Herd Health Program

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I feel the opportunities for the cow-calf practice are greater now than they have ever been. We have more interest by the producer in preventive programs and more understanding and appreciation of the services we offer. The producer is pressured economically to strive for more efficiency in his operation.

I have been very fortunate to have some very far-sighted, progressive cattlemen in my area. Together we have evolved an attitude and a program that is mutually beneficial. We now carry both the attitude and the program to other clients and find them well received.

I have been involved with both the Nebraska Stock Growers Association and The National Cattlemen's Association and have always felt that I am a better practitioner because of this work. Merlyn Carlson, who is now President of NCA, was responsible in part for my involvement. Another man, Jack Maddux, who is past president of the Nebraska Stock Growers, has been a strong impact on me. Jack is a student of the cattle cycles and trends and is an advocate of long range planning. Jack feels that producers should learn to function within the cyclic nature of the cattle industry. He advocates the development of goals and action plans with time frames.

We will certainly be a major factor in the build-up and cut back in our clients herds. We can assist his efficient culling and quality replacements.

Carlson says that some cow-calf operators may not go back into the business after the slump we are in, but the surviving cattlemen will be more business-like and more profit oriented.

It appears that with every 10 year cattle cycle, and especially with the exaggerated 20 year cycle, our profession can become more deeply involved with more producers. I found that because of my herd approach during the bad times of the mid 70's my clients were looking for more efficiency and used me more. As they are building their herds back, they want to hold down excessive culling such as bad eyes or excessive open cows. Disease losses are terribly expensive now so they are anxious to use more preventive programs.

To fit our preventive programs into their changing operations, we need to have their attention early enough to implement our procedures. The time lag between applying a procedure and receiving the benefit will require that we maintain contact and impact. In my experience, once we establish a sound preventive or efficiency procedure on a cost-benefit factor, it will usually become a part of their routine. This would in turn require us to be objective rather than opportunistic in our annual evaluation of all the individual procedures used for a client.

As we become involved with more business-like clients, we must treat them accordingly. I find that economic justification reports to a client is good protocol. If you have never sat down with a client and put a dollar impact you have on his operation, you will be amazed. He will have very few opportunities to make an investment with such a dramatic return. No one else can or will calculate your overall impact on his operation, so you must do it. As we deal with more and more non-resident ownership, this report becomes more important.

I can handle this verbally with a lot of clients but with others I feel it is vital to make a formal written report. This report can contain recommendations on facilities, equipment, and help as well as performance data. By keeping a few records on % of pregnancy, calving survival, weaning performance and cows culled for various reasons, a report can be made efficiently without much effort. Most ranchers, in my experience, remember only what they want to.

Looking inwardly at our practices, I think we should ask ourselves what makes a good client, what keeps him as a good client, and how do we influence these factors, i.e.

1. Does inefficiency and poor management make a good client?
2. Do many disease problems and poor prevention make a good client?
3. Does the lack of ability to do basic things such as detecting and sorting sick animals or performing routine treatment make a good client?
4. Is a well trained or poorly exposed client more adept at knowing what we can do for him?
5. Can a client keep and utilize good records? Do they show % loss, or % efficiency, and do they outline future preventive programs?

At a time when the cattle industry is increasing their use of our services, we are fortunate to have many resources. To name a few: expanded diagnostic labs, and techniques, new biologies, procedures such as semen evaluation, and estrous synchronization, equipment for cryo and thermal control of tumors, and a lot of diseases with trucks transporting them all over the country.

We also have a lot of people advocating the trend toward herd health work. If you are involved in any livestock association work, you can see the continual interest in herd

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health programs. These are all helpful, but the individual practitioner is still the cattlemen's main source of information.

I will cover the herd health program that I use from several aspects: Goals, Initiation, Maintenance, Justification, and Procedures.

Goals of Herd Health Program for Cow-Calf

1. *Improve Reproductive Performance—*
   - Bull evaluation and management—
     - semen evaluation
     - physical examination
     - nutrition
   - Replacement heifer selection and preparation
   - Nutrition of cows and heifers—
   - Pregnancy palpation—
     - determine grouping
     - evaluation of open cows to determine cause if possible
   - Control culling—
     - detect and evaluate pathology
     - determine age culling for this year and predict age cull for next year to assist replacement selection
   - Vaccination
   - Evaluation of performance—
     - % open - age of open cows
     - recommend corrective measures if possible note on records

2. *Improve Calving Performance and Baby Calf Survival*
   - Education—
     - outline responsibilities for various stages
     - clinics for training
       - detection - timing - procedures - limitations - postpartum
   - Facilities—
   - Nutrition—
     - cow - for colostrum quality - i.e. Vit A - for milk production
     - calf - colostrum intake - must be continuous for rota-corona protection
   - Calf Scours—
     - prevention
     - treatment
   - Culture and sensitivity and necropsy—
     - to outline treatments
     - to outline or alter preventive program—i.e. Perfringens C—BVD—RotaCorona
   - Pelvic Evaluation of heifers—

   Records of: Dystocia Rates
   % Loss at calving
   % Loss from Scours
   % Treatments for Scours
   Uterine prolapse
   Retained membranes

   Notes for recommendations:
   - alter breeding dates—as per weather protection, etc.
   - heterosis program—i.e. Longhorn, Angus, etc.

