

HERD HEALTH PROGRAM You Can't Afford To Be Without One

by Dr. R.C. Daniels, DVM

Dr. R.C. Daniels, DVM, is director of professional and technical services for Philips-Roxane, Inc., producers of Anchor Animal Health Products, St. Joseph, Mo. He is currently a member of the executive board of the American Society of Agricultural Consultants and, for the third year, is listed in WHO'S WHO. Dr. Daniels, a Texas A&M graduate, spent 15 years in general practice in Texas and six years in a consulting practice before moving to St. Joseph.

The undisputed goal of every cattle operation is to wean from each cow each year a calf of such size and quality that its sale will result in a profit. Progress toward this goal requires many things. Our concern here is health programming, prevention of disease in the herd.

While treatment of sick animals is an attempt to decrease an existing loss, herd health programming is designed to prevent loss in the first place. Money spent on disease prevention is simply a sound investment.

Today's economic environment dictates that herd health not be left to chance. To compete successfully in today's complex cattle market, the modern cattleman must continually up-date his knowledge of new drugs and products. Professional expertise may be necessary to evaluate specific problems, but the basic choice of a health program remains with the cattleman.

Keeping in mind the overall goal, profit, each cattle operation should be able to meet these intermediate goals:

1. 356-day calving interval
2. 45-day breeding season
3. 95% conception rate
4. 92% live calves
5. 90% weaning rate

These are minimum figures for profit. Good management actually should result in a weaning rate of 95% or better.

Accurate individual records must be maintained. Each animal must be identified, preferably by a brand or tattoo but at least by neck tag or ear tag.

Breeding dates, calving and weaning dates, and the weaning weights of all calves are an integral part of the records.

Make or Break Proposition

The breeding program will make or break the cattle operation. Close observation of the herd at breeding time is essential, since this not only identifies breeding dates but also detects any reproductive problems.

After breeding season, pregnancy testing and then culling open cows should result in a 100% pregnancy rate, live births can be estimated at 97-98%, as can an eventual weaning rate of 95%. Now if only 80% of the cows are bred and 90% of those conceive, the highest possible calf crop is already only 72%, exclusive of any other variables. Another 2-3% can be lost at calving, with an equal loss before weaning, resulting in a 67% calf crop. And 67 calves will not pay the grocery bill for 100 cows.

Late Calving Costs Money

Many beef cattle specialists now agree that a 45-day breeding season is one of the most important aspects of a successful cow-calf operation. This is essential for two reasons. Calves born late weigh less at weaning. For each 20 days a calf is late, it probably will weigh 30-40 lb. less at weaning. On an \$80 per cwt. market, the owner is losing \$24-\$32.

In addition, the late-calving cow has less chance of being rebred during the 45-day breeding season. If a cow starts out calving two or three months later than the rest of the herd, there is really no practical way to move her up in an early calving cycle.

If cows are calving during a 4-month period, all cows calving outside of a 45-day season should be culled. This can be accomplished during a 4- or 5-year period by selecting early-calving heifers and culling late-calving cows.

Culling Heifers

Since heifers, after calving, usually take longer to cycle, their breeding period should be 30 days earlier than cows. Start out with up to twice as many heifers as will be needed for replacements, since those heifers not conceiving should be culled.

Heifers should be selected primarily for fertility and reproduction. Bulls should be responsible for improvement in growth and conformation.

The bulls should be examined for

breeding soundness 60 days prior to the season, with the breeding ration being established at that time.

In heifers, 90% will cycle at 14-15 months if their weight is adequate—about 650 lb. for Angus. Naturally, heifers born early in the year have a greater chance of cycling early the next year.

To get heifers to reach their desired weight by breeding season, they should be weighed at weaning, the necessary rate of gain should be established, and they should be sorted and fed accordingly. (To determine rate of gain, subtract weaning weight from desired weight and divide that number by the number of days until the beginning of breeding season.)

