VIRGINIA POLYTECHNIC INSTITUTE
AND STATE UNIVERSITY LIBRARIES

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

Fall 1989 **No. 4**

Dear Food Animal Practitioner of Virginia,

I trust that things are going well in your practices. Improved milk and cattle prices are generally having a positive effect on food animal practices throughout the US. The most recent AVMA survey results show the predominantly large animal practitioner is near the top in annual earnings when compared to other practitioners.

Dr. David Kohl, agricultural economist at Virginia Tech spoke to us at our annual meeting of the VA Academy for Food Animal Practice. He suggested that now is an important time for practices to carefully define their emphasis and orientation. He foresees an increase in the number of "super farms" and says that some practitioners need to be prepared to meet their needs. He also suggested that with urbanization increasing in Virginia that the "lifestyle farmer" will persist and increase in number and influence on the VA agricultural scene. Economy of production will not be as important to this segment as convenience and the sense that animals are being handled humanely and "properly". Marketing of services will be important in reaching the "lifestyle farmer".

I encourage you to give careful consideration to your continuing education plans for the rest of this year. The food animal conference in Frederick MD has been well planned and offers some very good speakers. The annual meeting of the American Association of Bovine Practitioners is being held in Kansas City in November. Midwest lodging and other costs along with a round-trip airfare only slightly over $200 will make this one of the most economical AABP meetings. Dr. Randall Hinshaw, as head of the VVMA Food Animal Committee, has been working closely with the program committee of the VVMA on the food animal segment of the winter meeting. The plan is to get a nationally known speaker to be part of this program.

One item that was discussed at the May Academy meeting that needs further attention is how the VA Tech food animal vet faculty can best meet your needs. Exactly what should be the role of PMM versus extension? Some seemed to favor having PMM expertise available to you at no charge or a much reduced fee from the current situation. Others had concerns about such a situation. Given that our own budgetary considerations must be met, we will be very interested in pursuing a discussion of this matter with VA food animal practitioners.

Sincerely,

W. Dee Whittier

W. Dee Whittier, DVM
Extension Veterinarian

Virginia Cooperative Extension Service programs, activities, and employment opportunities are available to all people regardless of race, color, religion, sex, age, national origin, handicap, or political affiliation. An equal opportunity/affirmative action employer.

Issued in furtherance of Cooperative Extension work, Acts of May 8 and June 30, 1914, and September 30, 1977, in cooperation with the U.S. Department of Agriculture. Mitchell R. Geasler, Director, Virginia Cooperative Extension Service, and Vice Provost for Extension, Virginia Polytechnic Institute and State University, Blacksburg, Virginia 24061. Clinton V. Turner, Administrator, 1890 Extension Program, Virginia State University, Petersburg, Virginia 23803

LIVESTOCK DEATH DUE TO LIGHTNING

Many insurance companies enlist the aid of practitioners to establish if payment of a claim for livestock losses due to lightning is warranted. The diagnosis of death due to lightning stroke can be difficult to ascertain with any degree of certainty.

Lightning strike currents are in the 200,000 ampere range. The results of this in animals can vary from temporary unconsciousness to sudden death. Some animals may survive, but be permanently injured. The carcass should not be moved and should be examined as soon as possible after death. Any delay will make diagnosis more difficult.

The systematic approach to the diagnosis of lightning should include examination of the carcass establishing an approximate time of death and examination of the surrounding area.

The examination of the carcass should start with checking for evidence of a struggle. The oral cavity should be examined for the presence of cud or grass in the mouth as this indicated sudden death. The hide is checked for evidence of bullet wounds or singed hair. If the animal was struck while standing, the most common places to find singed hair are on the back, muzzle, ears, and coronary band. If struck while lying down, the singed areas are usually on the ears and back. Singe marks may vary from none to massive tree-like burns over most of the body. Severe burning will cause hemorrhage on the under side of the skin and in the subcutaneous tissue. Necropsy may show rupture of large vessels, but usually there are no internal lesions or signs of disease. The left heart should be devoid of a clot. Rigor mortis appears rapidly and heart contraction forces the blood out of the left side and into the large vessels. Later as rigor mortis leaves, bloody fluid returns to the left heart. A blood clot in the left heart usually indicated a lingering illness. Bloat occurs rapidly, in animals that die of sudden death, die to the continued bacterial action in the rumen.

