APRIL 2019

Newsletter

AMERICAN ASSOCIATION OF BOVINE PRACTITIONERS

1130 East Main St., Ste.302
Ashland, OH 44805

1-800-COW-AABP (269-2227)
FAX: 419-496-0697

Email: aabphq@aabp.org
Website: https://aabp.org

THE PRESIDENT'S MESSAGE
The Volunteer Spirit

"He has a right to criticize, who has a heart to help."
— Abraham Lincoln

What makes someone willing to leave their practice for three-to-four days, sacrifice practice revenue, leave families and commit valuable time to an organization? Loyalty, dedication and a commitment to AABP describe these individuals. The number of volunteer hours devoted to AABP each year is nothing short of inspirational.

We recently had our spring AABP Board of Directors meeting. Thirteen AABP district directors and seven executive committee members traveled to Fort Worth, Texas, on a Thursday and departed on Sunday. The business of running AABP requires many volunteer hours outside of these meetings with electronic voting, conference calls, review of documents and communication with members. AABP is comprised of 13 districts – two from Canada and 11 from the United States. These directors represent approximately 5,000 cattle veterinarians from diverse geographies and careers, including private practice, academia, industry, government and others.

During the meeting in Fort Worth, decisions (some difficult) were made that will impact and benefit the AABP for many years to come. Following are some examples of action items accomplished by your AABP Board of Directors:

- **Approved funding RACE approval for online CE.** Funding RACE approval for conference presentations (Annual Conference and Recent Veterinary Graduate Conference) was approved by the Board in 2018 and is a significant member service. The Board has now approved funding to apply for RACE approval for all future webinars and online CE.
- **Approved the 2020 Recent Veterinary Graduate Conference.** The initial Recent Veterinary Graduate Conference in 2018 was a highly successful launch and resulted in outstanding feedback from participants, yet failed to meet financial goals. The Board approved funding again for 2019. The 2019 meeting had increased attendance and was in the black. The Board recognizes the tremendous value of this event to our recent graduate membership and the future of AABP.
- **Approved the 2020 AABP Vice President candidates.** Dr. Sandra Godden and Dr. Bryan Halteman were approved by the Board of Directors as the AABP vice president candidates for 2020. They will continue the new tradition started in 2018 and speak to the membership at the Annual Conference in St. Louis.
- **Approved the new 501-C6 by-laws.** The move from a 501-C3 to 501-C6 tax status for AABP necessitated a new set of bylaws be approved for the new entity.

- **Adopted a new conference site protocol.** The AABP has followed a long-standing policy of moving the annual conference to one of three geographic regions each year. Historically, the central U.S. meetings are by far the most profitable. Although the meeting in Phoenix was highly successful and set a record for attendance in the western U.S., conference income was substantially reduced.

  Over the years, we have experienced the combination of consistently reduced attendance and higher costs in both the western and eastern states. The newly approved protocol does not preclude holding conferences in the eastern and western regions, but gives the Board the flexibility to select sites that are most likely to result in higher attendance and higher revenues for AABP. Site selections are approved six years in advance at the AABP Board of Directors meeting at the annual conference. A list of recommended site visits is approved at the spring Board of Directors meeting.
- **Appointed a new treasurer.** Dr. Bryan Halteman's term as AABP treasurer expires at the end of 2019. Dr. Brian Reed has accepted an appointment as the new AABP treasurer, beginning in 2020. This will be Brian's second round as treasurer. This position requires considerable time and financial expertise. We

are fortunate to have dedicated bovine practitioners with the financial skill set to serve in this position.

