Objectives of Health Management in the Beef Cattle Feedlot

✔ Rapid growth rate, minimal fat at an acceptable slaughter weight. A consistent product is highly desirable and achieved by the purchase of cattle which have the genetic potential for rapid growth and leanness.

✔ Maximize feed conversion efficiency. The use of growth promotants, formulation of least cost rations, effective feeding techniques, effective parasite control and the culling of animals with chronic diseases which are refractory to treatment. Timely marketing of animals is a goal.

✔ Reduction of morbidity, mortality, and culling rates through the purchase of cattle with a good health status. This requires an effective processing and introductory system which minimizes the incidence of disease and gets cattle on feed with a minimum incidence of disease. Animal attendants must be able detect and treat clinically affected animals in the early stages of disease. A reliable record-keeping system using a computer which provides useful information on a daily basis, and a simple protocol for the clinical management of sick cattle are necessary.

✔ Optimal expenditures for biologicals and antimicrobials used for the control and treatment of disease. Avoid unnecessary use of vaccines, anthelmintics, and prophylactic antimicrobials.

✔ Profit comparable to other investment opportunities.

✔ Production of wholesome beef free of chemical residues. This requires reliable individual animal identification, reliable records and cross-referencing before shipment, the avoidance of extra-label drug use, and the use of short withdrawal drugs on animals near slaughter weight. This is part of the Quality Assurance Program supported by the Canadian Cattlemen's Association.

✔ Clinical research. An effective health management program allows the veterinarian to conduct some clinical research on a variety of drugs, particularly antimicrobials and vaccines.
The continued profitable success of a modern feedlot is dependent on a combination of a number of factors:

- good management;
- a favourable economic climate;
- relative freedom from epidemics of disease;
- changes in the costs of inputs such as feed;
- changes in the price received for the final product.

Success is heavily dependent on each person in the team, including the cattle buyer, the animal attendants, the nutritional consultant, the veterinarian, and the manager of the feedlot, assuming their individual responsibilities and doing the best work possible.

Historically, veterinarians were preoccupied with the treatment of individual animals. As feedlots became larger and more sophisticated, it became obvious that knowledgeable animal attendants could successfully and economically diagnose and treat the common diseases of feedlot cattle. Veterinarians were thus used less and less on a routine basis and were consulted only when epidemics of disease occurred that were not responding to the usual treatment procedures or in which the feedlot personnel could not make a diagnosis. Feedlots now recognize the value of constant surveillance by a veterinarian who has specialized in feedlot veterinary medicine.

The successful feedlot veterinarian will deal with a broad concept of disease in the feedlot and not restrict the definition to simply sick animals. All of the identifiable factors that result in suboptimal performance are a part of the health management system. These include inadequacies in the feeds and feeding systems, the purchase of undesirable types of cattle, and clinical and subclinical disease in the clinical sense.

The Relationship Between the Veterinarian and the Feedlot Personnel

The respective roles of management, animal attendants, and the veterinarian must be understood, agreed upon and respected by each party. The emphasis is on teamwork and effort. All individuals on the team must know and understand the goals of the operation. All must have confidence in those goals and their abilities, which should be outlined in well defined job descriptions.
A major challenge has been to implement a feedlot health management program. The critical areas which must be considered in the implementation of a successful production-oriented health management veterinary service to large feedlots includes:

- identification of appropriate clientele;
- acquisition of extensive industry knowledge;
- a fundamental change in the traditional veterinary-client relationship;
- the establishment of a framework for program evaluation;
- and a well-constructed action plan.

The client served must want to be involved in profit-oriented feedlot production. The veterinarian must be knowledgeable about the daily operation of a feedlot. This includes an understanding of the procurement of cattle, marketing strategies, allocation of personnel, performance parameters. The veterinarian must also be able to integrate that knowledge with clinical medicine, pharmacology, pathology, and economics.

The principal objective of a feedlot health management program should be to optimize production and maximize profit. This includes reducing death loss and drug expenditures. In the traditional system of veterinary practice the veterinarian did best financially when the morbidity and mortality were high so that he could make the diagnosis, give the treatments, and dispense drugs at a profit. This had the potential for a conflict of interest.