In a relatively fresh carcass, scavenger damage should be noted keeping mind that wild animals are usually not active in daylight while birds are not active at night. In older carcass, note the size of the fly larvae. Mud on the hooves may indicate the animal was alive when the rain started. The observations may be helpful in establishing an approximate time of death.

The surrounding trees, fence, and utility poles should be examined for evidence of lightning strike. Electricity can travel considerable distance down a fence line from the strike. The other animals in the pasture should be observed for possible injury.

It is helpful to establish that a storm was in the area at the time of death, but rain is not necessary and lightning can come out of small individual clouds.

Insurance companies generally give the benefit of doubt and the final decision of payment rests with the agents. **--D.E. Cole, DVM, PhD, Veterinary Diagnostic Laboratory, Kansas State University, Notes From the Extension Veterinarians, KSU, Manhattan, KS, July, 1989.**

CLIENT MEETINGS--THE HARD WAY

Our fifteen-year-old dairy practice prospers with the usual amount of ups and downs. We've done our share of client education meetings sponsored by the practice and been invited to a fair number of dairy day, young farmer and 4-H type speaking engagements.

For quite a few year, we'd talked about inviting clients in for a one-on-one meeting. This began in the fall of 1988 and we tired to do two each week. They are evening meetings with coffee and donuts served at half-time break. Anyone the producer wants is also invited--hired personnel, feed consultants--if we're not doing the rations, and most importantly--the family.

Many of those invited are already on a DHIA-ARIS Herd Monitor program, so there is always plenty of good information to discuss. Those not on our program may bring rations, DHIA records, or milk slips, or anything that we can use a measure of herd performance. I generally do the pre-meeting performance of ARIS and Monitor copies for everyone. My associate, Dr. David Wolfgang, does the nutritional analysis and a follow-up letter to all concerned.

We key in on what each producer is worried about, what we see as opportunities for improvement and goals for all concerned. Generally, discussions lead to heifer management, body scoring, SCC managements, and production problems. We may end by going to the computer and looking at information and graphs of the producer's data demonstrating what can be done for those not on the program. We create a "to do" list for each of us and it's amazing how well things have been accomplished.

I've worked for some of these people for 15 years and learned more about them in three hours than in many cowside discussions. I think the change of the usual format and the "team approach" is what generate the honest discussions which have been extremely beneficial to all parties. Most sessions last 3 to 4 hours and nobody seems to mind.

This approach has created goodwill with the producers and aggressive herd management with everyone in his management hub. A win-win attitude has emerged amongst everyone and the word has spread to others. Those invited are now looking forward to a follow-up in the near future.

We don't charge for the initial meeting, but the reward has been numerous. Yes, it's doing things the hard way because of the time and effort involved, but appreciation is never lacking. **--John C. Simms, VMD, Burnt Mill Veterinary Center, Shippenburg, PA, Herd Health Memo, June 1989, CES, Penn State University.**

EMPHYSEMATOUS FETUS

Often, the death of a cow or a sheep, after removal of an emphysematous fetus, has been attributed to blood loss, shock or possible uterine rupture, even if none was felt. In fact, more of these animal die from revascularization of the uterus and increased absorption of endotoxins. When the uterus is stretched tight with the swollen fetus, the blood supply is greatly diminished, but when the fetus is removed, the uterus shrinks and the blood supply increases, thus increasing absorption. Banamine® 2mg/kg could be used to help alleviate this problem. **--Dr. James E. Breazile, Oklahoma State University in Capsules, APR 89.**

