

Planning and Implementing a Health Program for the Research Center Cow Herd

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Introduction

Preventive medicine. Herd health management. Contract practice. Consultation practice.

These are terms frequently seen in veterinary journals and heard at professional meetings. Subtle variations notwithstanding, these terms in one way or another all describe a particular concept of providing veterinary service to a livestock operation (Sippel, 1969).

It is the concept of building a scheduled, continuous working relationship with the client; and which involves, to one degree or another, participating in the health management of that client's livestock operation (Baker, 1966).

The concept of preventive medicine practice is hardly new, although to date only a small percentage of veterinarians and livestock producers cooperate on this type of system.

The benefits of preventive medicine are well documented. Veterinarians enjoy increased involvement in health management decisions, more effectively apply their professional and scientific capabilities, and play greater roles in meat animal agriculture development (Sippel, 1969).

This approach has evolved since about 1960. It is known by the various titles given at the start of this paper (Blood, et al., 1978). A variety of authors have described their particular approaches (Cote, 1963; Morrow, 1966; Blood, et al., 1971). The common feature of the services has been an emphasis on control of subclinical disease and improvement of productive efficiency using the skills and procedures based on the traditional unique education of the food animal production veterinarian.

Preventive medicine has been well defined and producers and veterinarians agree that it is "the thing to do." But the central question, in addition to what it is, has been "how do we get there?"

This paper presents the planning, implementation and daily ongoing administration of the herd health and disease management program developed for the Roman L. Hruska U.S. Meat Animal Research Center at Clay Center, Nebraska.

The Roman L. Hruska

U.S. Meat Animal Research Center

The Roman L. Hruska U.S. Meat Animal Research Center was established in 1966. The objective is to develop new technology for use by the food animal production industry to increase the production of high quality red meat per unit of production resource used. The research center was established on a 35,000-acre portion of what was a naval ammunition depot. When completed, the center will provide resources for a comprehensive research program that will involve 100 scientists and 300 support personnel.

One-half of the research is devoted to beef cattle, one-fourth to sheep and one-fourth to swine. Research objectives now require a livestock population of 7,000 cows, 5,000 sheep and 500 litters of hogs per year. The cattle population provides 5,000 calves produced for spring calving and 2,000 at fall calving. A feedlot facility is provided to continue research through the growing period onto the finishing period and for developing herd replacements.

The research program is organized on a multi-discipline basis and is directed toward providing new technology for the livestock industry. Scientists are investigating major biological, physical and managerial factors that influence production efficiency in all segments of the production cycle. The comprehensive multidiscipline program includes research in the areas of genetics and breeding, nutrition, reproduction, meats, management systems and ag engineering.

The Position of Herd Health Veterinarian for Roman L. Hruska

U.S. Meat Animal Research Center

Following is a list of the specific duties assigned the research center herd health veterinarian.

The veterinary medical officer has full responsibility for individual animal, herd and/or flock health programs for the research center. He is responsible for participating and cooperating in the design and conduct of research in various breeding, nutritional, physiological, management and other studies.

Specifically, the veterinary medical officer:

1. Performs a variety of professional duties on general herd health of beef cattle, sheep and swine involving the diagnosis, treatment, and, most importantly, the control and eradication of livestock diseases. Assumes leadership in working out and establishing broad management procedures for maximizing herd health;

2. Cooperates and consults with research scientists at the research center on deficiency diseases and other physiological studies wherever investigations require the application of veterinary medicine and surgery;

3. Participates in the development of research programs regarding disease management in cooperation with research specialists at other locations;

4. Performs diagnostic work and treatment on animals maintained under strict and confined experimental conditions;

5. Has responsibility for preparation, maintenance and analysis of herd records as related to herd and flock health programs;

6. Performs professional duties concerned with making clinical observations, performing necropsies, making biochemical tests, analyzing data and preparing technical reports regarding herd health;

7. Develops and applies adequate quarantine and other control measures designed to prevent the introduction of disease conditions;

8. Has the responsibility for the adequate application of various diagnostic tests;

9. Develops an effective training program for lower level professional and subprofessional personnel at the research center on appropriate procedures for administration of immunization and treatment materials, assistance at parturition, etc.

Roman L. Hruska U.S. Meat Animal Research Center Livestock Management

The livestock operations manager of the Roman L. Hruska U.S. Meat Animal Research Center has direct responsibility for all aspects of management of the cattle, hogs and sheep populations. Management includes conducting the research projects as well as the daily care of the animals. The management team is completed with a species operations manager for each of the three species utilized, operation assistants for the feedlot, feedmill, bulls, sheep, intensive areas, and three assigned to the cow-calf operation. The assistant herdsman serve under these operation assistants.

