

## VIRGINIA COOPERATIVE EXTENSION SERVICE

EXTENSION DIVISION - VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY - BLACKSBURG, VIRGINIA 24061

**THE FOOD ANIMAL VETERINARIAN**

VIRGINIA-MARYLAND REGIONAL COLLEGE OF VETERINARY MEDICINE

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Dear Food Animal Practitioner:

For some time, we've been promising an extension newsletter directed at your needs and interests. We are confident that the Food Animal Veterinarian will be useful to you as you carry out your food animal veterinary practice. As you know, there is a large amount of information that is necessary to continue a high quality practice of food animal veterinary medicine. New information comes from many sources and is published in many journals and other publications. Most of you get two or three professional journals and more lay publications than you can read. You probably also get the AABP newsletter. Our goal is to put together a synopsis of practical information and research reports that you are not likely to receive otherwise. We will appreciate your input as to whether we're selecting items that you find interesting and helpful.

The Food Animal Veterinarian will also serve as a bulletin board for the Virginia Academy of Food Animal Practice. Officers and members should forward items to me for inclusion in this section. We hope this publication will provide you with useful information and facilitate communication among food animal practitioners in Virginia.

Sincerely,

W. Dee Whittier, DVM  
Extension Veterinarian, Cattle**VIRGINIA ACADEMY OF FOOD ANIMAL PRACTICE BULLETIN**

The Academy's annual CE and business meeting will be held at the Holiday Inn North (exit 58 I-81), Staunton, starting at 8:00 a.m. on Saturday, April 30. Program brochures have been mailed out. For meeting information or telephone registration, please contact Dee Whittier or Kent Roberts at (703)961-4621.

"Partners in Profit" (formerly Idaho Veterinary Medical Association Leaders Program) is well along in implementation in Virginia. This is a joint effort of academy and VVMA. Activities to date: Presentation to VA Agricultural Leaders Meeting at Natural Bridge on March 7, Vice-president Jim Adams gave excellent and well-received presentation; Publication of Virginia version of "Partners in Profit" flip chart; Agreement of the Virginia Bankers Association to forward "Partners in Profit" materials to its members involved in agricultural lending; Decision made (and endorsed at Ag. Leaders Meeting) to compile a list of food animal practitioners along with their interests and expertise. Will be carried out by the VVMA Food Animal Committee and the Academy.

### **WATER BATH IS BEST TO THAW COLOSTRUM**

Having a supply of first milking, frozen colostrum from older cows available for newborn calves is a desirable practice, but what's the best method of thawing?

One common method is to freeze the colostrum in two-quart plastic containers to be later thawed by microwave oven. A recent dairy research project compared the amount of immunoglobulins remaining in colostrum when it was thawed by microwave or hot water. The microwave thawings were full power (650 watts) for 10 minutes or at half-power (325 watts) for 17 minutes. Thawing in a hot water bath (113° F) was for 25 minutes.

Immunoglobulins remaining in the thawed colostrum inside the plastic containers were the least when it was thawed by microwave at full power. A water bath registered the highest level of immunoglobulins after thawing. The differences, however, were small and in the ratio of .90, .97 and 1 for the full-, half-power and hot water thawing methods, respectively.

Specialists remind that the important objective is to get colostrum into the newborn calf as soon as possible, preferably within two hours.--BEEF, December, 1987 (Communications in CE, Vol. 3, No. 6, December 1987, Hoechst-Roussel Agri-Vet Co.)

### **LARGEST COWS NOT ALWAYS EFFICIENT**

Big cows may not be the most efficient producers in a beef cattle herd. Although the largest cows generally produce the heaviest calves, their maintenance costs may outweigh the benefits of the extra pounds of beef. A recent Texas Agricultural Extension Service demonstration in South Central Texas showed that cow maintenance costs need to be considered along with the age of cows in establishing an efficient herd. Some 200 Santa Gertrudis cows aged 2 to 12 years were used in the study. Both cow weights and calf weaning weights were recorded and compared between cows of different age and weight groups. The heaviest cows (1,201 to 1,700 pounds) weaned the heaviest calves at an average of 552 pounds. Medium-weight cows (1,000 to 1,200 pounds) weaned calves that averaged 539 pounds while the smallest cows (less than 1,000 pounds) weaned calves averaging 506 pounds.