- **Approved the 2019 budget.** One of the most important functions of the Board is to approve the final budget. Prior to presentation and vote by the Board, many hours are put into developing the budget by the Finance Committee, treasurer, executive director and executive committee. The AABP Board of Directors treat the budget as if it was their own. Every line item is thoroughly reviewed and discussed.
- **Made the difficult decision to eliminate the Student Delegate program.** After evaluating the expense of the student delegate program ($40,000 per year) and lack of membership retention and AABP activity post-involvement, the Board made the difficult decision to cease funding for this program. Providing support to students is of the utmost importance to AABP and this will continue through our externship grants, education grants, scholarships, the Quiz Bowl and waiving the annual conference early registration fee. This will not change the role of the AABP faculty representatives.
- **Approved a dues increase to $180.** Despite an incredible array of new member services, dues have not increased since 2013. After careful review of organizational finances and future goals, the Board voted to increase member dues to $180.

In addition to these major action items, we conducted a considerable amount of other AABP business activities in a relatively short two-day time span.

This Board is highly functional, productive and made up of intelligent, dedicated, hard-working men and women. Differences of opinion are handled professionally, and the collegiality of this group is phenomenal.

The next time you see a member of the AABP Board of Directors, I hope you will consider thanking them for their service to cattle veterinarians through their leadership in AABP. There are many volunteer opportunities available within our great organization to serve. I hope many of you will consider running for district director, serving on a committee or seeking other volunteer options.

Dr. Glenn Rogers

FUTURE MEETINGS

American Association of Bovine Practitioners

2019	**St. Louis**	**September 12 – 14**
2020	Louisville	September 24 – 26
2021	Minneapolis	September 23 – 25
2022	Long Beach	September 22 – 24
2023	Milwaukee	September 21 – 23
2024	Columbus	September 12 – 14

World Association for Buiatrics

2020	Madrid, Spain	September 13 – 18

DISCLAIMER

The AABP does not take responsibility for information contained in or accuracy of the abstracts published in this newsletter.

ACTIVITIES AND ADVOCACY

The following are activities AABP leadership has been involved in for the benefit of members and the industry:

- AABP Spring Board of Directors Meeting, Fort Worth, Texas – Executive Director and AABP Board of Directors
- American Association of Swine Veterinarians 50th Annual Conference, Orlando Fla. – Executive Director

AABP NEWS

Honor Roll Members

Honor Roll members are those active members who have attained the age of 70 years and have maintained active membership for 25 or more years. Honor roll members are excused from paying dues and conference registration fees, but enjoy all rights and privileges of active members.

The following AABP members have been granted honor roll status at the AABP 2019 Spring Board meeting:

William Berry	Norm LaFaunce	James Roffan
Guy Catlin	Joe Lewis	John Schnackel
Paul Dubois	Richard Price	Ralph Walton
Reilly Glore	Dave Rhoda	David Waters
Dennis Hood		

RACE-approved Online CE from AABP Recent Graduate Conference Available

RACE-approved online CE from February's AABP Recent Veterinary Graduate Conference is now available to all AABP members through the Beef Cattle Institute (BCI).

On the AABP homepage at https://aabp.org, click on the BCI icon on the left side of the page. You must be logged onto the website to access the online CE.

AABP Genomics Webinar April 24

The AABP Genomics Committee will present another genomics webinar on April 24 at 4:00pm EST.

Lauren Osborn, Riverview Dairy, LLP and Wulf Cattle, LLP, "How to make the most of a beef on dairy strategy: The Riverview and Wulf Cattle experience". Join at https://global.gotomeeting.com/join/484739933. You can

also dial in using your phone. United States: +1 (646) 749-3112, then enter access code 484-739-933.
It is recommended to log on to the meeting 5-10 minutes before the scheduled start time, for a system check by visiting https://link.gotomeeting.com/system-check.

AABP Judicious Therapeutic Use of Antimicrobials in Cattle Guidelines Revised

The AABP Judicious Therapeutic Use of Antimicrobials in Cattle guidelines has been revised by the AABP Committee on Pharmaceutical and Biologics Issues and approved by the AABP Board of Directors March 2019. Find this and other AABP guidelines/position statements under the Home tab at https://aabp.org.

