

34TH ANNUAL CONVENTION

# PROCEEDINGS

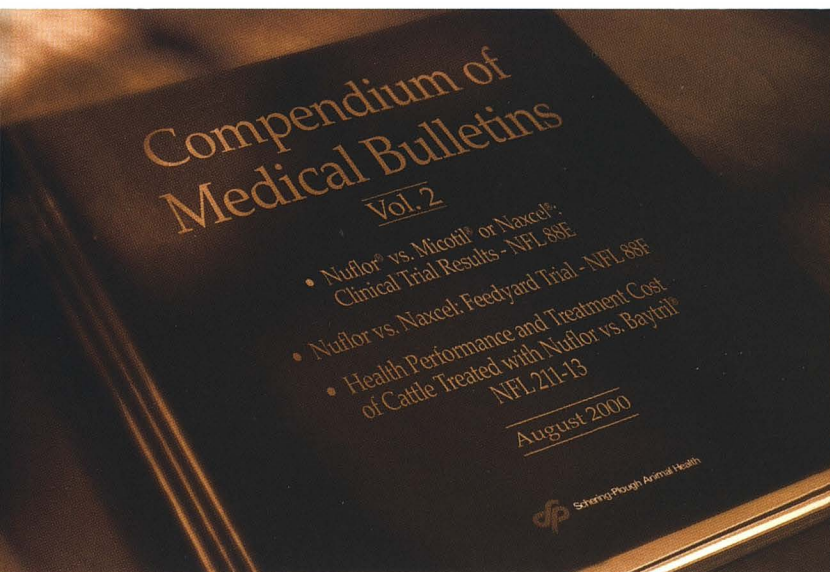
American Association of Bovine Practitioners

© Copyright American Association of Bovine Practitioners; open access distribution.

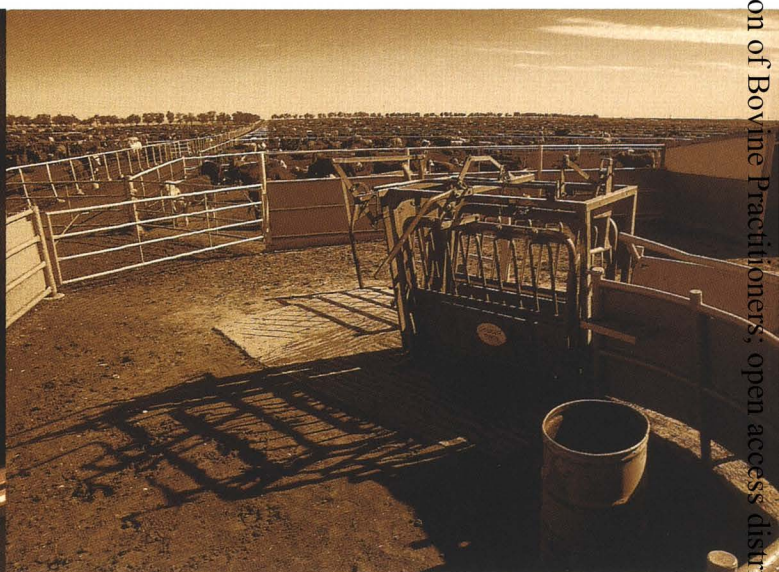


Vancouver, British Columbia, Canada  
September 13-15, 2001

## What you want to see.



## What your clients want to see



Your clients count on your expertise. You count on trial data to support your antibiotic recommendations. In nationwide comparative trials, the broad-spectrum power of Nuflor is repeatedly shown to provide exceptional control of the three major bacterial causes of BRD. Prescribe Nuflor and see for yourself how well it works.

An empty hospital pen is the most beautiful thing in the world to your clients. That's why you should prescribe Nuflor®. Nuflor is a broad-spectrum antibiotic that controls the three major bacterial causes of BRD for hard-hitting therapy. Give your clients what they want to see with Nuflor.

Ask your Schering-Plough Animal Health Representative or call Technical Services at 1-888-243-4273.

Do not use in female dairy cattle 20 months of age or older as use in lactating dairy cattle may cause milk residues. Not for use in cattle of breeding age. Do not use for calves to be processed for veal. Please see the accompanying Product Information summary for important information.



©2000 Schering-Plough Animal Health Corp. All rights reserved. Nuflor is a registered trademark of Schering-Plough Veterinary Corporation. SPAH-NFL-308

Micotil is a registered trademark of Elanco Animal Health Naxcel is registered trademark of Pharmacia & Upjohn Baytril is a registered trademark of Bayer Corporation



Visit our web sites: [www.Nuflor.com](http://www.Nuflor.com) and [www.mycattle.com](http://www.mycattle.com): the on-line source for cattle industry news and information.

PROCEEDINGS  
of the  
THIRTY-FOURTH ANNUAL CONFERENCE  
AMERICAN ASSOCIATION OF BOVINE PRACTITIONERS

September 13-15, 2001

Vancouver, British Columbia



*Photo courtesy of Dr. Bob Smith, Stillwater, OK*

*Editor*

**Robert A. Smith, D.V.M.**  
3404 Live Oak Lane  
Stillwater, OK 74075  
Tel: (405) 372-8666  
Fax: (405) 743-8422

*Advertising Representative*

**Veterinary Learning Systems**  
10975 Grandview #350  
Overland Park, KS 66210  
Tel: (913) 451-3475  
Fax: (913) 451-3929

*Executive Vice President*

**James A. Jarrett, D.V.M.**  
P.O. Box 1755  
Rome, GA 30162-1755  
Tel: (800) 269-2227  
Fax: (706) 232-2232

*Printer*

**Frontier Printers, Inc.**  
205 W. 9th  
Stillwater, OK 74074  
Tel: (405) 372-8500  
Fax: (405) 372-8523

*Cover photo courtesy of Dr. Louis J. Perino, Shallowater, TX*



## Repeated Misery Is For Country Songs, Not BRD Treatment.

If your treatment regimen for BRD keeps putting you in the same miserable situation again and again, it's time to try Baytril® 100 (enrofloxacin) as your first line treatment. Baytril 100 works in a unique way that kills infectious bacteria, while most other leading antibiotics only inhibit them. This leads to fast response and quick recovery after treatment. You save time, money, labor and reduce stress because you're not constantly pulling and treating the same cattle. So get it right the first time with

Baytril 100. Your job will no longer be the stuff of a sad country song.