TRACHEAL WASHES

Many times the use of a tracheal wash for the diagnosis of viral respiratory disease is overlooked. Two recent reports exemplify the advantages that are attainable through the use of a tracheal wash in bovine bronchopneumonia. In the study, 42 calves with respiratory disease had a tracheal wash done. At the same time, a nasal swab was collected for attempted viral isolation. The wash was performed by passing an 8 mm human gastric tube (92 cm long) into a nostril to the lungs and infusing 50-60 ml of Hank's solution with antibiotics (any viral transport medial would be adequate). In all cases, 15-30 ml were recovered upon immediate withdrawal into the syringe. The wash sample, as well as the nasal swab, was sent to the laboratory on ice where attempts were made to isolate and identify viruses. In addition, fluorescent antibody tests were done on the cell sediment produced after centrifugation of the wash. Of the 42 tracheal washes collected, 12 were contaminated on cell culture due to either bacteria or fungi. Of the remaining 30 washes, 8 were positive on direct cell culture (2 IBR, 2 BHV-4, 3 BVD and 1 unknown.). However, of the total 42 washes, 20 were positive by direct FA of the cell sediment. The viruses found included the above mentioned IBR, BVD and BHV-4 as well as several adenovirus isolates, a PI_3, a BRSV, and two instances of mixed viral infections. Conversely, only 1 of the nasal swabs was positive on cell culture isolation attempts, and that was an IBR virus.

In a second study that concentrated on BRSV, 21 of the 32 calves had positive BRSV fluorescence in the tracheal wash cells; BRSV was isolate from 17 of the 21 positive washes. The other 4 animals' washes yielded IBR from 2 and PI_3 from all four. In 4 SPF calves, experimentally infected with BRSV, the investigators demonstrated positive tracheal wash cells for up to 12-18 days after inoculation of the virus. Remember, this was a known infection, on known day, in pathogen free animals, and close to the laboratory, all of which greatly enhanced the recovery rate, but still the figures are impressive. Nasal swabs from these experimentally infected calces were negative in viral isolation during the whole trial period. These 2 studies were done in calves, but by altering the volume infused into the trachea, this technique would be an excellent method to diagnose a viral respiratory infection in any animal species. **--C.C. Baldwin, DVM in OSU Diagnostic Laboratory News, Spr 89 and reprinted in NDSU Veterinary Notes, Aug 89. As reported in Herd Health Memo, August 1989, CES, University of Kentucky, Lexington, KY.**

FESCUE PROBLEM

Federal and state agencies are cooperating in an unusual project to try to solve a problem that costs cattle producers as estimated $200 million each year. The problem: Cattle that eat grass or grass hay infected by a certain fungus fail to gain weight during the summer and also develop reproductive problems. The fungus, (*Acremonium coenophialum*), is an endophyte, meaning it lives inside the grass. While the endophyte helps the grass tolerate insects and drought, it's also responsible for production losses in cattle. ARS scientists in Peoria, Ill, will study the toxin in endophyte-infected Kentucky 31 tall fescue hay grown at a state correctional center in Vienna, Ill. The inmates will prepare ethanol extracts from 36,000 pounds of fescue seed and 15,000 pounds of fescue hay. toxic materials isolated from the extract will be used in feeding trials intended to overcome production problems in cattle eating tall fescue. The trial will be conducted by ARS's Veterinary Toxicology Research Lab in College Station, Tex., and several other institutions. **--Bioactive Constituents, Northern Regional Research, Center, Peoria, IL, USDA/ARS Quarterly Report, 1989.**

REPORT OF THE NORTH CENTRAL REGION BEEF COW-CALF NUTRITION AND MANAGEMENT COMMITTEE (NCR-87)

NORGESTOMET IMPLANTS FOLLOWING A SYNCRO-MATE-B TIMED INSEMINATION. Dan Faulkner from the University of Illinois reported on work they have done to enhance pregnancy rates and re-synchronize beef females after a Syncro-Mate-B (SMB) timed insemination. In this study, cow and heifers were given the standard SMB treatment and inseminated approximately 47 hours after implant removal. Nine days after implant removal, a portion of the females were given another implant containing norgestomet. This implant remained in place for 12 additional days, at which time it was removed and females that expressed estrus were again inseminated. tHis regimen was successful in enhancing pregnancy rates in beef heifers and synchronized the subsequent estrus in the heifers and cows that did not conceive in the time AI. In heifers, norgestomet treatment increased the pregnancy rate to the timed AI from 26% to 53% as compared to the controls. This treatment caused 89% of the females which did not conceive to the timed AI to express estrus in 3 day following removal, as compared only 52% of the control females. This procedure appears to have merit in decreasing the time required to detect estrus and increasing the conception rate of previously inseminated animals. There is work currently underway at the University of Missouri using Melengestrol Acetate (MGA) rather than norgestomet in a similar study to enhance conception and re-synchronize non-pregnant females.