3. *Disease and Parasite Control—*
   - Management
     - isolation
     - nutrition
     - stress control
   - Vaccination—reactive
     - outlined by herd records, necropsy and lab data influenced by factors in: area - neighborhood - herd
     - evaluate by cost-benefit of each vaccine
   - Detection of sick—
     - education of everyone handling the cattle
     - responsibilities
     - supervision
   - Treatments—
     - facilities: adequacy - location
     - personnel responsible - training and experience
     - written directions: dosages
       marking
     - individual animal records—tag #, temp., treatments, response, repeats
     - drug inventory and handling

Overall the goals are to maximize performance with minimal expense.

Initiation of Herd Health Program

Client contact, of course, is the most important factor in starting a program. Years ago the caesarean was a vital first contact for me, now the control of the caesarean rate through pelvic evaluation is adding herds to the program.

Diagnosis is the basis for most preventive programs, however, the disease preventive program is only a portion of the total picture. Management problems, people problems, weather problems, nutrition problems, and market problems may create opportunities to initiate a program.

Economic justification is an important consideration to stress. Using your experience in his neighborhood and knowledge of the disease potential for his herd we can predict the cost of an outbreak. By comparing potential loss to prevention cost, we can guide our clients to a program start.

We must acquaint ourselves with a ranch. We have to be aware of handling facilities, personnel and procedures currently being used on the ranch. Once we know all this, we can fit our program in. If the client becomes aware of our dollar impact, he will expand the program to fit his needs. I don't use haul-in facilities for several reasons. The larger outfits won't haul animals and the smaller operations will use your facilities for individual treatments instead of developing their own. They can't haul their whole herd in and because they don't have the facilities, they will procras-

tinate. To help solve this, I have a couple homemade palpation chutes on wheels. They have W-W head catches, and a swing gate on the back to shut off the alley. These chutes are fast and safe to work in. They have certainly added a lot of cows to the program. Some ranches now have double chutes.

We need to expose a lot of people to our services. There are a lot of methods and I'm sure you are developing some of them. I have to constantly keep working in my practice to influence more people. There is a leader in each neighborhood if I sell him on this attitude, he will in turn show his neighbors the benefits. Peer influence is our best ally. The extension veterinarians are very important in Nebraska. The news media is an excellent tool to educate our clients, if we work with them. Work with the livestock industry groups is extremely important. I speak from personal experience, they are our greatest advocates. We need to be involved with them to the extent of helping them formulate their policies and programs. This will serve the cattlemen as well as advance our profession. One bank in No. Platte has added a Ph.D. ruminant nutritionist to their staff.

Our own efforts at client education are a key to expanding our practices and initiating program work.

To evolve a program start, I first talk to the cowboys who do the work and the foreman who is responsible for getting the work done. I then carry the proposal in detail to the owners who have to pay for the procedures. Without input and cooperation from all three, the program will not work.

It is important to show the client that we represent quite a team. He has probably never thought of it, but we can and do call on a great reservoir for him. For example,

the regulatory veterinarians,
the pathologists,
the University staff,
the extension veterinarians,
the research people,
and other practicing veterinarians

just to mention a few.

The marketing advantage that he can gain is significant. If a client can see a neighbor outsell him because his calves were better prepared or his cull cows were pregnancy palpated and bled, he will be around to talk to you. We need to have adequate records of dates, numbers, dosages, or even products used to process the cattle to help a client market them. Prospective buyers are impressed, but only if we certify the procedures.

Maintaining Clients on a Program

A report to the owner, either verbal or written, to point out economic impact is important. At this time, a comparison of previous performance will show him the gain.

As we assume more responsibility for herd health, we need to communicate with the producers. We have to be sure to remind him of all the procedures we're using in his herd. Everyone has his own idiosyncrasies and to maintain a lot of herds on a program, we have to deal with each owner as an individual. I find some outfits will not vary more than a few days from year to year on dates to work their herd without being reminded. Other men will have to be scheduled for every procedure and will feel put out if he's late on any of them.

My attitude toward bookwork has certainly changed over the years. I don't like bookwork, but I find my recall isn't precise enough on percentages, numbers, or dates.

Basically, I record all herd procedures as to date, number and unit cost. These are separated as to cow units, breed, or age groups, or groups processed for marketing. Some notation as to reason and date for initiating a new procedure on the ranch is good to evaluate its performance and justify it. The herd charts are scanned seasonally to find any oversights, for example, bangs vaccination or vibrio vaccination on the replacement heifers going into a fall calving unit are easy for me to overlook in my practice.

My unit charge varies somewhat if we process 700 in 1 day using 15 good cowboys or if we have 20 head and an inexperienced neighbor for help. So, I need a notation as to the per head charge on each ranch. My fees are all based on a per head charge.

Drug dispensing done properly can and will help maintain a herd on a program. It provides contact with the client through the slow summer months. This contact keeps us in tune with any variable dates for weaning or marketing due to year to year variation in grass, weather, or markets. We need to plug in all our procedures ahead of time to avoid extra handling of the cattle. Otherwise, we may miss some procedures entirely.

The necropsy level has to be high to evaluate and update the program. We have to keep good records to prevent oversight.

Performance is the basic factor of maintaining a producer on a program. (Mine, the procedures, and that of the ranch personnel). Everyone has his own criteria for evaluating the performance. I want to be sure mine is factual and acknowledged.

Justification of Program

The justification of a herd health program must be a continuous effort. There are dozens of ways to impress an owner who is present while the work is being done, i.e., in our area the fly problem is most serious in September, however, after pouring the pairs with Warbex in late August or early September, we often stop the fly control (dust bags or oilers). This saves considerable time and insecticides and the control is usually very good.

Cancer eye culling may be reduced sharply, saving a lot of productive cows.