Extra-label use of this product in food producing animals is prohibited. For more information, contact your veterinarian, Bayer representative, call 1-800-633-3796 or visit [www.baytril100.com](http://www.baytril100.com).



Injectable  
**Baytril® 100**  
(enrofloxacin)  
**RIGHT THE FIRST TIME.™**



Bayer Corporation, Agriculture Division, Animal Health, Shawnee Mission, Kansas 66201 ©2001 Bayer Corporation

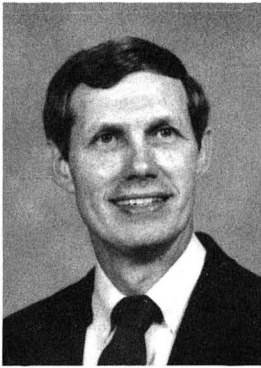
## American Association of Bovine Practitioners

### Prudent Drug Usage Guidelines

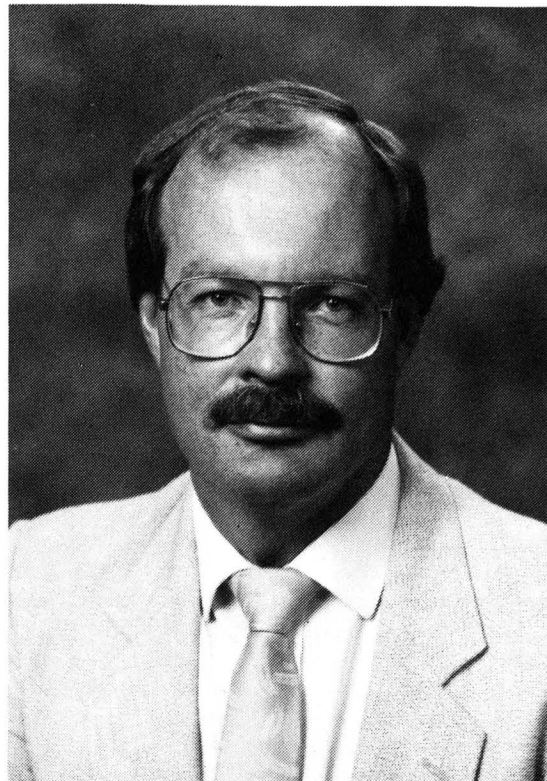
The production of safe and wholesome animal products for human consumption is a primary goal of members of the AABP. In reaching that goal, the AABP is committed to the practice of preventive immune system management through the use of vaccines, parasiticides, stress reduction and proper nutritional management. The AABP recognizes that proper and timely management practices can reduce the incidence of disease and therefore reduce the need for antimicrobials; however, antimicrobials remain a necessary tool to manage infectious disease in beef and dairy herds. In order to reduce animal pain and suffering, to protect the economic livelihood of beef and dairy producers, to ensure the continued production of foods of animal origin, and to minimize the shedding of zoonotic bacteria into the environment and potentially the food chain, prudent use of antimicrobials is encouraged. Following are general guidelines for the prudent therapeutic use of antimicrobials in beef and dairy cattle.

1. The veterinarian's primary responsibility to the client is to help design management, immunization, housing and nutritional programs that will reduce the incidence of disease and the need for antimicrobials.
2. Antimicrobials should be used only within the confines of a valid veterinarian-client-patient relationship; this includes both dispensing and issuance of prescriptions.
3. Veterinarians should properly select and use antimicrobial drugs.
  - a. Veterinarians should participate in continuing education programs that include therapeutics and emerging and/or development of antimicrobial resistance.
  - b. The veterinarian should have strong clinical evidence of the identity of the pathogen causing the disease, based upon clinical signs, history, necropsy examination, laboratory data and past experience.
  - c. The antimicrobial selected should be appropriate for the target organism and should be administered at a dosage and route that are likely to achieve effective levels in the target organ.
  - d. Product choices and regimens should be based on available laboratory and package insert information, additional data in the literature, and consideration of the pharmacokinetics and pharmacodynamics of the drug.
  - e. Antimicrobials should be used with specific clinical outcome(s) in mind, such as fever reduction, return of mastitic milk to normal, or to reduce shedding, contagion and recurrence of disease.
  - f. Periodically monitor herd pathogen susceptibility and therapeutic response, especially for routine therapy such as dry cow intramammary antibiotics, to detect changes in microbial susceptibility and to evaluate antimicrobial selections.
  - g. Use products that have the narrowest spectrum of activity and known efficacy *in vivo* against the pathogen causing the disease problem.**
  - h. Antimicrobials should be used at a dosage appropriate for the condition treated for as short a period of time as reasonable, i.e., therapy should be discontinued when it is apparent that the immune system can manage the disease, reduce pathogen shedding and minimize recurrence of clinical disease or development of the carrier state.
  - i. Antimicrobials of lesser importance in human medicine should be used in preference to newer generation drugs that may be in the same class as drugs currently used in humans if this can be achieved while protecting the health and safety of the animals.
  - j. Antimicrobials labeled for use for treating the condition diagnosed should be used whenever possible. The label, dose, route, frequency and duration should be followed whenever possible.
  - k. Antimicrobials should be used extra-label only within the provisions contained within AMDUCA regulations.
  - l. Compounding of antimicrobial formulations should be avoided.
  - m. When appropriate, local therapy is preferred over systemic therapy.
  - n. Treatment of chronic cases or those with a poor chance of recovery should be avoided. Chronic cases should be removed or isolated from the remainder of the herd.
  - o. Combination antimicrobial therapy should be discouraged unless there is information to show an increase in efficacy or suppression of resistance development for the target organism.
  - p. Prophylactic or metaphylactic use of antimicrobials should be based on a group, source or production unit evaluation rather than being utilized as standard practice.
  - q. Drug integrity should be protected through proper handling, storage and observation of the expiration date.
4. Veterinarians should endeavor to ensure proper on-farm drug use.
  - a. Prescription or dispensed drug quantities should be appropriate to the production-unit size and expected need so that stockpiling of antimicrobials on the farm is avoided.
  - b. The veterinarian should train farm personnel who use antimicrobials on indications, dosages, withdrawal times, route of administration, injection site precautions, storage, handling, record keeping and accurate diagnosis of common diseases. The veterinarian should ensure that labels are accurate to instruct farm personnel on the correct use of antimicrobials.
  - c. Veterinarians are encouraged to provide written guidelines to clients whenever possible to describe conditions and instructions for antimicrobial use on the farm or unit.

