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 Practitioners:

Some outstanding Continuing Education opportunities are upcoming for Virginia Practitioners:

- The District II AABP/ Mid-Atlantic Veterinary Conference will be held on March 25 and 26, 1999 in Frederick, Maryland. The topics covered will be reproductive advances and mastitis control by veterinarians. Speakers include Dave Reid and Ray Nebel.
- The food animal program for the Mid-Atlantic States Veterinary Clinic, May 13, 1999 will correlate with that program and show hands-on procedures. This program will be held at the Maryland State Fair Grounds at Timonium, Maryland, this year.
- The Beef Improvement Federation is a national organization that promotes improvement in beef cattle breeding. Their national meeting will be held in Roanoke, Virginia, June 15-18, 1999. There will be a number of speakers and topics of interest to Virginia's beef cattle veterinarians.

Recent information has been published that should cause Virginia's food animal veterinarians to consider their practice approaches to Virginia's farmers. Consider the following:

- 75% of all Virginia farmers are over 55 years of age.
- Agriculture still accounts for 10% of Virginia's jobs and 11% of the Gross State Product.
- From 1969 to 1997 the number of farms decreased by 40%.
- Best estimates are that 70% of Virginia's farmland will change hands in the next 15 years.
- There is much truth in the adage: "The first generation makes it, the second generation holds it, the third generation looses it" when farms are involved.

How should Virginia's food animal practitioners deal with these phenomena? I would suggest at least 2 approaches:

1. Be ready to provide convenience services to the aging generation. There is a point when they are willing to pay for them.
2. Look for the emerging consolidators. Young farmers frequently consolidate farms as they transfer to the next generation. While they may not have the capital to own these several farms they will rent them or lease them. These producers will be aggressive, cost conscious but willing to buy more advanced technology than the prior generation.

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Virginia Tech 1872
VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY

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LEND AN EAR TO NEW VACCINATION METHOD

You have a new site option for giving clostridial vaccines. Four recently completed studies showed cattle given injections in the ear had consistent results in both performance and efficacy of the vaccine compared to prescapular placement. Ear injections were given in the opposite ear from the ear with implants. The benefit of this technique is fewer injection-site blemishes, since the ear is removed at slaughter.

The following technique was used to administer the ear injection:

- Locate the injection site at the base of the ear just outside the auricular cartilage.
- Use one hand to grasp and steady the ear.
- Use a subcutaneous injection.
- Start the insertion of a 3/4- or 1-inch 16-guage needle at the point where the skin becomes loose from the cartilage.
- Insert the needle in the hub.
- Deliver the vaccine.
- Remove the needle with the syringe trigger still depressed.
- Apply pressure at the point where the needle was inserted as you remove the needle.

The studies were conducted by Boehringer Ingelheim Animal Health on two of their clostridial vaccines (Alpha-7 and Alpha-CD).

Before using this method, contact the manufacturer to determine if the product you are using will be effective with this technique. **–as reported in Florida Veterinary Scene, Vol. 7 No. 5, June 1998, University of Florida, Gainesville, FL.**

ULTRASONOGRAPHIC DIAGNOSIS OF RETICULAR ABSCESS IN COWS

Ultrasonographic examination yields precise information about the size and location of an abscess. For an ultrasound-guided transcutaneous incision, the abscess must be immediately adjacent to and attached to the abdominal wall, and the intercostal space over the abscess must be sufficiently wide. The objective of this study was to determine if ultrasound-guided transcutaneous incision and drainage of a reticular abscess was a feasible alternative to conventional methods.

