

THE FOOD ANIMAL VETERINARIAN

VIRGINIA-MARYLAND REGIONAL COLLEGE OF VETERINARY MEDICINE



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No. 5

VPI Publications

Dear Food Animal Practitioners:

Just a note about some Food Animal Veterinary happenings in Virginia. 1) Thanks for all your support of the Respiratory Symposium at the Virginia Beef Industry Convention. By my count, there were approximately 28 practicing veterinarians in attendance. Your attendance in force in this meeting was a great demonstration to the Beef Cattle Industry of your interest and dedication to their problems. Hope you enjoyed Dr. Jordan's presentation. 2) In late February, a group got together in Lynchburg to discuss the conception rate problem in Virginia dairies. The meeting was set up at the suggestion of Dr. Don Gardner with Dr. Ray Nebel and Dr. Dick Saacke from the Dairy Science Department in attendance. Dr. Nebel's figures confirmed the fact that conception rates in Virginia have indeed dropped. Dr. Saacke discussed some possible scenarios where semen usage and quality could be contributing to this. Other people had interesting ideas about causes of the problem and potential solutions. This item will be on the agenda for the Academy business meeting on May 12. 3) Attendance at the Food Animal session of the VVMA meeting in Williamsburg in February was exceptional. Dr. Andy Johnson was the guest speaker and gave excellent presentations. Some interest has been expressed in having Dr. Johnson do his two-day milk quality mastitis program in Virginia. It has been suggested that this be in connection with the Academy meeting in May of 1991. We will need a commitment from people well in advance. Please let Randall Hinshaw or me know if you would be interested in participating in this event. 4) The annual Academy continuing education meeting will be held on May 12 at the Red Carpet Inn, Waynesboro, Va. A copy of tentative program is on page 6. 5) At this writing, we have recently been involved with a severe outbreak of Salmonella in a beef cow herd in Northwestern Bath County. Of 91 cows, 32 cows and 50 calves have died. It appears that the source of infection was a pond heavily used by migratory water fowl. Our treatments have not been overly successfully. I thought some of you would be interested and this might serve as an incentive to discourage access to such ponds.

Hope all is going well for you in your practices.

Sincerely,

W. Dee Whittier, DVM
Extension Veterinarian

ACCURACY OF OVARIAN PALPATION

Most dairy practitioners spend a large portion of their time palpating the reproductive tracts of cows. During the course of a per-rectum examination, an attempt is often made to identify important ovarian structures and to determine the functional status of those structures. Accuracy of palpation for the identification of corpora lutea, follicles and ovarian cysts has been assessed by visually examining ovaries of cows slaughtered immediately after palpation. From such work, we can conclude that most veterinary clinicians, with appropriate training and clinical experience, can correctly identify approximately 85 percent of primary ovarian structures.

Determining the functional status of primary ovarian structures is somewhat more difficult. The accuracy of palpation for determining the functional (progesterone-secreting) status of a corpus luteum (CL) has been assessed utilizing progesterone determinations in blood and/or milk. Critical review of this literature would suggest that the sensitivity (correctly predicting the presence of functional luteal tissue when it is truly present) ranges from 70 percent to 89 percent and the specificity (correctly predicting the absence of functional luteal tissue when it is truly absent) ranges from 50 percent to 82 percent. Practically, if a veterinarian is seeking to identify cows that should be treated with a luteolytic agent such as prostaglandin F_{2a} (PG), this means that 10 to 30 percent of functional (prostaglandin-responsive) CLs are being missed and that 20 to 50 percent of cows with nonfunctional CLs are being treated with prostaglandin and yet have no chance of responding to the treatment. When this is compounded by a response rate to PG treatment of no more than 90 to 95 percent at best, and an estrus detection rate of about 50 percent in most dairy herds, it should not be surprising that aggressive prostaglandin programs fail to markedly improve reproductive performance in many dairy herds. The failure of cows to be bred within five days of prostaglandin treatment is not to be blamed on product failure or poor estrus detection alone, but part of the blame rests with veterinarians, in the selection of inappropriate candidates for treatment.

Should experienced clinicians be upset or even surprised that the accuracy of rectal palpation for determining the presence of functional luteal tissue is so variable and relatively poor? The answer to that question is, "no". Consider the analogous situation in which anyone could reach into a paper bag and identify an apple by palpation, but when asked to describe that apple as either tart or sweet, that same person would usually require more sensory input, in the form of taste, to make a definite determination. It is not unreasonable to expect one to accurately identify primary ovarian structures, but it is less realistic to expect an accurate prediction of the structure's functional status (as reflected by the progesterone level in blood or milk) based on palpation alone.