MATERNAL AND FETAL CONTROL OF BIRTH WEIGHT. While at MARC, Dr. Calvin Ferrell shared some preliminary data with us concerning control of fetal growth. The study utilized Brahman and Charolais cows, two breeds that differ in typical birth weights. Using embryo transfer, they obtained all possible combinations of fetal and maternal genotypes (Charolais cows with either Charolais or Brahman fetuses, and Brahman cows with either Brahman or Charolais fetuses). At approximately 225 days of gestation, fetal and maternal blood flow and fetal weight was measured by sacrificing a portion of each group, with the remaining animals were allowed to continue to 270 days of gestation. It appears from this study that the fetal genotype is controlling fetal growth up through at least 230 days of gestation and that maternal genotype is the major controller from 230 to 270 days of gestation. The fetal weight gain from 230 to 270 days of gestation and fetal weight at 270 days is shown in the table below.

Fetal Genotype	Cow Genotype	Fetal Gain, kg/d	Fetal Weight, lb
CHAR	CHAR	.66	107.4
CHAR	BRAH	.30	78.7
BRAH	CHAR	.44	67.0
BRAH	BRAH	.29	54.2

This was a very interesting sydy designed to better understand the role of both the maternal and fetal genotype in determining fetal growth. **--J.C. Whittier, Beef Specialist, CES, University of Missouri, Columbia, MO. Beef Cow - Calf Newsletter, August, 1989.**

THOUGHT FOR THE MONTH

"People forget how fast
you did a job --
but they remember
how well you did it."
Howard W. Newton

MONITORING BULK TANK MILK

An Ohio State University study indicated that monitoring bacterial and somatic cell counts in bulk tank milk may be an effective means of detecting management changes in herds with low bacterial and somatic cell counts. The objective of the study, reported in the December 1988 issue of the **Journal of Food Protection**, was to investigate associations among bulk tank milk (BTM) counts and: 1) the rate of clinical mastitis, 2) bacterial counts in bedding materials, a nd 3) the number of quarter-milkings per liner in nine well-managed herds.

BTM samples were collected weekly for one year. Samples were analyzed for total bacteria, gram negative bacteria, coliforms, streptococci, staphylococci, and somatic cells. Quarter milk samples were collected from cows exhibiting clinical sings and cultured for mastitis pathogens. Bedding samples were collected for bacterial analysis.

Geometric mean somatic cell count in BTM was 265,000 cells per milliliter. Geometric mean total bacterial count was 4,400 colony forming units per milliliter. Streptococcal, staphylococcal, and gram negative factorial counts accounted for 60% of total bacterial counts. The most prevalent group was streptococci. Gram negatives were less than 5% of total bacterial counts.

Total clinical cases were correlated with BTM somatic cell counts. Bacterial counts in BTM were correlated with rates of coliform and environmental streptococcal clinical mastitis cases. Correlations were also measured among BTM bacterial counts and gram-negative bacterial, coliform, Klebsiella species, and streptococcal counts in bedding material. The number of quarter-milkings that liners were used also had an effect on BTM bacteria counts. Total bacteria and staphylococcal counts increased when liners were used more than 800 quarter-milkings. **Udder Topics, JUN 89 as reported in Herd Health, August 1989, CES, University of Kentucky, Lexington, KY.**

PREVENTION CUTS LOSSES FOR SHEEP INDUSTRY

Foot rot is an ailment responsible for the largest economic losses in the sheep industry, reports the American Veterinary Medical Association (AVMA). However, with a preventive flock health program planned by a veterinarian, the disease can be controlled, the association says.