When the veterinarian is being paid as a consultant he is being paid to keep the animals healthy and doing well. Under a consultative system the veterinarian directs the animal health program and is paid for his professional services according to the number of animals in feedlot over a period of time.

By charging by the head the veterinarian becomes more intimately involved with the health and production problems of the feedlot. The veterinarian then determines when, how often, and for how long, he or she needs to be on the lot. Being paid by the head also provides the opportunity to pursue areas which need to be answered if we are to fulfil our role as health specialists. With the emphasis on being paid for professional services on a per head basis, the majority of income is then derived from professional work rather than selling drugs which is desirable if we are to develop as health professionals. The system also allows the producer to plan for
the costs of veterinary services. This allows for integration of health management costs directly into the equation for the costs of production. Such an arrangement benefits both the producer and the veterinarian.

The Program in Action

Constant surveillance

Constant surveillance by the feedlot personnel and the veterinarian is required. The frequency of regular visits by the veterinarian to the feedlot will vary from daily to once weekly or once monthly depending on the size of the lot, the management capabilities, the type of cattle fed, and the nature and prevalence of diseases encountered. There are several components of a feedlot health and management service that a veterinarian can provide.

Regular inspection

Regular inspection of all areas of the feedlot and its operation for possible causes of health or production problems.

Disease surveillance

Continued disease surveillance through regular necropsy examination and regular observations of sick cattle is necessary. A necropsy on all dead cattle should be done by the veterinarian. A necropsy provides for the identification of diseases that are occurring and confirmation of the clinical diagnosis. It also helps in the evaluation of the effectiveness of the various personnel involved with the health of the cattle, such as the buyer, truck driver, processing crew, pen checkers, treatment crew, feeders, manager, and veterinarian. An finally it is needed for the evaluation of the effectiveness of specific disease prevention programs and any changes that may be necessary.

A focal point in management of disease in the feedlot is rapid and accurate diagnosis. This necessitates a good surveillance system, a careful full-time search for sick animals, appropriate facilities for examination and treatment of sick animals, accurate identification of animals, and first-class laboratory facilities, especially a necropsy service.

The training and supervision of feedlot employees in the detection and early treatment of sick cattle should be emphasized. Employees should be given regular informational sessions which illustrate the clinical signs of the common diseases. It is the manager’s responsibility to ensure that adequate personnel are available to thoroughly inspect
each pen of cattle at least once daily and preferably twice daily. It is the veterinarian’s responsibility to ensure that these personnel are adequately trained and to monitor or design monitoring systems to ensure the competence of the individuals.

Surveillance Method

The feeding pens must be under surveillance every day and on at least two occasions per day. When certain epidemics of disease occur, such as hemophilus infection, it is necessary to check the animals as often as every six hours on a 24-hour basis for several days in order to detect new cases as early as possible, when they will respond to treatment. The surveillance can be done from horseback or by walking through pens, but it is essential to be up close and to be able to move the cattle apart, but slowly and with the least possible excitement. Pen checking is an art that requires constant practice and attention to small details.

The selection of pen checkers is very important. They need to be observant, knowledgeable, and trustworthy and must have sharp eyes if early diagnosis is to be made. One such pen rider can maintain surveillance over 10,000 head of cattle. If the lot is large enough, it is most economical if the riders work in threes, permitting one to cut out and drive to the hospital yards.

The signs of ill health that are used to determine the presence of illness are:

• Animals standing in isolation;
• Rapid respiratory rate, coughing and nasal discharge;
• Animals not coming up to the feed bunk and appearing empty;
• Reluctance to rise or move, walking slowly. Appear to be lame or have other abnormal gait, such as knuckling of the fetlocks or dragging of the toes;
• Crusted muzzle, nasal discharge, sunken eyes;
• Rough, dry-looking hair coat;
• Diarrhea with or without blood in the feces;
• Straining to urinate with grunting and tail switching;
• Drooped head and ears with an arched back;
• Rectal temperature over 40°C.