Five cows with reticular abscesses were examined clinically, hematologically, radiographically and ultrasonographically. They all had clinical signs typical of traumatic reticuloperitonitis, including chronic indigestion, pyrexia, an absence of or reduced ruminal motility, weight loss and a positive reaction to foreign body tests. Hematological examination revealed anemia, increased concentrations of plasma protein and fibrinogen, and decreased clotting time in the glutaraldehyde test. On the basis of radiographic examination, a tentative diagnosis of reticular abscess was made in four of the cows, because the reticulum was displaced from the peritoneum or because there was an extensive gas-fluid interface in the reticular region. By ultrasonography, a large reticular abscess with a well developed capsule was visible in each of the cows. The abscess was located between the reticulum and ventral peritoneum in two of them, between the reticulum and right thoracic wall in two and between the reticulum and spleen in the other cow. A foreign body penetrating the abscess could be visualized ultrasonographically in one cow.

In two cows, the abscesses were drained through an ultrasound-guided transcutaneous incision. The skin of the ventral abdominal wall was prepared for aseptic surgery, locally anesthetized, a 10 cm incision was made, and the contents of the abscess were evacuated manually. The abscess cavity was rinsed with a solution containing antibiotics or chlorhexidine daily for 14 days. In the other three cows, the abscess was incised and drained from within the reticulum during a rumenotomy. Ultrasonographic examination revealed that the abscess had been completely evaluated in four cows, buy only by about two-thirds in the remaining cow. All cows were clinically healthy when they were discharged. **–as reported in Braun, U., et al., Vet. Rec. 142:184-189, 1998.**

RECENT INFORMATION ON NATIONAL JOHNE'S DISEASE STATUS

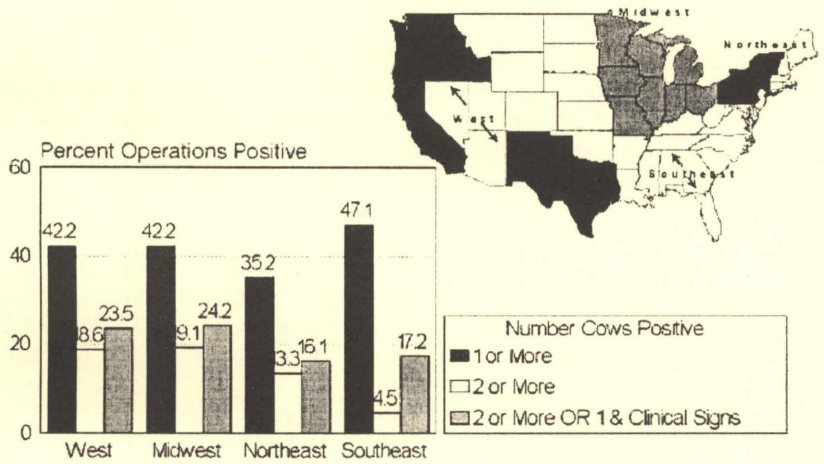
Recent information from the National Animal Health Monitoring System (NAHMS) Dairy '96 Study, a national study of dairy health issues conducted by USDA-APHIS-VS in 1996, estimates that the cost of Johne's disease can be quite high. The study found that, in infected dairy herds where at least 10% of the cull cows showed clinical signs like those of Johne's disease, the average cost to those producers was $227 for each cow in the herd per year (USDA-APHIS-VS, 1997). In other words, the cost for a 100 cow dairy with at least this number of Johne's cull cows with clinical disease would be about $23,000 each year. The majority of this loss was due to reduced milk production. This cost represents an estimated $200 million loss to the U.S. dairy industry. No similar information on the cost of the disease to cow-calf producers is available, although this information will be important to target in future studies.

The recent NAHMS report shows that 45% of dairy producers were either unaware of Johne's disease or recognized the name but knew little else about it.

The NAHMS Beef '97 Study showed that beef cow-calf producers were even less familiar with the disease. This lack of familiarity has hindered control and prevention of Johne's disease in this country, and efforts are currently underway to change this state of awareness.

