

Problems Encountered with Retaining Post-Weaned Calves on Southern Farms

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Economics is forcing great changes in the cattle industry. According to some feeders it is no longer possible to put large numbers of calves in feedlots in the panhandle region of Texas and the western states because the high cost of rations makes it economically unfeasible. It appears that there will be an unceasing and growing demand for grain on a world-wide basis. It is believed the present economic factors dictate that cattle will be kept on grass longer in order to make maximum utilization of the high priced grain. Research has been intensified during the last five years through the use of higher nitrogen rates, better grazing management and improved varieties of stocker calves. Thus with the advanced technology to grow cattle and forages, coupled with the favorable rainfall and winter climatic condition in the South, forage-fed beef is receiving more recognition (1,7).

Some economists predict that 60% or more of the cattle slaughtered this year will be non-grain fed animals. Many heavy steers are being sent from grass to packer. The 1974 calf slaughter was up 65% above that of 1973; included were many heavy weanling and yearling calves (6).

There is an increasing interest throughout the South to grow out calves to around 750 pounds instead of selling 400 pound weanling calves. This shift has produced quality beef more profitably on forage by the use of cool-season grazing. Research and cattle farmer experience has shown that a properly utilized winter grazing program provides a method of increasing beef income by the grazing of home raised calves as well as purchased calves. This means that in the future the southern cattle producer will become yearling producers instead of just calf producers. Thus, more southern cattle will be born, grown out, finished, processed into high quality tender beef without leaving the lush forage and finishing lots of the south (7).

It is estimated that the beef cattle industry loses three billion dollars annually in the United States because of diseases, death and weight loss caused by stress of shipment, parasites and related diseases. This suggests that sickness is one of the most important problems facing a stocker cattle program. Therefore, the major concern of cattlemen in conducting a stockering program, backgrounding or warm-up lots, as well as finishing lots, is maintaining animals in good health.

The following are the common disease conditions that affect weanling and yearling calves that are retained on farms in the South. They are of the greatest clinical significance, economic importance, and incidence. These disease entities should include the following:

I. Respiratory Diseases:

- a. Infectious Bovine Rhinotracheitis (IBR);
- b. Bovine Virus Diarrhea (BVD);
- c. Parainfluenza-3 (PI-3);
- d. Pasteurellosis (1. *P. hemolytica*, and 2. *P. multocida*);
- e. *Hemophilus somnus*.

II. Blackleg.

III. Salmonellosis.

IV. Leptospirosis-*hardjo* is the most common of the five (5) serotype in cattle in Macon and adjoining counties in Southeast Alabama.

V. Pink-eye-*moraxella bovis*, IBR and BVD.

VI. Parasitism (enteritis, anemia and pneumonia):

- a. Gastrointestinal parasites-mostly nematodes;
- b. Lungworm infection-*dictyocaulus viviparus*;
- c. Coccidiosis-*Eimeria bovis*;
- d. Pediculosis-*Linognathus vituli*-long-nosed, blue ox louse;
- e. Myiasis - (cattle warble)-*Hypoderma lineatum*, a heel fly; and
- f. *Acariasis*-ticks.

VII. Nutrition:

- a. Lack of improved pastures and cool-season grazing;
- b. Nitrate poisoning from highly fertilized pastures;
- c. Urea poisoning;
- d. Secondary Vitamin A Deficiency (1. High nitrogen diet, and 2. Low phosphorus diet);
- e. Dietary calcium deficiency manifested as a nutritional secondary hyperparathyroidism (NSH) (5).

On basis of clinical signs and laboratory reports IBR is much more frequently encountered than PI-3. The prevalent type of conjunctivitis appear to be nearly pathognomonic for IBR. It is characterized by an acute purulent granulating type of conjunctivitis. There is seldom an involvement of the cornea. In BVD, the conjunctivitis usually make its appearance after the onset of other symptoms and at the start is of a serous nature. About 10% of affected animals with IBR will have the characteristic hyperemia of

the muzzle termed "red nose." In IBR, diarrhea is usually transitory. Diarrhea with BVD that persists after the first few days, and in terminal stages, may contain specks of blood and great quantities of mucus.

Pasteurella multocida and *P. hemolytica* are the bacteria most commonly found during "shipping fever." It is not well established whether they are opportunistic bacteria already present in the upper respiratory tract and activated by viral infections and the various stressors. Pasteurellae are frequently isolated in pure culture at necropsy. This leaves little doubt that they are capable of bringing cases of pneumonia in cattle to a fatal termination irrespective of the primary cause.

Hemophilus somnus infection or as earlier termed, infectious embolic meningoencephalitis (IEM), is characterized by thromboarteritis and sudden death. Respiratory signs may be similar to calf diphtheria. There may be tracheitis, pleuritis and pneumonia with or without lung consolidation.