Lighter Heifers

Lighter weight heifers can be held over and then bred to calve early as 3-year-olds. This practice does involve another couple hundred dollars in maintenance, however.

Constant monitoring of the herd cannot be over-emphasized, since early identification of any signs of abortion or infertility is essential. If disease is suspected, a

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diagnostic laboratory should be consulted. An animal found dead from unknown causes should be necropsied; an individual death could be the beginning of an epidemic.

Although the No. 1 problem in the cow-calf operation is reproductive herd health, there are two other aspects of health programming that are essential—general herd health and nutrition.

To maintain general herd health, each animal should be examined once a year—the mouth checked for condition of the teeth; the udder examined for chronic mastitis, injuries or other defects; the feet checked for foot rot, cracked hoofs or excessively long toes; the eyes checked for pre-cancerous plaques.

General Condition

General body condition should be evaluated for systemic disease, parasites, etc. Then any animal with problems should be culled, leaving in the herd only those cows capable of top production.

Since market destination influences calves' vaccinations and since every operation is unique, the same vaccination pro-

gram will not work for everyone. Recommendations are necessarily generalized—each program must be tailored to both geographic area and individual needs.

Generally, though, infections associated with reproductive failure are of prime importance. Vibriosis, leptospirosis, infectious bovine rhinotracheitis and bovine virus diarrhea have all been connected with abortions and misconceptions, so vaccination generally is recommended prior to the breeding season. The stressful nature of anaplasmosis vaccination suggests it also should be administered during the open period.

Milk Production

Reduced milk production results in lower weaning weights, so it makes sense to give the breeding herd boosters of *Staphylococcus aureus* bacterin every six months.

Vaccination provides high concentrations of maternal antibodies in the colostrum, protecting calves against those diseases common in the environment. These include enterotoxemia from *Clostridium prefringens* Types C & D, *Pasteurella* and *Haemophilus*. These and tigers should be given four to six weeks prior to calving.

Each calf should be identified at birth and its navel treated with iodine to prevent infection. To get the microbial flora of the digestive tract off to a good start, an oral dose of microbial digestive inoculum should be given. If bacterial scours pneumonia or sudden death have been a problem, then the calf should get a dose of the proper antiserum or antitoxin at birth. If a calf does not get his mother's colostrum within a couple hours of birth, 4-5 lb should be administered. (Colostrum can be obtained from a dairy and kept frozen.)

Blackleg Protection

At three to four months, calves should receive protection against the blackleg group. Since differential diagnosis is often a real problem in the field, the risk-benefit ratio is increasingly in favor of the 7-way product. Concurrent vaccines should be administered for *Pasteurella multocida* and *Pasteurella hemolytica* as well as the leptospirosis group.

This may also be a convenient time to treat for grubs and internal parasites to give vitamin A (preferably in the form of ADB₁₂) to replenish levels lost in grazing dry summer ranges. Also, by this time heifers should be Bang's vaccinated.

By the time the calves are weaned, they should be protected against the bovine viruses IBR, BVD and PI₃. If intranasal of killed virus vaccines have been given prior to weaning, then intramuscular doses of modified live virus should be added after weaning. Replacement heifers should begin vibrio and *Staph aureus* at this time. For spring-calving herds, weaning takes place at the season for grub control. Attention should be given to the control of other parasites, too.

Nutritional Deficiencies

As a country practitioner in north central Texas in the mid-1960s, I realized that nutritional deficiencies were largely responsible for the lack of response to medications in some animals. And nutrition is, in my experience, the most deficient area in a cow-calf operation.

Cows cannot cycle normally if they do not receive adequate nutrients in all categories. If, after calving, a cow does not have the nutritional reserves to insure gestation and delivery of a healthy normal calf, old Mother Nature will simply turn the valve off and the cow will not come into heat until those reserves have been replenished. Controlled studies have shown that onset of estrus will be delayed at least 20 days if a cow is losing weight prior to calving.