From: Johne's disease - What do I need to know?
http://www.aphis.usda.gov:80/vs/ceah/cahm/Beef_Cow-Calf/beef

Percent Operations Positive for *M. paratuberculosis* by Region



NUTRITIONAL RISK FACTORS IN THE ETIOLOGY OF LEFT DISPLACED ABOMASUM IN DIARY COWS: A REVIEW

The transition period occurring 2 weeks prepartum through 2 to 4 weeks postpartum is the major risk period in depression of intake and the slow postpartum increase in intake are risk factors causing lower ruminal fill, reduced forage to concentrate ratio, and increased incidence of other postpartum disorders. Uncomplicated ketosis, retained placenta, metritis, and hypocalcemia at parturition are risk factors for left displaced abomasum. Excessive amounts of concentrate during the prepartum period increase the risk of left displaced abomasum, which may occur from the lower ruminal fill caused by greater prepartum intake depression and reduced forage to concentrate ratio, decreased ruminal motility from lower ruminal fill and higher volatile fatty acid concentration, and decreased abomasal motility and emptying from higher concentrations of volatile fatty acids. Effects of volatile fatty acids on motility may be exacerbated by low ruminal absorption of volatile fatty acids during the transition period. Minimal intake of concentrate during the prepartum period may increase the risk of left displaced abomasum through failure to increase the absorptive capacity of the ruminal papillae and failure of the microbial population of the rumen to adapt prior to the intake of high energy postpartum diets. Increased risk of left displaced abomasum in cows that are hypocalcemic at parturition may be due to decreased ruminal and abomasal motility.

Because of low feed consumption, the transition period is the major risk period in the etiology of LDA. Feeding and management practices that prevent other postpartum disorders reduce the risk of LDA. Ketosis and LDA are closely related postpartum disorders, and cows that have excess BCS at parturition are at increased risk of ketosis and LDA.

Both excessive and minimal amounts of dietary concentrates during the prepartum period may increase the risk of LDA. More research is needed on lead feeding strategies. Prepartum concentrate lead feeding of 0.5% of BW with an upper limit of 0.75% of BW is recommended. For herds that are not fed TMR, postpartum concentrate DM can be increased at the rate of 0.20 to 0.25 kg/d until peak concentrate intakes are reached; concentrates should be fed at least three to four times daily. A TMR that has been formulated to control F:C and to consider nutritional needs of early postpartum cows is recommended.

There is increased risk of LDA in hypocalcemic cows at parturition, suggesting a role for the formulation of prepartum diets for dietary cation-anion difference in the prevention of LDA. Although a pelleted TMR increased the incidence of LDA, research is needed to determine the critical forage and TMR physical form for preventing LDA. Rations composed entirely of corn silage should not be fed to dry cows. Feed bunk management is an important risk factor for LDA that should be monitored closely on commercial dairies. **R. Shaver, Journal of Dairy Science, 80(10) October, 1997. As reported in Veterinary News, May 1998, Penn State University, University Park, PA.**

IV SALINE SOLUTION AND TRANSRUMINAL REHYDRATION IN DAIRY COWS

Ruminal epithelium is freely permeable to water, and intravenous (IV) infusion of hypertonic saline solution (HSS, 7.0-7.5%) should create a gradient for water absorption out of the rumen via increased serum osmolality. This procedure has gained support for treatment of diary cattle with endotoxic shock and endotoxemia associated with mastitis caused by Gram negative environmental bacteria. IV administration of a small volume of HSS in conjunction with voluntary oral water consumption may totally alleviate dehydration without the need for administration of a large volume of balanced replacement fluids. Restoration of normal cardiovascular function via IV infusion of HSS could save the lives of otherwise "written off" animals.

A study was conducted to determine the effect of IV administered hypertonic saline solution (HSS) on transruminal rehydration in clinically normal dairy cows. Ten Holstein cows were given nothing per os for 26 hours, then were randomly assigned to receive either 1) an oral water load (OWL; 40 ml/kg of body weight) by ruminal gavage or 2) HSS IV (5 ml/kg of body eight) plus OWL; 10 days later, each cow received the other treatment.

