LIVESTOCK EDITION • SPRING 2018 VOL 8 • ISSUE 1 • WWW.VET-ADVANTAGE.COM

Promoting Excellence in Animal Health Sales

Veterinary advantage

An Official Publication of the NAVC



Aiming at Swine Influenza Virus

The disease is taking a toll on hog producers as new strains make it difficult to control

INSIDE:

A Critical Season » p.6
AABP's 50th Annual Conference » p.10
The Perfect Place » p.46

EQUINE EXTRA

A veterinarian's first look at a case of colic often occurs outside the clinic pg29

NAVC The North American Veterinary Community

www.norbrook.com

The Choice is Simple



Single-Dose BRD Treatment & Control

Same Active Ingredient & Dosing Regimen as Baytril® 100 in Beef & Non-Lactating Dairy Cattle

Available in 100 mL, 250 mL & now in 500 mL Bottles

Federal law restricts this drug to use by or on the order of a licensed veterinarian. Federal law prohibits the extra-label use of this drug in food-producing animals. Cattle intended for human consumption must not be slaughtered within 28 days from the last treatment. This product is not approved for female dairy cattle 20 months of age or older, including dry dairy cows. Use in these cattle may cause drug residues in milk and/or calves born to these cows. A withdrawal period has not been established in pre-ruminating calves. Do not use in calves to be processed for veal. Use with caution in animals with known or suspected CNS disorders. Observe label directions and withdrawal times. See product labeling for full product information.

Norbrook®

The Norbrook logos are registered trademarks of Norbrook Laboratories Limited
Enroflox is a registered trademark of Norbrook Laboratories Limited
Baytril is a registered trademark of Bayer Animal Health

0717-495-I02B

Editor
Jennifer Ryan
jryan@NAVC.com

Managing Editor
Graham Garrison
ggarrison@NAVC.com

Art Director
Brent Cashman
bcashman@NAVC.com

Vice President of Sales & Marketing
Rick Boggess
rboggess@NAVC.com

Director of Sales
Doreen Carpenter
dcarpenter@NAVC.com

Account Executive
Paige Ellington
pellington@NAVC.com

Digital Strategy and Content Coordinator
Angelina Varagona
avaragona@NAVC.com

Director of Training and Channel Relationships
Rachel Bailey
rbailey@NAVC.com

Circulation
Laura Gantert
lgantert@NAVC.com

Group Publisher
Chris Kelly
ckelly@NAVC.com

Veterinary Advantage
622 East Washington St., Ste. 300
Orlando, FL 32801

2018 editorial board

Kim Allen, Henry Schein Animal Health
Spencer Breithaupt, MWI Animal Health
Clay Cass, Henry Schein Animal Health
Jeannie Jeffery, Henry Schein Animal Health
Jackie King, American Veterinarian Distribution Association
Jesse Larios, Foster Feedyard
Karen Miller, Midwest Veterinary Supply
Rod Taylor, Midwest Veterinary Supply
Kevin Pohlman, Patterson Veterinary
George Rasi, NEVSCo
Buddy Ray, DVM, Bovine Consulting Assoc., LLC.

NAVC The North American Veterinary Community
An Official Publication of the NAVC

CONTENTS

Editor's Note Jennifer Ryan
Spring Health
Prevention, management, treatment work together for optimal animal health....2

Sales Patrick T. Malone
Coaching: Helping Others Succeed....4

Inside Sales Dawn Singleton-Olson
A Critical Season
A successful calving season with healthy cows and their offspring sets the stage for a profitable year for cattle producers....6

AABP Annual Conference
Bovine Industry Professionals Gather for Record-Setting 50th AABP Annual Conference
The 50th AABP Annual Conference in Omaha, Neb., offered veterinarians and others world-class continuing education in bovine medicine....10

Swine Influenza Virus Jennifer Ryan
Aiming at Swine Influenza Virus
The disease is taking a toll on hog producers as new strains make it difficult to control....18

Equine Extra:

Diagnosing and Treating Colic in the Field Jennifer Ryan
A veterinarian's first look at a case of colic often occurs outside the clinic....29

Rabies Realities
Stressing the importance of the rabies vaccine as one of the core equine vaccines....36

Dairy Jennifer Ryan
Ready for an Immune Response
Dairy calf health – and future profitability – is linked to early illness....42

Changes Jim Whitt
The Perfect Place
Why we should seek value in our struggles....46

FFA Nicole Ward and Julie Woodard
Alternative Energy Powers Tennessee Agricultural Education....48

Community
World Dairy Expo....52

Veterinary Advantage magazine Livestock Edition, NAVC 5003 SW 41st Blvd. Gainesville, FL 32608. Copyright 2018 All rights reserved. Subscriptions: $49.00 per year for individuals; issues are sent free of charge to dealer representatives. If you would like to subscribe or notify us of address changes, please contact us at the above numbers or address. **POSTMASTER:** Send address changes to Veterinary Advantage, PO Box 862151, Marietta, GA 30062. **Please note:** The acceptance of advertising or products mentioned by contributing authors does not constitute endorsement by the publisher. Publisher cannot accept responsibility for the correctness of an opinion expressed by contributing authors. Periodicals Postage Paid at Marietta, GA and at additional mailing offices.

Spring Health

Prevention, management, treatment work together for optimal animal health



BY JENNIFER RYAN

Share your successes. Drop me a line at jryan@NAVC.com.

As I write this, the dreaded cold and flu season is sweeping the nation right now. Yet, livestock producers are tasked with keeping animals healthy and productive 365 days a year.

Almost every discussion with experts in the field includes three components to health: prevention of disease; good management; and effective treatment options. Each component needs the other for optimal productivity – regardless of the livestock species, age or stage.

Prevention takes center stage in "Aiming at Swine Influenza Virus" on page 18. As the article explains, swine influenza virus (SIV) is a complex and ever-shifting disease for swine producers. Vaccination and biosecurity are critical components to limiting the disease's financial impacts.

A lifetime of dairy calf health and productivity has been linked to illness early in the calf's life (see "Ready for an Immune Response" on page 42). Yet, nearly a quarter of all dairy calves are challenged with some sort of digestive challenge. Effective, responsive treatment is a key component to getting calves healthy again.

There are hundreds of livestock veterinarians across the country working towards the three-pronged goals of prevention, management and treatment every day. Just look at the long list of award winners from the most recent American Association of Bovine Practitioners (AABP) conference as proof.

Distributors can influence all three areas. At *Vet-Advantage*, we're committed to helping you assist your clients in achieving another successful year.

Jennifer Ryan

Visit **NAVC.com** to learn more about its journals, conferences and educational offerings.

THERE'S A NEW SHERIFF IN TOWN.



Introducing the New Y-Tags™ One-Piece Tagging System from Y-Tex®.

It's high noon for old-fashioned ear tags, because the new Y-Tags one-piece tagging system is about to run them right out of town. Y-Tags feature a revolutionary new Surgi-Tip™, advanced materials and exclusive 100% PureLaser™ imprinting for superior retention, rugged durability and readability that's guaranteed for the life of the animal. Plus, Y-Tags are a cinch to apply, no matter what brand of one-piece tagger you like to use. To learn more about the toughest tags around, visit **www.y-tex.com** or your nearest livestock products retailer.

Y-TAGS™

Y-Tags™, Surgi-Tip™ and PureLaser™ are trademarks of Y-Tex Corporation. © 2017 Y-Tex Corporation.

Y-TEX®

Coaching: Helping Others Succeed



BY PATRICK T. MALONE

Patrick T. Malone is a Business Advisor and Leadership Mentor based in Blairsville, Ga. He is the co-author of the best-selling business book *Cracking the Code to Leadership* and may be reached at ptm4936@gmail.com or 706-835-1308.

With society's current focus inward, the concept of helping others succeed may not seem like the answer to the perennial question, "What's in it for me?" Yet, when one does stop long enough to contemplate the commonality of the success around us, we begin to see how helping others succeed plays a central role in our individual success.

Years ago when I first started out in my career, a sales trainer told me that my success was directly related to my customer's success. At the time I didn't see that as particularly insightful. After all, any salesperson with successful customers will be successful, because successful customers buy more than unsuccessful customers. Home Depot is more successful than many local hardware stores, so I initially interpreted that message to mean, sell to more Home Depots.

Fortunately, as time passed, I matured in my career, and that message took on a whole new meaning. I began to see that if I could show my customers how my products and services could help them succeed, then I could transition from being simply a salesperson to a business consultant, and maybe even a trusted advisor. Achieving those levels of relationships had a significant impact on my sales performance.

So my customers' successes led to my success, and I was promoted to sales management and a new opportunity to test the theory that success comes from helping others succeed.

How could I, the new sales manager, help my sales reps succeed? Again, the answer seems relatively straightforward. Since I was a good salesperson I would work with my reps and close more deals for them. After six months of running myself ragged closing deals without impacting the total district sales, I realized that once again I had misinterpreted the trainer's advice. I began to gain a real understanding of helping others succeed – coaching!



Six steps

Over time, I developed a simplified process for coaching others to acquire the feel of a skill and building enough muscle memory so that they could make it their own. The process involved six simple steps:

1. **Set Expectations.** Without a clear definition of the skill, there is little hope for people to make it their own. In addition, those expectations must reference some criteria that the person can measure. How else will they know when they are successful?

2. **Demonstrate.** It is a proven fact that we retain more when we "see" it in addition to just "hearing" it. Successful coaching demands more than just the transfer of information. How many of you ever improved your golf game by reading a book? Most of us require a fairly skillful coach in addition to information alone. Therefore, coaching requires enough skill to demonstrate the skill being coached.

3. **Practice.** This is where most of today's coaching efforts fall apart. Many of today's students expect instant success. "Give me the magic pill, I'll take it and then I'll be successful." That may be today's reality, but the real problem arises when the coach buys in. If you want to be well liked you probably will not make a good coach. Expert coaches adopt that old Marine Corps drill instructor attitude – Never Satisfied. Professionals know the value of practice and pushing the envelope.

4. **Execute.** Expert coaches also understand that some students are great in practice but fold under the reality of executing in the real world. That's why it is critical that coaching extend onto the real playing field of business. This is where the coach is put to the greatest test. Sometimes failure is the greatest teacher; at other times, success holds the magic. Expert coaches decide in the moment which course of action will benefit the student most.

5. **Debrief.** Every sales call or interaction is an opportunity to coach. The key to success here is what happens in the debriefing. Start by pointing out the successes. Everyone likes to hear what he or she did well. It reinforces the individual strengths. If there is room for improvement, select the one or two most critical areas and work on them first. Overwhelming the individual with a laundry list of items to be improved will only guarantee failure. Most importantly, when there is an area for improvement, point the student towards the improvement. Never criticize the error, as that will only ensure it will be repeated again. Point out the solution or point in the direction of the solution. You will find the results much more satisfying.

6. **Repeat.** No one ever reaches the point where some coaching would not be beneficial. Michael Jordan, Tiger Woods, and Michael Schumacher all continued to use the services of coaches during their careers. It is the concept of "continuous improvement" played out with our human capital rather than simply against a process.

Helping others succeed is the path to our organizational success as well as our personal success. You will also find it to be very rewarding when measured against all the criteria for success. If you are a distribution sales manager looking for better results try this approach with your reps on your next ride along. If you are a distribution rep looking to step up your game, ask your manager to help you succeed by remembering that leadership is a skill, not a position. ■

BY DAWN SINGLETON-OLSON



A Critical Season

A successful calving season with healthy cows and their offspring sets the stage for a profitable year for cattle producers

For cattle producers, the issues they face during spring calving season – and how they react to them – affect their success for the rest of the year. A survey conducted last fall by Colorado State University and *BEEF* magazine asked producers what they considered to be the industry's top five challenges. Three of the top five involved keeping animals healthy, with cow-calf health at 57 percent, reproductive health at 49 percent, and biosecurity and disease prevention chosen fifth at 36 percent, with animal welfare issues close behind. Your knowledge of the products and procedures to keep livestock healthy during this critical season can have a positive impact on the success of your veterinary customers and producers through calving season, into weaning, and right up to seeing increased profits at sale time.

Healthy births

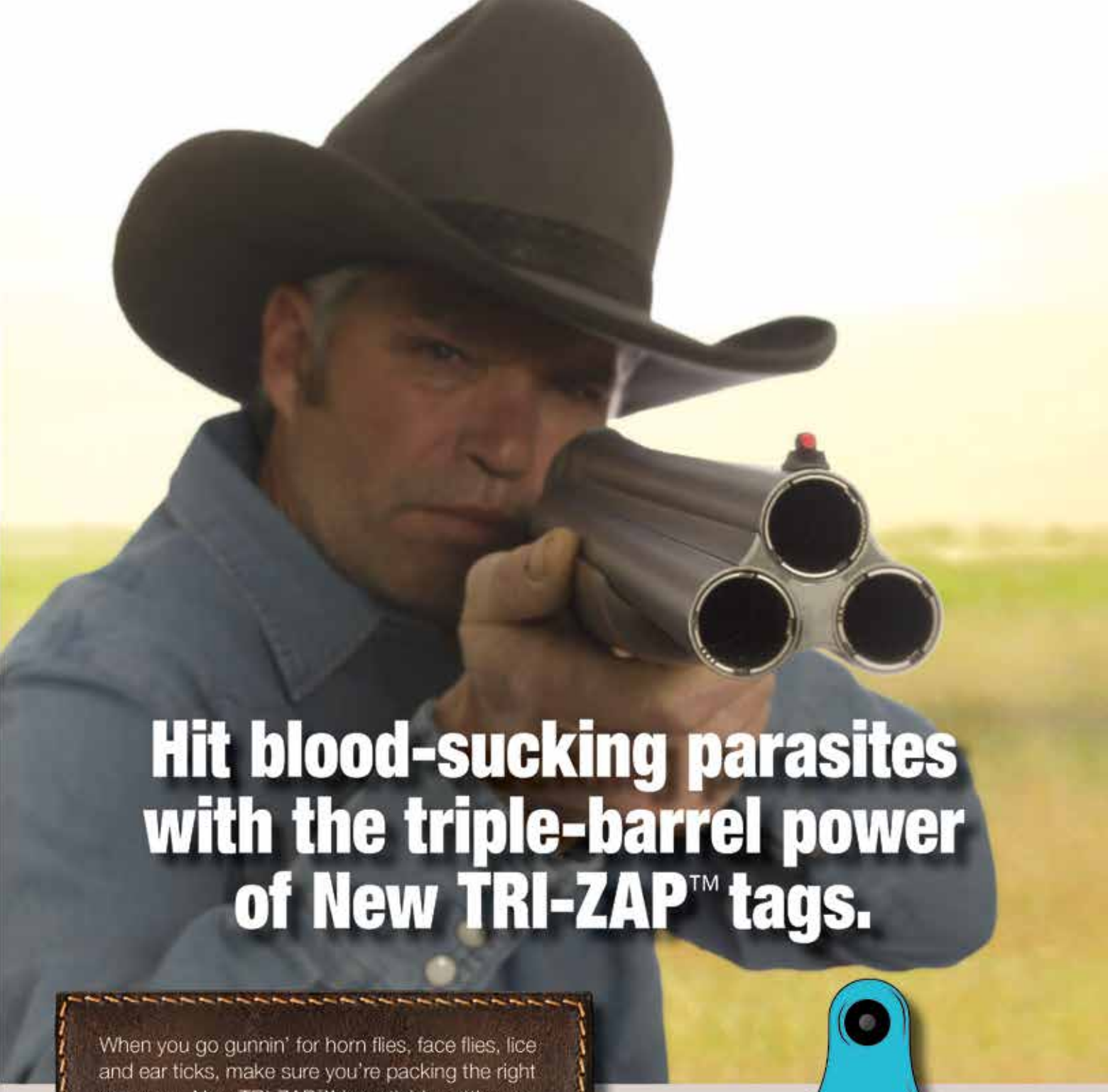
Ensuring the birth of a healthy calf starts with a well-nourished cow in optimal health. We're in the waning days for lice infestations this time of year, but they can still be a problem in many parts of the country through the end of March. Ranchers who treated in the fall may see a buildup of lice in late winter. The majority of parasite control products are safe for use in pregnant cattle, so they may want to treat the entire herd again prior to calving. Take a few moments to review those products and their labels to discuss late-season orders with your customers.

Both veterinarians and producers need to be prepared to assist with difficult births, so make sure your customers are well-stocked with the necessary equipment: OB chains, calf pullers, OB gloves and lube, and disinfectant scrub, like chlorhexidine.

The best disease protection for newborn calves is making sure they get an adequate amount of good-quality colostrum as soon as possible after birth that contains antibodies against most of the pathogens they might encounter. Colostrum ingestion is critical for calves since they are born without the protective immunity of antibodies, and it has a profound effect on the future performance of the calf.