Energy and phosphorus are the most commonly deficient nutrients, with vitamin A also being considered highly deficient.

Don't Over-Feed

On the other hand, some operators, especially those with purebreds, tend to over-feed. Desposition of fat in the abdominal cavity interferes with the function of the ovary and the progress of the ovum down the fallopian tube. Fatty deposits in the retro-abdominal area interfere with passage of the term fetus through the birth canal.

At calving the fetus and fetal fluids will weigh about 130-140 lb. To compensate for this, cows should gain from 1/2-1 lb. per day during the last three to four months of pregnancy.

Then, after calving, the cow should gain 1/3-1/2 lb. a day at least through the breeding season. Since the nutrient requirement for lactating cows is nearly double that of dry cows, they should be sorted and fed accordingly.

Calf Gains

More efficient gains can be produced in calves with a combination of feed and milk than with milk alone. Calves can be started on feed at just a few weeks of age when they have been given a microbiotic digestive inoculum.

Nutrition is too important to the overall herd health picture to be left to chance. An area nutritionist should be consulted in planning as well as in handling any specific problems.

In 1976 the JOURNAL OF THE AMERICAN ASSOCIATION OF BOVINE PRACTITIONERS published an article by Dr. McDonald of Loveland, Texas, in which he documented the cost of various herd health programs. In the last three years cattle prices have gone up, but then so have expenses, so Dr. McDonald's studies are still valid. He found that the greater the improvement needed in the operation, the greater the return on health investment. Generally, he estimated a \$6 return for each \$1 invested in herd health. And with those odds, who can afford to ignore herd health programming? ▲

Beef Cow-Calf Health Program

as recommended by Dr. R.C. Daniels, DVM

Heifers six to 12 months of age:

1. BAR VAC 7 blackleg and other clostridium infections
 2. IBR-BVD-PI₃ or other combination with PASTEURELLA II and BAR-SOMNUS . . . red nose, virus diarrhea, influenza, pneumonia
 3. VIBRIO-LEPTO GHP (5cc I.M.) or VIBRIO-3 (2cc I.M.) & LEPTO 5 (5cc I.M.) vibrio and lepto protection
 4. SOMATO STAPH (5cc I.M.) prevent staph mastitis
 5. VITAMIN A,D-500 (1cc I.M.) A and D vitamin levels
 6. GRUB POUR-ON (1/2 oz. per cwt.) grubs (in season)
 7. INTERNAL PARASITE TREATMENT . . . internal parasite control
- Estimated cost per head \$6.30

Cow herd three to six weeks prior to breeding:

1. VIBRIO-LEPTO GHP (5cc I.M.) or VIBRIO-3 (2cc I.M.) & LEPTO 5 (5cc I.M.) vibrio and lepto protection
 2. SOMATO STAPH (5cc I.M.) prevent staph mastitis
 3. IBR-BVD-PI₃ or other combination bovine virus disease
 4. VITAMIN A,D-500 (2cc I.M.) A and D vitamin levels
- Estimated cost per head \$2.20

Cow herd three to six weeks prior to calving:

1. TYPES C-D TOXOID (5cc S.Q.) enterotoxemia (sudden death)
 2. BAR-4 or PASTEURELLA II and BAR-SOMNUS pneumonia and thrombo
 3. VITAMIN A,D-500 (2cc I.M.) A and D vitamin levels
- Estimated cost per head \$1.20

Calves at birth:

1. FEED-MATE 68 SOLUBLE or Calf/Veal (1 lbs. by mouth) digestive inoculum
 2. BO-BAC 2X (1/2 cc per lb. S.Q.) supplement colostrum antibodies
 3. C & D ANTITOXIN (10cc S.Q.) enterotoxemia (sudden death)
 4. VITAMIN A,D,B₁₂ (1/2 cc I.M.) A, D and B₁₂ vitamin levels
 5. GENTLE IODINE SPRAY control navel infections
- Estimated cost per head \$4.50