IV administered HSS plus OWL caused hemoglobin (Hgb), PCV, plasma total protein (PTP), serum colloid osmotic pressure (S_{cop}), blood pH, base excess (BE), HCO_3-, and urine osmolality values to decrease and fractional excretion (FE) of electrolytes, serum osmolality, and urine volume to increase. Blood glucose concentration was different between treatments at 0 and 150 minutes, and FE_K, FE_{Cl}, and FE_{Ca} were similar by 180 minutes after OWL alone, but absolute excretion of Na and P and FE_{Na} and FE_P remained high after HSS administration. Oral waterload caused Hgb, PCV, PTP, serum electrolyte and creatinine, S_{cop}, and urine osmolality values to remain unchanged or decrease slowly and pH, BE, HCO_3-, FE_{Ca} values to increase slightly by 180 minutes.

IV administration of HSS plus OWL, unlike OWL alone, increases circulatory volume rapidly, induces slight metabolic acidosis, increases renal perfusion and glomerular filtration rate, and effects changes in serum Ca and P homeostasis that may be useful in treating sick dairy cows. However, practitioners need to be aware that, in cases of severe dehydration or hemorrhagic shock, use of HSS as an IV infusion could cause a hyperosmolar state or recurrence and exacerbation of hemorrhage. **–as reported in Roeder, B.L., et al., Am. J. Vet. Res. 58:549-554, 1997.**

SUCCESSFUL CALF WEANING:

The production and death loss of calves at weaning is second only to the losses at calving. Weaning is a very stressful time and bovine respiratory disease (pneumonia, shipping fever, etc.) is a common problem. Coccidiosis and other digestive problems, such as acidosis, (grain overload) are also common.

Producers often ask what vaccines they should use to help control health problems during this period. There are some vaccines which can be of help. But it is important to recognize that there are other factors which must be controlled in order to have a successful weaning program. Vaccines should be viewed as an aid to herd health programs, not as the cure-all. Try to manage your cattle to avoid or minimize the effect of the potential problems listed below and then use a good, basic vaccination program to help support your management efforts.

1. Dust – Causes severe irritation to the upper respiratory tract and lungs and is a common problem in handling large numbers of cattle. Sprinkle irrigate the holding areas and corral pens to reduce dust.

2. Heat – Process the cattle in the early morning, where possible. Cattle tend to hold their body heat, so even if you work them in the early evening, when it may seem to be cooling down for you, they will still be retaining body heat. Any activity, or even just standing in the direct sun will elevate their temperature and endanger their health.

3. Bawling – This is another irritant to the upper respiratory tract. To minimize this effect, separate the calves away from the cows so they can't hear each other.

4. Dehydration – Some calves are not acquainted with water troughs and are afraid of them while others are so busy bawling they don't take time to find the water and drink. Use of a trough similar to one they may have been around may help. Allowing the water to continue to run a small steam into the trough may help get their attention and draw the calves to it. However, allowing the water to overflow the trough may result in puddles that will increase the opportunity for spread of coccidiosis.

5. Feed Change – Avoid drastic feed changes. A change in diet requires the growth of different organisms in the rumen to digest the feed. Depending on the type of feed, it takes a few days to 2 weeks for the organisms to adapt. Grazing calves are often not familiar with drylot rations. Calves, which have eaten some hay, even early in their life, will adjust more rapidly to drylot rations.

   The use of grass or oat hay is often more palatable to calves than alfalfa or rations high in grain. If the basic ration is chopped, then scattering some long-stemmed hay over the top of the feed may help attract them to it and help them start eating. Many producers prefer not to use silage in the ration for the first 7-14 days and feel the calves adapt better than to rations with silage. Weaned calves will need relatively high levels of energy to replace the milk they are used to in order to keep them gaining. They will soon need a concentrate in the ration, in addition to the hays mentioned above. The amount of concentrate must be controlled carefully to prevent rumen acidosis.

   Creep feeding the calves prior to weaning will be a great aid in their adaption to feed. But the decision to creep feed should be based on practical and economic feasibility.

