

VIRGINIA COOPERATIVE EXTENSION SERVICE

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THE FOOD ANIMAL VETERINARIAN

VIRGINIA-MARYLAND REGIONAL COLLEGE OF VETERINARY MEDICINE



Fall 2002

No. 27

Dear Food Animal Practitioner,

Last year the Academy for Food Animal Practice met in Blacksburg for their annual meeting jointly with the Food Animal Practice Club from the College of Veterinary Medicine. This year the meeting will be held jointly with the Virginia Veterinary Medical Association at the Hotel Roanoke. Many thanks to Dr. Lisa Miller, current President of the VVMA, and Robin Schmidt from VVMA for putting together a very good deal for food animal practitioners that will provide high quality CE at a very reasonable rate, and will also allow the Academy to continue on a sound financial footing.

The joint Academy/VVMA meeting will be held on February 7 and 8, 2003. It will provide 15 hours of CE. Our beef speaker is Dr. Grant Dewell from Colorado State. Dr. Roger Saltman from New York will talk about lowering somatic cell counts and the Hundred Day Contract Management program. Dr. Ricardo Rosenbusch from Iowa State is a distinguished expert on mycoplasma infections in cattle and will talk about diseases in both beef calves and dairy cattle. If you've been dealing with mycoplasma in cows Dr. Rosenbusch is the US expert on the subject. A number of local speakers will also participate. Please put the dates on your calendar.

The downtrend in the US economy is certainly having its influence on all of our lives. Beef cattle prices, predicted to be at their high now, are low to moderate. Milk prices, adjusted for inflation, are at all time lows. It's discouraging to look at your investments. The Governor outlined huge budget cuts on top of cuts that were already significant for Virginia Tech. Is there a future for all of us? I believe so but obviously we must adapt. Now's the time to look for ways to make our practices more efficient and offer the best, cost-effective services to efficient clients. I attended a seminar at AABP in Madison on the Future of Food Animal Veterinary Practice. The message I took away is that times are changing. There are great opportunities for those willing to change with them!

Sincerely,

W. Dee Whittier, DVM
Extension Veterinarian



VIRGINIA POLYTECHNIC INSTITUTE
AND STATE UNIVERSITY

This newsletter is published quarterly in support of the outreach program of the Veterinary Teaching Hospital VMRCVM, Blacksburg, VA and is prepared for and distributed to veterinarians in the Mid Atlantic Region.

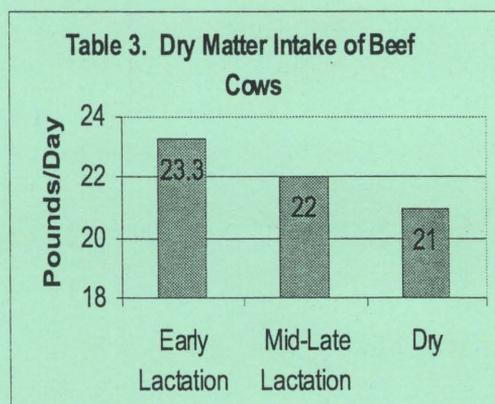
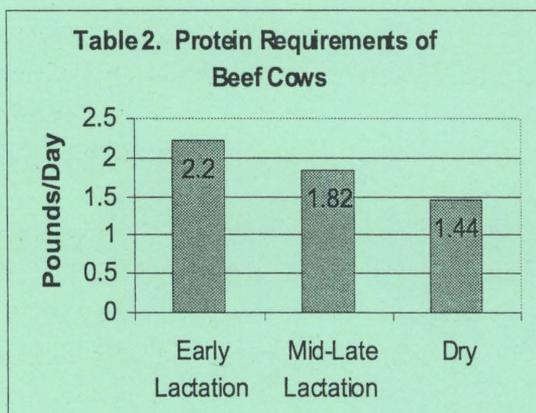
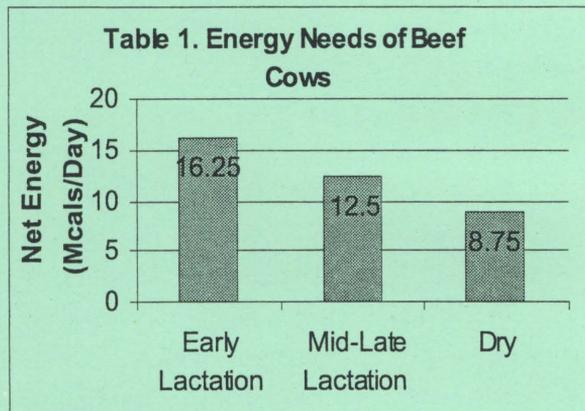
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“Beats a Snowball” or How to Manage Cattle Through Fall and Winter in Drought Conditions

This year has brought even more variable weather through the state of Virginia than normal. Many farms are suffering from severe drought while others are having adequate rainfall. There are a number of things that producers can do to stretch resources. This is the first in a series of articles intended to help producers better manage their forage and cattle, including strategies to optimize use of grass and harvested forages. The areas to be covered include: early weaning, hay storage, by-products to feed to cows and calves, pasture management, hay purchasing, cow culling, and pregnancy testing.

