of replacement heifers should be based on their ability to calve in the herd's calving season for the first time as 2-year-olds. Many factors affect a heifer's ability to attain this. Selection and management should be directed toward these factors. These factors will be discussed in a reverse order of that heifer's development.

Numerous studies have shown that first calf heifers require a longer period of time from calving to returning to heat than mature cows. This is illustrated in Table 1. This implies that first calf heifers should be bred to calve 20 to 30 days ahead of the regular cow

TABLE 1. PERCENT COWS IN HEAT AT VARYING INTERVALS FOLLOWING CALVING

Age of Cow	Days After Calving									
	40	50	60	70	80	90	100	110		
	%	%	%	%	%	%	%	%	%	%
4 years or older	55	70	80	90	90	95	100	100		
2-3 years old	15	30	40	64	80	80	90	90		

herd. This will assure them of having adequate time from calving to first heat in order to be bred for the second time with the regular cow herd. In fact, this means selecting replacement females that will calve for the first time at approximately 23 months of age.

If heifers are to calve at 23 months of age, they must be bred by 14 to 15 months of age. This requires the heifer reaching puberty and being bred at an early age. Puberty is dependent upon a combination of age, weight and breed. Most heifers will reach puberty at 14 to 15 months of age if they have enough weight. However, in some cases, puberty can be delayed up to two years because heifers are not heavy enough. Table 2 summarizes numerous reports on age, weight and breed combinations for heifers reaching puberty. As a rule of thumb, most heifers will reach puberty at 60 to 65 percent of their mature weight. Some heifers will cycle and breed at lighter weights but they may also experience severe calving problems if bred too small. Extreme calving problems are also associated with dead calves and delayed rebreeding.

In order for a high percentage of heifers to cycle and breed at 14 to 15 months of age, they must have been developed properly from weaning to breeding. Most research has shown that gains between 1.0 to 1.5 pounds per day from weaning to breeding is sufficient. Gains less than this could delay puberty. Also, gains greater than 1.5 pounds per day is expensive and could impair reproductive performance and lactation due to fat deposition.

Since weight at breeding (60 to 65% mature weight) is important, weaning weight, time of selection and breeding date should be considered in selection and development of replacement heifers. Selection could be based on those heifers that could be developed properly from weaning to breeding. Assuming a January-March calving season and an Oct. 15 weaning date, the following calculations could be used:

January-March calving season = April-June breeding season.

30 days prior to breeding = March 1 (dam to breed replacement heifers).

Oct. 15 (weaning) to March 1 (breeding) = 135 days.

Target breeding weight = 650 lb.

Maximum ADG (weaning-breeding) = 1.5 lb./day.

1.5 lb./day x 135 days = 202 lb. (weaning breeding) maximum gain.

650 lb. breeding weight
-202 lb. maximum gain

448 lb. minimum weaning weight to select and develop replacement heifers from.

This would mean that in order to develop replacement heifers at the correct rate of gain that they should at least weigh 448 pounds at weaning under these conditions. These would probably be heifers from cows that calve early in the calving season and from the better producing cows in the herd.

TABLE 2. WEIGHT AT WHICH 14-15 MONTH OLD HEIFERS SHOW FIRST HEAT

Breeds	% in Heat		
	50	70	79
Angus	550	600	650
Hereford	600	650	700
Angus x Hereford	550	600	650
Charolais	700	725	750
Simmental x British	650	700	750
Limousin x British	650	700	750
Jersey x British	500	550	600



Also these heifers would probably be from the better milking cows in the herd. Avoid selecting heifers from cows that have had calving difficulties from those cows that have structural defects and unsound udders.

Save 50 percent more heifers than normally needed for replacements using these selection criteria. Develop the heifers correctly and expose them to a bull 20 to 30 days before the regular breeding season. Keep them with a bull that has a record of siring calves with light birth weights for a breeding period of about 60 days. Pregnancy check

all heifers 45 days after the breeding season and cull all open heifers.

Obtaining a high percentage of adequately developed yearling heifers bred by 14 months of age is only half of the job to be done. The heifer must produce a live calf at birth and rebreed shortly after calving in order to produce another live calf 2 months later. This is one of the greatest problems associated with first-calf heifers-calving first as 2-year-olds and second as four-year-olds.