Mistakes in identifying functional ovarian structures occur frequently and can be made at two stages; occasionally in the identification of an ovarian structure and more frequently in the prediction of the functional status of that structure. It has been reported that size and shape of corpora lutea are not closely related to their functional status. These results support the premise that palpation alone is not sufficient to allow accurate prediction of the presence of functional luteal tissue. Some measure of progesterone level is needed as a

measure of the functional status of ovarian structures. Several authors have stated that it is best to predict stage of estrous cycle, using a combination of palpation findings, historical information, diligent estrus detection and recording, and progesterone profiles.

Prediction of the stage of estrous cycle may be greatly aided by information about the concentration of progesterone in blood or milk. Plasma progesterone concentrations are maintained above 5 ng/ml during diestrus, decrease during proestrus and remain below 1 ng/ml from about 3 days before estrus to 3 days after estrus. Levels rise during metestrus, paralleling the development of the corpus luteum. Recent development and commercial production of rapid enzyme immunoassays for progesterone in blood and milk have allowed this information to be more readily and rapidly available to the veterinary practitioner. Results from a recently completed study indicate that a qualitative enzyme immunoassay is slightly more sensitive and significantly more specific than a single rectal palpation in determining the presence of functional luteal tissue in subestrus dairy cows.

The usefulness of rectal palpation as an important tool in the reproductive management of cattle is not being disputed. Careful palpation is necessary for the identification and treatment of many reproductive disorders. It is high time, however, that we realize that our expectations of our palpation skills are unrealistic. Just as we rely on culture results or differential staining techniques to help identify and classify mastitis pathogens, we should utilize available tests and technology to help determine the functional status of ovarian structures. Weighing the costs and benefits of the added knowledge may be necessary in order to decide whether or not this accurate knowledge is cost-effective. Nonetheless, we must also realize that rectal palpation alone will not give us all of the answers that we seek with respect to the functional status of structures on the bovine ovary. --Dr. David F. Kelton, Ontario Veterinary College, University of Guelph, in Penn State University Herd Health Memo, DEC 89.

PRACTICE TIPS - BOVINE CERVICAL/UTERINE PROLAPSE

To assist in the replacement of a cervical or uterine prolapse of a heifer or cow, a sterilized baton is useful. One end of the baton is inserted at the distal end of the cervix or uterine horn. While holding the other end of the baton, constant pressure is applied by pushing on the baton. Simultaneously, the prolapsed organ is inverted at the distal end using the baton and at the vulva using the hands. After replacement, the baton is useful for complete inversion of the uterine horns by continually pressing the baton anteriorly through the vagina and cervix.

To prevent recurrence of the prolapse, a sterilized long neck bottle, such as wine bottle, is useful. The bottle is placed in the vagina with the top end of the bottle reaching the cervix and the bottom end at the vulva. With the vulva closed with umbilical tape, the bottle presents the cervix and uterus from prolapsing into the vagina when the cow or heifer strains. After the female has healed and is not straining, the bottle is removed when the tape is removed. If the tape was placed to be sloughed, the bottle will be expelled on its own. --F.C. Faries, DVM, MS, Texas Agriculture Extension Service, The Texas A&M University System, College Station, Texas. Veterinary Quarterly Review, Vol. 5, Winter 1989-90.

PRE-DIPPING IN THE REAL WORLD

Pre-dipping of teats has become a widely accepted practice for udder preparation in the past few years. Studies undertaken at the University of Vermont by Pankey et al., and at Cornell University by Galton et al. showed that pre-dipping reduced the new intramammary infection rate of environmental origin by 50% when compared to washing and drying the teats with individual paper towels. However, to achieve these results it is necessary to follow a specific set of procedures:

- ** The teats must be visibly clean prior to pre-dipping. If teats are dirty, they should be washed, using individual paper towels before pre-dipping.
- ** Teats should be dipped to their base on the udder. To be the most effective, ALL the skin of the teats must be covered with the disinfectant.
- ** The sanitizer must stay on the teats for at least 20 seconds to achieve maximal bacteria kill.
- ** 15 seconds should be spent drying the teats, both to remove dirt and the disinfectant from the teats, and to help stimulate milk letdown.

The time required to pre-dip teats properly is about 40 seconds per cow, of which about 20 seconds is actively spent with each cow. We have been observing in the field that **VERY FEW** milkers, who feel that they are "pre-dipping", come anywhere near the proper procedures discussed above.

Free-stall barns have been greatly improved in western New York over the past 10 years. Great strides have been made in stall design, cow flow patterns, ventilation and feeding systems. As a result, not only do cows produce more milk, they are also cleaner than they were in the past. This, of course, makes udder preparation easier, and in many cases washing is not necessary on the majority of the cows before pre-dipping. Field experience again shows that even in very well managed farms, when a dirty cow does come into the parlor, she is not washed before pre-dipping. The milkers are under the mistaken opinion that the pre-dip sanitizer will somehow penetrate and kill all of the bacteria in the dip and manure, and on the skin. Conversely, disinfectants are rapidly inactivated by dirt and organic material, and cannot penetrate to the skin if any significant dirt is on the teats.