AABP Guidelines and Position Statements Open for Comment

AABP does scheduled, periodic review of AABP guidelines and position statements to ensure they are updated with the most current science and industry standards. The following guidelines and position statements are currently open for comment by AABP members**. You must be logged on to the AABP website to comment.**

Guidelines

- **Transportation Recommendations for Cattle – Comment period closes April 30, 2019**
  Find the guidelines and comment box at https://aabp.org/resources/AABP_member_Guidelines.asp

Position Statements

- Trans-rectal Palpation – **Comment period closes April 30, 2019**
  Find the position statements and comment boxes at https://aabp.org/resources/AABP_Position_Statements.asp

---

Safe Use of Ingredients from Euthanized Animals for Pet Food Formulation

For decades, pet food manufacturers have utilized rendered animal protein meals and rendered animal fats and fish oils to provide nutrients and flavors in pet foods. Animal carcasses procured from outside of the inspected slaughter system (i.e. such as animals that die or are euthanized on farm) are legal to use as pet food ingredients, providing the finished product meets regulatory standards for safety and nutritional content.

Over the past two years, the Food and Drug Administration (FDA) has detected pentobarbital, a chemical used for the euthanasia of livestock and horses, in canned pet foods. FDA regulations prohibit the presence of pentobarbital in animal feed. This makes it difficult for renderers to both fulfill their mission to protect the environment by utilizing by-products and supply the animal food industry with quality ingredients. Many renderers have suspended rendering euthanized animals because of FDA's zero tolerance policy on pentobarbital.

Pet food manufacturers and renderers recognize that hazard analysis and current good manufacturing practices or preventive controls required under the Food Safety Modernization Act must be used to ensure the safety of all ingredients, including those derived from livestock (cows, pigs, lamb, sheep, goats) that died other than by slaughter as well as ingredients procured from euthanized horses. Many pet food manufacturers are requesting that renderers not use animals that die other than by slaughter in pet food. This restriction can easily be secured by contract, but the zero-tolerance policy extends beyond pet food to all rendered products for livestock and poultry feed as well, putting rendering operations offering dead stock services to farmers and horse owners in jeopardy. The National Renderers Association (NRA) has notified all members that including animals euthanized with barbiturates in rendered feed ingredients is considered a hazard by FDA.

Last November, the American Veterinary Association (AVMA) convened a meeting to discuss the issue of chemical adulterants in animal remains, specifically, in animals euthanized with pentobarbital. The purpose of the meeting was to facilitate improved understanding across all stakeholders of euthanasia practices, the animal rendering industry and the potential impact of euthanasia choices on the safety of pet food ingredients. The full day of networking with the AVMA, the American Association of Bovine Practitioners (AABP), the American Association of Equine Practitioners, the Pet Food Institute, the American Feed Industry Association (AFIA), the NRA, FDA, and others increased the knowledge of all parties across the continuum. The group discussed euthanasia choices made by animal owners, veterinary guidance to animal owners about euthanasia choices, sources of animal products in rendering, and pet food ingredient procurement strategies.

In late 2018, the NRA sent a letter to Dr. Steve Solomon, director of the FDA Center for Veterinary Medicine, requesting the FDA to consider development of standardized and validated analytical methods for detecting the presence of pentobarbital in pet food. The NRA also requested the FDA to develop a tolerance, or action level for safety for pentobarbital, because testing advances are making it possible to detect smaller and smaller amounts of the chemical in rendered products. In his response to the NRA, Solomon recognized the value of development of such standards, but made no commitment of FDA resources to address the issue.

Because of increased awareness about the concern for residues of pentobarbital in animal carcasses, Dr. Jan Shearer, a professor and extension veterinarian at Iowa State University, and chair of the Food Animal Working Group of the AVMA's Panel on Euthanasia, has expanded coverage of the topic in presentations he does for veterinary, producer and allied industry groups. Shearer has also brought the issue to the attention of other bovine practitioners, suggesting revision of guidelines for

euthanasia of cattle to include stronger statements on use of pentobarbital.

AABP Executive Director Dr. Fred Gingrich stated that he recognizes only a small number of cattle are euthanized with pentobarbital, but he is committed to increasing awareness of the risks of residues in the euthanasia of all livestock and horses.