These data showed that the medium-weight cows produced calves 33 pounds heavier than calves from the smallest cows but only 13 pounds lighter than calves from the heaviest cows. This indicates that the medium-weight cows outperformed the smallest cows and did almost as well as the heavy cows. Furthermore, the heavy cows required about 18 percent more energy and 13 percent more protein on a daily basis than did the medium-weight cows. This extra input yielded only 2 percent more beef in the form of the weaned calf. Thus, a cattle producer must decide whether or not he wants to maintain a cow that needs that much extra input for such a meager increase in calf weaning weight.

Records from the study also show that as cow age increased, calf weaning weight decreased. The youngest cows weaned calves at 548 pounds while the oldest ones weaned calves weighing only 517 pounds. This points out the importance of keeping younger cows and culling older ones. In summary, cattle producers should record weaning weights of calves from various classes of cows and use this information to make management decisions to increase herd efficiency.--From L.R. Sprott, Ph.D., Texas A&M in TAES Veterinary Quarterly Review, SUM 87 (Herd Health Memo, University of Kentucky, December 1987)

### WHAT'S MOST IMPORTANT ON DHI SHEETS

Here's a quick study of the most important information on DHI records. Know what to look at and make more efficient use of record-analyzing time.

Compare this month's herd summary sheet to the one from a year ago, suggests Bennett Cassell, Virginia Tech extension dairy scientist. This eliminates most seasonal differences in averages and allows sufficient time between test days for important changes to appear.

Each month, check these areas:

- Production - rolling herd average for milk yield and component percentages;
- Reproduction - days open, percent possible heats serviced, and days to first breeding;
- Udder health - herd average somatic cell score and percentage of herd with SCC score of 0 to 3;
- Herd genetic improvement - genetic merit of service sires.

Realistic goals are:

- Reproduction - 110 or fewer days open, 70% or more possible heats serviced and 70 or fewer days to first breeding;
- Udder health - average SCC score of 3.0 or less and 60% or more cows with SCC scores of 0 to 3;
- Genetics - average PD\$ of service sires should increase by \$10 per year just to keep up with genetic progress. More increase means more improvement in sire selection, Cassell says.

Dairy Herd Management, February 1988 (Communications in CE, Vol. 4, No. 1, February 1988, Hoechst-Roussel Agri-Vet Co.)

### THAT'S THE WAY THE STICK FLOATS

Rodostits and Blood<sup>1</sup> claim the veterinary profession has developed few private practice services for the sheep producer. The low value of animals and small farm size have been given as causes for this void. The profession needs to devise ways of getting onto sheep farms regularly so that the veterinarian can develop familiarity with, and gain the confidence of, the sheep producer.

Fertility evaluation of the ram may provide the veterinarian a starting point for other programs. This allows the veterinary an opportunity to make a farm visit. A complete breeding soundness examination should include:

- 1) Total physical examination (teeth, feet, legs, flesh)
- 2) Palpation of testicles
- 3) Scrotal measurement
- 4) Collection and examination of the semen grossly and microscopically

Information about worming practices, vaccinations, and other health related problems should be generated at this time.

Colorado State University has shown that flocks bred to rams classified as satisfactory breeders increased conception rate by 7.5%, increased lamb crop 10-15%, and shortened the lambing period.

Most veterinary practices have one or two ejaculators available. Collection of the ram does not require the restraint needed for the boar or bull. The collection usually is easily accomplished. Kimberling<sup>2</sup> describes a technique of an 8-10 second ventral massage, with the rectal probe, to the secondary sex organs followed by a 4 second stimulation. The alternating 8 second massage with 4 second stimulations produces an excellent sample in 2-3 stimulations.

Breeding soundness examination of the ram could be the nucleus for a flock health and production program. Informing your producers of the availability and advantages of ram fertility evaluation may be required to initiate the program. Annual reminders should keep you in touch after the first contact.

<sup>1</sup>Radiostits, O.M. (editor), Herd Health, 1985, pp. 356-379, W.B. Saunders Co.

<sup>2</sup>Kimberling, Cleon V., 1985. The economics and techniques of breeding soundness evaluation of rams. Proc. Soc. Theriogen., p. 102.