6. Dehorning – This is very stressful, especially if it leaves the horn sinus open or if there are flies present. It should be done at a younger age in almost all cases. If it has not been done prior to weaning, then it should probably wait until at least 30 days after weaning.

7. Castration – There is a growth benefit derived from intact males, but potential breeding problems and later stress offset the gains. It would usually be better to castrate at a younger age and then implant those calves. As with dehorning, if it hasn't been done prior to weaning, then it should probably wait until at least 30 days after weaning.

8. Deworming – Calves that have been grazing in permanent pastures or wet meadow areas may benefit from deworming. For the greatest benefit, discuss product selection and timing for use, with your veterinarian.

9. Close observation and early treatment – The calves must be observed at least 2-3 times a day for the first month. Any calves which are ill should be treated immediately, according to a preplanned protocol of products, selected after discussion with your veterinarian. For groups experiencing a high illness rate, consider taking rectal temperatures (in the morning) and treating all that are over 103.5 to 104 degrees F. Or, if the incidence is very high you may want to consider treating the entire group.

10. Vaccination – There are two major groups of vaccines that should be considered to assist weaning; those for clostridial diseases and those for respiratory diseases. Consult with your veterinarian about specific products and timing of administration.

    It is critical for producers to remember that vaccines which call for a second (or booster dose will usually NOT stimulate a protective level of immunity in that animal until 10-14 days after the second injection. The initial dose merely primes the immune system but gives very little protection. Producers continue to ignore that fact. The use of poorly timed vaccination programs result in a severely reduced level of herd immunity.

    Whatever vaccine and timing schedule is used, it is critical that vaccines be handled properly. Read and follow directions for refrigeration, reconstitution equipment sterilization, and avoiding sunlight and heat. Don't mix vaccines together that are not directed for mixing.

    Remember to observe guidelines to reduce injection site lesions. Use the subcutaneous route whenever possible and if the intramuscular route is needed, use the neck; don't inject into the top of the rump.

    For a successful weaning, implement a good general management program and utilize a sound vaccination system as part of that management program. **–Clell V. Bagley, Extension Veterinarian, Beef Newsletter, September, 1998. As reported in Veterinary Newsletter, No. 351, October 1998, University of Georgia, Athens, GA.**

NUFLOR TRIGGERS CHARM II

The FDA Center for Veterinary Medicine approved Schering-Plough's Nuflor® Injectable Solution on May 31, 1996. Since the approval date, numerous questions relating to the use of Nuflor on dairy farms have come to the attention of FDA.

Nuflor contains the new animal drug florfenicol. Florfenicol belongs to the same antibiotic family as chloramphenicol, but is chemically different and is not linked to human toxicity concerns. The FDA prohibited the use of chloramphenicol in 1984. Nuflor is not related to fluoroquinolone class of antibiotics. FDA prohibited the extra-label use of fluoroquinolones in May 1997.

The labeling for Nuflor bears the prescription (Rx) legend. Nuflor is intended for treatment of cattle pneumonia and shipping fever. Nuflor is labeled for use in all classes of cattle except female dairy cattle 20 months of age or older and veal calves. The product has a 28 day meat withdrawal period from the last treatment. The FDA has not established a milk discard time, tolerance or safe level for Nuflor in milk. If Nuflor is found on dairy farms stored on the non-lactating shelf, it must be labeled with the name and address of the prescribing veterinarian because it is an Rx product.

Currently there are no prohibitions under FDA's Animal Medicinal Drug Use Classification Act (AMDUCA) on veterinarians prescribing Nuflor for use in lactating dairy cattle. If prescribed for extra-label uses or if found on the lactating drug shelf on farms, the product must bear an extra-label by a licensed veterinarian that specifies; their name and address, directions for use and the veterinarian's prescribed withholding times for meat and milk, eve if zero, cautionary statements if needed, and active ingredients.