It has been proposed to develop regulatory requirements for the identification of animals that died other than by slaughter in an effort to support the safe use of carcasses. Dr. David Smith, the director of the New York Department of Agriculture Division of Animal Industry has explored development of state requirements to identify chemically euthanized horses to facilitate appropriate uses of the carcasses through rendering.

Stakeholders in the livestock industry from producers through to users of rendered products are committed to collaboratively developing and communicating practices to maximize sustainable use of appropriate pet food ingredients. Continued engagement from the many participants in the animal health management, ingredient and manufacturing sectors of the pet food industry is essential as we all address procurement of safe and wholesome ingredients for pet diets.

Submitted by Louise H. Calderwood,
American Feed Industry Association

AABP Cattle Euthanasia Resource

The AABP Animal Welfare Committee, in conjunction with Iowa State University, has developed a practical resource for the euthanasia of cattle that provides information for the euthanasia of cattle using IV potassium chloride after unconsciousness has been achieved via general anesthesia or captive bolt.

This excellent resource provides an alternative to pentobarbital for chemical euthanasia. The resource can be found on the Animal Welfare Committee page at https://aabp.org/members/Animal%20Welfare.asp

DEADLINE REMINDERS

Call for AABP Abstracts
Research Summaries and Scientific Poster Sessions

The 2019 52nd AABP Annual Conference, Sept. 12-14 in St. Louis, Mo., will feature scientific sessions focused on cutting-edge research that is directly applicable to the health, welfare and productivity of cattle and food and environmental safety associated with cattle production.

Research projects having direct application to bovine practitioners are being solicited for presentation at the Oral and Scientific Poster Sessions. Project summaries focused on all areas of bovine health, welfare and production are welcome. Projects should have relevance to bovine practitioners and may be broadly or specifically applicable to the beef or dairy industry.

Oral presentations made by graduate students in the AABP Research Summaries will be eligible to compete in the AABP Graduate Student Research Summary Presentation competition. The top three presenters from the graduate student competition will receive cash awards.

To be considered for the AABP Research Summaries (oral or poster sessions) and publication in the Annual Conference proceedings, submit your abstract **by April 15, 2019 at 5 pm EST**. For more information and to submit an abstract, go to https://aabp.org and select the Conference link at the top of the page, then click on the Abstract Submission link located in the submenu. Questions? Contact Dr. Edouard Timsit (eftimsit@ucalgary.ca) or Dr. Chris Chase (christopher.chase@sdstate.edu).

Apply for the Dr. Bruce Wren CE Award

If you are a dairy or beef cattle veterinarian out of school less than 10 years and would like to further your education/training in the area of your choice, apply for the Dr. Bruce Wren Continuing Education Award sponsored by Huvepharma and awarded at the 2019 American Association of Bovine Practitioners Annual Conference.

Two $5,000 individual awards (one for beef, one for dairy) will be awarded to veterinarians currently in a practice. Candidates will design their own award through an application process and judging criteria based on a professional-development plan and reference letters.

Airfare and one-night hotel expenses for the AABP conference will be provided by Huvepharma for recipients.

An online application reference letter must be submitted by **July 15, 2019,** to be considered. Visit https://aabp.org/Members/ce_award/default.asp.

Scholarship Applications are Open!

Scholarship applications for the 2019 52nd AABP Annual Conference are open at https://aabp.org.

AABP Foundation–Zoetis Veterinary Student Scholarship

The 2019 AABP Foundation-Zoetis Veterinary Student Scholarship Program is offered to third-year veterinary students (class of 2020). The scholarship program provides cattle medicine-interested students with financial support to help offset the high cost of veterinary education and helps prepare them for a future in the beef and dairy industries. The $5,000 award also includes a $750 stipend for travel/lodging expenses for recipients attending the 2019 52nd AABP Annual Conference in St. Louis, Mo.

Deadline for all materials to be submitted is **June 7, 2019**. https://aabp.org/foundation/zoetis/default.asp.