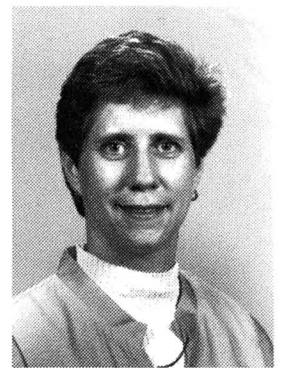
# AABP OFFICERS



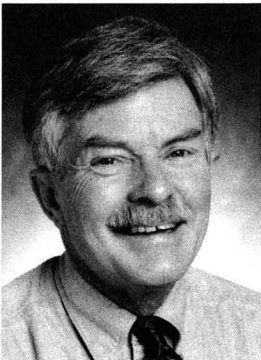
President-Elect  
**KENT AMES**  
 DVM  
 East Lansing, Michigan



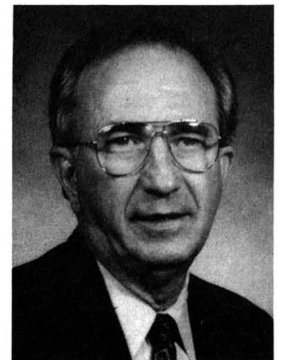
President  
**ROD SYDENHAM**  
 DVM  
 Millet, Alberta, Canada



Vice-President  
**PATTY SCHARKO**  
 DVM  
 Lexington, Kentucky



Past-President  
**LARRY HUTCHINSON**  
 DVM  
 University Park, Pennsylvania



Exec. Vice-President  
 AVMA Alternate Delegate  
**JAMES A. JARRETT**  
 DVM  
 Rome, Georgia

---

## Directors



District 1  
**JIM EHRLICH**  
 DVM  
 Argyle, New York



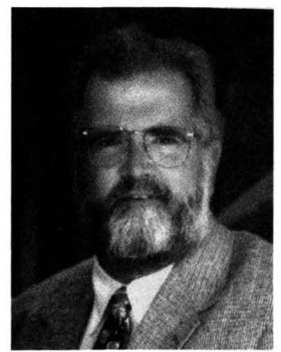
District 2  
**DARCIE J. STOLZ**  
 DVM  
 Strasburg, Pennsylvania



District 3  
**CHARLIE HATCHER**  
 DVM  
 College Grove, Tennessee



District 4  
**RICH MEIRING**  
 DVM  
 Fort Recovery, Ohio



District 5  
**ANDY JOHNSON**  
 DVM  
 Seymour, Wisconsin



District 6  
**STEVE STEWART**  
 DVM  
 Woodbury, Minnesota



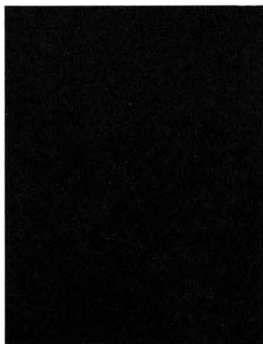
District 7  
**WADE TAYLOR**  
 DVM  
 Oakley, Kansas



District 8  
**CHARLIE E. DEYHLE, JR.**  
 DVM  
 Canyon, Texas



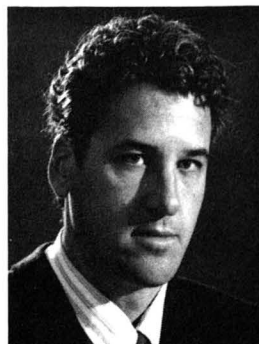
District 9  
**JIM WASSON**  
 DVM  
 Armour, South Dakota



District 10  
**ALAN HERRING**  
 DVM  
 Litchfield Park, Arizona



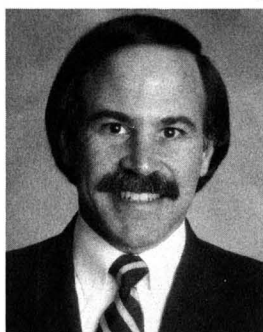
District 11  
**GREG A. LEDBETTER**  
 DVM  
 Jerome, Idaho



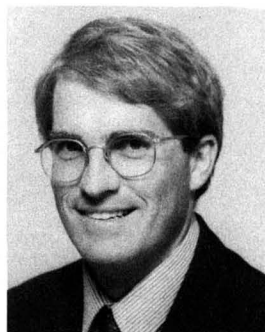
District 12  
**EMILE BOUCHARD**  
 DVM  
 St. Hyacinthe, Quebec, Canada



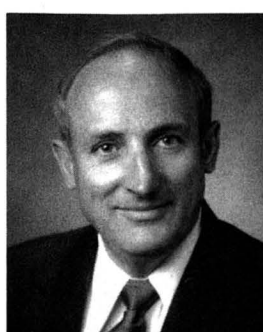
District 13  
**DAVID HAMILTON**  
 DVM  
 Morden, Manitoba, Canada