**John U. Thomson, D.V.M. as reported in DVM NEWS; Update for Veterinarians in the Upper Midwest, Vol. 1, No. 3, Nov./Dec. (Annual Health Beat, University of Nevada-Reno, January 1988)**

#### **SYNCHRONIZATION OF PARTURITION IN BEEF CATTLE**

The effectiveness of dexamethasone (D) and prostaglandin in combination for induction and synchronization of parturition in cattle was evaluated in 100 pregnant Angus, Hereford, Charolais and Simmental cows. Cows were distributed equally by breed, day of gestation and cow age to one of three treatments: 1) Control, 2) D (25 mg) plus prostaglandin F2alpha (25 mg), or 3) D (25 mg) plus fenprostalene (1 mg). Hormones were administered simultaneously from 275 to 283 days of gestation. One hundred percent of hormone-treated cows calved between 13 and 60 hours post-injection (PI), 80 percent calved between 30 and 46 hours PI (overall mean was  $37.6 \pm 1.1$  hours). Calving response did not differ ( $P > .1$ ) between cows treated ( $1.6$  vs.  $38.6 \pm 1.6$  hours), or among cow ages, day of gestation or breeds. Duration of labor, calving difficulty and calf viability did not differ between calves born at an induced or spontaneous parturition. The incidence of placenta retained for  $>24$  hours was higher for induced than spontaneous parturition ( $21.0$  vs.  $0.0$  percent), but did not differ ( $P > .1$ ) between cows treated with prostaglandin F2alpha or fenprostalene ( $19.2$  vs.  $22.6$  percent). The longer biological half-life for fenprostalene than for prostaglandin F2alpha provided no improvement in increasing synchrony at parturition or decreasing frequency of retained placenta.--From S.E. Echterkamp, USDA-ARS, U.S. Meat Animal Research Center, Nebraska, Nov. 1986 (Veterinary Quarterly Review, Texas A&M University, Vol. 3, No. 4, Winter 1987-88)

## COCCIDIOSIS

In recent years diagnoses of both coccidiosis and cryptosporidiosis have been increasing at the Diagnostic Laboratory. At our recent workshop, "Herd Health for Heifers," Dr. George Beneke, a bovine practitioner from Copake Falls, N.Y., presented an excellent paper on coccidiosis. The following excerpts are taken from his presentation.

"Coccidiosis is the fifth most prevalent disease of cattle in the United States. That's the bad news. The good news is that there's enough money in its treatment so that the feed companies are actively helping the veterinary profession to treat and prevent coccidiosis."

"I saw my first case in a remote, closed herd -- in 1971, after severe flooding in that area. Gradually, over the next five years, we saw an increase in the disease, so that about 90% of all our farms now have the disease. It affects good and bad, dirty and clean farms."

"There are a few things about the life cycle of coccidia that will be helpful to know. The oocyst can only cause infection after sporulation, which takes a varying amount of time after it is excreted depending on the coccidia involved. For example, *E. zuernii* sporulates in 10 days at 54° F and 3 days at 68° F. Therefore, frequent cleaning of manure from a calf's environment will decrease exposure. Those short sporulation times indicate why coccidiosis is a disease of some very good, clean herds."

"The outcome of the disease depends on the number of sporulated oocysts that the animal ingests. About 125,000 oocysts will produce the disease in severe forms by the 18th day. One thousand oocysts could result in the destruction of 24 billion intestinal cells under ideal conditions. The oocysts release sporozoites, which invade the cells of the small intestine and develop into meronts. Meronts undergo splitting or asexual fission in the host cell, and hundreds of merozoites result which are released by the cell. This whole process happens one more time so that by day fourteen, hundreds of thousands of merozoites have left the host cell and enter the sexual phase of development.

The break-out of the second generation merozoites causes most of the tissue destruction that the practitioner sees as diarrhea 17 days after the initial infection. This, also, is the point that severe lesions of coccidia are first found. Treatment at this point does little for the host that has received a massive dose of oocysts two weeks earlier. Some treatments though, will be effective against lesser stages from later oocyst ingestion."

"There are three things a veterinarian can do for a good parasite program on any farm.

1. Look at the calves and heifers on all farms on a regular basis. Consider:
  - a. Growth rates
  - b. Attitude and condition
  - c. Consistency of feces for the feed
  - d. Management practices

2. Take fecal samples on a regular basis, even if there are few problems and the parasite program is good.
  - a. Fecal results could surprise you.
  - b. Resistance and medication delivery problems give the farmer a false sense of security.
  - c. Fecal results can shock a farmer out of laxity.
3. Establish a sound parasite control program that works on that farm. Recognize that:
  - a. Stomach worms predispose cattle to coccidia, and coccidia predispose cattle to other diseases such as the respiratory complex, intestinal viruses and ring worm.
  - b. No gut lesions or effects, such as diarrhea are found before 17 days, and the oocysts are only shed 21 days after infection. The damage to the individual animal is already done.
  - c. Prevention is the only program that works. Treat all farms as if they are going to get it, if they don't already have it.
  - d. Try to beat the parasite "numbers game" by continual prevention and housing sanitation."