A simple thing like having the hair clipped away from the ear tag so it is easily read for tagging the calf will sure speed up a man's day during heavy calving.

Non-resident ownership or group investor ownership is not uncommon. These operations are very business-like and are cognizant of the fact that the only contact or correspondence they receive from us is usually in a window envelope. Our dollar impact on a ranch on a complete program can be dramatic. Using our records in a few minutes we can draw up a good detailed report.

Client Education Programs

We all have varied reasons for a client education program. People not aware of our services are being forced toward us by economic pressures. Ownership changes occur and some smaller operations expand and hire untrained or poorly trained cowboys. These and many other situations create a need for training or at least an exposure to what we can do for them.

Within my practice, I certainly see a wide range of types of sizes of operations. I service large spreads in the Sandhills with up to 5000 cows and a lot of small outfits in the river bottoms and on the tablelands and canyons south of North Platte. Some of the larger accounts are a long way out (at least a portion of their ranches can be over 50 miles). This variation has given me the opportunity to see how people with differing needs and attitudes accept and utilize our education program.

I've been fortunate to practice during a dramatic transition of philosophy of our cattlemen at the same time we were gaining new tools to develop sound preventive programs. The bar room brag of the cowboys used to be "I didn't call the vet all through calving." Now, he can spout his percentage calf loss on a day by day basis during calving.

Some ranchers look at our clinic's spring and fall as a means of properly breaking in a new hired man. At least he will see an outline of the various procedures that we use and why and how he fits into them.

Other ranchers are very lax about their drug inventory and need seasonal reminding of the basic supplies they need. As we assume more responsibility for the herd programs many owners will rely on us to keep them current. To do this, we have to remind their foreman, especially if he is new, of what procedures will be due during the upcoming season.

A few hotshots come to the meetings just to keep from calling me. However, once they get the full dose of how we handle a procedure (like a prolapse uterus), he will likely call me to do them where he never did before, especially if he thinks his neighbor won't find out about it.

The philosophy of client education was basically objectionable to my old partner. He liked the newsletter approach but for the first year wouldn't even go to the first calving or weaning clinics. By the second year, his enthusiasm was sure up.

As we are forced toward a transfer of responsibility for various phases of the herd health we must prepare ourselves as well as our clients. I am involved more with the herd and the rancher more with the individual. He has to be knowledgeable enough to recognize the normal, then the abnormal and most importantly a case that is not just routine. I find that our better educated clients call us much more than those who are not well exposed to modern veterinary medicine. However, more of these calls are worthwhile for both of us.

The client must first of all detect a problem so we can diagnose it and outline treatments. He must then evaluate the treatment for us and be informed of any changes required.

The most important client education, of course, occurs with a one on one, two way conversation. It is not likely that in the early stages of developing a good client that we will have enough time while making individual animal calls to do much along these lines. However, when we get into herd work and spend hours or days with a man, we can get a good insight into his operation and then start reacting to his individual needs.

I find that peer influence is one of the most important ways of expanding my impact. Every community or neighborhood has its leaders. These people will and do extend good economically sound procedures into their area.

What we really need is a start. This can come from the extension people, a banker, news media, livestock industry associations, or a dozen other sources.

I firmly believe that the good progressive livestock producer is going to look for information somewhere. Nobody can provide that information as well as the local practitioner. His interests are directed at the local conditions, problems, attitudes, resources and markets. Most important his day by day acquired experience is an invaluable resource.

I have a weaning clinic in late September and two calving clinics, one in early February and one in late February.

The weaning clinic is timed to cover all the problems associated with weaning, but at this time I cover all the winter programs. Economic justification is always a part of every discussion. Some operators need reminding of timing and benefits.

One problem with preventive programs is the time lag between the procedure and the benefit. Another is, if the procedure works the loss didn't occur and we need to show them the benefits. This for individual producers requires records of percentages of conception, survival, treatment costs and labor among others.

With very little time we can make an outline for discussion covering respiratory disease, detection, vaccines, drug residues, grub control, worming or many others. We can discuss pregnancy palpations and all the other procedures that can be done at that time.

You will find that when a group of clients sit down together they will sure sell each other on our programs for reasons you haven't even thought were significant.

I often invite one or two men to help on nutrition, research, economics, or drugs. A pathologist from your laboratory will sure impress your people. We have a lot of

resource personnel to help us.

I like to have two calving clinics, one for coffee drinkers and one for beer drinkers. Actually a couple large ranches can fill a meeting room for me and we can hash out their problems a little better. A reminder of all procedures and their benefits and new ideas are in order at these meetings. I cover calving procedures and problems, when and how to, when not to and when to call, etc. We discuss scours and management and nutrition.

I find the people that come to the meeting go away with ideas and those that don't come like the attitude and will be there next year.

The cowboys really like the help and support and management know we are working for them.

Pelvic Evaluation of Heifers

About 18 years ago, I worked with Dr. Jim Wiltbank when he was at Ft. Robinson Research Station in Nebraska. He attempted to predict dystocia problems in two year heifers. We measured a large herd of heifers notorious for a high dystocia level. Jim measured both the lateral and dorsoventral pelvic canal at the ant. brim of the pubic symphysis. The heifers were scored for calving ease from no assistance to caesarean. There was poor correlation between the score and square centimeter measurement.