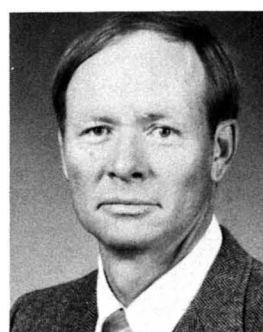
Treasurer  
**ROGER SALTMAN**  
 DVM  
 Cazenovia, New York



Parliamentarian  
**M. GATZ RIDDELL**  
 DVM  
 Auburn, Alabama



Exhibits Manager  
**SAMUEL HUTCHINS, III**  
 DVM  
 South Barre, Vermont



Editor  
**ROBERT SMITH**  
 DVM  
 Stillwater, Oklahoma



AVMA Delegate  
**DARREL JOHNSON**  
 DVM  
 Weyauwega, Wisconsin

### The Penicillin Habit

- Grab the bottle from the fridge.
- Guess the dosage.
- Give a shot.
- Segregate treated cows.
- Dump the milk.
- Dump the milk.
- Dump the milk.
- Dump the milk.
- Dump the milk.
- Dump the milk.
- Worry about contamination.

(Repeat as needed)

### The EXCENEL® RTU Routine

- Grab the bottle off the shelf.
- Inject EXCENEL RTU IM or Sub Q.
- Ship the milk.

EXCENEL® RTU Sterile Suspension (ceftiofur hydrochloride) delivers more benefits than you could ever expect from penicillin — without penicillin's drawbacks. Ready-to-use EXCENEL RTU requires no milk withdrawal and only a two-day meat withdrawal. Just one low-volume intramuscular or subcutaneous



injection per day gives unsurpassed control of target pathogens.

Ask your veterinarian how EXCENEL RTU can help you replace the waste and worry of penicillin. And remember to visit our Web site at [www.ExceneIrtu.com](http://www.ExceneIrtu.com), or call 1-800-793-0596 for more information.

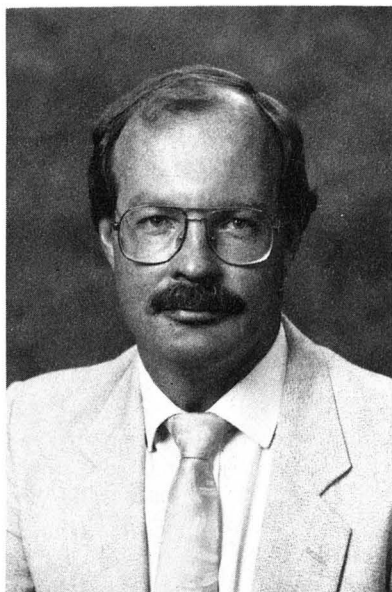
## EXCENEL® RTU

Sterile Suspension  
(ceftiofur hydrochloride)

A perfect fit for the dairy routine.



# A Message From The President



The year 2001 marks the beginning of a new century. Food animal medicine, and bovine practice in particular, is also embarking on a new era. Not so long ago, our profession concentrated on individual animal health but now that area is diminishing, being replaced with production orientated practice. That is not to say that there will not be a need for individual medicine in the future. There will always be a need and a place for that. To ignore that aspect of bovine practice would be a disservice to these clients and their animals. They deserve the same high level of care as anyone or anything else. However, our profession needs to recognize a changing market. Global trade, and a world that is shrinking due to information technology, means we are no longer isolated. What we do for our clients will have effects that reach farther and farther. We must learn to take into ac-

count trade issues, international commodity prices, political whims, biosecurity issues, consumer issues, etc. if we are continue to maintain our position of the primary source of information and advice for our clients.

This puts AABP in a rather difficult position. It must serve a very diverse and even more widespread constituency. I believe that it does an admirable job of this. Its annual conference is recognized as the leading bovine meeting in the world where there is something for everyone; all leading edge. Just like our clients, if you go above and beyond the norm, it then becomes the expected standard. As good a job as AABP does in representing bovine veterinary medicine and offering leading edge continuing education, it cannot rest on its laurels. It can only continue to offer the latest and best with your help. Without input from the membership, the Board and the various committees, are flying a bit blind. They can only provide what they perceive is needed. I urge you to get involved and express your needs and concerns. With your help, we can continue in this new era with confidence that our profession will become even stronger and that the food we are responsible for will continue to be wholesome, safe, and inexpensive.

In closing, I would like to express my gratitude and thanks to you, the members, for the opportunity and honor of serving as president. Some of my fondest memories and greatest friendships have arisen because of AABP and I will be forever grateful for that.

Best regards

Rod Sydenham DVM

## Notice to Readers

Articles published in the Proceedings of the American Association of Bovine Practitioners are not peer-reviewed or refereed. All statements, opinions and conclusions contained in articles in the Proceedings are those of the author(s), and are not necessarily those of the American Association of Bovine Practitioners (AABP) unless specifically approved by the AABP Board of Directors.

I'm counting on you.

## Get There First. Fast. Once.

When he's counting on you, you can count on Micotil® first. Because, when it comes to the control and treatment of BRD, Micotil is the fast-acting, long-lasting antibiotic that works.

Micotil gets him back to the bunk and fast. With just one low-dose shot on day one, Micotil goes right to the diseased lung for three days of effective treatment. And fewer repulls. You can't afford to wait. Count on Micotil first.

Micotil is to be used by, or on the order of, a licensed veterinarian. Administer subcutaneously to cattle only. Intravenous use in cattle will be fatal. Do not use in female dairy cattle 20 months of age or older. Use in lactating dairy cattle may cause milk residues. See adjoining label for complete use information, including human warnings. Always use proper drug handling procedures to avoid accidental self-injection.



ELANCO

Micotil<sup>®</sup>

TAKE CONTROL

Micotil® is a trademark for Elanco's brand of tilmicosin.