Pregnant females begin to form colostrum by pulling antibodies from the blood and storing them in the mammary tissue three to six weeks before calving. Vaccinating cows before calving helps build peak antibody levels to make sure the colostrum contains the maximum amount of protective antibodies at birth against pathogens such as rotavirus, coronavirus, Clostridium perfringens Type C and D and *E. coli*. Timing is key and varies depending on the vaccine, so reviewing the products you carry and knowing their label instructions will be valuable when discussing vaccination protocols with your customers.

Immunoglobulins from colostrum are absorbed very efficiently in the small intestine of a newborn calf, but it doesn't take long for the cells lining the intestine to "close". Within



Hit blood-sucking parasites with the triple-barrel power of New TRI-ZAP™ tags.

When you go gunnin' for horn flies, face flies, lice and ear ticks, make sure you're packing the right weapons. New TRI-ZAP™ insecticide cattle ear tags from Y-TEX®. TRI-ZAP tags are the only tags on the market with three proven active ingredients to stop performance-robbing parasites dead in their tracks. Even those resistant to other tags. So ask your livestock products supplier for the triple-barrel power of TRI-ZAP insecticide cattle ear tags, or visit www.ytex.com to learn more.



Always read and follow label directions. TRI-ZAP is a trademark of Y-TEX Corporation.
© 2016 Y-TEX Corporation

Y-TEX®
EXCELLENCE IN ANIMAL HEALTH™

12 hours after birth, the calf's ability to absorb antibodies is greatly diminished and is completely gone by 24 hours. The optimum time to absorb the maximum amount of antibodies is within two to four hours after birth. Calves that experience failure of passive transfer (FTP) are far more likely to die in the first two months than calves that receive adequate immunity, so for cases where a calf is unable to nurse within that critical time frame, it may be necessary to tube feed the calf. For times when it may not be possible to use maternal colostrum, producers should have a high-quality colostrum replacer or supplement on hand, along with an esophageal feeder. First-calf heifers typically produce lower-quality colostrum than mature cows, so this is another instance where a colostrum supplement may be needed.



Cold weather can stress the immune systems of calves born early in the season. Producers may want to vaccinate with a respiratory vaccine at birth to prevent BRD.

Protecting immune systems

Cold weather can stress the immune systems of calves born early in the season. Producers may want to vaccinate with a respiratory vaccine at birth to prevent BRD. Stressed calves may also develop scours from protozoal infections from cryptosporidiosis or coccidiosis. Unlike E. coli or clostridia, there are no vaccines for these infections. Several products are effective in treating coccidiosis, such as amprolium, sulfas, or decoquinate. Calves with cryptosporidiosis often need fluid therapy and electrolytes to counteract dehydration. Your customers will want to be well-stocked with these products along with scour boluses and calf balling guns.

Producers will want to be able to identify their calves as soon as possible, so check your client's purchase history for their preferred brand of ear tags, and make sure they don't forget taggers, marking pens, tag removal knives and livestock markers.

Reducing stress, and pain

Many veterinarians recommend castrating calves as early as possible, to reduce stress and for the overall health of the calf. A variety of products may be used, depending on the age of the calf and the preference of the vet or producer. These might include: scalpel handles with castrating (#10) blades; elastrator bands and banding tools; emasculators; Newberry knives; Burdizzo clamps; disinfectant solution, such as chlorhexidine.

Alleviating pain and stress during procedures such as castration and dehorning is an important issue in the livestock industry and one that deserves more attention, according to Dr. Randall Raymond, director of research and veterinary services for Simplot Livestock in Idaho. Just 10.5 percent of respondents to the Colorado State University/*BEEF* Survey reported using pain relief methods when castrating or dehorning, and only 13.5 percent said they've had a veterinarian offer to administer a drug for pain management during those procedures. Consider having a conversation with your practitioners regarding pain management techniques and the value this may bring to their producers, since animal welfare is a topic that will continue to get more attention in the industry. As Raymond says "As stewards of these animals and their well-being, this is something we must consider … The calf deserves the best we have."

A successful calving season with healthy cows and their offspring sets the stage for a profitable year for cattle producers and your veterinary clients who serve them. Knowing the variety of products your customers and their clients need to keep their animals healthy, and making sure they're well-stocked during this hectic season will make you a valued partner in that success. ■

Dawn Singleton-Olson has more than 25 years of experience in the animal health industry, including distributor sales, manufacturing, practice management and as a zoo supervisor. She is a volunteer, fundraiser and board trustee for several humane organizations and the Omaha (Neb.) Police Mounted Patrol.

Boehringer Ingelheim

Cattle First.

ZERO*

WASTE. ZERO WORRY.



Use Dry-Clox® to get zero milk withhold.*

When it comes to mastitis treatment in dry cows, DRY-CLOX (*cloxacillin benzathine*) works triple time for your herd, your bottom line and your peace of mind. Treating with DRY-CLOX means you'll have a zero milk withhold period after calving, following a 30-day dry period. Plus, it's 44% less expensive than Spectramast DC®. So, use it, and don't lose it. For more information, contact your veterinarian or visit **bi-vetmedica.com/dryclox.**

Dry-Clox®
(cloxacillin benzathine)

***Residue Warnings:** For use in dry cows only. Not to be used within 30 days of calving. Any animal infused with this product must not be slaughtered for food until 30 days after the latest infusion.

Dry-Clox is a registered trademark of Boehringer Ingelheim Vetmedica, Inc. Spectramast is a registered trademark of Zoetis, its affiliates, related companies, or its licensors or partners. ©2018 Boehringer Ingelheim Vetmedica, Inc. **BOV-1015-MAST0218**

Photos by Sam Albers, courtesy of AABP.

Bovine Industry Professionals Gather for Record-Setting 50th AABP Annual Conference

The 50th AABP Annual Conference in Omaha, Neb., offered veterinarians and others world-class continuing education in bovine medicine.







Twelve veterinary students receive 2017 AABP Foundation – Zoetis Veterinary Student Scholarships at the 50th Annual AABP Conference in Omaha, Nebraska. Front row (L-R): Dr. Roger Saltman (Zoetis), Lauren Thompson, Sarah Cook, Delaine Quaresma, Lora Gurley, Michelle Mitchell, Jonathan Lowe (Zoetis). Back row (L-R): Kevin Gavin, Max Beal, Cade Luckett, Ben Bennett, Joseph Hammes, Ethan McEnroe, Brian Schnell.

The animal health industry, like several other health-related industries, is continuously growing and expanding research-based and technical knowledge on the best practices and methods to use to improve the well-being of animals.

At the 50th Annual Conference of the American Association of Bovine Practitioners, held Sept. 14–16, 2017 in Omaha, Neb., veterinarians and many other professionals from across the country and the globe obtained updated from industry experts in the conference program geared toward the 2017 theme, "What We Know That Isn't So."

A record attendance of 1,432 individuals including 384 students, 137 American Association of Small Ruminant Practitioner (AASRP) members, 32 graduate students, five veterinary technicians, 150 accompanying persons, and 447 exhibitor representatives from 125 booths. Total attendance was 2,029 from 19 countries. The 50th AABP Annual Conference was once again held jointly with the AASRP.

AABP Immediate Past President Mark Thomas, DVM, Dipl. ABVP, Lowville, N.Y., says, "After a week packed full of continuing education opportunities, committee and board meetings and plenty of social and networking time, we are proud to announce the largest attendance of any conference in the history of AABP. The AABP Board of Directors spent considerable time discussing important topics for the successful future of our organization, but we were also efficient enough to take part in plenty of program activities."

Thomas explains that the student members had a huge impact overall, especially with the addition of a surprise event that pitted the 2017 Quiz Bowl Champion Team against the AABP Executive Committee, of which the team from The Ohio State University handily won.

"From the huge success of the auction to the introduction of the new faces of our staff members, it was certainly a meeting not to be missed," Thomas continues. "I look forward to continued involvement as AABP Past President and other opportunities in the years to come, and I encourage all veterinarians interested in bovine medicine to become involved in our organization. We are the future of the profession."

A total of $211,500 in scholarships and travel stipends were awarded at this conference in addition to other awards. Adding to this year's success were in-depth preconference seminars, a new product showcase in the Exhibit Hall, live and



Dr. Robert Harding, Spanish Fork, Utah, received the 2017 Dairy Quality Assurance Veterinarian of the Year Award sponsored by Boehringer Ingelheim Vetmedica, Inc. and the Dairy Quality Center.



Dr. Bob Smith, Stillwater, Okla., (left) received the 2017 Zoetis AABP Distinguished Service Award from Dr. Mike Apley.



Dr. David Kelton, Guelph, Ont., (left) received the 2017 AABP Award of Excellence from Dr. Ken Leslie.

silent auctions supporting the Amstutz Scholarship Fund, and over 130 runners registered for the 5th Annual 5K Stampede Fun Run sponsored by Boehringer Ingelheim Vetmedica, Inc., which added $7,000 to the Amstutz Scholarship Fund. The live auction, held in the evening of September 15, reaped over $83,000, and combined with the silent auction, garnered just over $100,000.

"A highlight for me was the Friday evening auction with the FoG contingent (Friends of Chuck Guard) stealing the show along with contributions from the Big 10 Bull Buyers and the Southern Crescent Bull Syndicate for the Mark Hopkins Bronze Bull Statue this year, all for the Amstutz Scholarship Fund," says incoming AABP President Mike Apley, DVM, PhD, Kansas State University.

The AABP Foundation also reaped rewards from the $50 for 50 Years campaign which encouraged members to donate $50 to the Foundation for the 50th Annual Conference. From preregistration and through the AABP conference, several thousand dollars were raised for the Foundation which supports scholarships and clinical research.

Apley explains that many of the attendees were very appreciative of the sessions and everything else going on around them. "The contents of the meeting were due to the hard work of the program committee and their coordinated sessions that resulted in a great meeting."

"When I would walk out of a session during break time and witness multiple discussions about the presentation, all while holding a milk or chocolate milk in one hand, you know it was a very provocative and thought-provoking session," Apley continues. "I was so pleased to see the great attendance toward the end of the conference on Saturday afternoon and a big attendance at Practice Tips and the Saturday evening gathering," Apley adds.

> "I was so pleased to see the great attendance toward the end of the conference on Saturday afternoon and a big attendance at Practice Tips and the Saturday evening gathering."
>
> **– Mike Apley, DVM, PhD, Kansas State University**

The continued industry education included preconference seminars, clinical forums, scientific sessions (including general, beef, dairy, practice management, student and more), student case presentations, research summaries, poster presentations, practice tips and a special BQA session with the National Milk Producers Federation.

AABP Executive Vice President K. Fred Gingrich, II, DVM, noted that information on a new recent graduate conference to be held in February of 2018 will be forthcoming.

In addition to the conference, AABP has been active in producing business management webinars for bovine veterinarians through its Veterinary Practice Sustainability Committee and has offered hands-on bovine embryo transfer seminars in conjunction with Virginia Tech. AABP has also played a leadership role in conversations around issues of importance to members and animal agriculture including animal welfare, antimicrobial use and resistance, and prudent drug use.

FIRST ROUND KNOCKOUT!*



40 YEARS



Treat mastitis at dry-off with powerful, proven Quartermaster®

In a 2012 university study of more than 1,000 dairy cows, Quartermaster® Suspension (penicillin-dihydrostreptomycin in oil) was shown to be 93% effective in curing intramammary infections during the dry period.* Its two active ingredients, including a first-generation penicillin, deliver a powerful punch against mastitis-causing bacteria for highly effective dry cow therapy, round after round, year after year.

For more information on Quartermaster Suspension, contact your veterinarian or call (888) 493-0861.
Quartermaster-rx.com

Quartermaster®
Suspension
penicillin-dihydrostreptomycin in oil

Don't just treat mastitis. MASTER IT.

*Important Safety Information – **Indications:** Intramammary use to reduce the frequency of existing infections and to prevent new infections with* Staphylococcus aureus *in dry cows. **Limitations:** Not to be used within 6 weeks of freshening. Not for use in lactating cows. Milk taken from animals within 96 hours (8 milkings) after calving must not be used for food. Animals infused with this drug must not be slaughtered for food within 60 days from the time of infusion nor within 96 hours after calving. Federal law restricts this drug to use by or on the order of a licensed veterinarian. **Ingredients:** Each 10 milliliters of suspension contains 1,000,000 units of Procaine Penicillin G and 1 gram of Dihydrostreptomycin base, as Dihydrostreptomycin Sulfate.*

*Arruda AG, Godden S, Rapnicki P, Gorden P, Timms L, Aly SS, Lehenbauer TW, Champagne J. 2013. Randomized noninferiority clinical trial evaluating 3 commercial dry cow mastitis preparations: I. Quarter-level outcomes. *J Dairy Sci.* 96:4419-4435.
©2017 QUARTERMASTER is a registered trademark of West Agro Inc.

$325,000 in Scholarships/Awards Given to AABP Student Members

Just over $325,000 in scholarships, awards and other support was given to veterinary students and graduate veterinarians. The awards, funded by AABP members, AABP partners and the AABP Foundation, will enable recipients to further pursue their careers in bovine medicine.

"A total of $211,500 in scholarships and travel stipends were awarded during the AABP Annual Conference" notes AABP Executive Vice President Dr. K. Fred Gingrich, II. "These scholarships are supported by generous donations from Zoetis, Merck Animal Health, the Eli Lily Foundation and donations from individual members including the Amstutz Live and Silent Auctions and the 5K Stampede sponsored by Boehringer Ingelheim Vetmedica, Inc."

AABP also provides over $40,000 for the Student Delegate program with support from Norbrook, as well as awarding $4,500 to the student case competition winners, $6,000 to the graduate student research summary competition winners (with support from the BRD Symposium), $20,000 in 2017 education grants for students, $3,000 in student chapter funding and $40,000 in externship grants.

> "It is very important for students to see how veterinarians take scientific concepts that are researched and taught in universities and apply these concepts to real-world situations."
>
> **– Kevin Gavin**

For Kevin Gavin, scholarship recipient and veterinary student at Washington State University, the scholarship means more than helping relieve financial pressure from costs of veterinary education.

"This scholarship will reduce the financial burden of my final year of veterinary school significantly, which will allow me to spend more time gaining as many valuable educational experiences as I can before graduation," he says. "It is very important for students to see how veterinarians take scientific concepts that are researched and taught in universities and apply these concepts to real-world situations. The only way to do this is to spend time with veterinarians and on farms, allowing students to understand the concepts firsthand."

Amstutz Scholarships ($7,500 each)

- Brandon Colby, The Ohio State University
- Jessica Gaska, University of Wisconsin
- Rebecca Gibbs, Colorado State University
- Amy Kraus, University of Pennsylvania
- Danielle Mzyk, North Carolina State University
- Mark Spare, Kansas State University
- Robert Stenger, Mississippi State University
- Bryan Welly, University of California-Davis

Merck Animal Health Student Recognition Awards ($5,000 each)

- Max Beal, Kansas State University
- Ben Bennett, Kansas State University
- Justin Casares, Texas A&M University
- Taylor Crandall, Kansas State University
- Alex Gander, University of Wisconsin
- Marissa Horton, Cornell University
- Cade Luckett, Texas A&M University

- Tara Lynch, Oklahoma State University
- Randall Morgan, University of Wisconsin
- Rachel O'Leary, University of Wisconsin
- Jenna Porter, Iowa State University
- Delaine Quaresma, University of California-Davis
- Cassandra Rice, Iowa State University
- Travis Roberts, Ross University
- Brian Schnell, University of Wisconsin
- Kristy Shaw, Ohio State University
- Lauren Thompson, Texas A&M University
- Kendra Wells, University of Wisconsin

AABP Foundation-Zoetis Scholarships ($5,000 each)

- Max Beal, Kansas State University
- Ben Bennett, Kansas State University
- Sarah Cook, Louisiana State University
- Kevin Gavin, Washington State University
- Lora Gurley, Michigan State University
- Joseph Hammes, University of Minnesota
- Cade Luckett, Texas A&M University
- Ethan McEnroe, University of California-Davis
- Michelle Mitchell, Purdue University
- Delaine Quaresma, University of California-Davis
- Brian Schnell, University of Wisconsin
- Lauren Thompson, Texas A&M University

2017 AABP Research Summaries Graduate Student Awards

These awards are funded in part by the Bovine Respiratory Disease Symposium.