For years I noticed the caesarean heifers had high pinbones and short hook to pin length. About 10 years ago, I started marking heifers that had a narrow lateral measurement on the posterior ventral pelvis. These heifers also have a short hook to pin distance. As I palpate the heifers for pregnancy, I try to extend my thumb laterally while I have my hand in the rectum on the floor of the pelvis, well back toward the posterior half of the pelvic floor. If I can't move my thumb out easily to the first joint, I come out and measure the hook to pin length with my arm. I bend my fingers down at the second joint and touch the hook. If the pin extends past my elbow the heifer is usually OK. If the pin is at my elbow or especially if it is in front of my elbow, she needs closer scrutiny and may well be a caesarean.

I don't feel that I can eliminate dytocias without culling excessively, but I feel confident that I can limit the caesareans effectively. In one instance, I culled 51 heifers out of 370. The 51 heifers required 45 caesareans for the man that bought them while the remaining 319 only had two. That was the last time I sorted heifers without aborting them. One of my own clients bought the culled heifers.

Some of the herds I palpate now started by having me evaluate their heifers. Now, they have expanded the procedure into their entire herd.

Several projects are underway now that will probably put some numbers on this procedure.

This is another reason to have veterinarians perform the palpation.

Pulmonary Adenomatosis

For over 10 years, I've experienced a severe respiratory problem in my clients' herds. This condition is different than the shipping fever that we see. The response to treatment was poor and several ranches would experience the problem about the same time. Dr. Clair Hibbs was able to distinguish a particular pathology in these outbreaks. The terminology (pulmonary adenomatosis) is not new and we are using it to designate age as well as pathology.

The condition I'll describe is confined to calves mostly weaned during the colder winter months. Last winter the calves had been weaned from three days to over two months. Some herds had IBR vaccine, others had not. Two herds out of the 12 had been vaccinated with Hemophilus. A few herds had experienced some shipping fever while other herds had not treated any calves. This problem occurs mainly in good quality calves on well managed ranches or feedlots on good feed.

The symptoms seen in a typical outbreak:

feed left in bunk—total feed consumption is down suddenly

Cough level is up especially with some activity—will involve 90% after 1 or 2 days

usually have a couple calves off by themselves—one of these calves may be severe

in a few outbreaks there may be watery eyes

when the calves are fed they will line up at the bunk and a few will nose around and then back out and go off by themselves and stand with their head low

when disturbed these calves will brighten up and move back into the herd and will be hard to spot

the respiratory rate is accelerated in the affected calves

the temperature on these mildly effected calves may be up to 107°

at this stage the calves have very little depression and no nasal discharge

unless treated now the calves will be very severe tomorrow

Severe Cases:

Salivation-

Accelerated respiratory—to the extent of mouth breathing

Isolate themselves with head down and both ears drooped—when disturbed these calves will still brighten up— The ears will come up—they are not floppy as with pasturollosis

Calves cannot be moved far without becoming dyspnic

Stumbly, loose jointed walk—these calves tend to follow the other calves without watching you

When the other calves stop, they just drop their head and stand

The calves gaunt out very fast

During the first few days the calves have to be pulled and treated several times a day to prevent death loss

By now the cough level is very high, the cough is short, dry, hack cough that is repetitive

Feed consumption continues to decline rapidly as the percent involved increases

Some calves will nowbe standing around the water with their chin in it but not swallowing

Without interruption, the outbreak continues for 10-14 days with high mortality

At this time the pneumonia level increases and differential diagnosis is difficult

In herds where other respiratory disease is going on, these calves will not move out of pen well and the treatment response will be poor

Necropsy findings can be very dramatic or rather confusing depending on how acute or chronic and the duration of the outbreak.

The lungs do not collapse when the thorax is opened. They are very heavy. The edema is usually extensive with considerable interlobular demarcation. The cut surface will look rubbery and the lobule separation will cause the lobules to have rather sharp edges. There may be consolidating pneumonia especially in the anteroventral lobes. In some cases a bullous type emphysema is severe. There is usually considerable froth in the trachea and bronchi. It is very important to give the pathologist sections from the proper area of the lung to work with. Pick the area of transition for section. An acute case early in the outbreak produces an accurate diagnosis and will back up your dramatic treatment and control measures.

Histopathology: As reported by Dr. Clair Hibbs.

Edema and emphysema are the most pronounced microscopic lesions. The edema is usually both interstitial and intra-alveolar. Eosiophils are usually present in some part of the affected lung. Often they are dispersed through the interstitial edema. On occasion, they are concentrated in the perivascular tissue.

Neutrophils often are observed in focal aggregates in alveolar spaces. Hemorrhages may or may not be present. Theoretically, hemorrhages may occur after anoxia or rupture of the capillaries. As the disease progresses, there is proliferation and swelling of alveolar epithelium thus the adenomatous appearance. Hyalin membranes of alveolar walls are commonly observed.

In our area there is a direct correlation to cold stress and the outbreaks we experience. Over the years, we have seen 5-6 herds break within 1 or 2 days of the first very severe cold spell especially if accompanied with wind or snow.

I keep records of outbreak dates, severity and death loss. Last winter three different areas within 50 miles of North Platte had varying weather. Snow fall varied from 18 inches to only a trace in these areas. The outbreaks were definitely related to the temperature, moisture, and wind chill. I charted the climatology records from the North Platte Weather Bureau office and the outbreaks within 20 miles of the weather office. There was a definite correlation.

As I understand it, some work in Colorado demonstrated the cold stress effect on pulmonary hypertension. They determined that 24 hours of temperature below 0° C. cause a 50% increase in pulmonary arterial blood pressure.

Another observation that is consistent is that the outbreaks seem to occur in well managed herds where the calves are on a high nutrition level. Years ago, we associated this disease with silage feeding but recently are seeing it in other feeding regimens. Approximately ¾ of the outbreaks we see now are on corn silage.