# Table of Contents

## General Sessions

- The How, What, Why, and More of Writing Farm Processes  
James Bennett ..... 1
- Developing Fluid Administration Protocols in Bovine Practice  
Sheila M. McGuirk ..... 6
- Developing Responsible Use of Antibiotics Protocols  
Keith Lawrence ..... 10
- Fundamental Considerations in Developing Vaccination Protocols  
Robert J. Callan ..... 14
- Implementing Expanded Services or Working Outside the Box  
John D. Day ..... 23

## Dairy Sessions

- Will Large Dairy Herds Lead to the Revival of Metabolic Profile Testing?  
T.H. Herdt, B. Dart, L. Neuder ..... 27
- Time-lapse Video Opens Our Eyes to Cow Behaviour and Comfort  
Neil Anderson ..... 35
- What I've Learned about Veterinary Medicine Since Becoming a Dairyman  
Walter M. Guterbock ..... 43

## Cow-Calf Sessions

- Bovine Mycoplasmosis  
Ricardo F. Rosenbusch ..... 49
- Vaccines: What REALLY is in, and on, those bottles?  
Steve Henry ..... 53
- Commodity Feedstuffs in Cow/Calf and Stocker Rations  
Dale A. Blasi ..... 57
- Trace Mineral Programs and Pasture Quality  
Dale A. Blasi ..... 64

## Feedlot Sessions

- Animal Health, Management, and Foodborne Pathogens in Beef Feedlots: Results of the NAHMS Feedlot '99 Study  
David A. Dargatz, Bruce A. Wagner, Guy H. Loneragan, Lindsey P. Garber, George W. Hill, Nora E. Wineland ..... 72
- Sire Selection and Meat Quality  
Michael E. Dikeman ..... 74
- Marketing Veterinary Services to Small Beef Producers  
W. Mark Hilton ..... 83

## AABP/SFT Joint Sessions

- Male Reproductive Surgery  
Bruce L. Hull ..... 88

- Teaser Bull Preparation  
Bruce L. Hull ..... 92
- Current Concepts for Estrus Synchronization and Timed Insemination  
W.W. Thatcher, D.J. Patterson, F. Moreira, M. Pancarci, E.R. Jordan, C.A. Risco ..... 95
- Sexing Bovine Sperm  
George E. Seidel, Jr. .... 106
- Hormonal Therapy in the Postpartum Cow – Days 1 to 10 - Fact or Fiction?  
Grant S. Frazer ..... 109

## Research Summaries - Beef

- A Veterinarian's Approach to SPA: Using Cow/Calf Production and Financial Records as a Diagnostic Tool  
Suelee Robbe, Daryl Strohbehn, Doug Ensley, Brent Meyer ..... 123
- Responses of On-site Slaughterhouse Screening Tests After Administration of Ceftiofur  
Edward J. Robb, Scott A. Brown, Michael Payne ..... 124
- Pasteurella Vaccination with Metaphylaxis for Calf Health  
Raymond W. Loan, Charles W. Purdy, Robert E. Briggs, Norbert K. Chirase ..... 125
- Plasma 3-methylindole and Blood 3-methyleneindolenine in Feedlot Cattle  
Guy H. Loneragan, Paul S. Morley, John J. Wagner, Daniel H. Gould, Gary S. Mason, Garold S. Yost ..... 126
- A Study of the Prevalence of *Hemophilus somnus*, *Mycoplasma bovis* and Bovine Virus Diarrhea Virus in Western Canadian Feedlot Cattle Dying with Heart Lesions  
Deborah Haines, Doug Myers ..... 127
- Influence of Arrival Weight, Season and Calf Supplier on Survival in Holstein Beef Calves on a Calf Ranch  
D.A. Moore, W. M. Sischo, D. Festa, J. Reynolds, C. Holmberg, E. R. Atwill ..... 128
- Ranch Management Factors Associated with Seroprevalence of *Neospora caninum* Beef Calves  
K.S. Barling, J.W. McNeill, J.C. Paschal, F.T. McCollum III, T.M. Craig, L.G. Adams, J.A. Thompson ..... 128

## Research Summaries - Dairy

- Effect of Estradiol Cypionate in Postparturient Dairy Cattle at Increased Risk for Metritis  
Michael W. Overton, William M. Sischo, James P. Reynolds ..... 130
- Persistent Infection and Sub-Clinical Bovine Viral Diarrhea Virus Transmission in Dairy Calves  
Sharon K. Hietala, Mark C. Thurmond, Donald M. Rush, Claudia Munoz-Zanzi ..... 131
- Evaluation of a Novel Vaccine Consisting of Siderophore Receptor Proteins and Porins for Controlling Salmonellosis in a Commercial Dairy Herd  
Daryll Emery, Darren Straub, Larry Slinden ..... 132