- First Place: Dr. Oscar Benitez, Michigan State University
- Second Place: Dr. Kathryn Bach, Cornell University
- Third Place: Dr. Charlotte Winder, University of Guelph

Student Clinical Case Presentation

- Overall Student Case/Research Presentation Winner and First Place Case Presentation Winner: Justin Casares, Texas A&M
- Second Place, Student Case Presentation: Lauren Thompson, Texas A&M

Student Research Presentation:

- First Place: Kristen Livengood, North Carolina State University
- Second Place: Joseph Hammes, University of Minnesota

2017 AABP Foundation Competitive Research Grants

- Dr. Pat Gorden, Iowa State University, Comparison of analgesics for control of lameness-associated pain in lactating dairy cattle
- Dr. Craig McConnel, Washington State University, Comparison of group versus individual calf rearing for a summary measure of health

2017 AgriLabs Dr. Bruce Wren CE Awards ($5,000 each)

- (Beef) Dr. Holt Tripp, Okotoks, Alberta
- (Dairy) Dr. Sarah Geibel, Canyon, Texas

Top Honors Awarded to AABP Dairy and Beef Veterinarians at AABP

The top honor that an American Association of Bovine Practitioners (AABP) member can obtain in his or her career is the Boehringer Ingelheim Vetmedica, Inc. AABP Bovine Practitioner of the Year award.

This year, this prestigious award was given to Dr. Norm LaFaunce, Turlock, Calif., at the 2017 AABP Annual Conference in Omaha, Neb., Sept. 14–16. The award honors a veterinarian in active practice who is active in organized veterinary medicine and has made significant contributions to bovine medicine.

Several other bovine veterinarians were also honored at the Annual Business Meeting and Awards Luncheon on September 16. They are:

AABP Award of Excellence

- Dr. David Kelton, Guelph, Ont.

Zoetis Distinguished Service Award

- Dr. Bob Smith, Stillwater, Okla.

Merck Animal Health Mentor-of-the-Year Award

- Dr. Dee Griffin, Canyon, Texas

Boehringer Ingelheim Excellence in Preventive Medicine Awards

- (Dairy) Dr. Fred Muller, Sunnyside, Wash.
- (Beef) Dr. Robert Gukich, Lake Wales, Fla.

Dr. James A. Jarrett Award for Young Leaders

- Dr. Trent Fox, Hays, Kan.

Cattle Production Veterinarian Hall of Fame

- (Dairy) Dr. Darrel Johnson, Marshfield, Wis.
- (Beef) The late Dr. Rodney Oliphant, Offerle, Kan.

Student Chapter and Faculty Advisor Awards

- Student Chapter – The Ohio State University
- Faculty Advisor – Dr. Eric Gordon, The Ohio State University



LONGRANGE®
By Merial
(eprinomectin)

Here, TIME IS MEASURED IN GENERATIONS.

That's why you need LONGRANGE for up to 150 days of parasite control.[1]

Bloodlines. You're as proud of yours as you are of theirs. But if you used a short-term dewormer like CYDECTIN® (moxidectin) or DECTOMAX® (doramectin), you may not have been doing your genetics justice. That's because your cows and heifers were probably reinfected with parasites just halfway through the grazing season – right when they need to gain weight to breed back and give milk.

Only LONGRANGE delivers true season-long control.[1]

25.4 lbs. LONGRANGE heifers gained 25.4 lbs. more on average over those treated with DECTOMAX.[2]



Available in 500 mL, 250 mL and 50 mL bottles.
Administer subcutaneously at 1 mL/110 lbs.

Out here, there is no time for shortcuts. This year, think LONGRANGE.

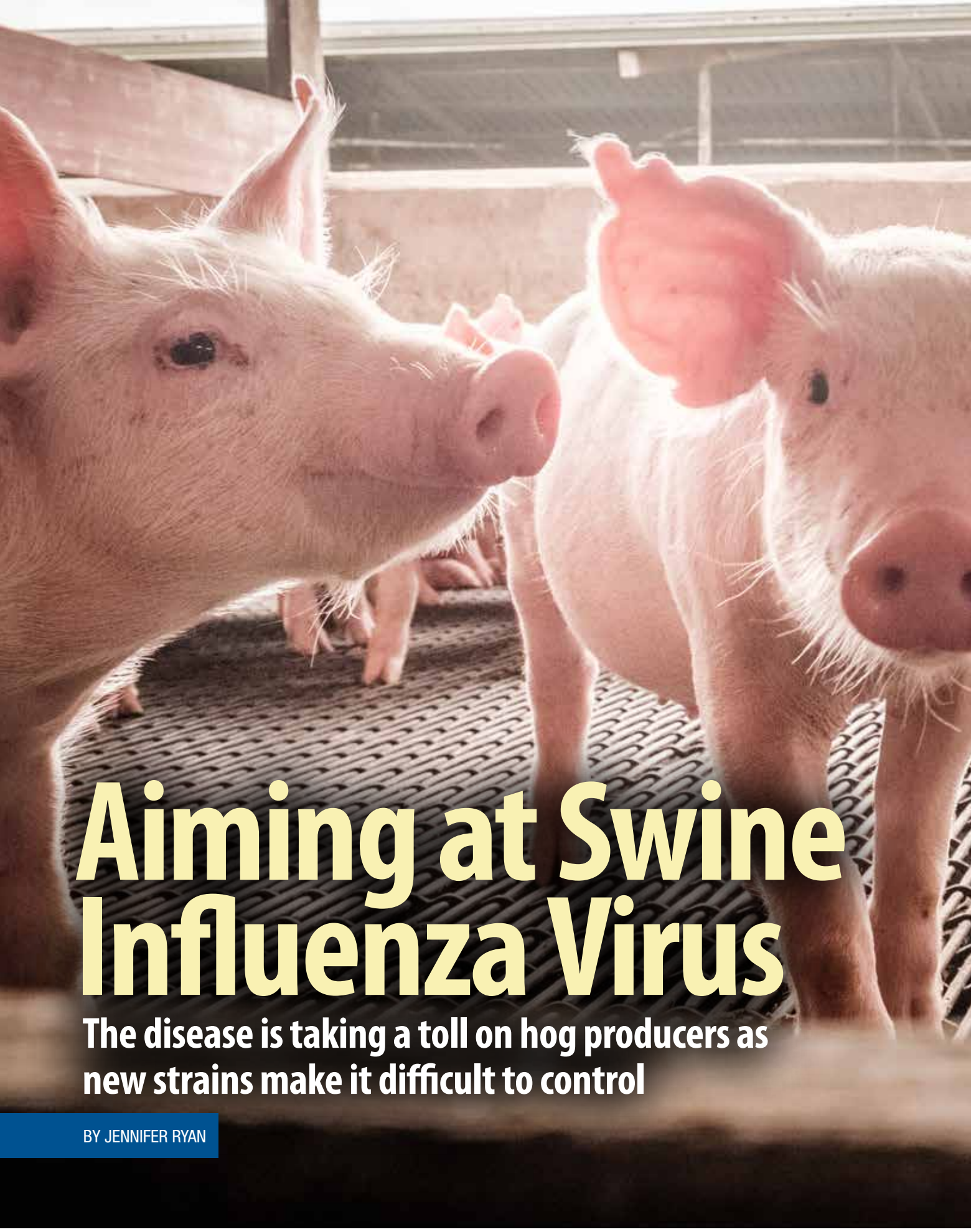
theLONGRANGElook.com

CAUTION: *Federal law restricts this drug to use by or on the order of a licensed veterinarian.*
WARNINGS AND PRECAUTIONS: *For use in cattle only, not for use in humans or other animal species. Keep out of reach of children. Not for use in breeding bulls, or in calves less than 3 months of age. Not for use in cattle managed in feedlots or under intensive rotational grazing. Not for use in female dairy cattle 20 months of age or older, including dry dairy cows, or in veal calves. Post injection site damage (e.g., granulomas, necrosis) can occur; these reactions have disappeared without treatment. Not for intravenous or intramuscular use. Do not underdose. Do not treat within 48 days of slaughter.*

Boehringer Ingelheim

Merial is now part of Boehringer Ingelheim. ®LONGRANGE and the Cattle Head Logo are registered trademarks of Merial. All other marks are the property of their respective owners. ©2017 Merial, Inc., Duluth, GA. All rights reserved. BOV-0534-ANTH1017

[1] **Dependent upon parasite species, as referenced in FOI summary and LONGRANGE product label.**
[2] Results based on actual on-farm comparative demonstration. Individual herd results may vary. Data on file at Boehringer-Ingelheim. Consult with your veterinarian to discuss expectations for your operation.



Aiming at Swine Influenza Virus

The disease is taking a toll on hog producers as new strains make it difficult to control

BY JENNIFER RYAN



In the last decade, influenza A virus in swine (IAV-S) has become an increasingly difficult disease challenge for hog producers to control. In part, this is due to shifting strains that make IAV-S – like it's human influenza counterpart – difficult to vaccinate against.

The damage

Pigs infected with IAV-S can suffer from slow growth and poor feed conversion. The economic hit can be coupled with secondary infections that can result in mortalities.

"A lot of the cost of the disease is in the growing pigs," says Montse Torremorell, DVM, Ph.D., associate professor at the University of Minnesota College of Veterinary Medicine. "Although prior to weaning is when the piglets are at greatest risk of infection."

Typically, piglets become infected with IAV-S around the second week of life, Torremorell says. Even though not all farms manage pigs in the same way, the virus is a challenge across the United States and globally.

IAV-S also is a concern for farm workers. Influenza in hogs can infect humans, as the fast-spreading strain, H1N1 – or as the mainstream media called it, "swine flu" – in 2009 demonstrates, says Micah Jansen, DVM, Pork Technical Services, Zoetis. Likewise, influenza in humans can infect pigs. Therefore, pig caregivers who are sick should stay home.

> "The swine influenza virus complicates things by damaging lung tissue and allowing opportunistic pathogens to set up shop. Even if a herd does pretty well with vaccinating for *M. hyo*, for example, influenza can come in and cause infection because the immune system is not fighting other challenges as effectively."
>
> **– Micah Jansen, DVM, Pork Technical Services, Zoetis**

The costs for IAV-S adds up even when looking at production alone.

"The financial impact is around $3 to up to $10 per head, depending on if the case is paired with PRRS or *Mycoplasma hyopneumoniae*," Jansen says. "The swine influenza virus complicates things by damaging lung tissue and allowing opportunistic pathogens to set up shop. Even if a herd does pretty well with vaccinating for *M. hyo*, for example, influenza can come in and cause infection because the immune system is not fighting other challenges as effectively."



BEYOND THE BOTTLE

Winning the praise of cattlemen and veterinarians requires top performance, reliability and a fair price.

NORFENICOL®
(florfenicol 300 mg/mL)

- Less Viscous and More Syringeable Than Nuflor*
- Shorter Sub-Q Withdrawal Time Than Nuflor®
- Plastic Bottles Eliminate Breakage and Product Loss
- FDA-Approved for Sub-Q Use in Cattle at High-Risk of BRD
- Broad Spectrum Treatment and Control Against BRD
- Unique Formulation



Norfenicol® (florfenicol)

*Data on file

www.norbrook.com

Norbrook®

The Norbrook logos and Norfenicol are registered trademarks of Norbrook Laboratories Limited. Nuflor is a registered trademark of Merck Animal Health.

Observe label directions and withdrawal times. Federal law restricts this drug to use by or on the order of a licensed veterinarian. For use in beef and non-lactating dairy cattle only. Not approved for use in female dairy cattle 20 months of age or older, including dry dairy cows. Animals intended for human consumption must not be slaughtered within 28 days of the last intramuscular treatment or within 33 days of subcutaneous treatment. Do not use in calves to be processed for veal. Intramuscular injection may result in local tissue reaction which may result in trim loss at slaughter. See product labeling for full product information, including adverse reactions. 0717-591-101A

Prevention: The best treatment

Antibiotics can help battle secondary bacterial infections, but animals must mount an effective immune response to fight off the virus. The best IAV-S treatment is ensuring animals continue to eat and drink. Some veterinarians may prescribe medication to help reduce fever, Torremorell notes.

Preventing IAV-S through good biosecurity protocols helps limit animals' exposure to disease. Researchers are working to understand more about how the virus is transmitted to develop more precise guidelines.

Currently, one of the most effective methods for disease prevention is vaccination. Typical protocols include vaccinating sows to help provide subsequent piglets with maternal antibodies or vaccinating piglets 10 weeks after birth.









Key Points:

- Formerly known as simply "swine influenza virus" or "SIV," industry experts are now using the more specific name: influenza A virus in swine (IAV-S).
- IAV-S is a respiratory disease of swine caused by multiple subtypes of type A influenza viruses.
- The virus is endemic in swine populations in North and South America, Asia, and Europe.
- Classic swine influenza infection was caused by the H1N1 subtype and remained relatively unchanged for 75 years.
- Since 1998, swine influenza infections in the United States have evolved from a seasonal disease caused by a single, relatively stable H1N1 genotype to an endemic year-round respiratory disease caused by multiple genetically unstable subtypes (H1N1, H1N2, and H3N2).
- The USDA conducts voluntary surveillance for swine influenza to identify viruses that may be circulating in swine and contribute to improved diagnostics and vaccines.

Courtesy of USDA Swine Influenza Surveillance Update. July 31, 2015.

"There is interference between passive immunity and vaccination if you use the vaccine when the pigs have a lot of maternal immunity in their system," Torremorell says.

Strain change

Immunity from vaccines is typically limited to the specific strain included in the product. However, newer IAV-S vaccines may provide some cross protection against multiple strains.

"It is hard to predict which strain you will have on a farm," Torremorell says.

Strains currently circulating in U.S. herds include H1N1, H1N2 and H3N2, but the virus is rapidly changing within the U.S. and abroad, Jansen notes.

"Up until 1998, we really only had H1N1 circulating in pigs," Jansen says. "H1N1 was actually a pretty stable virus that would circulate, but – in general – we were able to control it pretty well. Then, we started seeing the emergence of different types and that's when influenza became more challenging."

Herd veterinarians typically identify IAV-S by the tell-tale signs of lethargic animals with a hard, barking cough. An initial PCR test determines the presence of pathogen, and a subsequent test can identify the specific strain.

This information helps DVMs make recommendations about herd movements. For instance, being able to understand what IAV-S strain is present in a group of gilts testing positive for IAV-S can help understand what restrictions, if any, should be placed on movements into the sow farm, Jansen says.

"Understanding gilt status before entering the farm is important," Jansen says. "We want to avoid adding 'fuel' to the fire and compromising piglet health."



Strains currently circulating in U.S. herds include H1N1, H1N2 and H3N2, but the virus is rapidly changing within the U.S. and abroad.

Vaccination choices

Jansen recommends considering a multivalent vaccine to help protect against IAV-S. Products should include the most recent strains identified to provide relevant protection to the herd.

"We can't predict what strain the animals are going to be exposed to," Jansen says. "You want to choose a vaccine that has several strains and demonstrated cross protection."

In outbreak situations, producers should vaccinate the whole sow herd to remove the disease's opportunity to replicate and cause further damage, Jansen advises.

"If a new virus is entering a herd – or if influenza has been there a long time and producers have been unable to get rid of it – they can use the vaccine as a way to stimulate the immune system and clear the virus from the herd," she says. "Producers should administer the vaccine to all adult pigs at the same time – two doses at three weeks apart. If they can implement this along with using good management practices in the farrowing house, the virus doesn't have anywhere to go because they have helped eliminate it and pigs that are susceptible." ■

Vet-Advantage SoundByte Gallery

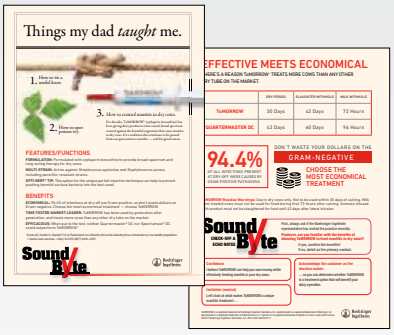
Refresh on key features and conversation starters

Access SoundBytes in the Vet-Advantage Resource App and at www.Vet-Advantage.com/Soundbytes

FEATURED SOUNDBYTES



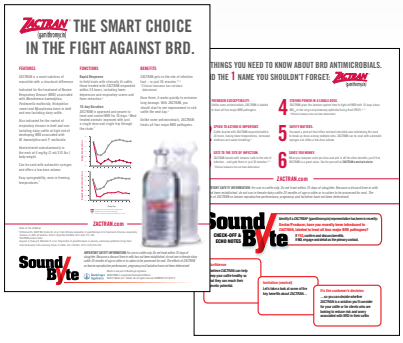
Bayer Zelnate® DNA Immunostimulant on Arrival with MLV Vaccine on Arrival or Delayed



Boehringer Ingelheim ToMorrow® (cephapirin benzathine)



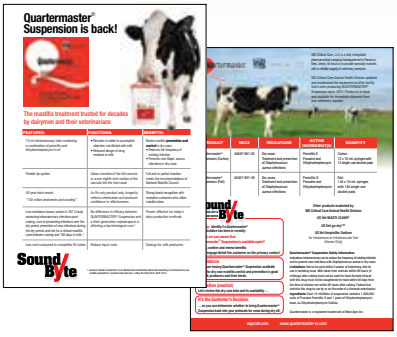
Merial (now a part of Boehringer Ingelheim) LongRange® (eprinomectin)



Merial (now a part of Boehringer Ingelheim) Zactran® (gamithromycin)



Vetericyn Plus® Pink Eye Spray



WG Critical Care Quartermaster® Suspension (penicillin dihydrostreptomycin) in oil



WG Critical Care Ampicillin for Injectable Suspension, Veterinary (ampicillin trihydrate)



Zoetis Dectomax® Pour-on, Dectomax® 1% Injectable and Valbazen® Suspension

Emphasis on Efficiency

WG Critical Care's new distribution site will bring operations closer to supply chain

WG Critical Care Animal Health Division has eyes on introducing new products into the marketplace, but it also plans to streamline the efficiency of getting its current products to its distribution partners and supporting its QUARTERMASTER manufacturing site. In late May/early June of this year, the company will open a state-of-the art distribution facility in Hamilton, N.Y., solving both challenges.