A few years ago, I noticed that the new herds breaking had a potential exposure to herds that had experienced the problem for several years. For the last two years, I can associate each new herd with an exposure or potential exposure to an old herd. Many of these exposures occurred on summer pasture often 10-15 miles from the wintering grounds. In several cases last winter these herds would break within 24 hours of each other after being off summer range for over 2½ months. At the time of the outbreak, they were over 10 miles apart.

Detection and Treatment

In my practice, the client education programs have been invaluable in handling this disease. If we start 12-24 hours late with this problem our loss can be greatly exaggerated.

The producers have to be cautioned to check their calves very close to pick it up the first day. I often call all the owners of the endemic herds when the cold first hits to remind them. I also notify them when we diagnose the first outbreak. This all might seem an over-reaction but we have reduced our losses from high to only minor.

The first day, we change the feed. If they are on silage, we reduce it or stop it. If we can't change it enough, we fast the calves for 2 to 3 days as soon as we confirm the diagnosis. We feed just enough hay to detect the calves that need to be pulled for treatment. If we don't change the feed drastically, the outbreak drags out for two weeks or more instead of tapering off after 3 or 4 days. If only one of several herds is involved we change the feed on all of the herds. After 7 days, the calves are put back on their original ration.

The involved pen of calves is put on 1500 to 1750 mg. Aureomycin per head per day for 5 to 7 days. If possible we use feed treatment. If they aren't eating well or are on a fast, we use water treatment until we can use feed treatment. This treatment helps control the secondary pneumonia that usually follows. We only treat the herd that is involved. A few ranches have had different pens break a couple weeks apart. We don't see the problem recur in a pen, but we want to use the antibiotics at the proper time to control the secondary problems.

As with any respiratory disease, we want to be sure we have adequate watering facilities.

Detection of individuals requiring treatment may be a problem for a producer the first year they experience an outbreak. Some men will only pull the diers, others will pull almost all of them. I usually hold off on herd work when this problem gets going and really hold their hand. Most of my clients have progressed past this stage for most other problems, but they get very nervous with this disease. We are gathering more information every year on adenomatosis and these people are anxious to cooperate in anyway they can.

I have a CO_2 paint ball marking gun that sure is a good way to mark calves to pull. You must remember that the calves that need treating only isolate until you disturb them. They will brighten up and can be lost in the herd when disturbed. I look for respiratory rate (its cold and you can see their breath), salivation, slow or abnormal gate, backing away from the bunk, gaunt, excessive cough (most will hack, however), if in a big pen the trailing calves are suspect, and in a few herds watery eyes.

Differential Diagnosis— Clinically

Sudden onset, percent involvement, cough level, lack of floppy draining ears, lack of purulent nasal discharge.

The adenomatosis calves are dyspnea and get off by themselves but will brighten up. They don't appear as toxic and depressed as shipping fever calves.

The shipping fever calf will have more diarrhea, more severe depression, and will respond to routine treatments.

Necropsy of the early, acute cases and rapid transport and histopath work will confirm your diagnosis.

Breed predisposition is also a consideration.

I have the impression that the edema occurs early and can respond to treatment. The emphysema develops a few hours later and the response is questionable. The obstructive pneumonia will respond slow.

Research

In 1977, Wellemans of the Netherlands suggested the cause of this disease could possibly be due to respiratory syncytial virus.

Dr. Merwyn Frey of the University of Nebraska, Veterinary Science Department, is the project leader of the study underway now. Last winter we sampled a lot of calves in a number of herds. Dr. Frey was able to isolate the Bovine Respiratory Syncytial Virus from over 50% of the cultures. These outbreaks were confirmed by necropsy and histopathology. We drew acute and convalescent blood samples from these same calves and seroconversion results were impressive.

Last fall, Dr. Frey, my partner— Dr. Myron McCune, and I had a limited vaccine trial. Using a modified live human RS vaccine in two herds we had encouraging results. There was a reduction of both the adenomatosis and the post weaning respiratory disease.

Dr. Frey has been awarded a grant to study the RS virus. This grant was derived from the funds the University of Nebraska receives from Norden Labs. for royalty on Calfguard (the Rota-Corona Scours Vaccine). Someday BRS may be as common a term as IBR.

Dr. James Amend has received a USDA health research grant to study bovine pulmonary edema and its role in respiratory disease.

Dr. McCune and I have 387 frozen sera samples from calves in 12 different herds. These herds are all endemic adenomatosis herds. These samples were taken at branding time. We will be collecting samples for matching at preweaning and weaning, as well as during and after outbreaks.

Dr. Bill Kvasmicka at the Meat Animal Research Center, Clay Center, Nebraska is also cooperating with this project.

Discussion

Apparently, pulmonary adenomatosis or acute pulmonary emphysema as we see it in calves is a complex disease. Factors involved include climatology, nutritional allergies, pulmonary edema, breed predisposition and a possible viral entity.

As with other pulmonary emphysema, we see breed predisposition. We see more cases involving Hereford and Charlaise calves.

In some feedlots we have seen outbreaks where a high percent of the severe cases are all calves from a single ranch. In one instance last winter 160 out of 183 calves from one ranch were pulled for treatment. Only 10 of 170 calves in the same pen from another ranch required treatment.

Time from weaning seems to be of little significance. Last winter they varied from 3 days to over 2½ months, with most of the calves close to two months.

Previous vaccinations or disease problems vary and have not appeared to be significant (other than with the limited RS vaccination).