- Development of a Centrally Based Dairy Performance Benchmark Program with the Capability of also Performing as a Sensitive Dairy Management Diagnostic Monitor  
F. E. Standaert, M. D. Hanigan, J. H. Mahoney, M. A. Faldet, R. W. Prange ..... 133
  - Serological Evaluation of Five Unvaccinated Heifers as a Method for Detecting Herds Infected with Bovine Viral Diarrhea Virus  
Roxanne Pillars, Dan Grooms ..... 134
  - Jejunal Hemorrhage Syndrome of Dairy Cattle  
M.A. Kirkpatrick, L. Timms, K.W. Kersting, J. Kinyon ..... 135
  - Field Trial of Intrauterine Antibiotic or Prostaglandin for Treatment of Clinical Endometritis in Dairy Cows  
Stephen LeBlanc, Ken Leslie, Todd Duffield, Ken Bateman, Greg Keefe ..... 136
  - Efficacy of Ceftiofur Hydrochloride Administered Parenterally for Five Consecutive Days for Treatment of Acute Post-partum Metritis in Dairy Cows  
John R. Chenault, Joseph F. McAllister, S. Theodore Chester, Kenneth J. Dame, Fabian M. Kausche ..... 137
  - Descriptive Epidemiology of Udder Cleft Dermatitis in a Dairy Herd with Sarcoptic Mange  
LD Warnick, DV Nydam, AE Maciel, CL Guard ..... 138
  - Treatment of Cows with Retained Fetal Membranes with Ceftiofur  
M. Drillich, O. Beetz, A. Pfützner, M. Sabin, H.-J. Sabin, W. Heuwieser ..... 139
  - Association of Parturition Plasma Non-esterified Fatty Acid Concentration with Retained Placenta in Multiparous Holstein Cows  
T. Conner, T.H. Herdt, L. Neuder ..... 140
  - Homoeopathic Remedies in the Treatment of Mastitis: Preliminary Results of a Positive Control Study and Review of Alternative Therapies  
K. Mueller ..... 141
  - Effects of Endometritis at the Beginning of the Breeding Period on Reproductive Performance in Dairy Cows  
Douglas S. Hammon, G. Reed Holyoak, Justin Jenson, Howard R. Bingham ..... 142
  - Results of a Seven-Year Surveillance of Milk Safety Related to Use of Ceftiofur Sodium and Ceftiofur Hydrochloride  
Gary L. Gillette ..... 143
  - Association of Lameness in Dairy Cattle with Other Diseases  
Dorothee Janssen, Charles L. Guard, Lorin Warnick ..... 144
  - Determination of the role of *Clostridium perfringens* Type A in Intraluminal Intestinal Hemorrhage Syndrome in Dairy Cows  
Jennifer Ivany, David E Anderson, Matthew D. Miesner ..... 145
  - Use of Ovsynch/TAI for Postpartum or Post-service Anestrus in Dairy Cows and Effects of Some Factors Affecting Conception Rate  
K. Yamada, T. Nakao, G. Matsuda, T. Tanaka, T. Tokunaga, N. Numayama, J. Saito, K. Arai ..... 146
  - Pre-calving Administration of a Rumensin® Controlled Release Capsule for the Prevention of Energy-Associated Disease  
Todd Duffield, Randal Bagg, Luc DesCoteaux, Émile Bouchard, Marcel Brodeur, Denis DuTremblay, Stephen LeBlanc, Greg Keefe, Paul Dick ..... 147
- ### Research Summaries - General
- Microbial Safety of Ceftiofur and its Metabolites: Instability in the Right Places  
Susan F. Kotarski, Rex E. Hornish, Walter J. Smolenski, Sarah A. Salmon, Scott A. Brown, Fabian Kausche, Edward J. Robb ..... 148
  - Evaluation of the Field Performance of the First Commercial *Neospora* Vaccine in Dairy Cattle  
Les Choromanski, John Zimmerman, Sandy Rodgers ..... 149
  - Evaluation of the ImmunoCardSTAT Rotavirus Assay For On-site Detection of Bovine Rotavirus  
Roger Maes, Dan Grooms, Valerie Ciesicki, Cunqin Han, Annabel Wise ..... 150
  - Inhibition of Bovine Herpesvirus 1 and Bovine Viral Diarrhea Virus Replication by Genistein—a Compound in Soybeans  
D. Petersen, A. Shaw, A.A El-Sheikh, L.J. Braun, C.Y Wang, C.C.L Chase ..... 151
  - Evaluation of the Embryo Transfer Procedure Proposed by the International Embryo Transfer Society (IETS) as a Method of Controlling Vertical Transmission of *Neospora caninum* in Cattle  
Paul Baillargeon, Gilles Fecteau, Julie Paré, Pierre Lamothe, Roger Sauvé ..... 152
  - Accuracy of Blood Electrolyte Measurements Taken with a Portable Measuring Device (PalmLab™) Compared to Standard Laboratory Procedures  
Dorothee Janssen, Michelle Seymour-Stefanski, Tracy Stokol, Lorin Warnick ..... 153
  - Stillbirths Associated with *Neospora caninum* and BVDV type II in Dairy Heifers  
Mark C. Thurmond, Sharon K. Hietala, Claudia Muñoz-Zanzi ..... 154
  - A Continuing Education Program to Teach Early Pregnancy Diagnosis by Ultrasound in Dairy Cattle  
W. Heuwieser, C. Pfrang, T. Hallmann ..... 155
- ### Poster Sessions
- Evaluation of Milk Urea Nitrogen Levels on Bulk Tank Milk and Individual Cow Milk  
P. Arunvipas, J. VanLeeuwen, I. Dohoo, E. Leger, G. Keefe ..... 156
  - Vaccination of Young Dairy Calves against *Mannheimia haemolytica* and *Pasteurella multocida*: Field Trial  
Pascale Aubry, Lorin D. Warnick, Charles L. Guard, Bruce W. Hill, Michael F. Witt ..... 157
  - Evaluation of ECF™ (Early Conception Factor) Dip Stick Test for Cattle  
Bruce A. Beachnau, John Luchsinger, Shannon L. Beaumont ..... 157