One of the first things recommended in a drought year is early weaning of calves. This is helpful because it decreases the protein and energy demands on cows by about 30% (see Tables 1-3). However, early weaning of calves can also have serious drawbacks. First, if calves must be sold they will be lighter in weight and bring less total dollars than they would in a typical year. This may worsen cash flow problems and make it more difficult to purchase feedstuffs to get cows through the winter. Second, if calves are weaned and kept on the farm, they will have to be fed. Unless you intend to feed them significant amounts of purchased feedstuffs, they will be eating much of the grass, hay, or other feedstuffs that the cows will need to get through the winter. These calves are an excellent place to use purchased feedstuffs. Rations for these calves should be formulated to reduce cost of gain and keep on-farm forage consumption to a minimum. If calves are going to be kept after weaning, they should stay for a minimum of six weeks. This time period ensures the calves will have enough time to get over the stress of weaning and will have gained sufficient weight to make early weaning a profitable venture. While some marketing programs pay premiums for weaned calves, these premiums are not consistent and will not be received if calves are sold in commingled groups with other farmers' calves that have not been treated similarly. In order to make early weaning



work, gain must be put on cattle cheap enough to be profitable without these premiums.

John F. Currin DVM, Clinical Instructor / Extension Veterinarian, Va-Md Regional College of Veterinary Medicine, Va. Tech. Blacksburg. VA

Bloody Gut/Hemorrhagic Bowel

A disease called Bloody Gut or Hemorrhagic Bowel has been seen much more often in recent years all across the U.S., including Utah. Producers need to be aware of it and take measures to prevent it if diagnosed in their dairy operation. It is most often associated with total mixed ration (TMR) feeding, but not exclusively.

Hemorrhagic Bowel affects adult dairy cattle at all stages of lactation, during the lactation period and may appear with one of several different signs. These signs range from not doing well, to downer cow, to bloody diarrhea, to very sudden death. The one consistent finding is that at necropsy there is a Hemorrhagic intestine with a section filled with bloody fluid or even a large blood clot. Because of the variety of signs, if dead cows are not necropsied, the dairyman may not be aware this problem is occurring in his dairy.

The exact cause has not yet been determined but the accumulating information indicates that it is due to a combination of factors and not just one agent. When high levels of grain are being fed, too much of it reaches the intestine too quickly. This in turn allows the bacteria *Clostridium perfringens* type A, which is normally present, to grow rapidly and produce a toxin. The grain load may also reduce gut motility and aid in providing the ideal environment for the bacterial growth. The toxin produced then affects the animal and the signs shown depend on the rate of production, absorption, etc., of the toxin. The presence of this bacteria may or may not be part of the development of the disease; that remains to be determined but it appears that it is likely involved. This disease development process is very similar to that for enterotoxemia or overeating disease. The *Clostridium perfringens* Type A is closely related to the *Clostridium perfringens* Types C and D which cause enterotoxemia.

Other events may also contribute to the development of this disease. Haylage has been implicated, especially if it is of poor quality. On some affected dairies, high numbers of clostridial organisms have been present in this type of silage. Even grass silage, along with feeding high rates of grain has been implicated. The feeding of corn silage within a very short time after ensiling (one week) has also been implicated in some herds. The physical form of the grains may also be a factor with the fine ground type passing through the digestive tract more quickly than those that are rolled or flaked.

As this disease has been investigated, it has become more apparent that individual cows are able to select their own diet by sorting and feed selection. They are much better at it than we had previously realized. This selection ability allows individual cows to select from the ration for specific feeds and can result in individual acidosis. Rations high in grains increase the likelihood of sorting and thus cow susceptibility to Hemorrhagic Bowel syndrome.