Sprayers for teat sanitization have become common in parlors. While these units have the advantage of being less likely to become contaminated than do dippers, our observations are that fewer than 20% of milkers achieve full coverage of the teats with the pre-dip disinfectant. It should be noted that about 5 seconds/cow are needed to achieve complete coverage of the teats.

Regardless of what sprayers or dippers are used, the amount of time that a sanitizer stays on the teats is usually adequate because typically all of the cows on a side are pre-dipped, drying started afterward. Another problem comes with drying of the teats. Most milkers **DO NOT** spend more than 3-5 seconds drying teats on each cow. This leads to less than clean teats, possibly with disinfectant residues still on the teats, and less than desirable stimulation of milk letdown. This lack of stimulation may be more important in low milk production

cows, especially where 3 times-a-day milking is done. When a relatively low volume of milk is present in the udder, insufficient pre-milking udder stimulation may lead to little milk being released early in the milking process. Thus, certain automatic take-off milking units are removed from the cows, and must be reattached to avoid cows under-milking.

These problems in the pre-dipping procedure put all cows at greater risk of contracting new intramammary infections of environmental origin. We have also linked high bulk tank bacteria counts to poor pre-dipping, particularly in herds which milk for more than three hours.

Pre-dipping can be an important component of a good mastitis control program, but it is only effective when done correctly. --Quality Milk Newsletter, NYS Mastitis Control Program, Ithaca, New York, Fall 1989 as published in Utah State University Veterinary Newsletter, DEC 89.

LUNGWORMS AND CATTLE

One parasite which is frequently overlooked by producers, veterinarians and university personnel associated with animal science or veterinary medicine, is the lungworm of cattle, Dictyocaulus viviparus. Major reasons for the oversight are the sporadic nature of disease episodes from one year to the next and the fact that clinical signs of lungworm may be confused with more commonly occurring bacterial and viral pneumonias (shipping fever). Of central importance in the case of the lungworm, is the severity of disease that can result from heavy infections in young susceptible cattle before the problem is recognized and appropriate treatment and management can be instituted. Infection occurs in both cool and warm temperate regions on a worldwide bases. Presence of infection in a herd, as well as disease, have been most commonly observed during moist and cool conditions of winter to early spring. Highest incidence of infection occurs in young dairy cattle over six months of age, but incidence can also be high in weanling and yearling beef cattle. Epidemiology of the parasite is not well known.

Fortunately, the lungworm is probably more susceptible to modern dewormers than most worm parasites in cattle. This fact alone may account for low or sporadic incidence of the parasite. All of the new dewormer compounds, including fenbendazole, ivermectin, and albendazole, are highly effective against lungworm, as is levamisole, which has been available for over 20 years. Appropriately timed worming treatments are essential for efficient cattle production in regions with a high incidence of internal parasitism. Depending upon treatment times selected by individual producers, the lungworm will likely be kept in check. In addition to the use of dewormers, management must be considered in lungworm infection. If infection or disease is detected, cattle should be treated and moved to pasture likely to be free of lungworm larvae. Care should be taken not to introduce the infection to premises when new cattle are acquired. Herd treatments in fall and spring, which are routine for many producers, should be adequate for preventing lungworm infections. In recent years, research in Louisiana has indicated that a three times per year treatment program can produce excellent weight gains and protection from worm parasites, including lungworm, in young beef cattle from weanling through yearling stage. Treatment times in this program are in the fall, during late February or early March and again during June or early July. --Drs. J.C. Williams and C.S. Eddi, Department of Veterinary Science, Louisiana Agricultural Experiment Station, LSU Agricultural Center, Baton Rouge, LA. AAVP News Brief, Vol. 1, Winter 1990.

DRY TREATMENT OF HEIFERS MAY PAY OFF

Dry treatment of pregnant heifers may pay off for dairy producers, according to Steve Nickerson, Louisiana State University. Nickerson and coworkers studies the incident of mastitis pathogens in the udders of 9 to 13 month old heifers and in the udders of heifers at freshening. "Our research showed the presence of staphylococcus infection in the quarters of more than half of the heifers studied," Nickerson says.

His study compared the incidence of mastitis-causing bacteria in pregnancy heifers that received a dry-cow treatment, versus those receiving no treatment. Results showed at 66.7 percent of the untreated heifers were infected at freshening, compared with 29.5 percent of the treated heifers. Treated heifers also produced core milk during the first 2 months of lactation than the untreated heifers.