Amstutz Scholarship

The Amstutz scholarships are funded by AABP members, the proceeds from the Amstutz Scholarship Auction and generous support from Elanco Animal Health. Applicants must be in their second year (will graduate in 2021) veterinary students.

Deadline for all materials to be submitted is **June 7, 2019**. https://aabp.org/Students/scholinfo.asp.

Merck AABP Bovine Veterinary Student Recognition Award

The Merck AABP Bovine Veterinary Student Recognition Award provides $5,000 scholarships to second- and/or third-year (will graduate in 2020 or 2021) veterinary students.

Deadline for all materials to be submitted is **June 7, 2019**. https://aabp.org/students/stud_rec_award.asp.

AABP Award Nominations Sought

Do you have a mentor, peer or colleague who is deserving of special recognition? Have you received an award and wish to pay it forward to someone else? Nominate that special veterinarian for one of the prestigious AABP awards, which will be given to recipients at the 2019 52nd AABP Annual Conference in St. Louis, Mo., Sept. 12-14.

Awards include Practitioner of the Year, Excellence in Preventive Medicine, Mentor of the Year, Award of Excellence, Distinguished Service Award and James A. Jarrett Award for Young Leaders. **Award nominations are due by June 15, 2019.**

For more information about the awards and to nominate someone for an award, visit the AABP awards page at https://aabp.org/about/pastawards.asp.

AABP COMMITTEE REPORTS

The Job Description: The First Step in Developing a Solid Employment Relationship

According to Richard E. Stup, PhD, Agricultural Workforce Specialist, Cornell Cooperative Extension, "The purpose of a job description is to help an employee and his or her manager to reach a mutual understanding about important details of a job."

There are five key parts of a job description:

- Job title
- Summary: brief description of the job for recruiting
- Qualifications: incoming knowledge, skills, and abilities required or preferred.
- Duties or tasks: the primary and secondary parts of the job.
- Work relationships: communication and supervisory relationships.

To improve the effectiveness of a job descriptions, you should:

- Make sure you use good grammar. Have someone else in the practice read it before posting.
- State the specific location. Use the town name, instead of northern West Virginia, for example. You may want to include a description of the area including outdoor activities/resorts/national forests, town activities, nearby universities, school systems, small/large community, life in the community, etc.
- Make sure to mention if the practice is in a USDA-designated Veterinary Medicine Loan Repayment Program area.
- Be sure to include how many doctors and staff are in the practice and the percentage of different species for the practice, practice radius, as well as what the particular position is geared toward.
- Be sure to list the bells/whistles the practice has – haul-in, types of chutes, ultrasound, CBCs, laser therapy, dental equipment, AI/ET, lab capabilities, etc.
- If your practice has policies on mentoring, be sure to describe in detail.
- List equipment that is provided to the new associate such as truck/box, cell phone, technician help, etc.
- Benefits should be listed. For example, life insurance, 401K, CE allowance (days and financial allowance), professional membership allowance, vacation, sick time pay, family leave policy, liability insurance and disability insurance.
- Share information about time off/nights/weekends/
- Emergencies – a general idea and how it's shared.
- Be sure to include contact information including a phone and email, and a website where the interested party can check out the practice
- Applicants will want to know what type of person the practice is looking for (new grad, experienced person, generalist, specialist), and encouragement for outgoing, progressive, willing-to-learn individuals or what type of individual they are seeking. Make sure to note if there are opportunities for husband/wife veterinary teams.
- Post job descriptions on the AABP job board at https://aabp.org, as well as in local and state association job boards.

Writing a good job description can help lead to a good job relationship that will be beneficial to both the employer and the new associate.