Treatment of cows affected with this syndrome has not been very successful, partly because it progresses so rapidly. Some cows have recovered after heavy, early doses of antibiotic. The use of *Clostridium perfringens* antitoxin may be of some help. The use of large volumes of kaolin and pectin products orally may also be of benefit. A few cows have responded to early abdominal surgery, which permitted intestinal massage, along with the use of antibiotics, IV fluids and intestinal cathartics. Still another few cows have survived after surgical resection of the affected portion and rejoining of the healthy intestine.

Prevention is the key to at least reducing the numbers affected. The critical control points for prevention are to increase the forage and the forage NDF while at the same time decreasing grain intake. This does tend to reduce milk production slightly, but that has been a willing trade-off for some affected dairies. The guidelines most commonly recommended currently are for a minimum of 40% forage in the ration and for at least 20 to 22% of the NDF to come from forage. If the forage NDF drops below 20%, the problem seems to re-appear. If the dairyman and nutritionist feel the ration eaten is within these

guidelines, then other factors should be investigated. These include the feeding of haylage (especially lesser quality or contaminated with soil/clostridia), the physical form of the ration which allows easier sorting, high grain corn silage, high moisture corn and readily fermented small grains. Cow discomfort or lack of stall space may be factors that encourage "slug feeding" of some cows. If feed is mixed and then allowed to sit in the feed wagon for several hours before being fed, it may allow an increase in the number of clostridial organisms present. Potential problems with any of these should be identified and changed.

The routine use of a forage particle separator will allow monitoring for physical fiber and feed consistency along the bunk along with sorting. More frequent feed push-up may reduce sorting.

Vaccines have been used with very mixed results. Some producers have just increased the frequency of use for the seven or eight way clostridial vaccines they had already been using. Others have added booster doses every 4 months of *Clostridium perfringens* type C & D. Others who have had the *Clostridium perfringens* type A organism isolated from cows which died on their dairy have had an autogenous vaccine prepared and used it. Again, some of each of these vaccines have seemed to help in some herds but have not in other herds. These clostridial organisms are all closely related. But, it still remains to be determined as to what specific toxin is involved and how to produce a vaccine that will stimulate a strong level of immunity against that specific toxin. Until then, prevention will come primarily by management of the ration.

Clell V Bagley, D.V.M., Extension Veterinarian, as reported in Utah State University Extension Newsletter, September 2002, Logan, UT

Effects of Vaccination Prior to Transit and Administration of Florfenicol at Time of Arrival in a Feedlot on the Health of Transported Calves and Detection of *Mannheimia haemolytica* in Nasal Secretions

This study was conducted to determine effects of vaccination prior to transit and prophylactic administration of florfenicol at time of arrival at a feedyard of 121 and 84 steers from Tennessee and New Mexico, USA, respectively, and colonization of the nasopharynx by *M. haemolytica* (MH). Half of the steers were vaccinated before transport to a feedyard. Steers from Tennessee were vaccinated with MH bacterin-toxoid, and steers from New Mexico were vaccinated intranasally with modified-live leukotoxin-deficient MH. Half of the vaccinates and nonvaccinates were randomly selected to receive florfenicol on arrival at the feedyard. Steers were observed daily for respiratory tract disease (RTD). Administration of florfenicol at time of arrival reduced the incidence of RTD, delayed the interval before onset of RTD, and reduced the incidence of MH colonization of the nasopharynx for at least 4 days, but vaccination did not have any effect. Vaccination elicited an increase in serum antibody titres to MH. Administration of florfenicol at time of arrival reduced the development of serum antibody titres in intranasally vaccinated steers and both groups of nonvaccinated steers, but intranasal vaccination did not affect colonization by wild-type MH. Administration of florfenicol at time of arrival decreased the incidence of MH organisms in the nasopharynx and delayed the onset of RTD. Prophylactic use of suitable antibiotics is likely to reduce the incidence of acute RTD in calves for several days after arrival at feedyards, which is the period when they are most susceptible to infectious organisms.

G. H. Frank, R. E. Briggs, G. C. Duff, R.W. Loan, C.W. Purdy American Journal of Veterinary Research, 2002;63:2:251-256, as reported in Animal Health Spectrum, Mississippi State University, Volume 13 No. 3, Fall 2002

Thought for the Month

Growing old is mandatory; Growing up is optional

K.C. Roberts

Effects of Management, Feeding and Treatment on Clinical and Biochemical Variables in Cattle with Displaced Abomasum

The objective of this study was to determine the effects of management, feeding, and treatment on clinical and biochemical variables in cows with displaced abomasum (DA).

In this study, 374 cows received 470 treatments for DA.