At this time I am the only veterinarian at the Roman L. Hruska U.S. Meat Animal Research Center. I do have the support of one veterinary technician working full-time in a laboratory situation. Plans are now being completed on a veterinary facility at a central location to serve the autopsy and clinical requirements of such an extensive livestock population.

Excellent facilities have been developed throughout the 35,000 acres. Pole sheds serve as the headquarters for each assistant herdsman and his

crew. Each pole shed has an office, hothouse area, pull stall, inside pens, chute, alleyway and sorting and holding corrals. Water and electricity is extended to each pole shed. The feedlot is built to accommodate 6,000 head of growing and finishing cattle. Research requirements dictate pen sizes to hold numbers less than most commercial feedlots. The nutrition of the cattle population is provided by grazing cool and warm season pastures, brome grass hay, alfalfa hay, alfalfa haylage, corn silage and wet corn.

The Specific Herd Health Program for the Roman L. Hruska U.S. Meat Animal Research Center Cow-Calf Herd

The information presented regarding the Roman L. Hruska U.S. Meat Animal Research Center, the research program that is underway, the extensive livestock populations, the management of those livestock, the management of the research projects and the position of veterinary medical officer provide the necessary background for an answer to the question posed in the introduction regarding preventive medicine and herd health programs—"how do you get there?"

Planning for the cow-calf herd health program

The initial planning consisted of meeting with the livestock managers and presenting the concept of providing animal health care through the development of prearranged programs.

The evolution of the aforementioned herd health programs requires that livestock operations and the herd health veterinarian work as a team. Livestock operations contribute the production efforts necessary for a viable food animal production population.

- A. Manage all livestock.
- B. Plan and develop facilities.
- C. Provide personnel, feed and support.
- D. Coordinate the use of facilities, support personnel, land and animals.
- E. Install and conduct the health programs.

The veterinarian functions as a consultant to livestock operations to complete the team concept that is necessary for a workable, successful herd health program. The veterinarian provides:

- A. Preventive medicine procedures.
- B. Epidemiology.
- C. Diagnosis and treatment.
- D. Herd health training.
- E. Analysis of herd health records.
- F. Advice on all phases of disease prevention: 1) A vaccination schedule; 2) Short-term treatment of animals during critical periods of life: a) at birth—consider cow and calf; b) weaning. 3) Elimination of sub-clinical diseases through diagnostic tests and epidemiology study: a) brucellosis; b) tuberculosis; c) anaplasmosis; d) bluetongue; e) strict quarantine of newly purchased cattle. 4) Improvement of management procedures; 5) The use of herd treatment when

indicated; 6) Consideration of nutrition and stress on disease incidence; 7) Daily herd health records and analysis of past records.

These seven phases of disease prevention have served as a basic guide to the development of the herd health program. They can also be of specific value as a guide to the re-evaluation and resultant program changes that evolve.

These initial planning efforts required considerable discussion between the participating personnel so that the problems and the proposed approach were fully understood. The following had to be completely understood:

1. Long-range plans and goals of the livestock operations and the research program.
2. The health history of the herd and the general environment.
3. The management methods currently used for handling animals, keeping records, personnel employed, nutrition, facilities, health procedures and limitations any of these factors might impose on the implementation of a herd health plan.
4. Current limitations of veterinary scientific knowledge and available drugs and biologics.
5. The need to consult with other animal health or diagnostic personnel from time to time.

Following is a list of the goals of the Roman L. Hruska U.S. Meat Animal Research Center herd health program:

- A. To reduce the losses from the direct effects of disease. These losses are measured by mortality.
- B. To reduce the losses from the indirect effects of disease. These losses are identified by: 1) Reduced growth rate; 2) reduced feed efficiency; and 3) reduced reproductive rate.

The job of health management, as it exists today at the Research Center, is unique in that management has complete control over handling of cattle from birth to disposal. Thus, stress can be minimized. Vaccines can be given at the most opportune time. Under these ideal closed herd conditions, the major epidemic diseases are being controlled. The overall herd health goal is to minimize the losses resulting from diseases that are insidious, etiologically complex and endemic. To reduce losses from these diseases, improved protection and production management factors must be instituted.

The following approach to cow-calf preventive medicine will be instituted.

I. Improve the reproductive performance of the cow.

A. Control the incidence of those identified diseases that cause abortion and infertility: 1) vaccines; 2) quarantine of herd replacements; 3) diagnostic tests to detect carrier cattle.