- Comparison of the Effects of Two Approaches to Retained Placenta on the Uterine Bacteriology, Cytology and Fertility of Dairy Cows  
M. Bolourchi, H. Karami, P. Hovareshti, A. Barin, T. Zahrai Salehi ..... 158
- Evaluation of Two Treatment Protocols against *Staphylococcus aureus* at Drying-off  
Jorge Castillo, Émile Bouchard, Luc DesCôteaux, Lucie Dutil ..... 159
- Impact of Treatment with Monensin Controlled-release Capsule on Blood Biochemical Constituents  
Dominique Cécyre, Luc DesCôteaux, Marcel Brodeur, Armand V. Tremblay ..... 160
- Daily Gain and Incidence of Scours in Holstein Calves fed Milk Replacers Supplemented with Antibiotics or Enteroguard®  
D. C. Donovan, S. T. Franklin, C. C. L. Chase, H. Prezler, A. R. Hippen ..... 161
- Comparison of Acute-phase Protein Responses of Cattle in Naturally Acquired Respiratory Disease: Relationships to Vitamin E Supplementation and Antimicrobial Therapy  
J. N. Carter, G. L. Meredith, D. R. Gill, A. W. Confer ..... 162
- A New Diagnostic Test for the Detection of Bovine Leukemia Virus (BLV) Infection in Cattle  
Holly Connelly, David Kelsey, Elizabeth Reeve, Michael Luck, Joseph Crabb ..... 163
- Effect if an Orally Administered Antacid Agent Containing Mg(OH)<sub>2</sub> and Al(OH)<sub>3</sub> on Abomasal pH in Milk-fed Calves  
A.F. Ahmed, P.D. Constable, N.A. Misk ..... 164
- The Association Between *Neospora caninum* Serological Status and Culling in Ontario Holsteins  
G. Cramer, D. Kelton, T. Duffield, K. Lissemore, J. Hobson, S. Hietala, A. Peregrine ..... 165
- A Comparison of Three Different Methods of Serological Testing for the Presence of Antibodies to *Neospora caninum* in Beef Cattle  
Gail Cunningham, Cheryl Waldner, John Campbell, Eugene Janzen, Lydden Polley ..... 166
- Left Displaced Abomasum: To Toggle or not to Toggle, that is the Question!  
Luc DesCôteaux, Eve Woods-Lavoie, André Cecyre, Yves Larouche, Robert Rioux, Pascal Dubreuil ..... 167
- Production and Financial Losses Associated with Prewaning Disease in Beef Cattle  
GA Dewell, LL Hungerford, RD Dewell, WW Laegreid ..... 168
- A Productive Evaluation Program For Dairy Cattle  
Thomas Drake, David Griswold, Michael O'Connor, James Beech, James Ferguson ..... 168
- Relationship between *Neospora caninum* Seropositivity and Udder Health in Lactating Dairy Cows  
T. Duffield, G. Wideman, D. Kelton, A. Peregrine, G. Cramer, S. Hietala ..... 169
- Bovine Viral Diarrhea Virus Infections in Commingled and Transported Calves: Fall 2000 Study and Summary of a Three-year Study  
R.W. Fulton, J.T. Saliki, A.W. Confer, C.W. Purdy, R.E. Briggs, J.F. Ridpath, G.C. Duff, R.W. Loan, D.L. Step, L.J. Burge ..... 170
- Evaluation of Vaccinations of Calves and their Impact on Feedlot Performance: Assessment of a Retained Ownership Program of Postweaning Calves  
R.W. Fulton, B.J. Cook, D.L. Step, A.W. Confer, J.T. Saliki, R.D. Welsh, K. Shawn Blood ..... 171
- Teat Endoscopy (Theloscopy) - Equipment and Procedure  
Thomas Geishauser, Klaus Querengässer ..... 172
- Tongue Mutilations in a Beef Backgrounding Feedlot  
D. Grotelueschen, S. Ensley, M. Slattery, D. Smith, A. Doster, D. Steffen, D. Rogers, B. Brodersen ..... 173
- An Independent Evaluation of a Lactating Dairy Cow Model: 1. Milk Production and Composition, Body Weight, and Body Condition Score  
M.D. Hanigan, F.E. Standaert, L. Reutzel, D.C. Weakley ..... 174
- Acute and Chronic Effects of Intravenous Hypertonic Saline Solution and Rehydration Fluid on Plasma Electrolyte Concentrations and Renal Function in Holstein Steers  
Jordan D. Hammer, Todd F. Robinson, Beverly L. Roeder ..... 175
- Cowside Diagnostic Blood/Serum Chemistry Device  
John C. Hauptert ..... 176
- It is Feasible to use Test-day Information (DHI Milk Control Data) for the Estimation of Energy Uptake in Dairy Cows  
C. Heuer, Y.H. Schukken, W.M Van Straalen ..... 177
- *Neospora caninum* and Milk Production – a Theory Based on a Comparison of the Effect in Two Populations of Ontario Dairy Herds  
T. Duffield, J. Hobson, D. Kelton, A. Peregrine, B. McEwen, S. Hietala, K. Lissemore, K. Leslie, G. Cramer ..... 178
- Risk Factors for *Neospora caninum* Infection and Associated Abortion in Ontario Holstein Dairy Herds  
J. Hobson, T. Duffield, A. Peregrine, B. McEwen, S. Hietala, D. Kelton, K. Lissemore, K. Leslie, G. Cramer ..... 179
- Bovine Torovirus and Other Enteric Microorganisms in Feces from Clinical Cases of Gastroenteritis in Cattle  
A.E. Hoet, T.E. Wittum, L. J. Saif ..... 180
- Economic Assessment of Twinning in a Dairy Herd in Tehran, Iran  
P. Hovareshti, M. Bolourchi, A. Niasari, GH Panjeh Ali ..... 180
- Titer Response in Cows Vaccinated with a *Neospora caninum* Vaccine  
Dorothee Janssen, Leszek Choromanski ..... 181
- Use of Daily Postpartum Temperatures to select Dairy Cows for Treatment with Systemic Antibiotics  
Michaela Kristula, Billy Smith ..... 182
- Assessing the Associations Among Facility Design and Management Practices and Drug Use in Ontario Free-Stall Dairy Herds  
D. Léger, D. Kelton, K. Lissemore, S.W. Martin ..... 183
- Postpartum use of Lutalyse\*/Dinolitic\* Sterile Solution in Problem Cows  
J. H. Luchsinger, J.F. Boucher ..... 184
- The Importance of Understanding Dairy Farmers' Competencies Prior to Industry Deregulation  
David Marchant ..... 185