Blood and milk samples were obtained from 139 affected cows for analysis; for all cows, clinical data, management, feeding, and treatments were evaluated.

Multiparous cows were more predisposed to DA than primiparous cows were, and Swedish Friesians were more predisposed than Swedish Red and Whites were. Eighty percent of cows had left-sided DA, and 20% had right-sided DA. In > 50% of affected cows, clinical signs appeared just before calving to 2 weeks after calving. Incidence of twin calves and periparturient diseases was significantly higher in affected cows than in the overall Swedish cow population. Content of neutral detergent fiber in the silage was low in herds with DA. Feeding a total mixed ration was a risk factor for DA. Treatment by surgical methods gave a significantly higher recovery rate than nonsurgical methods.

Displaced abomasum is a periparturient nutritional disease. Feeding roughage with low neutral detergent content is a more important causative factor than the amount of concentrates fed at the time of calving. The basic principle for prevention of DA is to maintain good ruminal filling before and at calving. The amount of high-quality roughage fed before and at calving should be kept to a minimum. By changing routines for periparturient feeding, it should be possible to reduce the incidence of DA.

L. Stengarde, B. Pehrson, *American Journal of Veterinary Research*, January 2002, Vol.62, 1SQ. 1, pp. 137-142, as reported in *Utah State University Extension Newsletter*, September 2002, Logan, UT

Cost of Reproductive Problems in Cattle

In a collaborative study by USDA and Purina Mills scientists state and national reports were summarized to determine the cost of reproductive problems in beef and dairy cattle in the U.S. For beef cattle, total costs were estimated to average \$14.90 per cow per year. Following is the percentage breakdown by problem.

- Abortions and stillbirths 12.8%
- Retained placenta 0.2%
- Metritis and pyometra 0.3%
- Female infertility 49.8%
- Dystocia 37.0%

It was noted that losses from reproductive problems are six times higher than those from respiratory diseases. As shown above, infertility and dystocia account for well over 80% of the losses. The authors concluded from this study that focusing on strategies to improve the probability of conception, minimize dystocia, and produce a healthy calf that survives beyond the first 24 hours of birth must continue to receive high priority in both beef and dairy management.

Bellows et al. 2002. *Prof. Anim. Scientist*.18(1): 26, as reported in *Utah State University Extension Newsletter*, August 2002, Logan, UT

Effects of Florfenicol Injection in the Meat Characteristics of the Cervical Muscles in Cattle

The objective of this study was to determine the effects of florfenicol injection on the meat characteristics of the cervical muscles in cattle.

The study included 100 steers with a mean weight of 380 kg.

In 50 calves, florfenicol (25 ml, twice) was injected into the cervical muscles of one side of the neck, and saline (0.9% NaCl) solution (25 ml, twice) was injected into the cervical muscles of the other side of the neck. In the remaining 50 calves, florfenicol was injected into the cervical muscles of one side of the neck, and nothing was injected into the cervical muscles of the other side of the neck. Animals were slaughtered 132 days later, and samples of the cervical muscles were submitted for histologic evaluation and measurement of sheer forces.

Two injection sites used in the present study had extensive lesions, and both of these were sites where florfenicol had been injected. However, histologic scores for the florfenicol injection sites were not significantly different from scores for the contralateral Saline solution injection sites and uninjected control sites. In addition, shear force values were not significantly different between sites in which florfenicol had been injected and the contralateral sites.

Results suggest that few reactions should be expected with injection of florfenicol into the cervical muscles in steers and that reactions that do occur will consist mainly of fibrosis and infiltration of adipose tissue. However, shear force values, a measure of tenderness of the meat, should not be affected.

L. Hawkins, L. Periono, G. Kennedy, M. Dikeman, D. Cole, American Journal of Veterinary Research, Jan., 2002, Vol.63, No. 1, pp. 64-68, as reported in Utah State University Extension Newsletter, August 2002, Logan, UT