Cattle showing these or other obvious signs of illness are examined more closely in the hospital area. It is important to follow the standard treatment protocol recommended by the veterinarian. If treatment is appropriate it is administered, in most cases, once daily for three days.
Recovered animals are put back into their original pens. Animals which do not recover or that relapse after the first treatment are retreated. Obviously, there comes a time when the expenditure of more money on an animal that is going to be an uneconomical proposition is unwarranted. A decision on what course to take depends on whether or not the animal’s life is in danger or whether or not it is a matter of doing poorly.

If the animal’s life is at risk there is the potential loss of capital invested, and all efforts are directed toward avoiding this. If the animal can still be sold and chances of recovery are slim, it is usual to cull it after two courses of treatment. This rule of thumb depends on the fact that it costs a great deal more, in terms of labour, to keep an animal in the hospital than in the feeding yards, and sick animals should either be returned quickly to their own pens or be slaughtered. In some feedlots, it is the practice to make up a pen of slow gainers, but this can be a nuisance and in most cases the rate of gain is not sufficient to justify the effort.

Treatment Protocols

The veterinarian must specify procedures for the clinical management of sick cattle and provide a standard protocol that outlines specific treatments for disease syndromes, dosages, treatment intervals, routes of administration, and withdrawal times. The effectiveness of the treatment protocol should be regularly evaluated by determining the response rates for the various treatment regimens. The failure of feedlots to use regular, competent veterinary supervision and to analyse treatment protocols often leads to the use of many different drugs indiscriminately, which results in an overexpenditure for treatment and often an increase in the case fatality rate or the size of the dead pile.

Vaccination Protocols

An important component of feedlot health programs is the planning of vaccination programs. The vaccines and the vaccination schedule will vary from area to area, depending on the prevalence of disease in the feedlot area and in the area from which the cattle originated. The kinds of vaccines used and the vaccination schedule should be based on the expected incidence of the disease, the cost of the disease when it occurs, the cost of the preventive procedure (vaccine plus labour), the field efficacy of the vaccine, and other alternative control procedures available. All of these factors
are based on sound data obtained from the disease records generated by the feedlot or other similar feedlots as well as continued scrutiny of the scientific literature and ongoing clinical trials conducted by the veterinarian in these feedlots.

**Nutritional Advice**

Large feedlots frequently consult a qualified nutritionist to assist in the formulation of least-cost diets. The veterinarian should establish effective regular communication with the nutritionist and be aware of the composition of the diets and any changes that are being planned. In other situations, the feedlot veterinarian may be in a position to provide regular nutritional advice as part of a complete service.

Because feed is the major portion of the cost per unit of body weight gain, it is imperative that the diet be least-cost and at the same time provide the nutrients that will allow optimum growth and finishing. Most of the emphasis in feedlot nutrition has been on developing least-cost diets that will support a maximum growth rate without any deleterious effects.

The precise specifications of the diets may be the responsibility of the nutritionist but the feedlot veterinarian frequently must evaluate the quality of the feed delivery system. This means checking to determine if the cattle are fed on time, is the feed mixed properly, is the feed intake intermittent because of inclement weather or muddy ground surfaces.

Diets prepared according to the 1996 Nutrient Requirements of Beef Cattle should meet all the requirements under most practical conditions.

Specific nutrient deficiencies are extremely rare because diets are prepared every few days or daily, and it would be highly unusual for a feedlot to use a feedstuff deficient in a specific nutrient for a prolonged period. Such a situation may occur in a small farm feedlot that prepares its own feedlot diet with little or no attention to the necessity for supplementation of home-grown feeds.
The nutritionally related diseases of well-managed feedlot cattle are few but may be the cause of large economic losses when they occur. They include:

- Carbohydrate engorgement (grain overload or D-lactic acidosis);
- Ruminal tympany or feedlot bloat;
- Feeding errors, for example, accidental incorporation of an excessive amount of a feed additive such as monensin (Rumensin®), or the sudden unintended changes in the ingredient composition of the diet.