Nickerson calculates that, at a cost of \$4-\$5 per animal, dry treatment of pregnant heifers may be a cost-effective management practice. "Because the infection is new, the response to prophylactic antibiotic is good," he explains. "Considering that heifers represent the future of the herd's milk production, preventing mastitis problems early makes a great deal of sense." --**Dairy Herd Management, December, 1989 as reported in Communications in CE, Hoechst-Roussel Newsletter, Feb, 1990.**

OPTIMAL TIME POSTBREEDING FOR PREGNANCY EXAMINATION IN DAIRY CATTLE

The objective of this study was to determine the relationship between calving interval and the interval from artificial insemination to pregnancy examination. Cows examined for pregnancy at 30 days or more days postbreeding were followed to determine the calving interval for cows examined at sequential intervals postbreeding (e.g., 42-44 days, 45-47 days postbreeding. Cows included in the study were from five large dairies in California, were presented for pregnancy examination from December of 1982 to April of 1983, and had a calving interval of from 290 to 530 days. All palpations were done by one of two experienced veterinarians. Calving intervals were significantly lower for cows pregnancy examined from 51-56 days postbreeding than for cows examined earlier or later. --**White, M.E., et al., Can Vet J, February, 1989, as reported in Communications in CE, Hoechst-Roussel Newsletter, February, 1990.**

TENTATIVE PROGRAM: VIRGINIA FOOD ANIMAL PRACTICE SEMINAR, MAY 12 - WAYNESBORO, VA.

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| 9:00 a.m. | Reproductive Herd Health Programs, Dr. Jenks Britt, Russellville, KY. |
| 10:00 a.m. | Nutritional Herd Health Programs, Dr. Jenks Britt, Russellville, KY. |
| 11:00 a.m. | Practice tips from outstanding Virginia practitioners: Dr. Richard Wilkes and Dr. John Welsch. |
| 1:00 p.m. | Herd Health Consulting and Getting Paid for It. Dr. Tim Jordan, North Carolina State University. |
| 2:00 p.m. | Processing Programs for Stocker Calves. Dr. Tim Jordan, North Carolina State University. |
| 3:00 p.m. | Practice Tip. Dr. Rod Miller. |
| 3:20 p.m. | Academy Business Meeting. |

IVOMEC DRENCH NOW AVAILABLE FOR SHEEP

Recently, Merck and Company, Inc. (Rahway, New Jersey 07065) began marketing a new drench formulation of ivermectin for control of gastrointestinal parasites and ceratin arthropods of sheet. The product, Ivomec Drench for Sheep, has been evaluated for efficacy in controlled trials in seven countries and shown to provide excellent control of 14 species of gastrointestinal parasite, lungworms and nasal bots. Safety trials conducted at the 220 and 400 microgram/kilogram body weight dosages have not revealed adverse reactions to the drug. As with other animal species in which Ivomec has been used, the drug has a wide margin of safety for sheep and may be administered to rams and pregnant ewes without affecting reproductive capabilities. Ivomec Drench for Sheep is compatible with other drug treatments commonly used at the time of deworming. These include arsenical dips, diazinon, and clostridial vaccines. The withdrawal period for sheep destined for human consumption is 11 days. The product is available as a clear liquid with viscosity similar to water and may be used with conventional drenching equipment. --Dr. Ed Couvillion, College of Veterinary Medicine, Mississippi State, MS, AAVP New Brief, Vol 1, Winter 1990.

TROUBLE-SHOOTING PROBLEMS WITH UDDER CONGESTION

- I. Most udder congestion or edema is related to the sharp drop in blood serum proteins close to freshening time.
 - A. Drop is closely associated with transfer of gamma globulins to colostrum.
 - B. Drop is usually more severe in animals calving for the first time than in subsequent lactations.

- II. Factors increasing incidence and severity of udder edema.
 - A. Protein deficiency - Common in dry cows or bred heifers.
 - B. Vitamin A deficiency - May be accompanied by high incidence of retained afterbirths and weak or stupid calves.
 - C. Excessive mineral intake.
 1. Check supplementary intakes via grain and free-choice supplements.
 2. Limit salt intake is necessary. Remove free-choice salt and reduce levels force-fed by 50% for dry and recently fresh cows, in bad situations.
 - D. Overfeeding grain prior to freshening - Limit grain intake during dry period, not over 0.5-0.8% of body weight.
 - E. Anemia: Check whole blood samples.
 - F. Poor circulation: Due to weak or broken udder attachments and support.
 - G. Pre-milking before calving - May still be necessary in cases of bad udder support to prevent breakdown.

- III. Check feeding programs, especially for dry and recent-freshened cows as well as bred heifers.

- IV. Take corrective measures to control problems, and treat when necessary with recommended diuretics. --Veterinary Newsletter, Utah State University, Logan, Utah, January, 1990.

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