First and foremost, the site places WG Critical Care even closer to its supply chain, says Vincent Durante, executive vice president. "Our QUARTERMASTER manufacturing site is less than a mile away from the new distribution facility and other products in our portfolio are manufactured in Syracuse, N.Y., only 40 miles away from the new site."

QUARTERMASTER and Ampicillin Trihydrate will be distributed out of Hamilton along with Go-dry, MASTI-CLEAR, and 1-gram equine US VET Ampicillin Sodium. Furthermore WG Critical Care also manufactures other Injectable antibiotics prescribed crossover by veterinarians. Such will also be distributed through the Hamilton facility. In addition all raw materials and components supporting QUARTERMASTER production will be housed there as well. "There will be one site in New York, completely under our control, making our operation much more efficient and will allow us to provide better service to our distribution partners," says Durante. "We also plan to make significant investments in technology by implementing the latest in ERP and track & trace software, climate control systems and auxiliary power."

> "There will be one site in New York, completely under our control, making our operation much more efficient and will allow us to provide better service to our distribution partners."
>
> **– Vincent Durante, executive vice president**

The building itself was scheduled to be completed mid to late January 2018, followed by an extensive validation process to bring it up to FDA and VAWD standards. The facility is scheduled to begin operations in late May/early June 2018.

WG Critical has made one more key move to bring it closer to supply chain.

The company recently launched a line of intravenous bags sourced from its partner in Bucharest, Romania. These items are currently shipping out of Tennessee. Eventually, distribution will move to a WG Critical Care warehouse in New Jersey. This should dramatically speed up importation and customs clearance, Durante says. "Right now, the product is shipped from Romania, through Savannah then railed to Tennessee. In the future, shipments will enter through the Port of New York from Romania, then trucked to Allendale, N.J., less than a 30-mile drive from the port of New York." ■



WG CriticalCare | Animal Health

Ampicillin for Injectable Suspension, Veterinary

- 25g of Ampicillin Trihydrate

Ampicillin Sodium

- 1g

go-dry™ (penicillin in oil)

MASTI-CLEAR® (penicillin in oil)

Quartermaster® Suspension

(penicillin-dihydrostreptomycin in oil)

Lactated Ringer's Injection, USP

- 1000 mL Bag
- 3000 mL Bag
- 5000 mL Bag

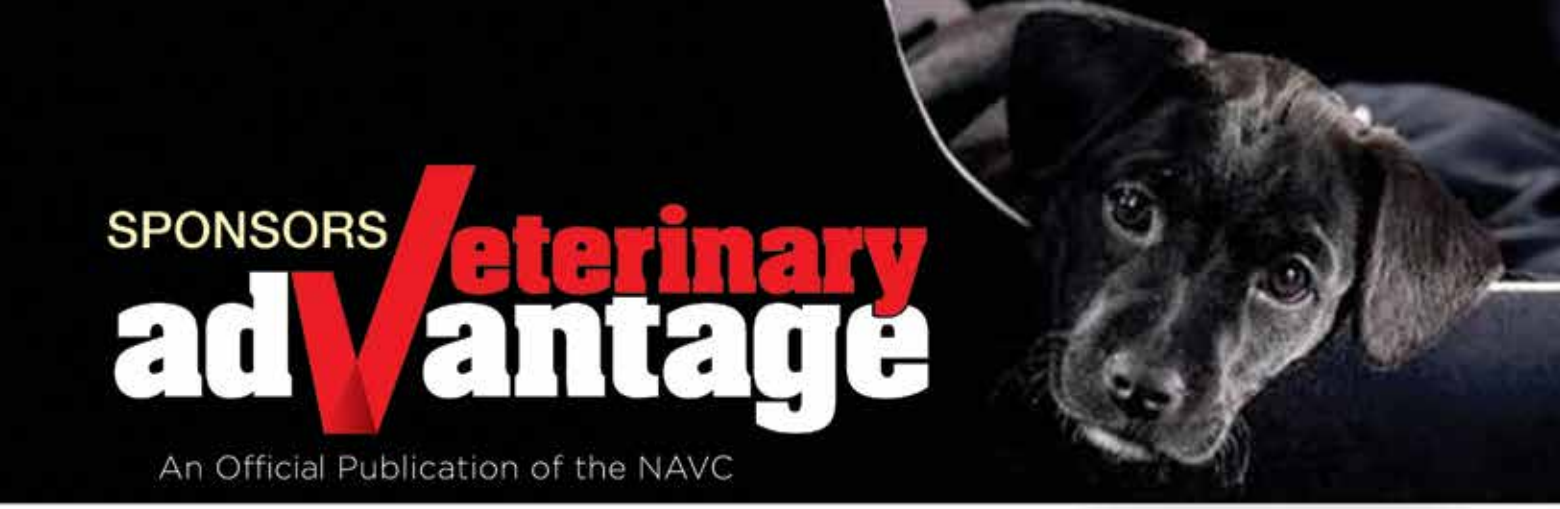
5% Dextrose Injection

- 500 mL bag
- 1000 mL bag
- 3000 mL bag
- 5000 mL bag

0.9% Sodium Chloride

- 1000 mL bag
- 3000 mL bag
- 5000 mL bag

wgcriticalcare.com



SPONSORS Veterinary advantage

An Official Publication of the NAVC

PLATINUM

Boehringer Ingelheim

Dechra Veterinary Products

BAYER

EXELINT ANIMAL HEALTH DIVISION

MIDMARK

zoetis

GOLD

3M

ABAXIS GLOBAL DIAGNOSTICS

MERCK Animal Health

wg CriticalCare | Animal Health

SILVER

Bovie ANIMAL HEALTH

Bimeda

Ceva

JorVet

nutramax LABORATORIES VETERINARY SCIENCES, INC.

VetriSCIENCE Laboratories

Virbac

BRONZE

Ansell

COLORADO SERUM COMPANY

MAI ANIMAL HEALTH

Medical Illumination

Norbrook

SARSTEDT

SOL-MILLENNIUM Building a Healthier Tomorrow

TERUMO

Vetericyn

VIROX ANIMAL HEALTH

Revolutionary Disinfectants for Infection Control & Biosecurity

EQUINE EXTRA

To actively engage, educate, and inform animal health distributor representatives

Spring 2018



The Importance of Rabies Vaccines pg 36



Diagnosing and Treating Colic in the Field

A veterinarian's first look at a case of colic often occurs outside the clinic

BY JENNIFER RYAN

Colic in horses is a broad term encompassing any sort of abdominal pain. A horse owner is usually the first to notice the signs of distress. Then, a veterinarian commonly evaluates the animal in the field.

"Colic simply means the horse is showing signs of abdominal pain," notes Kira L. Epstein, DVM, Dip ACVS, Dip ACVECC, clinical professor at the University of Georgia College of Veterinary Medicine. "That pain can be caused by a wide variety of diseases."

Knowing the signs

The signs of colic can range from subtle to more obvious, classic behaviors like rolling on the ground.

"It's important for the owner to recognize the signs of colic early," Epstein says. "Some horses will get better on their own, but we always recommend calling your veterinarian."

Common signs of colic include:

- Not eating
- Not passing as much, or different types, of manure
- Changes in appetite
- Looking at the abdomen
- Pawing
- Kicking at the abdomen
- Lying down repeatedly and not wanting to get up
- Urinating or posturing to urinate more frequently
- Rolling on the ground

Once a horse owner notices these signs, it's best to call in a veterinarian. Most veterinarians also recommend removing the horse's food to prevent additional problems. Walking the horse can help encourage defecation, keep them distracted and prevent them from injuring themselves. Owners should not walk horses that are so uncomfortable that they may accidentally injure the owner.

Behind the signs

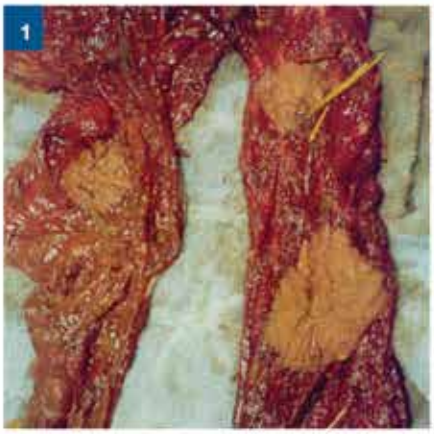
Causes of colic can range from minor to very serious. The University of Minnesota notes that most cases of colic – around 75 percent – readily respond to treatment and are likely due to gas or probable impactions. In these cases, in-field treatment is generally effective, and it can take as little as a few hours to resolve.



EQUIDONE® Gel
(domperidone)

Don't be left without **Equidone Gel** on your shelf this foaling season!

Prevention is worth EVERY PENNY









Equidone Gel is indicated **for the prevention of fescue toxicosis** in periparturient mares.

Clinical signs include:
- tough & thickened placentas [1]
- agalactia (no or low-level milk production) [2]
- weak & dysmature foals [3]
- increased gestation lengths





Dosing Chart: EQUIDONE Gel administered once daily starting 10-15 days prior to the expected foaling date (EFD) is safe and effective at preventing fescue toxicosis.

weight (lb)	weight (kg)	dose (cc)	domperidone (mg)
550-660	250-300	3	300
661-880	301-400	4	440
881-1100	401-500	5	550
1101-1320	501-600	6	660

Side effects of using EQUIDONE Gel may be premature lactation and failure of passive transfer (FPT) of immunoglobulins to the foal. FPT can occur even when mares are not dripping milk.

Dechra
Veterinary Products

Dechra Veterinary Products 7015 College Blvd., Suite 525, Overland Park, KS 66211 www.dechra-us.com Toll Free (866) 933-2472

Dechra Veterinary Products US and the Dechra logo are registered trademarks of Dechra Pharmaceuticals PLC. © 2017 Dechra Ltd.

Understand the horse's anatomy

- The horse is a monogastric animal.
- It has a relatively small stomach with a capacity between 8 of 10 liters.
- The junction of the esophagus and the stomach permits gas and fluid to move into the stomach – but not out.
- Consequently, conditions that impede the normal movement of gas and fluid down through the small intestine may result in dilation and rupture of the stomach.
- An adult horse's stomach can be difficult to visualize with radiography or ultrasonography.

Reference: Merck Veterinary Manual

Peek inside a colic kit: A DVM's colic kit helps alleviate abdominal pain for the most common causes and typically includes:

- Rectal sleeve
- Lubricant
- Gastric intubation equipment
- Pump
- Bucket
- Water
- Laxatives (mineral oil)
- Balanced electrolyte powder
- Pain medication (Banamine)
- Alpha-2 agonists (xylazine, romifidine and detomidine)



An in-field examination is the first step to determining the cause. The initial evaluation is best for quickly categorizing the case as something likely to resolve with treatment in the field or requiring referral for further medical management or possible surgery.

Epstein notes that she typically starts with a physical examination, passing a nasogastric tube and performing a rectal exam to narrow down the possible causes. Commonly, one of the first steps is to treat the signs with analgesics and anti-inflammatory products.

"We're looking to see how the horse responds to analgesics and what type of problem we think the horse has," she says. "If we can feel an impaction, we may simply treat with laxatives. If the horse doesn't respond, or if the underlying cause is more serious, we may recommend hospitalization for medical or surgical treatment."

Quick response

The most frequently used analgesics are anti-inflammatories like flunixin

IT'S HARD TO GET A 120-POUND HUMAN MOVING WHEN THEY'RE SICK.

Now imagine a 1,000-pound horse.

When you're ill, it can feel like moving heaven and earth just to get out of bed in the morning. Our equine friends feel the same way, but they don't get to call in sick. They can't live up to their potential when they're fighting even a low-grade fever. Vetera® vaccines contain the influenza strains recommended by the Expert Surveillance Panel on Equine Influenza. Following these recommendations aid in optimizing protection against current circulating strains of influenza.

» **For more information about our comprehensive vaccine portfolio, visit vetera-vaccines.com.**

VETERA® vaccines

PROTECTING POTENTIAL



Boehringer Ingelheim | UNBRIDLE YOUR POTENTIAL

Vetera is a registered trademark of Boehringer Ingelheim Vetmedica GmbH.
©2017 Boehringer Ingelheim Vetmedica, Inc. EQU-0221-VET0717

meglumine and sedatives like alpha-2 agonists and/or opioids. Administration of analgesics and sedatives allows the veterinarian to safely perform diagnostics and provides information on the horse's level of pain. In cases of mild colic, symptomatic administration of analgesics may resolve the episode of colic.

Commonly, one of the first steps is to treat the signs with analgesics and anti-inflammatory products.

"My personal preference is to use xylazine if it's the first time I'm seeing the horse for this episode of colic," Epstein says. "It's a short-acting product that helps me understand if they are going to get colicky again. If the horse is being difficult, or I don't have the ability to restrain, I'll use detomidine or romifidine or add butorphanol. They are all easy to administer, and it really depends on personal preference and timing."

Horse owners have become more attuned to catching signs of colic early, which helps lead to a quicker diagnosis and treatment.

"There's been a lot of research into colic," Epstein says. "As you understand the problems more, you get better at diagnosing them and have a better outcome overall." ■



Learn more at VetFolio

Top 5(ish) Drugs You Should Understand When Diagnosing and Treating Colic in the Field.

http://cms.vetfolio.navc.com/equine/top-5-ish-drugs-you-should-understand-when-diagnosing-and-treating-colic-in-the-field



The Science of Significant

Introducing updated flu strains, only available in the Prestige vaccine line from Merck Animal Health

PRESTIGE®

The Next Generation of FLU Protection

Developed to help protect against influenza viruses threatening horses today, the Prestige line of flu vaccines offers the most encompassing and advanced level of protection against equine influenza.

Horses deserve the best protection we can give them. Contact Merck Animal Health or your veterinarian to learn more about the new Prestige line of vaccines.

www.merck-animal-health-equine.com

PERFORM *with* PRESTIGE® **Sweepstakes**

WIN THIS HORSE TRAILER

Plus Great Weekly & Monthly Prizes



Register to win at PerformWithPrestige.com

NO PURCHASE NECESSARY. Open to U.S. residents, at least 18 years of age.