The Charm II chloramphenicol test is reportedly capable of detecting residues of Nuflor in milk at 25 ppb. If levels of Nuflor are present in milk to result in a positive on the official Charm Ii test, that milk is considered to be violative under the provisions of the PMO. Any residue of Nuflor in milk indicates the product was used in an extra-label manner. AMDUCA does not allow for any levels of Nuflor in milk because no safe or tolerance level has been established. Any positive screening test result conducted by the industry must be reported to the state regulatory authority for follow up.

THE TRUTH ABOUT THE SAFETY OF FEEDING POULTRY LITTER TO CATTLE

Recently the use of processed poultry litter as a feed ingredient for cattle has been challenged. Broiler litter has bee used for over 50 years as a feed with no major problems reported. It is usually used as a feed for stocker cattle or brood cows in poultry producing areas of the country, where it is of significant economic importance. It has also been used in feedlot rations in some areas, but not to the extent to which it is used in cattle not soon to be used for human consumption. Litter is never used n the diets of lactating dairy cows. The feeding of litter is regulated on a state by state basis by state feed control officials.

Ruminants are ideally suited to using byproducts and waste products as feeds because of their unique stomach (the rumen) where feed is exposed to microbial fermentation before passing on to the rest of the digestive tract for digestion and absorption. Ruminants, including beef cattle, have been fed byproducts, including processed poultry litter, for many years. Feeding litter to beef cattle is beneficial to many beef producers, and to society in general because:

- Feeding litter reduces the cost of producing beef.
- Feeding litter provides environmental benefits by giving litter added value to justify the cost of transporting it from areas of concentrated poultry production where soil nutrients are generally in excess, to nutrient deficient areas.
- Nutrient deficient areas can benefit not only from the feeding value, but also from the fertilizer nutrients dropped as manure from cattle consuming the litter.

Litter is composed of poultry manure, feathers, bedding and spilled feed, and is an economical source of protein, minerals, and energy. Like many byproduct feeds, some specialized management is needed for litter to be a useful feed. While litter does not contain *E. Coli* 0157:H7 (the pathogen of most recent concern in the beef industry) poultry do shed pathogens such as *Salmonella*, and they are sometimes present in fresh unprocessed litter. The U.S. poultry flock could also eventually contract *E. coli* 0157-H7), so its potential presence in litter in the future should not be ignored.

Review of the literature on feeding broiler litter indicates that it is one of the most researched byproduct feeds used, and that it is a safe feed for both the cattle and consumers. Based on scientifically sound research, and many years of experience, there is no reason to fear the use of processed broiler litter as a feed. Publications guiding producers on the safe and economical use of broiler litter in beef cattle diets are available from several states.

This article was reviewed by university beef cattle nutritionist from the major states using broiler litter as a feed for cattle. **–as reported in Livestock Newsletter, January/February 1998.**

TAKING TIME-OUTS

If your muscles begin to tense during herd fertility examinations and procedures, do you stop to give yourself a break? You should. Fertility examination can put veterinarians at risk because they involve many repetitive motion tasks, which can result in injury.

A study performed by the Denmark National Institute of Occupational Health showed interesting results when testing workers who performed repetitive motion tasks. The study showed that muscle fibers will remain fully active in the shoulder after the work has been done, causing pain to occur. This can lead to a shoulder injury since the pain might be easily ignored. However, a shoulder injury can be prevented if periodic breaks are taken between examinations.

The recovery period for shoulder muscles is much longer than other muscle groups because shoulder muscles are used more frequently than other muscle groups. Even when you use your hand or arm, the muscle fibers in your shoulder are at work. Your shoulder muscles will remain 95 percent active after you have finished performing a job, while your arm muscles remain only 66 percent active after the job is finished.

Muscle injuries are likely to occur regardless of whether workloads are heavy or light. Consider taking periodic breaks when your muscles become tired during examinations to allow them to recuperate. This will reduce your chances of injury. **–as reported in AVMA/PLIT – Safety Buletin Vol 6#3; Summer 1998.**

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