Calves four to six months:

1. BAR VAC 7 blackleg group
 2. PASTEURELLA II and BAR-SOMNUS . . . pneumonia and thrombo
 3. IBR combination of choice bovine virus diseases
 4. LEPTO 5 five types of lepto
 5. VITAMIN A,D,B₁₂ A, D and B₁₂ vitamin levels
 6. GRUB POUR-ON grubs and lice (in season)
 7. INTERNAL PARASITE TREATMENT . . . control internal parasites
- Estimated cost per head \$4.50

These recommendations are necessarily generalized—specific programs must be tailored to each geographic area and each individual operation. And costs have been estimated. The total, less than \$20, only serves to illustrate that a sound vaccination program—when compared to the loss of an animal—is not expensive.

Although Dr. Daniels, who represents Anchor Animal Health, supplied this program, herd health products can be obtained from any animal health manufacturer. Each company's label directions should be read and followed carefully.

Glossary—

Diseases Defined, Vaccination Methods Outlined

Since they can affect every aspect of beef production from reproduction to feed efficiency, diseases in cattle are costly. They can be controlled, however, with a sound herd health program—one that is based on sanitation, preventive medicine, diagnosis and treatment of sick animals, examination of new animals entering the herd.

The diseases described briefly here are common to cattle in most parts of the country.

Bovine Virus Diarrhea (BVD or Mucosal Disease)—a virus attacking the digestive tract, causing hemorrhaging—characterized by diarrhea (often containing mucus or blood), leading to dehydration—normally affecting, but not limited to, yearlings—transmitted by both direct and indirect contact with infected animals.

Brucella Abortus (Brucellosis or Bang's Disease)—a bacteria—common symptom, abortion—spreads rapidly within a herd—presence is not always obvious since animal will normally abort only the first time it contracts the disease—bacteria is passed through milk, uterine discharges, then ingested.

Clostridium Chauvoei (Blackleg)—active spore-forming bacteria growing only in the

absence of oxygen—characterized by lameness and gaseous swelling, usually in the heavy muscles—normally affects animals between six and 24 months—usually fatal if not treated—bacteria can live in the soil a long time—bacteria is ingested, then passes through the wall of the digestive tract and is deposited in the muscle via the bloodstream—a constant threat.

Clostridium Novyi (Black Disease or Infectious Necrotic Hepatitis)—spore-forming bacteria—multiplies in area of liver necrosis (which are caused by liver flukes), producing a powerful toxin—characterized by sudden death—exists mainly within animals, passing from one to another through contamination, ingestion—multiplies in the intestine, infecting the liver of the contaminated animal as well as contaminating other animals.

Clostridium Perfringens, Type B, C and D (Enterotoxemia)—a bacteria—characterized by intestinal lesions and toxin production, causing sudden death—most prevalent in animals less than two weeks old—six types have been identified, only three found to be significant—Type D, over-eating disease, does occur in feedlots—bacteria exists in soil, animals' digestive tracts.

Clostridium Septicum (Malignant Edema)—an active spore-producing bacteria—similar to blackleg, growing in absence of oxygen—characterized by fever, loss of appetite—formation of fluid in connective tissues causes soft swellings near a wound—bacteria lives in the soil—infection caused by contamination of wounds.

Clostridium Sordellii (Bifermentans)—bacteria similar to malignant edema and black disease—characterized by fast growing lesion at site of infection, fever sudden death—bacteria lives in soil and animals' intestinal tracts—infection usually enters through a wound.

Clostridium Tetani (Tetanus or Lock-Jaw)—a bacteria—produces a potent neurotoxin—characterized by spasms, contractions of voluntary muscles—high mortality rate—bacteria present in the soil—contamination of a wound causes infection—more prevalent in warmer climates.