The reason many first-calf heifers fail to rebreed after calving is due to the fact that they require longer to return to heat after calving than mature cows. This is a result of

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the amount of stress and demands a first-calf heifer experiences after calving. The heifer has many functions to perform after calving while she is still growing. She has to provide milk for her calf as well as maintain herself and repair her reproductive tract in order to recycle. This is coupled with the fact that she has shed her incisor teeth at this time and has a limited capacity for grazing and chewing. An inadequate supply of energy at this time will limit first her ability to repair her reproductive tract and return to heat. Proper pre and post-calving nutrition can eliminate the delay in returning to heat.

Extreme calving difficulty is also associated with a delay in returning to heat in first-calf heifers. This can be partially eliminated by breeding replacement heifers to bulls known to sire small calves at birth. Another factor related to calving difficulty is size of the heifer at calving. Numerous studies have indicated that heifers of the British breeds need to weigh around 900 to 950 lb. at calving in order to minimize calving difficulty. This requires an adequate development program of the heifer from breeding to calving.

Following breeding of the replacement heifers they should be separated from the cow herd and managed to gain about one pound per day until calving. This will insure a first-calf heifer's weight at calving of about 900 to 950 pounds. Growing and developing heifers from breeding to calving at a rate too fast could contribute to heifers being too fat at calving. Overly-conditioned heifers at calving experience severe calving and rebreeding problems.

Selecting and developing replacement heifers into functionally efficient beef cows doesn't start and stop at the time the heifers are selected. It is a continuous program from the time that heifer is selected at weaning until she produces her second calf. The pri-

mary purpose of a beef female is to reproduce and that should be the primary basis for which replacement heifers are selected.

GUIDELINES FOR SELECTION AND DEVELOPING REPLACEMENT HEIFERS

I. Weaning

- A. Select and retain heaviest heifers
- B. Save 50% more heifers than are needed
- C. Determine desired weight at breeding (60-65% of mature weight)
- D. Subtract actual weaning weight from desired breeding weight to determine necessary gain
- E. Determine number of days between weaning and breeding date
- F. Divide necessary gain (D) from weaning to breeding by number of days (E) from weaning to breeding to determine rate of daily gain

Example:

650 lb. desired breeding weight - 450 lb. actual weaning weight = 200 lb. necessary gain. If weaning date is Oct. 15 and breeding date is March 15, then days from weaning to breeding = 150.

200 lb. necessary gain + 150 days = 1.3 lb. per day gain.

II. Weaning to Breeding

- A. Heifers should gain between 1.0 and 1.5 lb. per day
- B. Avoid fattening the heifers
- C. Heifers should be cycling by 14 months of age

III. Breeding

- A. Expose heifers 20 to 30 days before start of regular breeding season
- B. Breed for 60-75 days and remove bull
- C. Breed heifers to bulls known to sire calves with light birth weight

IV. Breeding to Calving

- A. Pregnancy check all heifers 45 days after bull is taken away
- B. Cull open heifers
- C. Separate bred heifers from regular cow herd
- D. Continue to grow bred heifers at a rate of about 1.0 lb. per day until calving
- E. Avoid fattening heifers

V. Calving to Re-Breeding

- A. Give heifers extra attention at calving
- B. Provide extra nutrition for growth
- C. Feed to obtain 1/2 to 3/4 pound daily gain during breeding season



Determine Pregnant Cows

by Dr. Douglas L. Hixon

The discussion which follows on pregnancy determination will hopefully allow those unfamiliar with it to understand the procedure. An experienced palpator will be able to determine whether the cow is pregnant without interfering with gestation. It is a simple procedure for those who know what they are doing. This discussion is not aimed at teaching the procedure but can be used as background information for learning the process. If one is interested in learning to pregnancy check, it is best to work with an experienced palpator in a "hands-on" training situation. It takes practice and experience to become a successful palpator.

Pregnancy determination by rectal palpation can be carried out by an experienced technician a minimum of 45 days after the bull has been removed from the cow herd. Less experienced palpators may want the cows to be a minimum of 60 days away from the bull.

A general knowledge of the female's reproductive tract is essential in palpation.