B. Improve the methods of fertility examination of herd bulls.

C. Improve record systems to identify those animals with a poor reproductive history.

D. Attempt to provide the breeding herd with all known nutritional requirements.

E. Continuing education of herdsmen to improve detection of cows in heat.

II. Improve the care of the newborn calf.

A. Continual training of herdsmen in the routine care of the newborn: 1) how to relieve dystocia; 2) improve sanitation; 3) use of equipment to supply newborn with oxygen; 4) provide an alternate source of colostrum.

B. Improve diagnostic methods regarding disease of the newborn: 1) determine antibiotic sensitivity of pathogenic bacteria to aid in selection of therapeutic agents; 2) identify bacterial and viral agents causing disease as a guide to the selection of vaccination products.

C. Improve facilities to provide protection of newborn during severe winter weather.

III. Improve disease detection.

A. Provide enough personnel so that each herd of cows and calves can be observed daily.

B. Continual training of personnel in detection of sick and injured: 1) written directions; 2) visual aids; 3) station experienced personnel with those in need of learning.

C. Develop diagnostic methods for rapid laboratory confirmation of suspected disease-causing agents.

D. Autopsy each mortality to develop accurate records of the causes of death.

E. Require herdsmen to complete sick animal records which serve as a basis of morbidity reports.

F. The management and the herd health veterinarian must review morbidity and mortality reports to detect trends and make preventive medicine recommendations.

IV. Improve the treatment of sick cattle.

A. Provide facilities and pens for isolation and treatment of sick cattle.

B. Be certain herdsmen are taught diagnosis and treatment protocol: 1) correct dosage; 2) treatment intervals; 3) how to administer treatments; 4) sanitation.

C. Be certain follow-up treatment is given until recovery is complete.

D. See that the veterinarian works with the herdsmen so he will be informed about disease conditions, can evaluate personnel and recommend preventive measures.

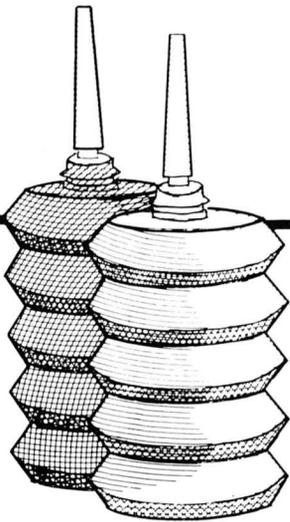
E. See that the herd health guide is available, is being used and that changes are inserted and brought to the attention of the herdsmen.

Failure of routine treatment is usually the result of faulty disease detection or improper treatments rather than ineffective drugs. If a disease becomes well established before treatment is started or becomes chronic as a result of wrong treatment, no amount of corrective treatment will be effective.

V. Utilize the management ability and authority of

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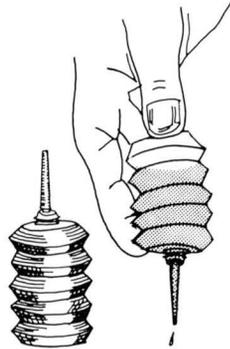
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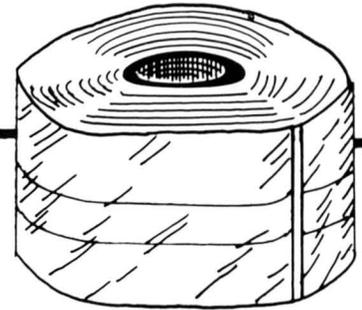
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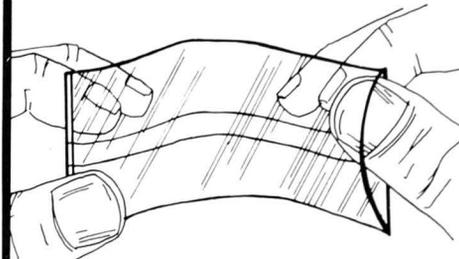
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the livestock operations manager and the operations assistants to minimize expenditure of time and supplies. Decisions will be based on advice of the herd health veterinarian.

A. Eliminate ineffective or unnecessary drugs and vaccines.

B. Eliminate overtreatment of sick cattle: 1) see that herdsmen are following treatment protocol; 2) stock only medicines that are necessary to cut costs from waste and to minimize experimentation by the herdsmen; 3) cull animals judged to be incurable, if allowed under design of given research projects; 4) establish a system of identification of cattle treated for disease.

C. Provide information that will enable the inventory management unit to purchase drugs at volume discounts, to always inventory adequate quantities to meet needs, and to avoid purchase of unnecessary products.