#### Prevention Program:

1. Do all you can short of burning the barn to prevent sporulated oocysts from being ingested.
  - a. Do not put new animals into the affected group.
  - b. Clean, disinfect with ammonia and air dry affected area. Paint or whitewash side walls.
  - c. Plow and reseed small pastures if possible and if heavily infected.
2. Start a program to medically decrease egg numbers.
  - a. The best program seems to be the use of ionophores that also increase energy utilization and protein sparing. Cattle are better able to resist coccidia if they are in a better nutritional state.
  - b. Start a worming program for stomach worms which will decrease the susceptibility of young animals to coccidia.
  - c. Time your vaccination program so that periods of stress will be avoided. Make sure a herd has coccidia under control before you initiate a vaccination program, if you want that program to work."

In light of these comments by Dr. Beneke and the increasing number of positive diagnoses made at the Diagnostic Laboratory, it is obvious that coccidia need to be considered when designing and implementing a disease prevention program for calves and heifers. Keep in mind that the development of clinical coccidiosis depends on a number of factors affecting both the degree of exposure to coccidia and the degree of stress on the calves. Therefore the prevention program is best designed in consultation with the local veterinarian who is usually in a position to properly evaluate these factors and to recommend change and improvement where necessary.

## CRYPTOSPORIDIOSIS

Cryptosporidia are also being observed with increasing frequency in specimens sent to the Diagnostic Laboratory. Although cryptosporidia are coccidia, these parasites differ in many ways from Eimeria species of coccidia which cause "coccidiosis". Some important characteristics of cryptosporidia are:

1. Cryptosporidium oocysts sporulate within the intestine and are excreted in the infectious state. Therefore:
  - a) They can readily infect other animals and cause diarrhea at an early age (within 2-7 days after ingestion).
  - b) Removing manure every 2-3 days (which is helpful in preventing coccidiosis) is not adequate to prevent cryptosporidiosis.
2. Cryptosporidia can be a primary pathogen, however, they are often found to be part of a mixed infection along with other pathogens, such as coronavirus or rotavirus.
3. Cryptosporidia are transmissible from animals to man, therefore good hygiene and sanitation should be practiced when handling calves. Immunologically deficient individuals are particularly susceptible to infection by cryptosporidia and should not work with animals having the potential of shedding these organisms.
4. There are presently no antimicrobial drugs known to be effective against cryptosporidia. Therefore, treatment of cryptosporidiosis must consist of supportive therapy, and prevention must be based on strict sanitation and other management procedures that will prevent fecal-oral transmission among calves.

Dr. Mike Brunner, Extension Veterinarian, Cornell University Veterinary Update, Winter 1988.

## SUCCESS IS NO ACCIDENT

Veterinarians are most often called to deal with obvious disease outbreaks involving individual animals or single farm populations of one species. The farmer or livestock producer thinks in terms of clear cut disease with the attendant signs and losses, and so perhaps, do most practitioners.

The facts of livestock disease, however, tell us that the greatest economic losses involving farm animal health are those which are subclinical. We must be constantly aware of this as we design herd/flock health programs and educate our producer clients. Dealing with subclinical losses is a significant challenge for any food animal practitioner. Effective solutions should bring significant rewards.--Kent Roberts, DVM, VA-MD Regional College of Veterinary Medicine.

## HANDOUT AVAILABLE

A handout on forage-related disorders covering nine metabolic/toxic conditions, such as grass tetany, acorn poisoning and cattle bonkers, is available by sending a self addressed, stamped large envelope to:

Kent Roberts, DVM  
VA-MD Regional College of Veterinary Medicine  
Blacksburg, VA 24061

Virginia-Maryland Regional College of Veterinary Medicine Extension Staff:

Dr. J.M. Bowen - Extension Specialist - Equine  
Dr. C.T. Larsen - Extension Specialist - Avians  
Dr. K.C. Roberts - Extension Specialist - Companion Animals  
Dr. C.F. Shipley - Extension Specialist - Swine & Small Ruminants  
Dr. W. Dee Whittier - Extension Specialist - Cattle

Dee Whittier & K.C. Roberts, Editors

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