Ovaries. Suspended rather freely in the body cavity by ligaments, the ovaries (two) are located on each side of the body cavity and are approximately $\frac{1}{2}$ inch wide, $\frac{3}{4}$ inch deep and 1 inch long in a normal cow. The follicle, which contains the egg (ova), develops as a blister-like projection on the surface of the ovary. Approximately 12 hours after the initiation of standing heat, the follicle will rupture (ovulate), releasing the egg. The follicle cavity fills with cells to form another body called the corpus luteum (CL). This mass of cells is developed approximately 4 days after ovulation and produces the hormone progesterone until about day 16 of the cycle when regression of the CL begins. The cycle completes itself in about 21 days with the development of another follicle and estrus, providing pregnancy did not take place during the prior estrus.

After the egg is released from the follicle, it moves down the oviduct on its way to the uterus. If conditions are correct and sperm are present, fertilization will take place in the oviduct. If fertilized, the egg moves into the horn of the uterus and cell division takes place.

Uterus. The cow's uterus is made up of two horns and the connecting body. At approximately 38-40 days after the fertile estrus, implantation of the embryo will occur. The caruncles of the uterus join the cotyledons on the fetal membranes for nutrient exchange.

Landmarks. Location of certain structures will aid the inexperienced palpator in locating the reproductive tract. The pelvis forms a bone cradle for the reproductive tract. The nonpregnant reproductive tract usually is located on the floor of the pelvis. The cervix is another good locational tool inside the cow. This firm, muscular structure can be located just in front of the vagina. From there, one can work forward to locate the uterus.

Short-term Pregnancy Indicators

45-day pregnancy. Experienced palpators will require that bulls be removed from the cows a minimum of 45 days before pregnancy checking. The fetus is only 1 inch long with the vesicle around it being somewhat egg-shaped, 1 to $1\frac{1}{2}$ inches in length. By pinching the horn of the uterus carefully, the membranes of the vesicle can be felt as they slip through the fingers. This positive sign of pregnancy is known as a "membrane slip."

60-day pregnancy. Less experienced palpators might rather wait a minimum of 60 days as one horn of the uterus is about the size of a banana with the fetus about $2\frac{1}{2}$ inches in length. Weight of uterine contents will pull it over the pelvic brim, down into body cavity. Cervix will probably still lie in pelvic cradle. Embryonic vesicles are still prominent.

90-day pregnancy. The fetus is now about $6\frac{1}{2}$ inches long and has displaced itself to the floor of body cavity. In larger animals, it may be difficult to reach. Factors other than the fetus may have to be considered to determine pregnancy at this stage. The uterine artery, which is in the forward fold of the broad ligament supporting the uterus, will enlarge to approximately $\frac{1}{8}$ to $\frac{3}{16}$ inch in diameter. Presence of flattened, egg-shaped cotyledons, $\frac{3}{4}$ to 1 inch across, can also be detected at this time.

120-day pregnancy. Location is similar to the 90-day fetus. Fetus is 10 to 12 inches long, with head about the size of a lemon. Cotyledons are about $1\frac{1}{2}$ inches across and uterine artery about $\frac{1}{4}$ inch in diameter.

150-day pregnancy. Fetus is difficult to palpate, 12 to 16 inches long. Cotyledons 2 to $2\frac{1}{2}$ inches across with uterine artery $\frac{1}{4}$ to $\frac{3}{8}$ inch in diameter.

210-day pregnancy. One can usually palpate fetus after 7 months. Uterine artery will continue to increase to between $\frac{1}{2}$ to $\frac{3}{4}$ inch in diameter by parturition.

The key to becoming a successful palpator is experience.

Cull cows with Physical Problems

by Dr. Douglas L. Hixon

A producer should check his cows closely after weaning for physical problems which might interfere with performance or require extra labor or expense to get her through the winter. Some of these problems are correctable with treatment. However in many cases salvage is the most logical avenue. Cow herds have to be able to produce with a minimum expenditure of labor.

Check eyes closely at time of pregnancy checking to make sure no growths are present. These growths usually indicate the start of cancer eye. Although this can be surgically removed or treated with newly developed techniques, they will often grow back. If left untreated extensive involvement can lead to condemnation when one tries to redeem salvage value of the animal.

Lumpy jaw or actinomycosis is caused by a fungus and can often be successfully treated with antibiotics. It can be spread to other animals so infected animals should be separated from the herd. Those which fail to respond to treatment should also be salvaged before extensive bone involvement

causes condemnation. In such cases, antibiotic withdrawal times must be adhered to.

Serious, untreated cases of pinkeye may cause a cow to permanently lose the sight of an eye or both eyes. Retaining such cows can cause problems and additional labor when working the herd. It is probably best to salvage such cows while one eye can still see to get on the truck.