The Effect of Manual Forestripping on Milking Performance of Holstein Dairy Cows

The objective of this study was to evaluate the effects of forestripping as a premilking stimulation technique on milk yield, milking unit attachment time, and milk flow rates in Holstein dairy cattle. Multiparous Holstein cows (n=24) were divided into two groups (HPE, high producing, early lactation; LPL, low producing, late lactation) based on prestudy milk yield and stage of lactation. Within the production group cows were randomly assigned into treatment (n=6) and control groups (n= 6) in a switchback design. Cows were milked twice daily and treatments were switched after 20 milkings. Premilking udder preparation for the treatment group was as follows: forestripping, predipping with 0.5% iodine, and drying with paper towels followed by unit attachment. Udder preparation for the control group was identical except forestripping was not performed. Data were analyzed using the PROC Means and PROC Mixed models described by SAS. During the study, cows in the HPE group produced significantly more milk and had longer milking unit attachment times compared with cows in the LPL group. The milk flow rate was 0.36 kg/min faster for the HPE cows compared with the LPL cows. There was no significant effect of order of treatment administration on any outcome variable. There were no significant differences in milk yield, milk unit attachment time, or milk flow for animals that were forestripped compared with animals that were not forestripped. In this study, the addition of forestripping to an otherwise acceptable premilking udder preparation routine did not increase milking performance of multiparous Holstein daury cows.

A.M. Wagner and P.L. Ruegg Journal of Dairy Science, April 2002, Vol. 85, No. 4, pp. 804-8G9, as reported in Utah State University Extension Newsletter, September 2002, Logan, UT

Efficacy of Intramuscular Treatment of Beef Cows with Oxytetracycline to Reduce Mastitis and to Increase Calf Growth

Spring-calving multiparous Angus x Hereford cows were used to determine the efficacy of intramuscular treatment with oxytetracycline to reduce the incidence of mastitis-causing bacteria, decrease milk somatic cell counts (SCC), and increase calf growth. During 2 years, milk samples were collected from each quarter from a total of 319 cows at 8 to 14 d after calving and at weaning, to determine the presence of bacteria and SCC. A California mastitis test (CMT) was performed on milk from each quarter of each cow at the initial sample collection. Cows with a CMT score of 1, 2, or 3 in at least one quarter, were randomly assigned to receive either an intramuscular injection of oxytetracycline (n= 63) or the control vehicle (n = 60), and cows with a CMT score of 0 or trace in all four quarters were not treated (n = 196). Calf weights were determined at birth, early lactation, and weaning. The number of somatic cells in milk and the percentage of quarters that were infected increased as CMT score increased. The presence of mastitis-causing bacteria at calving increased the incidence of infection at weaning. The presence of mastitis-causing bacteria at weaning was associated with increased SCC for quarters and average SCC for cows. Average SCC per cow at weaning increased as the number of infected quarters per cow increased. Treatment did not alter the percentage of cows or quarters infected with mastitis-causing bacteria or SCC of cows or quarters at weaning. Average SCC per cow was negatively correlated with calf weights at early lactation, but not with weaning weights of calves. Treatment did not influence calf weights at early lactation or at weaning. Cows with one or more dry quarters after calving had calves that weighed less at early lactation and weaning than cows with four functional quarters. Intramuscular oxytetracycline treatment of beef cows that had CMT scores of 1 or greater after calving did not reduce intramammary infection rates or increase calf weights at weaning.

C. A. Lents, K.P. Wettemann, M. J. Paapet, J. A. Vizarra, M. L. Looper, D. S. Buchanan, and K. S. Lusby, Journal of Animal Science, Vol. 80, No. 6, pp. 1405-1412, June 2002, as reported in Utah State University Extension Newsletter, August 2002, Logan, UT

Effects of Pair Versus Individual Housing On the Behavior and Performance of Dairy Calves

This study compared the health, performance and behavior of individually and pair-housed calves fed milk ad libitum by artificial teats. Calves were separated from their dams within 24 hours of birth and assigned to housing in either a single pen (10 calves) or a group pen (10 pairs of pair-housed calves). Calves were gradually weaned at approximately 5 weeks of age and remained on the experiment until week 8. Before and after weaning, calves gained weight steadily with no differences between treatments. During the week of weaning, pair-housed calves continued to gain weight normally, but the individually housed calves experienced a growth check. There were no differences between groups in the amounts of milk, starter or hay consumed, or in the incidence of scouring. There were also no differences in the amount of time spent self-grooming, sucking on the teat or lying down. However, pair-housed calves spent more time standing inactive, more time moving, and less time with their head out of the pen than individually housed animals. Paired animals spent approximately 2% of the day in social contact, and the incidence of antagonistic behavior and cross-sucking were very low. These results indicate that housing dairy calves in pairs allows benefits such as increased space for movement and social opportunities with no disadvantage in health and weight gain.

B. Chua, E. Coenen, J. van Delen, D. Weary, Journal of Dairy Science, February 2002;85:2:360-364, as appeared in AABP Newsletter, May 2002, as reported in Animal Health Spectrum, Mississippi State University, Volume 13 No. 3, Fall 2002

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