Submitted by the AABP
Veterinary Practice Sustainability Committee

Prev Vet Med March 2019
Vol. 164, pp. 56-71

Effect of Footbath Protocols for Prevention and Treatment of Digital Dermatitis in Dairy Cattle: A Systematic Review and Network Meta-analysis

C. Jacobs*, C. Beninger, G. Hazlewood, K. Orsel, H. Barkema

Digital dermatitis (DD) is an infectious bacterial disease affecting cattle feet. Footbaths are a common herd-level control method for DD; however, variations in product, concentration, and frequency of use complicate comparisons between protocols. The objective of this systematic review was to evaluate all walk-through footbath protocols reported that determined efficacy for prevention and treatment of DD lesions in dairy cattle. An extensive literature search was conducted, including electronic databases and gray literature updated until March 2018. Studies identified included all liquid walk-through footbath protocols that were compared to other footbath protocols or no footbath. Only studies with treatment or prevention of DD lesions as an outcome were included. Literature search and subsequent screening identified 14 publications with 24 treatment comparisons and 24 prevention comparisons. Studies included mostly had low and/or unclear risks of bias. Descriptive analyses were performed according to prevention and treatment outcomes, with case and success definitions summarized as odds ratios (OR). A subsequent network meta-analysis was conducted of 11 studies, comparing 17 protocol comparisons for the prevention outcome and 10 studies comparing 19 protocol comparisons for the treatment outcome, using semi-informative priors in a Bayesian statistical framework. Results of a random effects Bayesian network meta-analysis indicated only 5% copper sulfate used at least 4 times/wk was superior to both no footbath (OR: 5.26; 95% CrI: 1.27–28.8) and a water placebo (OR: 9.47; 95% CrI: 1.03–85.8) in treatment of DD. No other protocol was associated with a reduction in DD, and there were no differences in pair-wise comparisons between any active treatments. Unfortunately, for both outcomes (treatment and prevention), small sample sizes (adjusted for clustering) limited the power to detect substantial differences between protocol effects. Thus, despite widespread use of footbaths, limited strength of evidence for use remains and standardized protocols with large sample sizes are needed to further investigate effectiveness of footbath protocols for control of DD. This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

* Department of Production Animal Health, Faculty of Veterinary Medicine, University of Calgary, Calgary, AB, Canada

J Dairy Sci February 2019
Vol. 102, pp. 1522-1529

Lame Cows on Australian Dairy Farms: A Comparison of Farmer-identified Lameness and Formal Lameness Scoring, and the Position of Lame Cows within the Milking Order

D. Beggs *, E. Jongman, P. Hemsworth, A. Fisher

On Australian pasture-based farms, where cows may often walk several kilometers and stand for several hours per day in a crowded concrete yard while they wait to be milked, the potential for lameness to negatively affect animal welfare is of ongoing concern. Several studies have shown that farmers tend to underestimate the incidence of lameness. Further, improving farmer diagnosis/ identification of lameness is likely to result in more prompt treatment, which in turn will improve clinical and animal welfare outcomes. We scored 19,154 cows over 50 farms for lameness, in herd groups ranging from approximately 100 to 1,000 cows, as they left the milking parlor. We compared these results with farmer-diagnosed lameness records on the same day. We used a scoring system of 0, walks normally; 1, walks unevenly; 2, lame; and 3, very lame. All very lame cows had been detected by the farmer, but overall, farmers detected only 24% of cows identified by lameness scoring. An analysis of the position of lame cows within the milking order showed that lameness scoring of the entire herd was necessary to detect all the lame cows as only 60% of lame cows appeared in the last 30% of cows to be milked. However, lameness scoring only the last 200 cows to be milked could be used as a screening test to identify herds with a lameness prevalence below a given threshold.

* Animal Welfare Science Centre, Faculty of Veterinary and Agricultural Sciences, University of Melbourne, Australia

Submitted by the AABP Lameness Committee

Prev Vet Med March 2019
Vol. 164, pp. 72-77

Diagnostic Performance of Direct and Indirect Methods for Assessing Failure of Transfer of Passive Immunity in Dairy Calves using Latent Class Analysis