Cows exhibiting lameness not explained by a localized foot infection should be culled. Typical of this type are injuries to joints of older cows, particularly in the shoulder and stifle. These injuries are normally not correctable and will often start a general decline in the cow's overall condition.

At time of pregnancy checking, also be on the lookout for cows that are excessively thin for no apparent reason. Heavy milkers will fluctuate in their body weight, losing weight when nursing a big calf. However, older cows may become excessively thin because of some physical problem which has not become obvious. Worn-off teeth in older cows may interfere with obtaining and chewing of

feed. Also, some internal organs, particularly the liver and kidneys, may wear out, interfering with normal metabolism.

Another cause of a decline in general condition is hardware disease. This is merely the fact that the animal has consumed a nail, wire or other metal object which punctures the stomach wall. This may cause immediate death by injuring the heart or cause an accumulation of fluids which eventually leads to death. The animal will develop an unthrifty appearance with a progressive worsening of condition.

Retaining a cow with physical problems can require extra labor or expense to get her through the winter.

Johne's disease is another condition which may cause a loss of weight. The symptoms of this disease, also known as paratuberculosis, are severe chronic and intermittent diarrhea accompanied by extreme weight loss. Since the symptoms are similar to those caused by internal parasites and malnutrition, the condition is difficult to diagnose. Because of the long incubation period, symptoms usually don't surface until after the female has at least had her first calf. The infected animal will not exhibit any depression of appetite or increase in body temperature, but will appear unthrifty and will de-

cline in condition. Once this disease is confirmed, the infected animal should be salvaged immediately since the causative organism can live in the soil and infect other animals for some time to come.

As a general rule, cows exhibiting an unthrifty condition which cannot be related to parasite infestation or management should be culled. It is best to salvage something from these critters rather than to spend money and labor and eventually have her die giving you no return.

Cull cows that have udder problems which could interfere with performance. Eliminate such things as blind quarters, large teats, pendulous udders or other problems which may interfere with a newborn calf's first meal. He should be able to nurse without assistance within an hour after he is born for a good start. These cows will usually propagate these types of problems through their daughters if they are not removed from the herd.

Cows which have to be milked out or are subject to mastitis after calving should be put on the cull list. This does not happen often but is more prevalent where dairy blood has been injected into crossbreeding systems. This is just another incidence of labor and expense which most producers cannot afford.

A cow which has experienced a rectal, uterine or vaginal prolapse which has had to be repaired, should be culled after she has mended. This condition may expose itself after a difficult calving. Chances are good

that this female will be late breeding back if she settles at all. Frequently, these females will prolapse again after subsequent calvings if retained. There is some thought that daughters of such cows may also have a tendency to exhibit similar problems.

Excessive foot growth can be temporarily treated by trimming but will often reoccur. If the female has been foundered, she should be removed from the herd. This condition is more common in feedlot cattle but can be found in cows which ingest an excess of grain when gleaning corn fields. The foundered cow will move with difficulty and exhibit pain about the front feet in particular. The tendency for this condition to expose itself can be passed on to future offspring.

When To Sell Cull Cows?

As a general rule, cows in good condition should be sold immediately after they are culled. It will cost more to maintain their weight than one will gain by waiting for a better market. Although the utility cow market does show seasonal variation, unless a cull cow is terribly thin, it is probably not good business to hold for a higher market. However, if a producer does hold his cows until after the first of the year, he should make sure he does sell them. Often, after he keeps them this long, he will decide to hang on and breed them again. Therefore, if one holds cull cows for a better market, make sure they are on that market! Failure to sell these cows will weaken a total program.



Weaning Management Tips

1 The Weaning Process. Cows and calves should be separated by a considerable distance at weaning to speed up the process. It is best when cows are out of sight and hearing distance from calves. Calves should be divided into groups according to size and sex if space is available. If weaned in late fall calves should be given protection against the elements. During the first few days they should be confined to small areas to cut down on walking and weight loss. A good practice is to bring the cows and calves into small pasture paddocks two weeks prior to weaning. At weaning cows can be moved out and calves will remain in familiar surroundings.

2 Nutrition. Low feed intake is a major problem in stress and poor gains in newly weaned calves. Starting calves on a creep or preconditioning ration several weeks prior to weaning is recommended. The preconditioning ration should be largely high quality roughage; however, concentrate feeds may be used at a rate of 1 lb. per hundredweight per day. An antibiotic included in the daily feed will help calves gain most rapidly during the short postweaning period. With good management calves should gain 1 lb. daily or more from weaning to 30 days following weaning.