Job Assignments for the Roman L. Hruska U.S. Meat Animal Research Center Herd Health Program

These jobs are for herd health. They are not the only jobs to be done. Herd health is part of a team effort to provide support for animals for the research scientists.

I. Cattle crews.

A. Listed first because the cattle crew is the key to success of the preventive medicine program.

B. Ride among herd daily to detect signs of disease: 1) Cut out those cattle showing symptoms of disease. *The crew that learns to handle sick cattle with care will have a good record of health management. This especially means controlling the use of a rope;* 2) Notify herdsmen of cases that cannot be treated according to a set routine. In other words, do not diagnose and treat if you don't know what is wrong; 3) Care for herd health supplies and equipment: a) store products in designated areas; b) clean up each and every item after use and put back in place; c) sanitation must be maintained. 4) Ride those herd areas with a high disease rate more than one time daily. 5) Care of fence, bunks, water, salt and facilities. Sanitary working conditions do have a positive influence on herd health.

II. Assistant herdsman.

- A. Direct supervision of cattle crew.
- B. Maintain herd health record books.
- C. See that cattle crew does follow rules of sanitation and housekeeping.
- D. See that all death losses are correctly diagnosed by autopsy if necessary.
- E. Notify veterinarian to assist in diagnosis and treatment of cases other than routine.
- F. Inform the cattle operation assistant of any changes in herd health status of a herd of cattle.
- G. Inform operation assistant of cattle crew members that need herd health training.

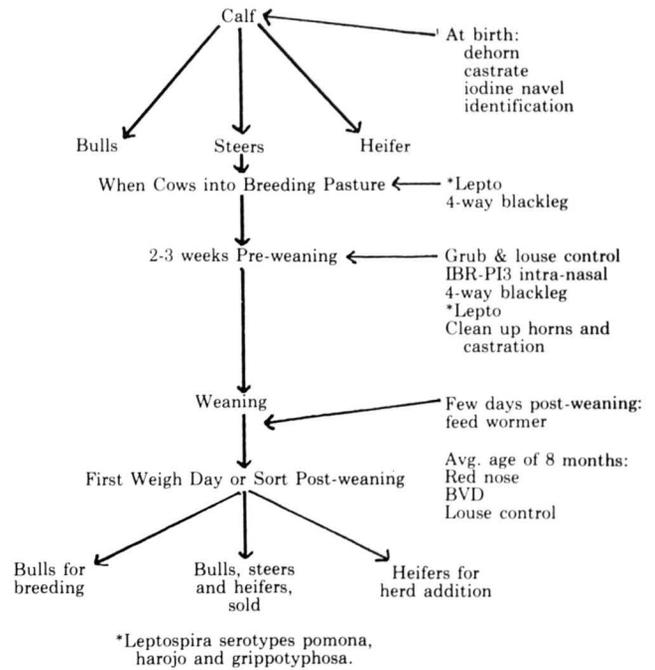


Figure 1A. Roman L. Hruska U.S. Meat Animal Research Center Herd Health Preventive Medicine Flow Sheet: the calf-from birth to maturity.