The Science of Healthier Animals

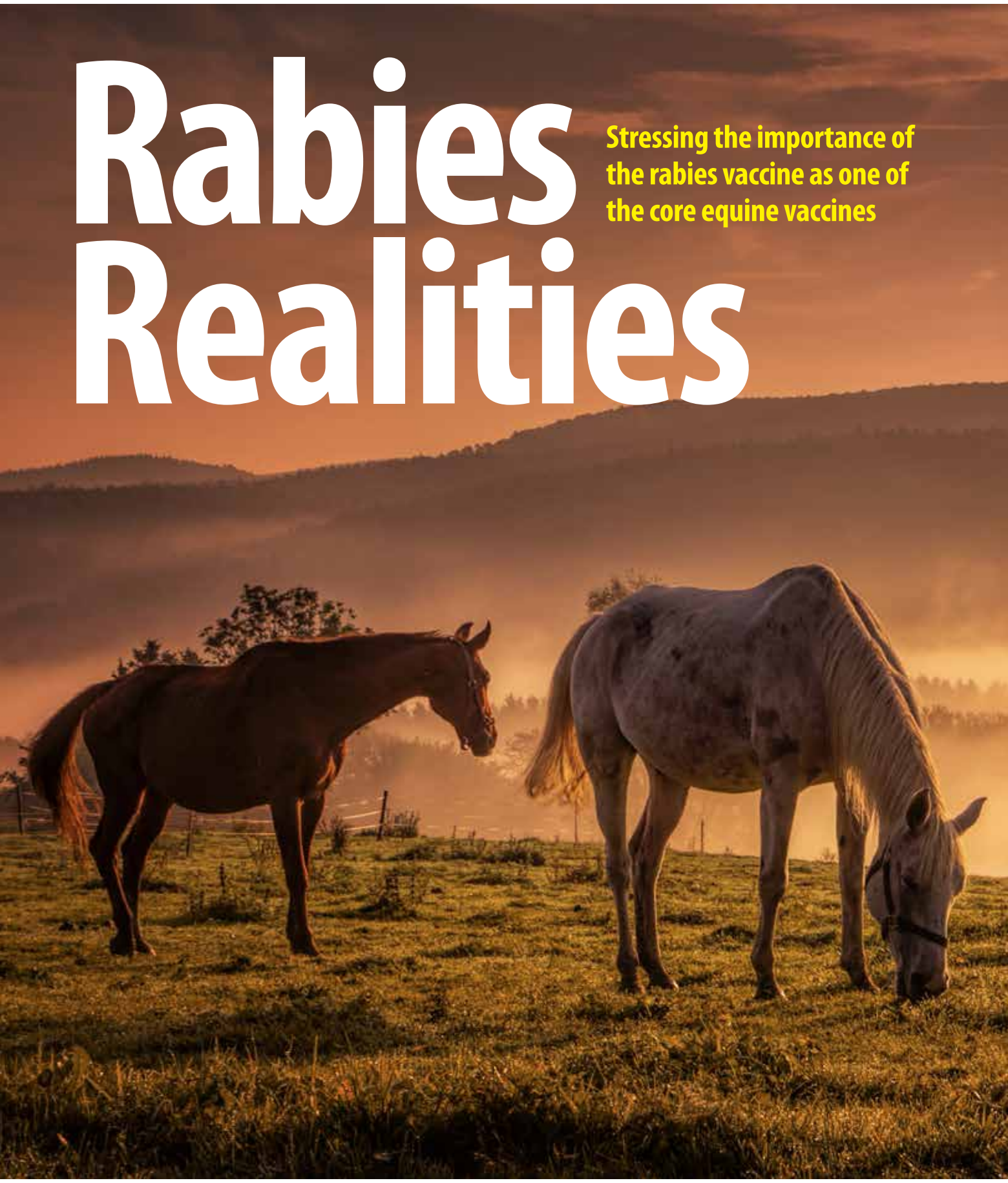
2 Giralda Farms • Madison, NJ 07940 • merck-animal-health-usa.com • 800-521-5767

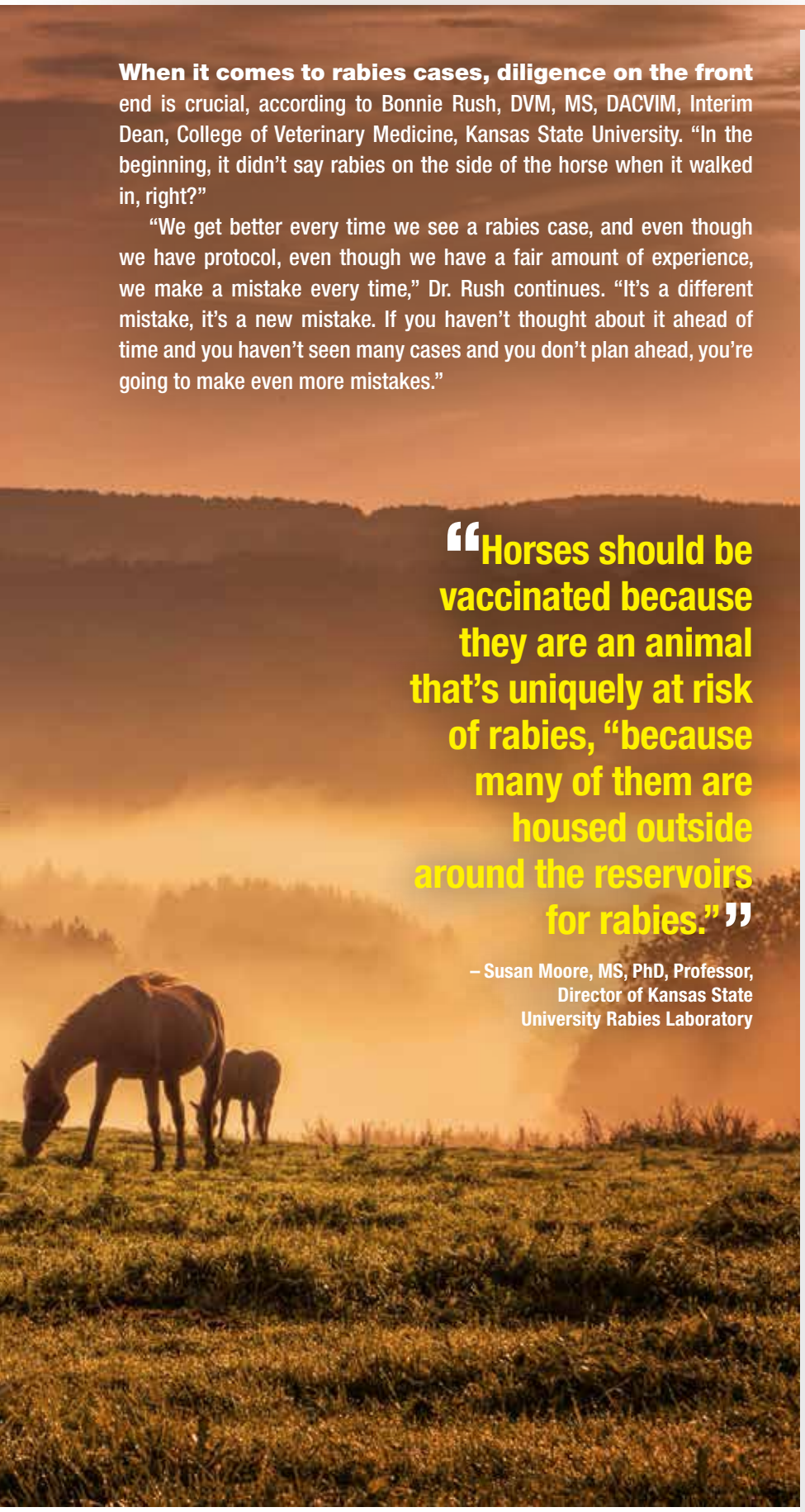
Copyright © 2018 Intervet Inc., d/b/a/ Merck Animal Health, a subsidiary of Merck & Co., Inc. All rights reserved. 3643-FLUSTRAIN-ADVERTISEMENT

MERCK Animal Health

Rabies Realities

Stressing the importance of the rabies vaccine as one of the core equine vaccines





When it comes to rabies cases, diligence on the front end is crucial, according to Bonnie Rush, DVM, MS, DACVIM, Interim Dean, College of Veterinary Medicine, Kansas State University. "In the beginning, it didn't say rabies on the side of the horse when it walked in, right?"

"We get better every time we see a rabies case, and even though we have protocol, even though we have a fair amount of experience, we make a mistake every time," Dr. Rush continues. "It's a different mistake, it's a new mistake. If you haven't thought about it ahead of time and you haven't seen many cases and you don't plan ahead, you're going to make even more mistakes."

"Horses should be vaccinated because they are an animal that's uniquely at risk of rabies, "because many of them are housed outside around the reservoirs for rabies."

– Susan Moore, MS, PhD, Professor, Director of Kansas State University Rabies Laboratory

Dr. Rush provided a case in point at the Rabies Realities session of last fall's AAEP Convention. Last June, K-State treated a four-month-old foal that was unable to swallow, and its tongue was hanging out. They initially thought it had a skull fracture. While attempting to take radiographs, the foal became agitated and was throwing its head. But it wasn't a skull fracture. It was rabies.

"Saliva was everywhere," Dr. Rush says. "And not everybody had eye protection. That was the thing that changed in our protocol. Everybody must have eye protection for every rabies suspect case now."

Everybody involved in the case was vaccinated, except one person, says Dr. Rush. So, it was a two-dose series for everybody at a cost of $600 in vaccine alone, as well as additional costs associated with administration. The cost for the person who was unvaccinated was $12,000.

"As much as we plan, we still do a post mortem (so to speak) of the case. We do that every single time. We review the record and interview everybody associated with the case, we always find that we've made some mistake and it changes our protocol the next time," says Dr. Rush.

Dr. Rush was one of several equine experts who spoke at the 2017 AAEP Sunrise Session: Rabies Realities Expert Panel, sponsored by Zoetis. The following were some of their insights into the disease, and the veterinarian's responsibility in treating a case.

The rabies footprint in the U.S.

Susan Moore, MS, PhD, Professor, Director of Kansas State University Rabies Laboratory, says in most of the world, the main reservoirs for rabies



are in the dog population. In the United States, it's in wildlife reservoirs.

Moore says all the rabies diagnostic results go to the CDC, and they make the rabies maps to show where rabies occurs. "In the United States, we know from this data that the raccoon rabies strain is primarily along the East Coast, from the coast to the Appalachian Mountains and then in the middle of the country, and then all the way up to the Dakotas, is skunk rabies. And then there are pockets of fox rabies in Texas, Arizona, New Mexico, California and Alaska. It's all the type one classic rabies virus but they are varied in their genetic imprint."

And all the strains can infect horses.

There is also bat rabies, which the CDC terrestrial rabies reservoir maps don't show, "and bat rabies have been found throughout the United States (besides Hawaii)," Moore says.

"There is a legal dynamic to the core vaccines to consider along with the clinical necessity. If a veterinarian were to tell a client they didn't need to vaccinate for rabies, the ramifications could be significant."

– Denise E. Farris, Esq., founder, Farris Law Firm LLC

Uniquely at risk

Horses should be vaccinated because they are an animal that's uniquely at risk of rabies, "because many of them are housed outside around the reservoirs for rabies," says Moore. "So, even barns aren't impervious to a skunk or a raccoon or a fox or a bat getting in. If the horse is vaccinated, then the vaccine is very good at preventing rabies. We like to say rabies is 100 percent fatal, but vaccination is almost 100 percent protective."

Core vaccination for a reason

Core vaccines are vaccines that prevent diseases that have serious consequences, which can include human health significance, says Dr. Rush. "Along with rabies, the other core vaccines are Eastern, Western, Tetanus, and Rabies and West Nile. I think about a horse standing in a pasture not exposed to any other horses, core vaccines protect horses from those types of diseases."

Legal ramifications

There is a legal dynamic to the core vaccines to consider along with the clinical necessity. If a veterinarian were to tell a client they didn't need to vaccinate for rabies, the ramifications could be significant, says Denise E. Farris, Esq., founder, Farris Law Firm LLC.

Veterinarians are measured by a standard of practice in the industry, Farris says. "But when you're dealing with zoonotic diseases, that standard is heightened significantly. When the rabies vaccine has been identified by the AAEP and AVMA as a core equine vaccine, that raises the veterinarian's duty to a much higher level of care by industry standards. At a minimum, that standard would be defined as having advised your



You already know
COLORADO SERUM COMPANY produces **Tetanus Antitoxin**,
but how familiar are you with the ***REST*** of our equine line?

WEST NILE VIRUS ANTIBODY

Safe, purified and natural treatment for suspected WNV cases, including vaccinated horses.



TETANUS TOXOID

To establish an active prevention against Tetanus.



ENCEPHALOMYELITIS VACCINE

Eastern and Western, also available with Tetanus Toxoid.



NORMAL SERUM

Used for blood enrichment for non-specific treatment of infections and disease.



www.colorado-serum.com
800/525-2065

*** All products for Veterinary use only**



client – in writing – of what the vaccination is, and why there is a need for it. And then in those states where owners may waive securing the vaccine, which is usually disfavored, be sure you as the treating veterinarian have that refusal documented to the nth degree."

Even if a vaccination waiver is granted, it will still be viewed narrowly and most likely in a negative light by a court if a positive case arises with litigation following, Farris says.

Liability insurance, too, may only go so far. "The more a horse presents with signs that after the fact your peers say you knew or should have known rabies was a possibility, and the less you do to address it as such, the more likely you'll be found to have crossed from ordinary negligence into what courts define as 'gross negligence' or even 'intentional acts,'" Farris says. "Ordinary negligence will be covered by your professional liability insurance. Your gross negligence and intentional acts will not."

Although rabies cases don't happen very often, especially in the United States, the cases need to involve veterinarians, physicians, public health, and laboratorians, says Dr. Moore. Reporting the case to the proper authorities is critical.

Team approach

Although rabies cases don't happen very often, especially in the United States, the cases need to involve veterinarians, physicians, public health, and laboratorians, says Dr. Moore. Reporting the case to the proper authorities is critical. "It does take all four because it doesn't happen very often, and sometimes it can be missed by one or the other, or the procedures may not be exactly known," she says. "It really takes everybody. If there is a suspect case, it really is important to notify every piece of that to make sure that it's being covered adequately."

Counting the cost

Ultimately, the cost of vaccinating is tiny compared to the cost, dangers and liability of not vaccinating. "It's a $7 vaccine," one of the panelists said. "It makes sense to do it annually. It gives you the opportunity to be in front of your client annually." ■

Editor's note: To view a video of the Equine Rabies Realities Panel, visit: https://youtu.be/xlx9Ny-BmgU



DON'T JUST SHOW UP.

SHOW.

The in-gate. How many hours did you put in the saddle to make it here? How many late nights? And early mornings? You didn't come this far just to show up. So ask yourself, does your horse have the stomach to win?

Time for a gut check. **TheStomachToWin.com**

ULCERGARD® (omeprazole) by Merial

When administered for 8 or 28 days, just one dose a day of ULCERGARD is proven to effectively prevent performance-robbing equine stomach ulcers in horses exposed to stressful conditions.

Boehringer Ingelheim

Merial is now part of Boehringer Ingelheim.
®ULCERGARD is a registered trademark of Merial. ©2018 Merial, Inc., Duluth, GA.
All rights reserved. EQU-0440-EGUS0218

IMPORTANT SAFETY INFORMATION: *ULCERGARD can be used in horses that weigh at least 600 pounds. Safety in pregnant mares has not been determined.*

THE RIDE TO WIN



Ready for an Immune Response

BY JENNIFER RYAN

Dairy calf health – and future profitability – is linked to early illness

The first three weeks of life is a vulnerable period for a dairy calf. It's also a critical time to prevent one of the most common illnesses: scours.

More than 21 percent of all dairy calves have some sort of digestive challenge, including diarrhea, in the first two to three weeks of life, resulting in more than 56 percent of pre-weaned



heifers contributing to more than 3.6 percent of all pre-weaning deaths in the United States, notes David Mathes, director of sales and marketing at DBC Ag Products.[1]

"When a calf gets scours, producers move quickly to start a treatment program – antibiotics, nutraceuticals, electrolytes or a combination," Mathes notes. "A lot of times that becomes where they focus their attention and base their success rate. If they get through the scours without losing the calf, they feel they've succeeded, but the real impact is becoming more evident, which is how that 'hiccup' effects producing milk down the road."

University research indicates a heifer experiencing illness and/or nutritional deficiencies in the first six to eight weeks of life can experience reduced production over her lifetime, Mathes says.[2]

Improving calf health by focusing on digestive health and immune support at the start saves dairy producers money in time, treatment and labor costs – and lays the foundation for optimal milk production years down the road.

Causes of scours

Scours can be caused by pathogens, nutritional imbalances and even stress. Common pathogens include viruses, bacteria and protozoa, including rotavirus, coronavirus, *E. coli*, *Salmonella*, clostridia, cryptosporidia, coccidia and other protozoa.



David Mathes

The timing of scours in the calf's life cycle helps indicate the cause, notes Andy Skidmore DVM, Ph.D., technical services – ruminant, Lallemand Animal Nutrition.

"Each of these causes has their own unique timelines and risk factors," Skidmore says. "Scours caused by *E. coli* is most often going to occur in the first week of life. Part of that is the nature of the immune system, and part of it is the exposure period, which most likely occurs right at birth. *Salmonella* can occur any time, but it most commonly occurs later on in the animal's life."

Scours caused by rotavirus and coronavirus typically strike when the calf is between one to two weeks of age. Maternal antibodies initially help protect the calf from these viruses. Diarrhea caused by these viruses usually is not severe. However, the viruses can open the door for secondary infections.

Cryptosporidia and coccidia can cause scours about three weeks after the calf is born. While the animal may be exposed right after birth, the protozoa take weeks to replicate in the intestinal cells.

"I group pathogens into extracellular and intracellular. There are those pathogens that are going to attach to the cell wall and cause hyper-secretion where fluids leave the

body of the calf, and, thus, you see diarrhea," Skidmore says. "Then, there are intracellular pathogens like viruses and protozoa that damage the lining of the intestine and decrease the animal's ability to absorb nutrients. In this case, everything is going to flush out. It also enables the pathogens to enter through or between intestinal cells, causing leaky gut and inflammation."