I. Elsohaby*, M. Mweu, Y. Mahmmod, J. Mcclure, G. Keefe

Accurate diagnosis of failure of transfer of passive immunity (FTPI) in newborn calves is an essential component of dairy farm management plan. Several methods (direct and indirect) are available for diagnosis of FTPI in dairy calves. However, the indirect methods offer an advantage over the direct methods in not requiring an experienced veterinarian, rapid, cost efficient and can be performed under field-setting. The objective of this study was to estimate the diagnostic performance of radial immunodiffusion (RID) assay, transmission infrared (TIR)

spectroscopy and digital Brix refractometer for diagnosis of FTPI in dairy calves using latent class models at four cut-off values of digital Brix refractometer. Holstein calves (n = 691) from 40 commercial dairy farms in the four Atlantic Canada provinces were blood-sampled and tested for detection of FTPI. Results showed that the number of calves with FTPI was 253 (36.6%) by RID, 194 (28.1%) by TIR and 204 (29.5%) by Brix refractometer at cut-off value of 8.2%. Estimates of SeRID was higher than SeTIR and SeBrix, at all Brix refractometer cut-offs, but with increase of Brix refractometer cut-off from 8.2 to 8.5%, SeRID and SeTIR were decreased from 96.0% (95% PCI: 88.0–99.0) and 79.0% (95% PCI: 70.0–85.0), to 92.0% (95% PCI: 77.0–99.0) and 74.0% (95% PCI: 61.0–82.0), respectively. SpRID and SpTIR were always higher than SpBrix at all tested cut-offs and were above 92.0%, and 96.0%, respectively. With increasing the cut-off of Brix refractometer from 8.2 to 8.5%, SeBrix estimate has remarkably increased from 79.0% (95% PCI: 70.0–96.0) to 95.0% (95% PCI: 87.0–100.0), respectively. Whilst, SpBrix was decreased from 95.0% (95% PCI: 91.0–98.0) at cut-off 8.2% to 84.0% (95% PCI: 78.0–94.0) at cut-off 8.5%. In conclusion, RID has a higher Se than TIR and Brix, if the latter is used with cut-offs of 8.2% or 8.3%. However, the higher the cut-off, the more comparable sensitivities of RID and digital Brix refractometer. The median estimate of SpTIR was always higher than SpRID and SpBrix at all tested cut-offs. However, the 95% confidence interval estimates of the three tests were overlapping across the tested cut-offs of digital Brix refractometer reflecting the inability to prefer a test over the other based on the Sp estimate.

* Department of Health Management, Atlantic Veterinary College, University of Prince Edward Island, Charlottetown, Prince Edward Island, Canada

BEEF

Theriogenology February 2019
Vol. 128, pp. 218-224

Effect of the Interval from Follicle Aspiration to Initiation of Lengthened FSH Treatment on Follicular Superstimulatory and Superovulatory Responses and Embryo Production in Lactating Simmental Sows

U. Cirit*, M. Ozmen, I. Kucukaslan, M. Kose

The present study evaluated follicular superstimulatory (FSS) and superovulatory (SOV) responses and in vivo embryo production in lactating Simmental cows treated with FSH starting 1 or 2 days after follicle aspiration (FA). The performance of a lengthened superovulation program, named 6dFSH-P36-hCG60, is described. At random stages of the estrous cycle, cows (n = 52) were subjected to ultrasound-guided transvaginal aspiration of all follicles ≥ 5 mm. After FA, cows were randomly assigned to one of two groups in which FSH treatments started 1 or 2 days after FA (groups FA-1D and FA-2D, respectively). Cows were superstimulated with a total of 500 µg pFSH over 6 days on a decreasing dose schedule and were pre-treated with a single dose of 400 IU of eCG 24 h before the start of FSH treatments. Follicular superstimulatory (the mean numbers of follicles ≥ 8 mm on the day of hCG treatment) and SOV responses (the mean numbers of CL and cows with ≥ 3 CL at the time of collection) were similar in FA-1D and FA-2D groups. However, when compared to FA-1D group, the number of unfertilized ova tended to decrease (0.4 vs 1.7; P = 0.065) and percentage of fertilized ova tended to increase (95.8% vs 84.6%; P = 0.066) in FA-2D group. Moreover, the mean numbers and percentages of both transferable embryos (8.0 and 77.6% vs 6.4 and 57.7%) and freezable embryos (5.3 and 51.5% vs 3.5 and 31.1%) were numerically higher in FA-2D group than FA-1D group. The results of the study suggest that starting a lengthened superovulation programs in Simmental cows 2 days after FA has potential to increase percentage of fertilized ova and the number of transferable and freezable embryos, although new studies may be needed to confirm this findings.