- An Epidemiologic Method to Determine Losses Associated with Subclinical Gastrointestinal Nematodes in Yearling Cattle  
Keith Mertz, Bill Epperson, Mike Hildreth ..... 186
- Factors Associated with Off-flavours in Milk in Prince Edward Island Dairy Herds  
A. Mouchili, J. Wichtel, I. Dohoo, L. Halliday, G. Keefe, J. Van Leeuwen, K. Gottshall-Pass, R. Sampson ..... 187
- A Study of the Economic Losses Due to Bovine Paratuberculosis in Two Herds Around Tehran  
M.Gh. Nadalian, A.H. Tabatabayi, M. Mirarefine ..... 188
- Impact of Gastrointestinal Nematodes in Lactating Cattle - A Clinical Trial  
A Nødtvedt, I Dohoo, J Sanchez, G Conboy, G Keefe, L DesCôteaux, K Leslie, J Campbell ..... 190
- Pings: A Reliable Clinical Sign for Diagnosis of Abdominal Disorders in Cattle?  
I Nowrouzian, A Kalantari -Khandani, MGh Nadalian, MM Dehghan ..... 191
- Managing the Risk of *Cryptosporidium* on Dairy Farms in Watersheds  
DV Nydam, SE Wade, HO Mohammed ..... 192
- Studies on Milk Flow in Cows with Acquired Milk-flow Disorders  
Julia Querengässer, Thomas Geishauer, Klaus Querengässer, Rupert Bruckmaier, Klaus Fehlings ..... 193
- Effect of Rumen Transfaunation on Selected Rumen Parameters, Blood Metabolites and Feed Intake in Dairy Cows with Left Displaced Abomasums  
K. R. Rager, L. George, E.L. Dueger ..... 194
- Variability Factors of Milk Fat-Protein Concentration Ratio  
William Raphael, Paul Bartlett, Michelle Kopcha, Thomas Herdt ..... 195
- Relative Risk of Liver Failure in Dairy Cows with Left Abomasal Displacement  
J. Rehage, M. Kaske, H. Scholz ..... 196
- Treatment of Oleander Poisoning with V285  
Mehdi Sakha, Ali Rezakhani ..... 197
- Minimum Inhibitory Concentration Determinations for Ceftiofur and Spectinomycin against *Pasteurella multocida*, *Mannheimia* spp. and *Haemophilus somnus* from France, The Netherlands, and Germany  
SA Salmon, JL Watts, CA Van den Eede, A Bils, F Goldstein, J Acar, C Kehrenberg, S Schwarz ..... 198
- Comparison of Clinical Efficacy of Ceftiofur to Oxytetracycline for Treatment of Acute Puerperal Metritis in Cows  
Eric J. Schmitt, Joseph F. Boucher, Chris A. Van den Eede, John R. Chenault, Sophie N. Van Oye, Veerle J. Maes ..... 199
- Footbathing in the Management of Papillomatous Digital Dermatitis  
Joy Seymour, Jeff Durkin, Harinath Bathina, Tom Hemling ..... 200
- A Longitudinal Study of the Prevalence, Incidence and Duration of Fecal Shedding of *Escherichia coli* O157:H7 by Feedlot Cattle  
D.R. Smith, R.A. Moxley, J.D. Folmer, S.M. Younts, M. Khaitsa, J.T. Gray, S. Hinkley, L.L. Hungerford, T.J. Klopfenstein ..... 201
- *In vitro* Fertilization of Cumulus-Free Bovine Oocytes in Caffeine and Different Concentrations of Calf Serum  
P Tajik, K Niwa ..... 202
- A Comparison of Serologic Responses to Type 1 and 2 Bovine Viral Diarrhea Viruses in Naturally Exposed Dairy Cattle  
RRM Tremblay, CA Power, LT Jordan, PS Carman ..... 203
- Comparison of Pre- and Postpartum Performance of Holstein Dairy Cows Having either a Single or Twin Pregnancy  
Robert J. Van Saun ..... 204
- Hepatic Trace-mineral Concentrations in the Bovine Fetus and Neonate  
Robert J. Van Saun, Thomas H. Herdt, W. Emmett Braselton ..... 205
- Johne's Disease in the Maritime Districts of Canada: Prevalence Estimate Adjusted for Test Variability  
Van Schaik G., Y.H. Schukken, M. Contreras, J.A. VanLeeuwen, G.P. Keefe ..... 206
- Prevalence of Antibodies to *Mycoplasma avium* subsp. *paratuberculosis* (Johne's Disease) in Saskatchewan Beef Cows on Community Pasture  
Cheryl Waldner, Gail Cunningham, John Campbell, Eugene Janzen, Sheila Copeland ..... 207
- Comparison of Three Reverse Transcription-Polymerase Chain Reaction Assays for the Detection and Genotyping of Bovine Viral Diarrhea Virus Isolates  
Byung Chul Ahn, Paul H. Walz, Sanjay Kapil ..... 208
- Economic Value of Early Cytogenetic Testing of Potential Cattle Breeding Stock  
Alvin F. Weber, Lance Buoen ..... 209
- Differential Diagnosis of Colic in Calves  
H. Wendel, G. Rademacher, W. Klee ..... 209
- Comparison of an Ovsynch Protocol with a PGF<sub>2α</sub> - treatment based on Rectal Palpation  
M. Wittke, M. Drillich, B.-A. Tenhagen, W. Heuwieser ..... 210
- A Multi-location Clinical Study of Ceftiofur for the Treatment of Postpartum Cows with Elevated Temperature and other Complications  
Chun Zhou, Joseph F. Boucher, Kenneth J. Dame ..... 211

### Advertisers' Index

- Bayer Corporation ..... front of book, 9
- Elanco ..... front of book, 26
- Pharmacia & Upjohn Inc. .... front of book, 42, 56, outside back cover
- Schering Plough Animal Health ..... inside front cover, 87