Blackleg is a rapidly developing febrile disease in well-nourished young cattle with crepitant swellings of the heavy muscles. If treated early with massive dosages of penicillin and other broad spectrum antibiotics, there is frequently successful recovery. Numerous punctures over affected parts and infusion with Lugol's iodine appears to be helpful.

BVD is thought to be a predisposing agent in the gastrointestinal tract to other infections, for example, salmonellosis and coccidiosis. Subclinical incidence is apparently high since reports indicate that 70% of bovine serum is contaminated with BVD.

Parasitism in southern cattle is a serious problem with great economic and clinical significance. Many factors favor clinical parasitism in the south such as climatic conditions, plane of nutrition, moisture, and barn and pasture management practices. The usual clinical signs are loss of condition, rough wiry hair, anemia, diarrhea with periods of constipation, a persistent profuse diarrhea and "bottle jaw." Subclinical parasitic infections may be equally as costly from unthriftiness, stunting and less efficient performance of cattle on forage or feed. Control and prevention may be accomplished through a comprehensive herd-health program with emphasis placed on management practices, diagnostics and specific anthelmintics.

Selection of the right kind of ration to feed during weaning and to newly arrived calves, particularly the 300 to 350 pound animals, is beneficial. Also the use of specialized mill feeds with hay may be helpful.

The following pre-conditioning feed should be helpful: (1) Use of high quality grazing with temporary summer grass or cool-season grazing such as oats, wheat and rye grass or a combination of two or more of these plants; (2) Use of stored feed, primarily grain, protein supplement and grass hay.

Nitrate poisoning may occur after periods of stress on certain grasses or plants, as seen during dry periods followed by warm rains, or cold and cloudy

days. Feeding supplements containing urea while animals are on highly nitrated forages may increase the danger of nitrate poisoning. Signs of nitrate poisoning are cyanosis, staggering gait, muscular tremors, abdominal pain, diarrhea and chocolate-brown discoloration of the blood. The specific treatment is 2% methylene blue given intravenously. If nitrate poisoning is a consistent problem on highly fertilized pastures, a choice may have to be made between reducing high rates of nitrogen fertilizer and lower stocking rate.

High nitrate content of the feed as well as phosphorus deficiency may lower the efficiency of carotene conversion, thereby creating a secondary vitamin A deficiency. Hypovitaminosis A will cause a loss of epithelial integrity. The signs are lacrimation, diarrhea, incoordination and clinical signs of respiratory disease (2).

Dietary calcium deficiency has been observed in young and adult cattle, but more severely in calves 6-9 months of age. The calves were mixed dairy breed, Holstein and Angus crossed. The principle diet was whole kernel corn and coastal bermuda hay. The primary signs were weakness, sternal recumbency and multiple fractures of the thigh bones. The adult animals exhibited signs of shifting lameness accompanied with crackling joint sounds.

Of the many different disease conditions affecting weanling calves, a disease involving the respiratory tract known as the "shipping fever complex" is of prime importance. Shipping fever is a complex respiratory disease caused by the interaction of a combination of several stresses and infectious agents (3). The problem of shipping fever is seen in all ages of mismanaged cattle during production and shipping but is more serious in newly weaned calves. We cannot afford to overlook the possibility that treatment, labor, medications and retarded growth and development may be at times more costly than death loss.

There is no immunization program that will protect every weanling or stocker calf against all the diseases that affect these animals. Neither is there a drug or medication available that will eliminate disease and death loss in all stocker-feeder calves. Experiments suggest that there is no one miracle health program, but a combination of certain practices tend to reduce the total economic losses.

Until the practice of pre-conditioning is carried out routinely, and a more effective vaccine becomes available, the control of shipping fever in weanling and yearling calves has to be directed toward the reduction of stress factors through an effective health program.

The primary objectives of a health program for a stockering operation should be to gain adequate immunization against viral and bacterial agents and control of the several stresses. The results will be reduced shrinkage, better feed utilization, faster growth and weight gain, lower death loss and reduced treatment cost of sick animals. When conditioning procedures are properly applied they are effective in

eliminating or controlling most of the disease conditions in stocker-feeder cattle. If these conditioning procedures are properly applied on the farm or ranch, preferably the premise of origin, they will prepare these calves to withstand the several stresses associated with weaning, shipping, and grazing or feedlot adaptation. Essentially, we are addressing ourselves to a program of pre-conditioning which includes: 1. pre-weaning, 2. feed and water adaptation, which in effect is the training of calves to drink and eat from a trough or bunk, 3. vaccinations, 4. dehorning, 5. castration, 6. deworming and 7. spraying for external parasites. Identification is important, especially with purchased animals so that they can be traced back to the herd or ranch of origin.