* Dicle University, Faculty of Veterinary Medicine, Department of Reproduction and Artificial Insemination, 21280, Diyarbakır, Turkey

Submitted by the AABP Reproduction Committee

J Vet Diag Invest February 2019
Vol. 31, pp. 284-288

Investigation of the Potential for Sera from Cattle Persistently Infected with Bovine Viral Diarrhea Virus to Generate False-negative Antibody ELISA Results in Pooled Serum from Seropositive and Seronegative Cattle

D. Graham*, D. King, T. Clegg, R. O'Neill

We investigated the potential for viremic sera from cattle persistently infected with bovine viral diarrhea virus to create false-negative antibody results when testing pools of 10 sera by indirect or blocking ELISAs. Seronegative viremic sera (n = 23) were each added to a series of artificially constructed pools containing various percentages (0–90%) of antibody-positive sera, and the resulting pools were assayed for antibody. In all 23 cases, a negative antibody result was obtained in the pool containing no seropositive sera. In contrast, all pools containing ≥10% seropositive serum, representing a single seropositive animal in a pool of 10 samples, returned a positive result in both antibody ELISAs. We concluded that the likelihood of a false-negative antibody result occurring as a result of the presence of serum from a viremic animal was low, and therefore did not preclude the use of pooled sera for serosurveillance.

* Animal Health Ireland, Carrick-on-Shannon, County Leitrim, Ireland

Can J Vet Res January 2019
Vol. 83, No. 1, pp. 34-41

Changes in Antimicrobial Susceptibility Profiles of *Mycoplasma bovis* over Time

H. Cai*, R. Mcdowall, L. Parker, E. Kaufman, J. Caswell

Mycoplasma bovis is a major cause of pneumonia, arthritis, and mastitis in cattle and can lead to significant economic losses. Antimicrobial resistance is a concern and further limits the already short list of drugs effective against mycoplasmas. The objective of this study was to examine changes in *in vitro* minimum inhibitory concentrations (MICs) of antimicrobials of aminoglycoside, fluoroquinolone, lincosamide, macrolide, pleuromutilin, phenicol, and tetracycline classes for 210 *M. bovis* isolates collected from 1978 to 2009. The MIC_{50} values of the various antimicrobials were also compared. The MIC_{50} levels for enrofloxacin and danofloxacin remained low (0.25 μg/mL) across all 3 decades. MIC_{50} levels for tetracyclines, tilmicosin, and tylosin tartrate were low in the 1980s, then increased in the 1990s and remained high. In the 1980s, MIC_{50} levels were low for clindamycin, spectinomycin, and tulathromycin, increased in the 1990s to 8 μg/mL (clindamycin) and 32 μg/mL (spectinomycin and tulathromycin), then decreased again in the 2000s. Members of the fluoroquinolone class of antimicrobials had the lowest MIC_{50} levels across all 3 decades, which suggests *in vitro* susceptibility of *M. bovis* to this class of antimicrobials. Statistically significant associations were observed between MIC values for chlortetracycline, oxytetracycline, tylosin tartrate, and tilmicosin; between clindamycin, tulathromycin, spectinomycin, and tiamulin; and between tylosin tartrate and clindamycin. Changes in MIC levels of various antimicrobials over time show the importance of monitoring the susceptibility of mycoplasmas to antimicrobials. The number of antimicrobials that showed elevated MIC_{50} levels, and therefore possibly reduced *in vitro* effectiveness against *M. bovis*, supports initiatives that promote prudent use of antimicrobials in agriculture.

* University of Guelph, 50 Stone Road East, Guelph, Ontario N1G 2W1