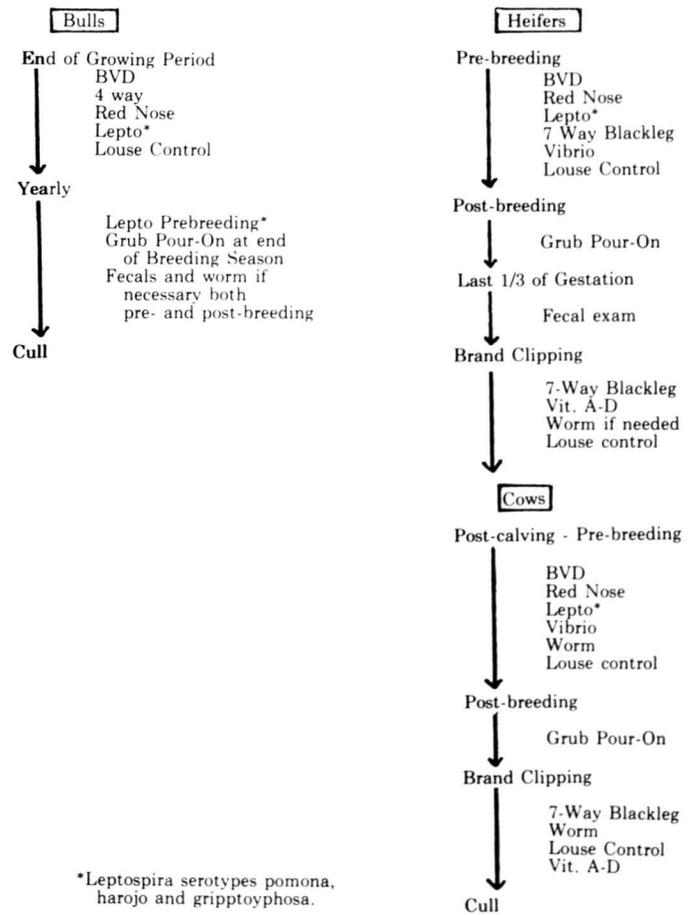


Figure 1B. Roman L. Hruska U.S. Meat Animal Research Center Herd Health Preventive Medicine Flow Sheet: adult males and females.

III. Cattle operation assistant.

A. The working management for the assigned cattle population.

B. Accompany the herd health veterinarian on routine health inspections.

C. Review herd health records, summarize if necessary, and transmit to the veterinary medical officer.

D. Schedule routine herd health procedures as outlined.

E. Observe and assist herdsman and cattle crews to evaluate herd health job performance and correct mistakes.

F. Assist in development of a continuing herd health program.

IV. Livestock operation manager, cattle operation manager and assistant cattle operations managers.

A. Develop, review and implement a herd health-preventive medicine program.

B. Supervise herd health education by schedule of staff meetings and assistant herdsman meetings.

C. Review morbidity and mortality with an overall goal of improving herd health.

D. Evaluate labor requirements and costs of herd health procedures to determine if the Roman L. Hruska U.S. Meat Animal Research Center preventive medicine program is successful in maintenance of a low level of disease at a reasonable cost.

Implementation and Ongoing Conduct of the Health Program

The development of the plan is the important first step. The plan must be worked into the daily management routine. The following specific points were developed and followed to make the transition from traditional sick animal health care to the programmed preventive medicine approach.

Herd health staff meetings are held on a regular basis. This is where the program is reviewed and discussed. Specific health problems are presented. Health procedures are scheduled. Special supplies are requisitioned and personnel are reviewed.

Herd health manuals have been prepared and are in the hands of all managers and herdsman. The manual developed contains a listing of drugs and supplies required in each area; a review of cow-calf diseases with a discussion of signs, cause, treatment and prevention; the specific written health program with a discussion of the preventive medicine approach to health care; a section on sanitation; the health record form and how to fill it out; and a general section filled with manipulative procedures and other important information and instruction the veterinarian and management wish to emphasize. The manual is loose-leaf, thus lending itself to continual updating as new drug programs or procedures are developed.

Morbidity and mortality records have been developed. They serve as a basis of locating problems and evaluating health programs.

Training courses have been developed to teach employees routine treatment and manipulative procedures.

Veterinarian technicians are utilized to provide diagnostic laboratory support, perform many routine surgical and treatment efforts, supervise vaccination and, in general, free the veterinarian to function in the role of a consultant.

A vaccination flow sheet was prepared that specifies what biological agents are to be utilized and when they are administered (see Figures 1A and 1B).

If any of you are considering starting one or more clients on a preventive medicine program, here are some guidelines that have been developed that will contribute to the success of such a venture.

Establish the role of the veterinarian as that of a consultant and work to make the veterinarian part of the management team. As part of that team, it is important to emphasize these points: 1) the veterinarian needs support to function effectively; 2) the team must not allow lower-level personnel to disregard his advice; 3) information the veterinarian requests must be provided; 4) management is responsible to implement and enforce decisions and recommendations.

The effective practice of preventive medicine demands a mental commitment. That includes keeping up with the latest information published in the farm and veterinary press.

Nothing gets a herd health program in effect faster than effective communication, both written and oral. Discuss the production goals and problems. Evaluate management ability. Determine how you can help most effectively.

Visit the operation on a regular basis. Take notes. Ask questions. Evaluate competence of hired hands and submit a written report.

Setting up a record system provides evidence that you are benefiting the operation and serves as a basis of evaluating the program. Periodic evaluation and written reports are a must.

In summary, the concept of herd health management and preventive medicine has been instituted for the Roman L. Hruska U.S. Meat Animal Research Center cow herd.

The major points contributing to the apparent success are: define the preventive medicine practice concept; establish goals; consider the seven phases of disease prevention; develop specific approaches for each client for cow-calf preventive medicine; assign the responsibilities; implement the program; develop records; keep informed; communicate on a routine basis with the client; and evaluate and change the program on the basis of results.

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