Marie S. Bulgin, DVM, at the University of Idaho, says the annual cost of foot rot is about $4.50 a head or nearly $60,000 for a range flock of 13,000 sheep.

Attributing factors could include death loss, decreased work production, weight loss, additional feed cost, loss of market value for incurable or chronic cases, labor and transportation to a treatment facility for footbath therapy, she says.

Until recently, sheep medicine has not captured much interest by veterinarians, she explains. "Practical advice in the sheep industry is very difficult because many veterinarians have not tuned in to sheep medicine or the economic problems at any rate," Bulgin adds. "I think the situation is changing slowly." **--DVM, June, 1989 as reported in Communications in CE, Vol 5 NO 3 July 1989.**

RUMINANT PRACTICE
Early Calvers Are Better Rebreeders

Early calving beef cows have much greater chance of rebreeding than do later calving cows in the same herd because: (1) earlier calvers have more time and thus more chances to rebreed, (2) later calving cows generally have lowered fertility and (3) later calving cows often calve during the hot summer months, when high temperatures can reduce fertility.

In a recent Texan Agricultural Extension Service study on three ranches in the Central and Gulf Coast areas of Texas, pregnancy rates between 550 early and later calving cows were compared. Cows were classed as early, middle or late calvers based on whether they calved in the first (Dec-Jan), middle (Feb-Mar) or last (Apr-May) third of the calving period. During the two-year study, late calving cows consistently had the lowest rebreeding rates-53 percent. Early calving cows had a rebreeding rate of 92 percent closely followed by meddle calvers with a pregnancy rate of 83 percent.

These findings support the conclusion that fertility in late calving cows is notoriously low. Beef cattle producers often think that an extension to the breeding season will increase rebreeding rate by allowing subfertile cows more chance to breed. That was not the case in this study since the breeding season lasted up to five months or longer for each herd.

Recommended steps to solve late calving problems are: (1) Cull all open and late calving cows and replace them with heifers bred to calve as early calvers throughout their lives and contribute higher, more efficient production in the future. (2) Time the breeding season so that it occurs during the cooler months. A summer breeding season present problems due to the hot weather. (3) Continue culling and replacing on an annual basis. Over time, the incidence of culling and need for replacements will decrease because of the increasing fertility level of the overall herd.

When the above recommendations for improving herd fertility were implemented on the three ranches in this study, pregnancy rates increased in all cases-from an average of 79 percent to as high as 97 percent. **--From L.R. Sprott, PhD, Extension Beef Cattle Specialist, et al, Texas Agricultural Extension Service, The Texas A&M University System, July 8, 1987.**

DAIRY NUTRITION MEETING

The Virginia Dairy Nutrition Council will hold a meeting on Thursday, October 26, 1989 at the Red Carpet Inn, Waynesboro (I64 & US340). The featured speaker will be Dr. Charles Gardner, a veterinary practitioner and dairy consultant from Ackormervlle, PA. Dr. Gardner is an innovative leader in veterinary dairy herd management programming. Veterinary practitioners are encouraged to take advantage of this free continuing education opportunity.

COLLECT THE "BLUE ICE" COOLANT PACKS

Collect the "Blue Ice" coolant packs that large animal vaccines are shipped in. Snip off a corner and squeeze the contents of about 10 packs into a large 3 container. Add water and shake until the fluid is the right consistency. You'll end up with a gallon of the same carboxymethylcellulose obstetric lubricant that usually costs $8 to $13 per gallon. **--Dr. Paul Mennick, Elk Grove, as reported in Notes from the Extension Veterinarians, CES, Kansas State University, Sept, 1989.**

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. W. Dee Whittier - Extension Specialist - Cattle

K.C. Roberts and Dee Whittier, Editors
Maura A. Martin, Production Manager of Food Animal Veterinarian

COOPERATIVE EXTENSION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
VIRGINIA POLYTECHNIC INSTITUTE
AND STATE UNIVERSITY
BLACKSBURG, VIRGINIA 24061

Non-Profit Org.
BULK MAILING
U.S. POSTAGE
PAID
Blacksburg, VA 240
Permit No. 28