Infectious Bovine Rhinotracheitis (IBR or Rednose)—a contagious virus—characterized by inflammation of upper respiratory tract, with excessive nasal discharge fever—in pregnant animals, it invades the placenta and fetus, causing either abortion or the birth of a stillborn calf two to three

months after infection—will cause pneumonia in calves, resulting in death or severe set-back—part of the bovine respiratory disease or “shipping fever” complex—animals in stress situations vulnerable—transferred by air or contact with discharge from infected animal.

Leptospira Canicola, Grippotyphosa, Hardjo, Icterohaemorrhagiae and Pomona (Leptospirosis or Lepto)—a bacteria—characterized by fever, abortion in last six months of pregnancy—infected animals usually do not abort a second time—can be fatal in young calves—transmitted in water and passed through urine of infected animals—wildlife can carry disease.

Neonatal Septicemia and Bacteremia (Navel Ill)—a bacteria—normally present around cattle—enters newborn calf's system through navel—characterized by umbilical abscesses, umbilical hernias, swollen joints, leading to premature arthritis—premature calves or those confined in groups most likely to be infected.

Parinfluenza-3 (PI₃)—virus of the respiratory tract—relatively mild—characterized by runny eyes, nasal discharge, congestion, coughing—not serious in itself but can lead to secondary pneumonia—part of bovine respiratory disease or “shipping fever” complex—transferred by air, contact with discharge from infected animals.

Reo-Corona Viral Calf Diarrhea (Scours)—reovirus and corona virus—usually occurs during the first two weeks of life—characterized by depression, lack of appetite, salivation in early stages, watery diarrhea and dehydration later—treatment often ineffective—secondary complications can be serious—carried in soil and through contact with infected animals or their feces—especially bad in confined calving areas.

Salmonella Dublin and Typhimurium (Salmonellosis, Paratyphoid or Scours)—a bacteria—severe, highly fatal form of scours occurring in young calves—characterized by fever and severe diarrhea, often containing mucus and having a putrid smell—bacteria survive in warm wet areas for months, multiplying under confinement—passed in the feces of infected animals.

Vibrio Fetus Venerealis (Vibriosis or Vibrio)—a bacteria—characterized by infertility, early embryonic death—abortion usually does not occur, fetus is reabsorbed, resulting in long or irregular heat cycles—spread by sexual contact, unsanitary insemination procedures, infected semen.

Vaccination Methods

Vaccination is a vital part of disease prevention. And injection methods (usually depending on the form of the vaccine) are important because they affect the speed with which the vaccine enters the animal's system.

Vaccines should always be measured accurately and administered according to the manufacturer's recommendations.


There are several methods of administration:

Intramuscular (I.M.)—probably most common—vaccine is injected in a well-muscled area of the flank, hip or shoulder where administration without danger of striking bone is fast, easy—absorption is rapid due to good blood supply— $\frac{3}{4}$ -inch needle is commonly used, allowing complete penetration of skin, partial penetration of muscle—volume of injection should be moderate to prevent an abscess forming.

Intranasal—relatively rare—used to create local resistance to disease in respiratory tract—most of the antibody protection will be in animal's general system—must be in small amounts to permit absorption.

Intravenous (I.V.)—used commonly on small calves—seldom used for vaccines due to amount of time required to locate injection site—drug is rapidly available to animal's system in larger volume—tissue irritation is avoided—best site is jugular vein, located between the neck muscles and throat on the side of the neck (ideal site is approximately one-third of the distance between jaw and chest)—site should be wet with alcohol— $1\frac{1}{2}$ - to 2-inch needle should be inserted at a 30° angle pointing toward the body—slight suction on the syringe should produce blood in the fluid—injection should be slow, steady.

Oral—common in small animals—used to administer therapeutic drugs to cattle—encourages local production of antibodies in digestive tract at site of attack—administration is simple in smaller calves—greatest danger is failure to get the drug far enough into the throat to insure swallowing—aspiration of drug can lead to pneumonia or, in large enough quantities, drowning.