Following an outbreak where the calves were treated as I described there appears to be little or no after effect.

Dr. Myron McCune has been in practice with me for 15 months. During his first winter, he did an excellent job of early diagnosis in several herds that had not experienced the disease before.

Worming Projects

In the fall of 1978, we initiated a field evaluation project with Merck on a cow herd near North Platte. Over the years very few producers have wormed cattle in the Sandhills. We had all fallen into the habit of using egg counts to determine significant worm populations. In the past few years, we have seen only an occasional clinical internal parasite problem in a few individuals in our practice.

If we follow through on our approach of cost-benefit consideration in selection of procedures to use on an individual ranch we need to refer to a base benefit. I felt there was enough evidence of increased milk production in dairy herds to justify a study in range cow worming.

Working with a ranch running around 500 cows, Dr. Hudson of the University of Nebraska, North Platte Station and myself wormed ½ of the cows and bred heifers in November. They were weighed individually at that time. The calving date was recorded and the calves were weighed at branding time and weaning time.

The calves sucking the wormed cows weighed 15 pounds more at weaning than the calves on the control cows. In our area, we feed hay and protein supplement on the ground. During the winter of 78-79 it was mostly on the snow. The weather moderates enough to start reinfestation of the wormed cows and the sucking calves sometime in April. The cows were weighed again in November at pregnancy palpation time. There was no significant difference on this weighing. Also, the date of calving on the succeeding year was not affected. There was also no significant difference in the calf weights at branding time. The worming apparently improved the milk production. The two groups were intermingled so infestation of the calves was possible.

We will be studying Merck's new Ivermectin product in a similar manner this winter. However, with this product we will also evaluate lice and grub control.

Research work in Israel has suggested a reduction in mastitis and an increased survival rate of newborn calves by the use of 1 levamisole injection just prior to calving.

A year ago, I proposed a field evaluation to American Cyanamid to evaluate this immune stimulation on two herds that are using Calfguard and Cl. Perfringens type C Toxoid on the cows. This study would also evaluate the dollar impact of the cow worming on calf weights and the cows reproductive performance. We will start on this project this fall. This study will involve 150 fall calving cows and approximately 450 spring calving cows. We will use two doses on 1/3 of the cows, 1 dose just precalving on 1/3 of the cows and 1/3 controls.

I will use our client education programs to keep our clients informed of the benefits and alternatives of worming their cow herds. Each time we add a sound procedure to the program we add more clients to this phase of the practice. In the case of worming, I am starting to reverse my previous recommendations. I would rather present this to the client during a clinic than through a newsletter.

Drug Dispensing

During my years of practice, drug dispensing has been confusing to say the least. When I started the 200% markup was common. Practitioners that were actively dispensing drugs were viewed as ethically questionable. For years, a few drug companies have developed and introduced drugs or biologics through the veterinary practitioner and then placed them in a poor competitive position with those same products.

We will see more confusion in the future due to FDA and APHIS mandates. As they require efficacy studies on drugs that have been proven through decades of usage they force a quiet discontinuation of those drugs. This is a tremendous impact on each of our practices. Also, it doesn't draw enough attention. A few years ago, I revised mv drug inventory system and found that within just a few years I had lost over 1/3 of the products I had on my lists.

Outlining and supervising all of the treatments for a ranch can be difficult at best. It becomes very difficult if we don't control their inventory and monitor response and alter medications when needed. In transferring some of the responsibilities for individual treatments to the owner, we must handle a high percent of their drug business. Continual contact is mandatory to properly maintain a ranch on a program. In my area for a few months out of the year, the drug dispensing may be our main contact.

In our area, grass and winter feed supplies vary enough that along with the fluid market on calves many ranchers vary their marketing. We need to alter our herd health recommendations to fit these changes so we have to be kept abreast of their plans.

In large outfits, the man often involved with drug purchases is not involved closely with the treatment crews. There can be a severe communications gap that can sure create friction. In a couple instances, I simply offered to make seasonal checks on their inventory and outline what to order. Naturally, I wanted in on the action if I could meet or beat their prices. With both these ranches I now handle all their drugs. I save them some money, a lot in some cases, and keep them current.

We, also, have a serious responsibility of controlling drug residue problems. My clients have a steady flow of pill peddlers driving into their yards. Most of these high school dropouts are trying to outline or alter treatments and will routinely foul up. We have to be competitive, especially on the commodity products, or we lose our credibility.

There are pressures now on the lay sales of drugs labeled to restrict their use or sale by veterinarians. Typical of the FDA, they messed up the wording and now they may be restricted to sales only by pharmacists. In my opinion, this would be worse than what we have now.

I'm sure that we can do a much better job of handling veterinary drugs than we do now. I'm sure we can do a better job than a local drug store.

I got into the dispensing business more and more during the years that all the cut-rate farm stores were gouging by clients. A lot of years ago, a farm store in North Platte was selling Warbex for $12.50. I found in volume I could buy for $7.15. I dispensed it for $7.85 and did OK on it, but the main effect was to wake up a lot of my clients. These people are still reluctant to ever buy lay sale products without checking with me.

We can remind them of dosages, marking, new products and a dozen other things that they can't get anywhere else. I always like to check the drug dispensed slips. Some guys let a problem build up too high before they initiate herd treatments, others don't alter treatments soon enough, others switch every other day if you don't watch them. I will call them or go look if things don't look right. I guess this is dispensing as opposed to selling.