Pre-weaning should be accomplished at least three weeks prior to shipment or at the commencing of a stocker operation.

Dehorning and castration should be done early, well in advance of weaning. (Delay these procedures on all sick animals until they are fully recovered.)

Opinions vary as to the ideal time for immunization. However, I am in full accord with the recommendation that vaccinations should be completed at least two to three weeks before weaning (4). Newly-arrived animals that have not been immunized or in need of a booster injection should be vaccinated as soon as possible after arrival. As foresaid, there is no single panacea for immunization or treatment suitable for all stocker-feeder calf operations. Nevertheless, in small farm feeding situations, or in on-ranch operations, extensive vaccination programs may not be necessary. The choice of vaccine used will depend upon the vaccination history of the calves, prevalence of various diseases in a particular area and experience with previous successful vaccination programs.

An adequate health program for control, treatment, vaccination against common diseases, better growth and weight gain should include the following:

1. Prophylactic dose of a broad-spectrum antibiotic, and/or a chemotherapeutic agent, particularly in calves that have been stressed or weaned from the cow while very young and soft.
2. Prophylactic dose of Vitamin A and D, also B¹² in cases of ruminal dysfunction. The merits of Vitamin E injections are questionable.
3. Immunization suggested
 - a. Blackleg
 - b. Infectious Bovine Rhinotracheitis
 - c. Parainfluenza-3
 - d. Leptospirosis – The serotype to vaccinate against will depend on prevalence in the locale or the region where the animals are to be shipped or retained.
4. Immunization that may be recommended depending on the individual operation and specific diagnosed health problems.
 - a. Bovine virus diarrhea
 - b. Pasteurella spp. – result questionable
 - c. Clostridial infections other than Blackleg and malignant edema
5. A program for control of parasites
 - a. Internal parasites – treat animals individually with an effective anthelmintic. If animals are stressed, newly weaned and soft, I recommend Thiabendazoles (TBZ).
 - b. External parasites and grubs – treat individually with one of the systemic pour-on insecticides (may be contraindicated on weak, sick and stressed animals).
6. The use of growth stimulants (Implants and feed additives). There are five compounds currently approved by Food and Drug Administration (FDA)
 - a. Diethylstilbestrol (DES) implant only
 - b. Synovex-S implant only
 - c. Synovex-H implant only in heifers
 - d. Ralgro, RAL or Zeraalonol – a no steroid or anabolic chemical zeraalonol, in implants only.
 - e. Melengestrol Acetate (MGA) approved for oral feeding.
7. Individual animal identification
8. Complete records of immunization practice followed, methods of treatment, weaning dates, parasite control including method of diagnosis, kind of feed and feed additives.

Nearly half of the beef cattle in the United States are located in the South. As the trend of retaining weanling calves on the farm and stockering and finishing operations increase in number and grow bigger in size, the seriousness of health problems is also destined to increase in southern cattle. Therefore, the southern bovine practitioner must face the challenge of the sweeping changes in the beef cattle industry that affect health with our most promising weapon – an adequate health program. A health program should be properly applied as a complete health package including management, promotion, and when feasible, implementation of the pre-conditioning concept, which should be directed primarily at reducing the several stresses, improved immunization, lowering of treatment cost and death loss.

Nevertheless, the establishing of an effective health program may be best achieved with a concerted management team effort involving the agriculturist, engineer, banker, veterinarian, and the “ranch-raised” beef or stocker cattle operator. In conclusion, I strongly feel that with proper utilization of the foresaid health package, the problems encountered with retaining post-weaned calves on southern farms can be greatly reduced.

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Questions

1. An acute purulent granulating type of conjunctivitis is nearly pathognomonic for:
a. Pink-eye; b. PI₃; c. IBR; d. BVD.
2. A commercial vaccine is not available for which of the following

disease entities? Therefore it is not usually recommended in health programs.

- a. Blackleg; b. Pasteurellosis; c. Hemophilus somnus infection; d. BVD; e. IBR.
3. Which of the following agents may best aid in maintaining epithelial integrity. May also show clinical signs of respiratory disease when deficient.
a. Vitamin K; b. Vitamin A; c. Vitamin B¹²; d. Vitamin D₂.
4. Which of the following parasitic problems is of the greatest clinical significance in Southern cattle?
a. Acariasis; b. Pediculosis; c. Myiasis; d. Nematodiasis.
5. True or False - BVD is thought to be a predisposing agent in the gastrointestinal tract to other infections, for example, salmonellosis and coccidiosis.
6. A disease entity that is characterized by thromboarthritis, pleuritis, embolic meningoencephalitis and sudden death may be best fitted with:
a. Salmonellosis; b. BVD; c. IBR; d. Pasteurellosis; e. Hemophilus somnus.