Subcutaneous (S.Q.)—injection under the skin—slow but sustained absorption due to small blood supply—injection site is where the skin is loose, usually in the neck—loose skin is gathered and needle inserted through gathered area— $\frac{1}{2}$ -inch needle can be used, permitting administration with one hand. 

CANNING'S COLLEGE OF COW KNOWLEDGE

Dave G. Canning
Canning Land & Cattle Co.
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Rougemont, N.C. 27572
Sept. 13-16, 1979

For many many years I have wanted to institute this program, for I feel that it is something that is worthwhile and necessary. Thus far we have had a great deal of interest, and so now my dream becomes a reality.

Herman Purdy, one of the world's most respected livestock personalities, is heading it up as dean. And between us, we have worked out a very intensive 2½ days and 3 nights. A series of sessions with a great array of instructors that you will really find worthwhile will be presented.

Registration will be about 5 o'clock on Thursday night, the 13th of September. The location is at the Quail Roost Conference Center just a few hundred feet on the hill above our show barn and office. The facilities are wonderful. This was formerly the summer mansion of the Hill family, and it was given some years ago to the University of North Carolina. Conferences are held there very regularly for groups from all over North Carolina and all over the country as well as groups from abroad. We can accommodate 45 people housed at the conference center. The complete charges for your room, three meals a day and school fees amount to a total of \$296.

Herman and I know we have a truly knowledgeable group of instructors. We will lead off with Dr. Dave Hawkins, who is in charge of beef cattle at Michigan State University. Herman Purdy, a long-time professional in animal husbandry, says Dr. Hawkins is one of the great young minds to enter the field in a very long time. He will be lecturing and assisting us. Ed Winters, manager of the famed Ken-Caryl Ranch at Littleton, Colo., a great showman and knowledgeable breeder, will be on hand to assist in the activities. Leroy Erdmann, one of the famous Erdmann ranchers in South Dakota whose breeding has had such an important influence on our breed, is another one of our stars. Jim Rolph of California's Erica Valley Ranch, who is one of the truly great students of Angus pedigrees and the proper naming of cattle, will lecture. LaRue Douglas, a veteran showman and fitter who has had a somewhat similar school for some years in Texas, will be on hand for at least one session. Lloyd Albers, for 38 years an Angus breeder and graduate of Iowa State University who for 4 years worked in the show barn under the famous Scots showman George Edwards (the first of the professional hair clippers and blockers), is now my administrative assistant here at Quail Roost and will also be on hand. Johnny Crouch, regional manager for this area for the American Angus Assn., will be giving tattoo demonstrations and lectures and information on the many activities that are available and of help to us from the American Angus Assn.

Following is a list of some of the things we are going to cover:

1. Selection of breeding stock, herd bulls, foundation females and herd replacements.
2. Animals for show and sale.
3. How to transport.
4. General herd health management.
5. Feeds and feeding.
6. Halter breaking and show training.
7. Show box and equipment.
8. Washing and grooming.
9. Foot and hair trimming.
10. Show ring procedures for handler and animal.
11. Discussion of what we must plan and look for to keep our breed competitive in the coming years.
12. Tattooing, registration and participation in various American Angus Assn. programs.
13. Judging practice.
14. Pedigree analysis and proper naming.

Every evening we are looking forward to some good “bull sessions” where you can pose your questions to the outstanding successful men who make up this panel.

The activities will conclude at once at noon on Sunday, Sept. 16, with a presentation of diplomas. If you are a beginner, this could be the best few days you could spend in your life in the Angus business. Much of the work will be done with actual cattle right down here at the barns at Quail Roost Farm. Call me at once if you wish to attend Telephone (919) 477-7800. The first 50 applications will be all we can accept.

Sincerely,
Dave G. Canning

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