Records

Over the years, very few of my clients have kept records. The meager records that they have are individual animal records. They do not reflect herd health or herd performance over a period of years. Very few ranchers have the experience or background or the inclination to convert a dead calf or some open cows into a preventive program for next year. It is my experience that many ranchers tend to recall extremes. His practitioner must evaluate the minimal loss that has the potential of severe repercussions in his particular situation.

Years ago, I found myself practicing "I told you so," medicine on a regular basis. We can become infatuated with reactive preventive medicine but still see poor acceptance or utilization unless we properly present the program. I used to use recall to influence a client to initiate a procedure. We would try to remember how many he lost, how many he treated, or how many cows were open. The next year, we would go through the same thing, that is if I remembered to call him to set up some dates.

As we experienced the establishment of more complex programs on more and more herds, I had to put up with oversights. My attitude on bookkeeping was not good. I contacted several veterinary schools looking for an easy system for herd charts. I, also, asked some extension veterinarians and practitioners and came away empty.

I finally drew up some simple charts and made a file folder for each client on a program or that I wanted on a program. I'm sure these charts can be improved greatly. I change colors on these charts each year and keep all of the charts in the herd folder for reference. A copy of all call slips, lab. reports, blood charts, OCV charts, etc., are kept in the herd file. We pull everything except the charts after calving season and put them in another file cabinet.

Our herd files are kept in an Ancom folder system near the telephone. These files are color code tabbed and seasonally, we can quickly check the charts for herd oversights. The clients are appreciative of a phone call to remind them. I find the longer I use the herd files, the more benefits I can gain from them.

Some uses for the records are: procedure initiation, program maintenance, program justification, certificates for marketing cattle and program performance. Seasonally, I can use them to estimate vaccine, pours and supplies I'll be using so that I can control inventory accurately. My office girls can check the charts and pack the vaccines and supplies I'll be using that day on a herd. It can be very embarassing to forget one vaccine especially when you are 50 miles out and have 10 cowboys waiting.

A few years ago, I realized that our records on the processing of the calves prior to marketing was of significant value to both my client and a prospective buyer. When a client markets his calves I go to the sale barn and describe what we have done on the calves, or I send a certificate to read from the block and then give it to the buyers. If an order buyer gets the calves, I send a certificate with the truckers. I ask the buyer to have his veterinarian call me for any information he needs to handle the calves.

I want my program to result in an economic advantage for my clients, both short term and long term. The records are necessary to evaluate the benefits. We need to show an improvement in the disease control of the calves on the ranch as well as gaining a marketing advantage.

If we provide a report to a client it should be accurate and specific. I pull the herd file and review the performance verbally or in some cases submit a written report to an owner. This may appear shallow to you but it will be a positive impact on a client.

A good example of this approach is to try to recall how many doses of vibrio vaccine you used in a two month period last year. When a detail man pulls your card and tells you exactly what you ordered you can decide how to order. A client's recall may be about the same with percentages or numbers.

The herd charts are designed to fit any size or type herd. I summarize all of the cow preparation and calf procedures on the top two lines. These can be checked quickly for reference. On the remaining lines, I attempt to break down the various age groups or seasonal groups, i.e., 2 year old heifers, yearling heifers, calves at branding, calves at weaning, purchased calves, etc.

Each line is separated under the various procedures in three slots. I enter a date, number processed, and a per unit charge. I always work on a per head basis and we charge more per head to process 20 in ½ day than 700 in one day. We need to know how many we processed to know what to take and an approximate date to schedule the work.

Eye Surgery

The bulk of the cows in the Sandhills are Herefords. Many of the ranches I service have a costly eye problem. We can pay for many of the procedures by minimizing the severe squamous cell carcinoma lesions. For example, a cow with a lesion that can be controlled in August or September with cryo surgery may be culled and sold in December for $50.00/cwt. as opposed to $15.00/cwt. with a severe lesion. This amounts to #350 and the client can relate to these figures.

Control of flys and eyelid squams. are often enough justification for an owner to do preweaning work.

A few years ago, we went through a period of three day

wonders palpating cows for pregnancy. It didn't work well and now veterinarians do most of the palpating. The total of all the procedures used at the time of palpation is overwhelming for anyone but a veterinarian. The control of the squams is one of the procedures that is very important at the time of pregnancy testing.

The only time we catch all the cows individually is when we palpate them. At this time, the man running the headcatch can examine the eyeballs and third eyelids closely while you palpate her. If you are running fast or using a double chute like we often do you can have one man check all left eyes and one check all right eyes. During the year of all the eye lesions develop bad on one side you know who wasn't doing their job.

I snip out the lesions on the third eyelid if they are along the margin.

The small corneo-scleral lesions that have any vascular development need to be worked no matter what size or color. I work the eyes while they are still in the chute. Entering just below the eye I use a 16 ga. 3" needle and inject 10-15 cc lidocaine or procaine behind the globe. An automatic syringe works well to speed up the process in large herds. I have a kit ready and have one of the men hand me the instruments.

I prolapse the eyeball and hold it with pressure on the eyelids. Larger lesions can be shaved with a scalpel blade. I don't use a handle, the foil wrapped #20 blades are handy. Just wrap the foil around the heel of the blade so your hand is in close to avoid damage if she moves. The smaller lesions can be rubbed off with the silver nitrate sticks. After shaving, I cauterize the lesion and all the extraneous vessels to the lesion or to any other corneo scleral area. The pressure will collapse some vessels so observe these before prolapsing the eye so that they can be well cauterized. I think destroying the blood vessels are very important to controlling the lesions.

When I am through with the cautery, I have someone shoot a little procaine on the globe and I replace the eye. In some individuals the lid margin is too tight so I snip the lateral canthus.