No matter what the cause, Skidmore recommends producers fight scours by decreasing the pathogen load in the animal's environment and giving the calf a strong immune system to fight disease.

Treatment options

The main concern when a calf gets scours is dehydration. Calves should receive adequate electrolytes and fluids. Antibiotics can be used to combat bacterial causes and septicemia that often occurs with the diarrhea.

"Antibiotics aren't going to do anything to a virus," Skidmore says. "The immune system still has to go through the whole process to fight the viral infection. Antibiotics can help if there is a secondary bacterial infection."

"University research indicates a heifer experiencing illness and/or nutritional deficiencies in the first six to eight weeks of life can experience reduced production over her lifetime."

– David Mathes, director of sales and marketing at DBC Ag Products

Reducing infection

Dairy producers can minimize incidence of scours through good sanitation protocols.

"One of the biggest mistakes is in the sanitation of the colostrum collection equipment," Skidmore says. "Look at the equipment you're using to collect the colostrum. Maybe the bucket is fine, but the lid and gasket never get cleaned – or cleaned properly. Clean all the way from the milk hose to the bucket regularly with detergent and sanitizer."

Diarrhea can also be caused by stress from changes in routine or weather that can impact digestive health, Mathes notes. However, it's not always possible to reduce these stressors.



Don't forget the cow

Dry cow vaccinations can help reduce the incidence of specific causes of scours in calves.

"Reducing scours goes all the way back to the dry cow program," Mathes says. "Put the cow in the best position to be healthy and deliver passive transfer of immunity to the calf. A well-developed vaccination protocol is one way to boost a calf's immunity through the cow's colostrum."

However, vaccines can only deliver protection against a specific disease challenge. Scours can be caused by a host of pathogens, which makes it a complex problem to vaccinate against.

Passive transfer of immunity from dam to calf also requires adequate colostrum intake. Most producers should aim for one to three feedings in the first six to 12 hours of the calf's life, Mathes notes.

Healthy gut, healthy calf

Another way to ensure calves have a robust immune response is providing good nutrition to help fuel their immune system.



"In the last 10 or 15 years, producers have been increasing the amount of feed calves are getting, and it's actually decreased the number of sick calves they see," Skidmore says. "Their immune system is an expensive system, nutritionally, to support."

Supporting optimal digestive health can also fuel the calf's immune system, Skidmore advises.

"Maintaining the health of those intestinal cells – or using products that are going to help prevent adhesion of bacteria to the cell walls – helps minimize the impact of pathogens," he says. "A healthy gut is more capable of fighting off pathogens."

A healthy gut also prevents viruses and protozoa from entering into the intestinal cells. When the cells are stronger, they are better able to fight off pathogens.

"Maintaining the health of those intestinal cells – or using products that are going to help prevent adhesion of bacteria to the cell walls – helps minimize the impact of pathogens. A healthy gut is more capable of fighting off pathogens."

– Andy Skidmore DVM, Ph.D., technical services – ruminant, Lallemand Animal Nutrition

Producers can help promote digestive health with specific products, but it's important to ensure the products are backed by research and approved for use in for young calves.

"About 70 percent of the immune system resides in and around the digestive tract," Mathes says. "Products that support digestive health are, at the same time, supporting a functioning immune system. It's very difficult to eliminate exposure of pathogens to the calf. We have to rely on passive transfer of immunity and promoting the calf's own immune system during this most vulnerable time. They can help to get the digestive system in tip-top shape – putting the calf in the best position to deal with digestive challenges that occur in the first few weeks of life." ■

1 National Animal Health Monitoring Study, 2014 Dairy Study.
2 Van Amburgh M. Cornell University, Optimizing Nutrition and Management of Calves and Heifers for Lifetime Productivity. Western Dairy Management Conference 2017.



The Perfect Place

Why we should seek value in our struggles



BY JIM WHITT

Jim Whitt is an organizational development and employee engagement consultant with Purpose Unlimited in Tulsa, Okla. He is the author of *Riding for the Brand: The Power of Purposeful Leadership.* Sign up for his newsletter at www.purposeunlimited.com. Reach him at jim@purposeunlimited.com or (918) 494-0009.

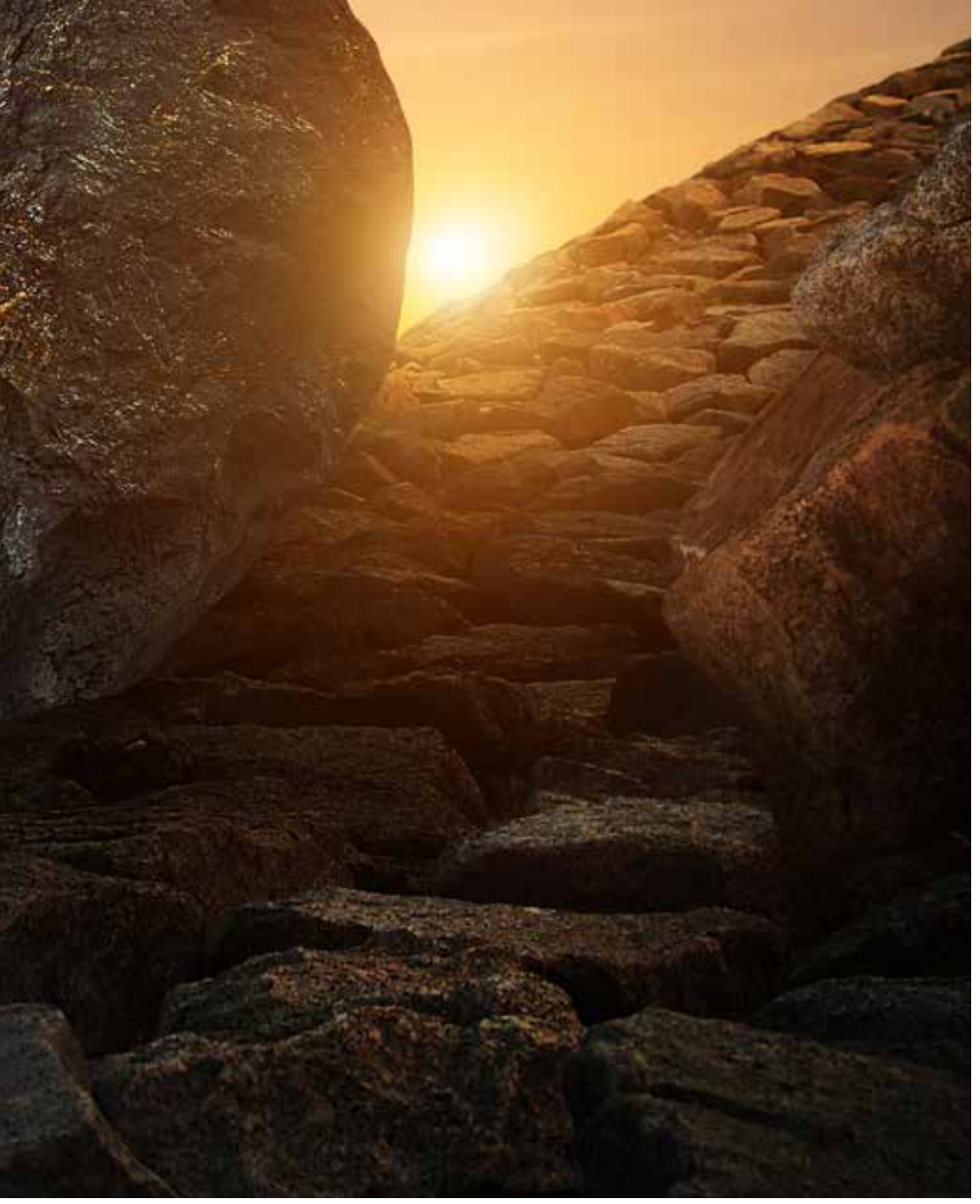
There's a story of a man who wished for a world where people wouldn't have to struggle. It was unfair, he believed, that for all the progress humanity had made throughout history that so much of the world's population still struggled just to survive.

He roamed the world searching for the solution, and while traveling in the Middle East encountered a beggar in the streets. He was not an ordinary beggar, however. He knew what the traveler was searching for – the perfect place. The man followed the beggar who led him through darkened streets to an enormous wall. Placing his hands on the wall the man was supernaturally transported to the other side.

Where struggle doesn't exist

There he found himself in an extraordinary world where no one worked because they didn't have to. Every need and want was taken care of. There was no struggle. The word "struggle" didn't even exist. He met a woman – the perfect woman – who led him to a picture-perfect valley where three artists were painting landscapes. Each painting was identical – they were all perfect.

The perfect woman explained that in this world whatever he desired was his for the asking. An avid outdoorsman, he said he'd like to catch a boatload of fish. A guide appeared to grant his wish and with every cast he reeled in a trophy catch. It was easy – so easy that the fish didn't even fight. After filling the boat with fish he asked to go hunting. His guide led him



to a ridge where several trophy bucks stood perfectly still and stared at him. This was going to be easy he thought as he sighted one in. But he couldn't bring himself to pull the trigger. It was too easy.

Perfect can be defined as being entirely without fault or defect. It is human nature to desire perfection. In a perfect world, no one would suffer or struggle. But that is precisely the opposite of what we need or even want. In the words of Viktor Frankl, "Ever more people today have the means to live, but no meaning to live for." Frankl, a neurologist and psychiatrist, was incarcerated in Auschwitz, the most famous of the Nazi's concentration camps during World War II. It was in this hell-on-earth that Frankl validated his theory of Logotherapy which he chronicled in his book, *Man's Search for Meaning*. "It is one of the basic tenets of Logotherapy that man's main concern is not to gain pleasure or to avoid pain but rather to see a meaning in his life," wrote Frankl. "That is why man is even ready to suffer, on the condition, to be sure, that his suffering has meaning."

> "It is one of the basic tenets of Logotherapy that man's main concern is not to gain pleasure or to avoid pain but rather to see a meaning in his life."
>
> **– Viktor Frankl**

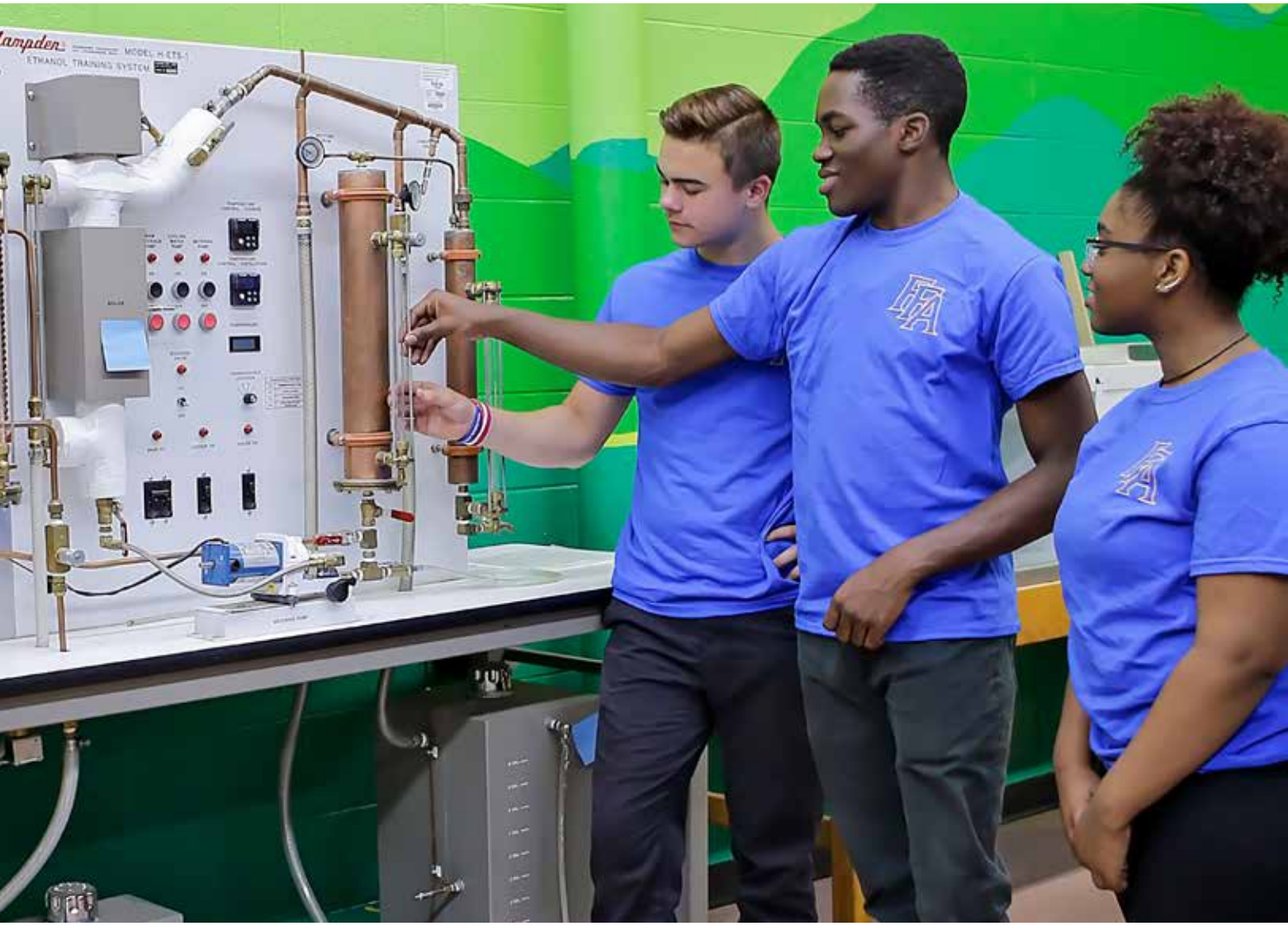
The value in struggling

Hundreds of government programs have spent billions of dollars so that people won't have to struggle. But the unintended consequences of these programs have been detrimental to those they were intended to help. There is value in struggling. I dedicated an entire chapter to the subject in my book, *The Transformational Power of Purpose: Finding & Fulfilling Your Purpose in Life*. Borrowing a line from John Cougar Mellencamp, its entitled It Hurts So Good.

When used as a verb perfect (emphasis on the second syllable) means to improve or refine – as in perfecting a process. For gold to have any value it must first be refined. The refinement process burns away the dross that contains all of the impurities. It takes one ton of ore to produce one-third of an ounce of pure gold. You have to undergo a refinement process for your potential to be fully realized. Struggling is what perfects you as a human being. No struggle, no improvement. No pain, no gain.

The man who found the perfect place hated it. He returned to the real world – a place where there was pain and suffering and people struggled. He discovered that he really didn't want to live in a place where perfect was a noun but a place where perfect was a verb. The world hadn't changed since he left – but he had changed. Now, he found meaning in the struggle. ■

BY NICOLE WARD AND JULIE WOODARD



Alternative Energy Powers Tennessee Agricultural Education

With her blue-tinted hair pulled into a loose topknot and proudly wearing a school-mascot sweatshirt, FFA member Gabby Kendrick could be any teenager in any high school in any town in America.

Well, not quite.

That's because, at this moment, Kendrick has traded LOLs and emojis for words like hydrogen, nuclear energy, biodiesel and greenhouse gas emissions. She sounds more like a master's student than a teenager, but that's to be expected. As one of 38 FFA members enrolled in the award-winning Whites Creek Alternative Energy Academy in Nashville, Tenn., Kendrick is not alone in her passion for energy conversion.

"These kids are awesome," says Garry Gibson, Ph.D., Whites Creek FFA advisor. "We are a city school, so most of these kids don't have a farm background. But they love the program. They would bleed blue tomorrow. They love FFA."

The only program of its kind in the U.S., the Whites Creek FFA alternative

energy program introduces high school students – most of whom have never considered agriculture – to the world of alternative energy. The four-year program prepares students for a future in this fast-growing, high-paying industry.

A renewable playland

The program began when Gibson, a graduate of The Ohio State University with a doctorate in agricultural education and more than 25 years of experience under his belt, started teaching at Whites Creek High School in 2014. Students in the program study several energy sources including solar and wind energy, ethanol and biodiesel production, geothermal, hydroelectric, nuclear and fossil fuels. Each student enrolls in four main classes: agriscience, introduction to alternative energy, greenhouse management and advanced alternative energy production.

Adding to the program's uniqueness, students grow soybeans to produce their own biodiesel, which they use to power everything from cars and trucks to tractors and go-karts. The city of Nashville allows the program to use an 8-acre community garden plot near the school.