3 Reduce Stress. Sound management practices must be followed to minimize health problems and have acceptable weight gains during the preconditioning period. This involves keeping stress to a minimum. Calves should be left undisturbed as much as possible for the first few days following weaning. Lot conditions and feeding and watering need to be managed to provide for quick adjustment of the calf from its mother to the trough. Lots should be as dry as possible for comfort and a good looking hair coat. Shelter can be provided to reduce unnecessary climatic stress during the critical weaning period. If the stresses which cattle are subjected to are not reduced, it is unlikely any drug or vaccine is going to eliminate the problem.

4 Check Closely for Sick Calves. Even though immunized prior to weaning, plan for sick calves during the preconditioning period. Calves must be removed immediately to a hospital pen to help prevent the spread of the problem. Sick calves should not be roped but driven out as gently as possible. Provide good facilities for handling and treating sick calves with a minimum of stress. Plan with the veterinarian for early identification and proper treatment of sick

5 Use of Tranquilizers. Although not in common usage, tranquilizers may be used to relieve restlessness of calves separated from their mothers. Tranquilizers may help to avoid digestive disturbances in young calves by helping them to settle down and become adjusted to the environment more quickly. Insufficient research data are available to make general recommendations concerning the use of tranquilizers on calves at weaning.

6 Implants. Growth stimulant implants can be used with good results on suckling calves which are not destined for the breeding herd. Implants are relatively inexpensive and simple to use if calves can be restrained properly. Some studies indicate weaning weight could be increased over 20 lb. by implanting. Ralgro can be used on suckling steers or heifers. Compudose is approved for steers only. Implants should be placed underneath skin on the back side of the ear. Calves can also be implanted at weaning time. Again, animals to be used for breeding purposes should not be implanted.

7 Castration. Castration is performed on male calves primarily because it is a tradition. While researchers are advocating feeding bulls, the fact remains that bulls are still discriminated against at the market. For best results, feeder calf producers will want to castrate early, usually when calves are 4 to 10 weeks old. Bull calves castrated at weaning and kept until they recover will not be as heavy as early castrated and implanted steers. Purebred breeders will be more likely to wait until weaning to castrate bulls. The most desirable method for castrating small calves involves the use of a sharp sterile knife to cut off the lower one-third of the scrotum and remove the testicles. Producers waiting until late in the season to castrate large calves may want to use the bloodless emasculator to clamp the spermatic cord and destroy the blood supply to the testicles.

8 Vaccinations. Where feasible, immunizations should be given three weeks before weaning so disease resistance will be developed by weaning time and the stress of going through the chute at weaning will not be necessary. However, booster shots may need to be given at weaning or as required by time lag for vaccination efficacy. Calves should be immunized against infectious bovine rhinotracheitis (IBR), parainfluenza-3 (PI3), bovine virus diarrhea (BVD) and seven strains of clostridial diseases. There are several new products on the market this year including a killed virus for IBR, PI3 and BVD. Producers should check with their local veterinarian or veterinary supply house for products best suited to their type of operation.

9 Parasite Control. Cows and weaning calves should be treated with a grubicide pour-on for control of lice and grubs. September and October is the time to get this done. Do not permit these parasites to winter on cattle. Young cows and calves in areas where internal parasites are a problem should also be wormed. There are a number of recommendable pour-on and spot-on grubicides that are about equal in controlling lice and grubs. The same can be said for worming products. Calves can tolerate a high number of internal parasites while suckling because of the high plane of nutrition. Proper treatment at weaning time or prior to it can avoid trouble whenever postweaning nutritional stress is anticipated.

10 Sell in Uniform Groups. Calves should be in uniform groups when sold. Thus, a definite calving season is needed. Commercial producers can sell calves in graded and grouped feeder calf sales to have large lots and attract several buyers. All options for marketing calves should be utilized to keep current on changing market conditions. Purebred producers should carefully plan merchandising strategy well in advance. **A**

SOURCES of information: Paul Q. Guyer, University of Nebraska extension beef specialist; Roy Burris, University of Kentucky Extension beef specialist; A.L. Eller Jr., VPI extension beef specialist; and Thomas J. Marlowe, animal sciences professor.