The whole procedure only takes a few minutes and the results are very satisfying for the client.

Enucleations seem to be rather objectionable to most ranchers in our country. A cow with a blind side is hard to handle so she has to be a good cow to stay in the herd.

The last few years, we have seen an increasing problem in the Simmentals and even the Black Whiteface cows with squamous cell carcinomas.

We build our own cryo. units. Using a pint stainless steel thermos, a rubber cork and a sphygnomometer bulb and metal tubing.

We see from very dramatic results to only fair with our cryo surgery. There are cows in some herds that we can't even find that had very severe lesions. These individuals were so severe when we worked them that we didn't even tag them special. Watch the crusty lesions on the lower lid and work anything that is questionable. Also, watch for lesions deep in the medial canthus next to the third eyelid, these lesions develop rapidly. We have good results with cryo on these lesions.

Every time we handle the cows the eyes are checked and worked if needed.

The number of eye lesions and the severity sure seems to vary in a herd. It appears to build up to a severe level for a couple years then fall back. Also, in large herds I notice a very high incidence in a clique or pod of cows that stay together year round. This would sure make it appear to be contagious. This grouping of cows is significant in other ways. If I detect a lot of late calves in one little group, I always tell the owner. Apparently, he has at least one poor breeding bull that kept them open until the other bulls moved in on his harem.

I plan to use a thermacure unit this year, but have not had any experience with it.

Calf Scours

As practitioners, we all live in our own little worlds and in our minds, our problems are bigger and our accomplishments greater than anyone elses.

My practice area had a lot of herds with scour problems that were severe. They were experiencing 85% morbidity and high mortality. While we were trying to relate this scour problem to a yearling BVD problem on one ranch by blood sampling and fecal sampling the baby calves, Dr. Chuck Mebus found the Reo virus (now Rota Virus). He just looked at it by electron microscope, no one else had done this in the right stage of viral invasion. Dr. Mebus is a very talented researcher and works hard.

I worked on the field evaluation of the Rota and then the Corona virus calf vaccines. During these years of development, Dr. Gene White and I felt we should push for a more practical herd approach. We asked long enough that Drs. Mebus and Twiehaus prepared 5 different adjuvated vaccines (killed) and injected 100 heifers. They sent a large portion of these heifers to North Platte and I put them in a herd that always had severe scours.

One vaccine performed well enough that we began injecting a lot of cows within a couple years. The clients once exposed to the cow vaccination encouraged me to continue—by threat of at least hanging. The modified live vaccines were a marked improvement over the old killed but by using a double blind approach we seemed to have trouble proving the effects well on paper. We could prove over 15-1 reduction in morbidity for the short time but by extending the study through the whole calving period, we washed our data. When Dr. Lyle Hansen suggested the split herd approach that they had used on Lepto studies, the results were much better. We were breaking up the virus buildup in the controls and over-challenging the vaccinated calves with bacterial buildup. Dr. England has found the corona virus in 18% of cows in some herds.

We mixed tens of thousands of single dose vials to inject

cows before the label was OK'ed for cow use. To my knowledge, this is the first veterinary biologic licensed for secondary (colostral) immunity. Cl. Perfringens is sure used this way but not specifically labeled. In the field, our results are certainly better with the cow vaccination than the oral calf approach.

The calf scours problem is the most demoralizing disease problem our cowboys had to deal with all year. His performance is effected by this during the spring. During the process of agonizing through a disease problem, these men will sure help to focus on areas for improvement in management, nutrition, herd isolation, biologic utiliza-tion, and early disease detection and treatment. Once these problems are surfaced, make a few notes and remind these people early enough the next year to implement your recommendations.

As practitioners, our interest shifts to herd consideration more all the time. The cow vaccination program certainly has a number of advantages over individual calf vaccination. To me, the most important is it works better. Also, we can use it on an annual basis without depending on a cowboy working under conditions that vary from just bad to horrible. On a warm day, he can't carry the vaccine with him, on a cold day he doesn't have time. When calving is slow, he doesn't go check them, when it's fast, he doesn't have time.

Of all the practice building factors we deal with, solving or minimizing the major loss disease is the most dramatic. In my area, scours and respiratory diseases are an obsession with ranchers. That is at least until we minimize them and at this time, we need to maintain the control procedures.

My approach to practice includes a strong desire to have my clients maintain as much isolation as possible. Therefore, I stress no baby calf additions to the herd to introduce all the area problems. Along with this, I follow my own philosophy so I don't have haul-in facilities. I do the caesareans that they bring in right in the trailer. If they bring in calves for treatment, we treat them in the pickup and send them home. We will start an IV but will be telling them they should have found the calf yesterday and used oral fluids.

I prepare many of the treatments that we use. Early in the season we use a lot of neomycin, both oral and injectable. As we lose efficacy we switch to LS, chloramphenicol, nitrofurantoin, erythromycin, empicillin, etc. We prepare all but the oral neomycin in gelatin capsules or drench (Corrective Mix).

I use methscopolamine in all of my treatment regimens. I feel the response is much better, possibly because of the control of hypersecretion.

We use oral fluids on any severe case that we can. I prefer treating 10 calves early to 1 real late and then having 9 more late tomorrow. We use an electrolyte plus the drench and Rumen Booster all in 1 bag water. The esophageal probe and bag have certainly made this treatment approach more practical. The Rumen Booster is a product made by Arizona Feed Mills and is an excellent treatment for scours.

Good management practices have to be stressed from the start of calving. The calving clinics have given us a head start on scours control.