On four acres, students grow vegetables. In the last two years, the chapter has grown over 12,000 pounds of produce that is given to those in need in the community. The other four acres are used to grow varieties of soybeans. A local farmer harvests the soybeans, which are then taken into the school's lab, pressed into oil and processed into biodiesel.

"This is how we get back to agriculture. We make the fuels from renewable plant sources that farmers can grow," Gibson says.

The only program of its kind in the U.S., the Whites Creek FFA alternative energy program introduces high school students – most of whom have never considered agriculture – to the world of alternative energy. The four-year program prepares students for a future in this fast-growing, high-paying industry.





What's learned in the classroom is then put into action next door in the program's laboratory, which is strewn with an assortment of pieces and parts: biodiesel-, solar- and ethanol-powered go-karts, fuel pumps, processors, portable solar panels, auto motors, tabletop canisters with protruding tubes, and a stripped-down, economy-size red car that actually runs on renewable hydrogen. This renewable playland is dominated by a bold sign high overhead reminding students to "Think Safety."

"Originally, before I joined the program, I heard they had go-karts, and I was real excited," says junior and Chapter Vice President Allen England. "Not only did I get to build go-karts, but I also learned more about alternative energy and life lessons. I feel like we're making changes. It's great."

On the road

Whites Creek is all about sharing the knowledge of alternative energy with others.

Every October, the chapter exhibits an alternative energy education booth at the state and national FFA conventions, where the members teach more than 60,000 students about alternative energy and feature their hydrogen tractor.

Last year, the chapter notched a first-place win in the national Ford STEM Community Challenge. Powered by its $10,000 winnings and the chapter's F-250 truck fueled with biodiesel from the chapter's soybeans, a small group of students took their mobile lab, which is housed in a 24-foot enclosed trailer, on the road. The more than 2,000-mile, nine-day trip across the United States and Canada

brought FFA members face-to-face with students in 17 high schools, colleges and universities.

"It brought us as close as a family," Gibson says. "We are a close-knit group here, particularly the kids in FFA. It's awesome when we take these kids out and they start talking about all this stuff and they have this lab. It just blows everyone's minds."

A highlight of the trip included a visit to the University of Florida, where FFA members taught two different classes of future agriculture teachers about alternative energy. The thought of high school students teaching teachers was a little scary at first.

"Is this really happening?" laughs sophomore and Chapter President Rachel Rhea. "We did awesome, though. The teachers were intrigued by what we had to say and were picking our brains for information. They were very engaged."

For Gibson, it's part of the plan.

"Having the kids teach raises the education to a higher level," he says. "It's way out of the box. As a teacher, they have to learn it and learn it well. The students do an excellent job when they get out there. Our students become the teachers."



True success

In 2017, the chapter again won the national Ford STEM Community Challenge, but this time it received $20,000. The chapter will use the money to build a 40-panel solar farm, convert a tractor and truck to run on hydrogen, and build a hydrogen reactor to make its own hydrogen as an alternative energy fuel. In June, the six chapter officers drove the mobile lab to Ford's corporate headquarters in Michigan to discuss the chapter's success with alternative fuels with Ford executives from around the world.

In addition, the program has won many state and national awards and garnered recognition. *Successful Farming* magazine recognized Whites Creek as one of three high schools in the United States that is shifting its focus with the changing landscape of agriculture. It also won the Governor's Environmental Award in 2015.

Winning awards aside, the true success of the program is measured by the lives transformed. Four students graduated from the program in 2016; all four are now at Tennessee State University majoring in agriculture. College freshman Shakarah Nelson is one of those graduates new to the world of alternative energy and FFA, thanks to Gibson.a

"Dr. Gibson – we call him our dad. He saw potential in all of us that no one else could," Nelson says.

"When I see all of my kids doing these successful things," Gibson reflects, "sometimes I just stop and say, 'Thank you, God, for making me a teacher.' "

Did you know?

Alternative energy is one of the fastest-growing industries – and one that will shape the future. Are you interested? ■

This article originally appeared in the Fall 2017 edition of FFA New Horizons magazine.

World Dairy Expo

By the Numbers: World Dairy Expo

- **2017 Total Attendance:** 68,710
- **Registered International Guests:** 2,752 from 97 countries
- **Participating Companies:** 884 from 28 countries, 7 Canadian provinces and 42 U.S. states
- **Total Number of Dairy Cattle Housed on Grounds:** 2,356
- **Total Number of Dairy Cattle Exhibitors:** 1,772 from 40 U.S. states and 7 Canadian provinces



Supreme Champion of World Dairy Expo:

Supreme Champion: Rosiers Blexy Goldwyn-ET
Exhibited by: Budjon, Vail, Abbott, Van Exel & Woodmansee, Lomira, Wis.



Reserve Supreme Champion: Musqie Iatola Martha-ET
Exhibited by: MilkSource Genetics, LLC, Kaukauna, Wis.

Supreme Champion of the Junior Show: Miss Nastias Y Not Me
Exhibited by: Aspen M. Silva, Modesto, Calif.

Reserve Supreme Champion of the Junior Show: Adams Creek AP Bianca-ETV
Exhibited by: Alyssa Nuttleman, Bangor, Wis.



Huvepharma® acquires AgriLabs®

Huvepharma® announced its acquisition of AgriLabs® "in a move that will expand the U.S. presence of the global animal health and nutrition company and speed commercialization of their biologic solutions for animal health," according to a release. The acquisition includes AgriLabs product lines including Colostrx® CS and Colostrx® CR; I-Site® XP, MpB Guard® and Pulmo-Guard® PH-M vaccines; the VetGun insecticide delivery system; and AgriLabs' custom vaccines business. In addition, the acquisition also includes Antelope Valley Bios, a contract manufacturing business, and the VaxLiant® portfolio of novel adjuvants based in Lincoln, Nebraska. Both companies will continue operations under their current identities as integration opportunities are identified in 2018.

Egg prices predicted to be higher

According to *Food Dive*, egg prices during the first three months of 2018 are likely to be more than 35 percent higher than they were during the same period of 2017, USDA's Economic Research Service says. The increase, from about 80 cents for a dozen grade A large eggs at the start of 2017 to predictions of $1.06 to $1.12 for a dozen, is due to several months of increased sales. Iowa State University professor Hongwei Xin, who directs the school's Egg Industry Center, says domestic and international demand for U.S. eggs is on the rise. "We are at 273.7, about 274 eggs per capita per year," he says of U.S. consumption. "This is the highest of the past 38 years." And he says it's expected to continue climbing. Meanwhile, bird flu, which devastated the Midwest poultry sector in 2015, affected egg production this year in other countries, including South Korea, the Philippines, South Africa and the Netherlands.

Record production of U.S. meat

According to a *Wall Street Journal* report, America is producing more meat than ever. Farmers and meatpackers produced a record 99.7 billion pounds of red meat and poultry in 2017, the U.S. Department of Agriculture estimates. They are on track for an even bigger slaughter this year. Tyson Foods Inc., Sanderson Farms Inc. and other meat companies are building new plants that are expected to push U.S. meat production up 3.8% in 2018, the biggest increase in more than 20 years. "We have a world that has a growing middle class that's demanding protein," said Dean Meyer, a farmer near Rock Rapids, Iowa who built a new hog barn and cattle feedlot to grow his sales to nearby slaughterhouses run by Tyson, JBS and others. "We think that's a great opportunity." The U.S. beef-cattle herd has expanded by 12% over the past four years. Meat companies produced a record 47.7 billion pounds of poultry in 2017, and slaughtered hogs at a faster pace than ever before.

David Strachan named head of avian and swine business unit of Boehringer Ingelheim Animal Health

According to the *Poultry Site*, David Strachan has been appointed head of the avian and swine business unit following Boehringer Ingelheim's acquisition of Merial Animal Health. Dr. Strachan has worked for Boehringer Ingelheim's swine division for the past eleven years, spending the last seven as the head of business unit. He specialized in the swine sector with a main interest in infectious disease surveillance and control, areas key to both the swine and avian sectors. For the past fifteen years both Merial Animal Health and Boehringer Ingelheim's avian and swine departments have focused on the production of innovative vaccines.

Three generations of the Huff family



Attending the annual AVDA gathering, the Huff family and Colorado Serum have been supporting their distributor partners for decades.

Y-TEX Corporation launches new TRI-ZAP™ Insecticide Cattle Ear Tags

Y-TEX Corporation announced the launch of its new TRI-ZAP™ Insecticide Ear Tags for beef and dairy cattle. Featuring three proven active ingredients, new TRI-ZAP tags represent a major advancement in the control of horn flies, face flies, lice and Spinose ear ticks. "TRI-ZAP combines the repellency of zetacypermethrin and the killing power of abamectin with the synergistic effects of piperonyl butoxide to create the most effective fly control product on the market today for pastured beef and dairy cattle," stated Dr. Mike Fletcher, Vice President of Research & Development for Y-TEX. "TRI-ZAP stops both pyrethroid-resistant horn flies and hard-to-control face flies from feeding on your cattle and stealing your profits. Our data shows the more resistant horn flies are to zetacypermethrin, the more susceptible they are to abamectin, making this combination an ideal part of any rotation strategy to manage horn fly resistance."

EQUIDONE® Gel (domperidone)
For oral use in horses only.

BRIEF SUMMARY (For full prescribing information, see package insert.)

CAUTION: Federal (USA) law restricts this drug to use by or on the order of a licensed veterinarian.

DESCRIPTION: Domperidone is a D2 dopamine receptor antagonist. The chemical formula is 6-chloro-3-[1-[3-(2-oxo-3H-benzimidazol-1-yl) propyl]piperidin-4-yl]-1H-benzimidazol-2-one.

INDICATION: For prevention of fescue toxicosis in periparturient mares.

Contraindication: Horses with hypersensitivity to domperidone should not receive EQUIDONE Gel.

WARNINGS: Failure of passive transfer of immunoglobulins (IgG) may occur when using EQUIDONE Gel even in the absence of leakage of colostrum or milk. All foals born to mares treated with EQUIDONE Gel should be tested for serum IgG concentrations. Do not use in horses intended for human consumption.

HUMAN WARNINGS: Not for use in humans. For oral use in animals only. Keep this and all drugs out of the reach of children. Pregnant and lactating women should use caution when handling EQUIDONE Gel, as systemic exposure to domperidone may affect reproductive hormones. Consult a physician in case of accidental human exposure.

PRECAUTIONS: EQUIDONE Gel may lead to premature birth, low birth weight foals or foal morbidity if administered >15 days prior to the expected foaling date. Accurate breeding date(s) and an expected foaling date are needed for the safe use of EQUIDONE Gel.Do not use in horses with suspected or confirmed gastrointestinal blockage, as domperidone is a prokinetic drug (it stimulates gut motility).

ADVERSE REACTIONS: The most common adverse reactions associated with treatment with EQUIDONE Gel are premature lactation (dripping of milk prior to foaling) and failure of passive transfer.

EQUIDONE® Gel
(domperidone)

Distributed by:
Dechra Veterinary Products
7015 College Boulevard, Suite 525
Overland Park, KS 66211, 866-933-2472

© 2017 Dechra Ltd.
EQUIDONE is a registered trademark of Dechra Ltd. All rights reserved.
NADA 141-314,
Approved by FDA

Dechra
Veterinary Products

NEWS

Merck's Safe-Guard® AquaSol approved for use in laying hens

Merck Animal Health announced that Safe-Guard® AquaSol (fenbendazole oral suspension), the company's highly effective dewormer, is now approved for use in laying hens and replacement chickens intended to become laying hens, according to a report in *ThePoultrySite*. Safe-Guard AquaSol is indicated for the treatment and control of adult Ascaridia galli and Heterakis gallinarum. Safe-Guard AquaSol was initially approved in October 2015 for the treatment and control of adult A. galli in broiler chickens and replacement chickens intended to become breeding chickens and for the treatment and control of adult A. galli and H. gallinarum in breeding chickens.

JBS United rebrands as United Animal Health

According to *Feedstuffs*, JBS United Inc., announced Jan. 9 a rebrand to United Animal Health Inc. The rebranding includes a new name, logo, look and modernization to the way the company does business. United's new brand allows the company to differentiate itself in the industry and make a clear distinction among other companies doing business with the same JBS initials.

Equine

Henry Schein, supplier partners and donors raise money for equine veterinary education

Henry Schein Animal Health recently led a fundraising effort that raised $10,000 for the American Association of Equine Practitioners (AAEP) Foundation in support of its educational programming for the next generation of equine veterinary professionals. Henry Schein joined supplier partners Zoetis, Neogen, and Rood & Riddle to support the AAEP Foundation's "Collegiate Challenge," an initiative that encouraged convention attendees to make donations that support the following AAEP programs: student chapter activity; courses in dentistry, podiatry, and horses handling; and continuing education programs. Henry Schein and its supplier partners matched convention attendee donations up to a total donation of $10,000. Combined with Henry Schein and its partners' donation, the AAEP Foundation raised more than $24,000 through the "Collegiate Challenge."

Bimeda appoints Key Account Manager for MWI Animal Health – Mindie Burch

Bimeda Inc. announced the appointment of Mindie Burch to the role of Key Account Manager for MWI Animal Health. Burch's appointment is effective March 1, 2018, and her role will primarily focus on growing business with her assigned account. With over 13 years of experience in the animal health industry, Burch brings a wealth of knowledge in sales and marketing as well as territory management. Prior to joining Bimeda, Burch held various positions in the animal health industry including Practice Manager, Marketing Consultant, Senior Marketing Manager at WALCO International, and Territory Manager for Fort Dodge Animal Health.

LONGRANGE®
By Merial (eprinomectin)

Extended-Release Injectable Parasiticide
5% Sterile Solution
NADA 141-327, Approved by FDA for subcutaneous injection
For the Treatment and Control of Internal and External
Parasites of Cattle on Pasture with Persistent Effectiveness

CAUTION: Federal law restricts this drug to use by or on the order of a licensed veterinarian.

INDICATIONS FOR USE
LONGRANGE, when administered at the recommended dose volume of 1 mL per 110 lb (50 kg) body weight, is effective in the treatment and control of 20 species and stages of internal and external parasites of cattle:

Gastrointestinal Roundworms	Lungworms
Bunostomum phlebotomum – Adults and L_4	*Dictyocaulus viviparus* – Adults
Cooperia oncophora – Adults and L_4	
Cooperia punctata – Adults and L_4	
Cooperia surnabada – Adults and L_4	
Haemonchus placei – Adults	**Grubs**
Oesophagostomum radiatum – Adults	*Hypoderma bovis*
Ostertagia lyrata – Adults	
Ostertagia ostertagi – Adults, L_4, and inhibited L_4	
Trichostrongylus axei – Adults and L_4	**Mites**
Trichostrongylus colubriformis – Adults	*Sarcoptes scabiei* var. *bovis*

Parasites	Durations of Persistent Effectiveness
Gastrointestinal Roundworms	
Bunostomum phlebotomum	150 days
Cooperia oncophora	100 days
Cooperia punctata	100 days
Haemonchus placei	120 days
Oesophagostomum radiatum	120 days
Ostertagia lyrata	120 days
Ostertagia ostertagi	120 days
Trichostrongylus axei	100 days
Lungworms	
Dictyocaulus viviparus	150 days

DOSAGE AND ADMINISTRATION
LONGRANGE® (eprinomectin) should be given only by subcutaneous injection in front of the shoulder at the recommended dosage level of 1 mg eprinomectin per kg body weight (1 mL per 110 lb body weight).

WARNINGS AND PRECAUTIONS

Withdrawal Periods and Residue Warnings
Animals intended for human consumption must not be slaughtered within 48 days of the last treatment. This drug product is not approved for use in female dairy cattle 20 months of age or older, including dry dairy cows. Use in these cattle may cause drug residues in milk and/or in calves born to these cows. A withdrawal period has not been established for pre-ruminating calves. Do not use in calves to be processed for veal.

Animal Safety Warnings and Precautions
The product is likely to cause tissue damage at the site of injection, including possible granulomas and necrosis. These reactions have disappeared without treatment. Local tissue reaction may result in trim loss of edible tissue at slaughter. Observe cattle for injection site reactions. If injection site reactions are suspected, consult your veterinarian. This product is not for intravenous or intramuscular use. Protect product from light. LONGRANGE® (eprinomectin) has been developed specifically for use in cattle only. This product should not be used in other animal species.

When to Treat Cattle with Grubs
LONGRANGE effectively controls all stages of cattle grubs. However, proper timing of treatment is important. For the most effective results, cattle should be treated as soon as possible after the end of the heel fly (warble fly) season.

Environmental Hazards
Not for use in cattle managed in feedlots or under intensive rotational grazing because the environmental impact has not been evaluated for these scenarios.

Other Warnings: Underdosing and/or subtherapeutic concentrations of extended-release anthelmintic products may encourage the development of parasite resistance. It is recommended that parasite resistance be monitored following the use of any anthelmintic with the use of a fecal egg count reduction test program.

TARGET ANIMAL SAFETY
Clinical studies have demonstrated the wide margin of safety of LONGRANGE® (eprinomectin). Overdosing at 3 to 5 times the recommended dose resulted in a statistically significant reduction in average weight gain when compared to the group tested at label dose. Treatment-related lesions observed in most cattle administered the product included swelling, hyperemia, or necrosis in the subcutaneous tissue of the skin. The administration of LONGRANGE at 3 times the recommended therapeutic dose had no adverse reproductive effects on beef cows at all stages of breeding or pregnancy or on their calves. Not for use in bulls, as reproductive safety testing has not been conducted in males intended for breeding or actively breeding. Not for use in calves less than 3 months of age because safety testing has not been conducted in calves less than 3 months of age.

STORAGE
Store at 77° F (25° C) with excursions between 59° and 86° F (15° and 30° C).
Protect from light. Made in Canada.
Manufactured for Merial, Inc., Duluth, GA, USA.
®The Cattle Head Logo and ®LONGRANGE are registered trademarks of Merial, Inc.
©2015 Merial, Inc. All rights reserved. 1050-2889-06, Rev. 2/2015, 8LON016C

LONGRANGE®
By Merial (eprinomectin)

Extended-Release Injectable Parasiticide
5% Sterile Solution
NADA 141-327, Approved by FDA for subcutaneous injection
For the Treatment and Control of Internal and External
Parasites of Cattle on Pasture with Persistent Effectiveness

CAUTION: Federal law restricts this drug to use by or on the order of a licensed veterinarian.

INDICATIONS FOR USE
LONGRANGE, when administered at the recommended dose volume of 1 mL per 110 lb (50 kg) body weight, is effective in the treatment and control of 20 species and stages of internal and external parasites of cattle:

Gastrointestinal Roundworms	Lungworms
Bunostomum phlebotomum – Adults and L_4	*Dictyocaulus viviparus* – Adults
Cooperia oncophora – Adults and L_4	
Cooperia punctata – Adults and L_4	
Cooperia surnabada – Adults and L_4	
Haemonchus placei – Adults	**Grubs**
Oesophagostomum radiatum – Adults	*Hypoderma bovis*
Ostertagia lyrata – Adults	
Ostertagia ostertagi – Adults, L_4, and inhibited L_4	
Trichostrongylus axei – Adults and L_4	**Mites**
Trichostrongylus colubriformis – Adults	*Sarcoptes scabiei* var. *bovis*

Parasites	Durations of Persistent Effectiveness
Gastrointestinal Roundworms	
Bunostomum phlebotomum	150 days
Cooperia oncophora	100 days
Cooperia punctata	100 days
Haemonchus placei	120 days
Oesophagostomum radiatum	120 days
Ostertagia lyrata	120 days
Ostertagia ostertagi	120 days
Trichostrongylus axei	100 days
Lungworms	
Dictyocaulus viviparus	150 days

DOSAGE AND ADMINISTRATION
LONGRANGE® (eprinomectin) should be given only by subcutaneous injection in front of the shoulder at the recommended dosage level of 1 mg eprinomectin per kg body weight (1 mL per 110 lb body weight).

WARNINGS AND PRECAUTIONS

Withdrawal Periods and Residue Warnings
Animals intended for human consumption must not be slaughtered within 48 days of the last treatment. This drug product is not approved for use in female dairy cattle 20 months of age or older, including dry dairy cows. Use in these cattle may cause drug residues in milk and/or in calves born to these cows. A withdrawal period has not been established for pre-ruminating calves. Do not use in calves to be processed for veal.

Animal Safety Warnings and Precautions
The product is likely to cause tissue damage at the site of injection, including possible granulomas and necrosis. These reactions have disappeared without treatment. Local tissue reaction may result in trim loss of edible tissue at slaughter. Observe cattle for injection site reactions. If injection site reactions are suspected, consult your veterinarian. This product is not for intravenous or intramuscular use. Protect product from light. LONGRANGE® (eprinomectin) has been developed specifically for use in cattle only. This product should not be used in other animal species.

When to Treat Cattle with Grubs
LONGRANGE effectively controls all stages of cattle grubs. However, proper timing of treatment is important. For the most effective results, cattle should be treated as soon as possible after the end of the heel fly (warble fly) season.

Environmental Hazards
Not for use in cattle managed in feedlots or under intensive rotational grazing because the environmental impact has not been evaluated for these scenarios.

Other Warnings: Underdosing and/or subtherapeutic concentrations of extended-release anthelmintic products may encourage the development of parasite resistance. It is recommended that parasite resistance be monitored following the use of any anthelmintic with the use of a fecal egg count reduction test program.

TARGET ANIMAL SAFETY
Clinical studies have demonstrated the wide margin of safety of LONGRANGE® (eprinomectin). Overdosing at 3 to 5 times the recommended dose resulted in a statistically significant reduction in average weight gain when compared to the group tested at label dose. Treatment-related lesions observed in most cattle administered the product included swelling, hyperemia, or necrosis in the subcutaneous tissue of the skin. The administration of LONGRANGE at 3 times the recommended therapeutic dose had no adverse reproductive effects on beef cows at all stages of breeding or pregnancy or on their calves. Not for use in bulls, as reproductive safety testing has not been conducted in males intended for breeding or actively breeding. Not for use in calves less than 3 months of age because safety testing has not been conducted in calves less than 3 months of age.

STORAGE
Store at 77° F (25° C) with excursions between 59° and 86° F (15° and 30° C).
Protect from light. Made in Canada.
Manufactured for Merial, Inc., Duluth, GA, USA.
®The Cattle Head Logo and ®LONGRANGE are registered trademarks of Merial, Inc.
©2015 Merial, Inc. All rights reserved. 1050-2889-06, Rev. 2/2015, 8LON016C

Boehringer Ingelheim

NADA 055-058 Approved by FDA

Dry-Clox®

(cloxacillin benzathine)
Intramammary Infusion
FOR USE IN DRY COWS ONLY

Caution: Federal law restricts this drug to use by or on the order of a licensed veterinarian.

Action: In the non-lactating mammary gland, Dry-Clox® (cloxacillin benzathine) provides bactericidal levels of the active antibiotic, cloxacillin, for a prolonged period of time. This prolonged activity is due to the low solubility of the cloxacillin benzathine and to the slow-release oil-gel base. This prolonged contact between the antibiotic and the pathogenic organism enhances the probability of a bacteriological cure.

Cloxacillin is not destroyed by the enzyme penicillinase, and therefore, is active against penicillin-resistant strains of *Staphylococcus aureus*. It is also active against non-penicillinase-producing *Staphylococcus aureus* as well as *Streptococcus agalactiae*.

The class disc, methicillin 5 mcg, should be used to estimate the *in vitro* susceptibility of bacteria to cloxacillin.

Indications: For the treatment of mastitis in dairy cows during the dry period.

Dry-Clox has been shown by extensive clinical studies to be efficacious in the treatment of mastitis in dry cows, when caused by *Streptococcus agalactiae* and *Staphylococcus aureus*, including penicillin-resistant strains.

Treatment of the dry cow with Dry-Clox is indicated in any cow known to harbor any of these organisms in the udder at drying off, or which has had repeated attacks of mastitis during the previous lactation, or is affected with mastitis at drying off, if caused by susceptible organisms.

Dosage for Dry Cows: Infuse the contents of one syringe (10 mL) into each quarter following the last milking. See Directions for Use.

Directions for Use: Dry-Clox (cloxacillin benzathine) is for use in dry cows only. Administer immediately after the last milking. **Use no later than 30 days prior to calving**.

Completely milk out all four quarters. The udder and teats should be thoroughly washed with warm water containing a suitable dairy antiseptic and dried, preferably using individual paper towels. Carefully scrub the teat end and orifice with 70% alcohol, using a separate swab for each teat. **Allow to dry**.

Dry-Clox is packaged with the Opti-Sert® Protective Cap.

For partial insertion: Twist off upper portion of the Opti-Sert Protective Cap to expose 3–4 mm of the syringe tip.

For full insertion: Remove protective cap to expose the full length of the syringe tip.

Insert syringe tip into the teat canal and expel the entire contents of syringe into the quarter. Withdraw the syringe and gently massage the quarter to distribute the medication.

Do not infuse contents of the mastitis syringe into the teat canal if the Opti-Sert Protective Cap is broken or damaged.

Precautions: Because it is a derivative of 6-aminopenicillanic acid, Dry-Clox has the potential for producing allergic reactions. Such reactions are rare; however, should they occur, the subject should be treated with antihistamines or pressor amines, such as epinephrine.

Residue Warnings: 1. For use in dry cows only. 2. Not to be used within 30 days of calving. 3. Any animal infused with this product must not be slaughtered for food until 30 days after the latest infusion.

Opti-Sert is a registered trademark of Zoetis W LLC-used under license.
Dry-Clox is a registered trademark of Boehringer Ingelheim Vetmedica, Inc.
©2016 Boehringer Ingelheim Vetmedica, Inc. All Rights Reserved. Made in Italy
BOV-0276-MAST0117

Manufactured for:
Boehringer Ingelheim Vetmedica, Inc.
St. Joseph, MO 64506 U.S.A.

Tildren®

(tiludronate disodium)

FOR USE IN HORSES ONLY

WARNINGS
Do not use in horses intended for human consumption. NSAIDs should not be used concurrently with Tildren®. Concurrent use of NSAIDs with Tildren® may increase the risk of renal toxicity and acute renal failure.

HUMAN WARNINGS
Not for use in humans. Keep this and all drugs out of the reach of children. Consult a physician in case of accidental human exposure.

CAUTION
Federal law restricts this drug to use by or on the order of a licensed veterinarian.

INDICATION
Tildren® is indicated for the control of clinical signs associated with navicular syndrome in horses. Navicular syndrome is the most common cause of chronic forelimb lameness in performance horses. It is a degenerative process instigated by mechanical forces.

CONTRAINDICATIONS
Do not use in horses with known hypersensitivity to tiludronate disodium or to mannitol. Do not use in horses with impaired renal function or with a history of renal disease. Bisphosphonates are excreted by the kidney; therefore, conditions causing renal impairment may increase plasma bisphosphonate concentrations resulting in an increased risk for adverse reactions.

PRECAUTIONS
Approximately 30-45% of horses administered Tildren® will demonstrate transient signs consistent with abdominal pain (colic). Horses should be observed closely for 4 hours post-infusion for the development of clinical signs consistent with colic or other adverse reactions. Colic signs can last approximately 90 minutes and may be intermittent in nature. Hand walking the horse may improve or resolve the colic signs in many cases. If a horse requires medical therapy, non-NSAID treatment should be administered due to the risk for renal toxicity. Avoid NSAID use.

Horses should be well hydrated prior to administration of Tildren® due to the potential nephrotoxic effects of Tildren®.

Tildren® should be used with caution in horses receiving concurrent administration of other drugs that may reduce serum calcium (such as tetracyclines) or whose toxicity may exacerbate a reduction in serum calcium (such as aminoglycosides).

Horses with HYPP (heterozygous or homozygous) may be at an increased risk for adverse reactions, including colic signs, hyperkalemic episodes, and death. The safe use of Tildren® has not been evaluated in horses less than 4 years of age.

Bisphosphonates should not be used in pregnant or lactating mares, or mares intended for breeding. Bisphosphonates have been shown to cause fetal developmental abnormalities in laboratory animals.

DOSAGE AND ADMINISTRATION
A single dose of Tildren® should be administered as an intravenous infusion at a dose of 1 mg/kg (0.45 mg/lb). The infusion should be administered slowly and evenly over 90 minutes to minimize the risk of adverse reactions. Maximum effect may not occur until 2 months post-treatment.

For **ADMINISTRATION INSTRUCTIONS** (preparation of the reconstituted solution (20mg/mL) and preparation of the solution for infusion) and for complete product information, please read the insert contained within the product packaging.

STORAGE
Sterile powder (not reconstituted): Store at controlled room temperature 68°F-77°F (20°C-25°C). After preparation, the infusion should be administered either within 2 hours of preparation, or it can be stored for up to 24 hours under refrigeration at 36°F-46° F (2°C-8°C) and protected from light.

HOW SUPPLIED
Tildren® is supplied in a 30mL glass vial as a white, sterile lyophilized powder containing 500 mg tiludronic acid (as tiludronate disodium) packaged in a folding carton. For technical assistance or to report suspected adverse reactions, call 1-888-524-6332.

INFORMATION FOR OWNERS
Prior to Tildren® administration, owners should be advised of the potential for adverse reactions in the hours or days following treatment. Adverse reactions within 4 hours post dosing may include signs of colic (manifested as pawing, stretching, getting up and down, sweating, rolling, looking at flanks, kicking at belly, frequent gas, and pacing). Owners should be instructed to contact their veterinarian immediately if any adverse reactions are observed. Owners should be advised to consult with their veterinarian prior to the administration of an NSAID following Tildren® administration.

Made in Canada

Patent information: U.S. patent 6,057,306

ANADA 200-495, Approved by FDA

Enroflox® 100
(enrofloxacin)

100 mg/mL Antimicrobial Injectable Solution

For Subcutaneous Use in Beef Cattle, Non-Lactating Dairy Cattle and Swine Only.
Not for Use in Female Dairy Cattle 20 Months of Age or Older Or In Calves To Be Processed For Veal.

Brief Summary: Before using Enroflox® 100, consult the product insert, a summary of which follows.

CAUTION: Federal (U.S.A.) law restricts this drug to use by or on the order of a licensed veterinarian. Federal (U.S.A.) law prohibits the extra-label use of this drug in food-producing animals.

PRODUCT DESCRIPTION: Each mL of Enroflox 100 contains 100 mg of enrofloxacin. Excipients are L-arginine base 200 mg, n-butyl alcohol 30 mg, benzyl alcohol (as a preservative) 20 mg and water for injection q.s.

INDICATIONS:
Cattle - Single-Dose Therapy: Enroflox 100 is indicated for the treatment of bovine respiratory disease (BRD) associated with *Mannheimia haemolytica, Pasteurella multocida, Histophilus somni* and *Mycoplasma bovis* in beef and non-lactating dairy cattle; and for the control of BRD in beef and non-lactating dairy cattle at high risk of developing BRD associated with *M. haemolytica, P. multocida, H. somni* and *M. bovis*.

Cattle - Multiple-Day Therapy: Enroflox 100 is indicated for the treatment of bovine respiratory disease (BRD) associated with *Mannheimia haemolytica, Pasteurella multocida* and *Histophilus somni* in beef and non-lactating dairy cattle.

Swine: Enroflox 100 is indicated for the treatment and control of swine respiratory disease (SRD) associated with *Actinobacillus pleuropneumoniae, Pasteurella multocida, Haemophilus parasuis* and *Streptococcus suis*.

RESIDUE WARNINGS:
Cattle: Animals intended for human consumption must not be slaughtered within 28 days from the last treatment. This product is not approved for female dairy cattle 20 months of age or older, including dry dairy cows. Use in these cattle may cause drug residues in milk and/or in calves born to these cows. A withdrawal period has not been established for this product in pre-ruminating calves. Do not use in calves to be processed for veal.
Swine: Animals intended for human consumption must not be slaughtered within 5 days of receiving a single-injection dose.

HUMAN WARNINGS: For use in animals only. Keep out of the reach of children. Avoid contact with eyes. In case of contact, immediately flush eyes with copious amounts of water for 15 minutes. In case of dermal contact, wash skin with soap and water. Consult a physician if irritation persists following ocular or dermal exposures. Individuals with a history of hypersensitivity to quinolones should avoid this product. In humans, there is a risk of user photosensitization within a few hours after excessive exposure to quinolones. If excessive accidental exposure occurs, avoid direct sunlight. For customer service, to obtain a copy of the Safety Data Sheet (SDS) or to report adverse reactions, call Norbrook at 1-866-591-5777.

PRECAUTIONS:
The effects of enrofloxacin on cattle or swine reproductive performance, pregnancy and lactation have not been adequately determined.
The long-term effects on articular joint cartilage have not been determined in pigs above market weight.
Subcutaneous injection can cause a transient local tissue reaction that may result in trim loss of edible tissue at slaughter.
Enroflox 100 contains different excipients than other enrofloxacin products. The safety and efficacy of this formulation in species other than cattle and swine have not been determined.
Quinolone-class drugs should be used with caution in animals with known or suspected Central Nervous System (CNS) disorders. In such animals, quinolones have, in rare instances, been associated with CNS stimulation which may lead to convulsive seizures. Quinolone-class drugs have been shown to produce erosions of cartilage of weight-bearing joints and other signs of arthropathy in immature animals of various species. See Animal Safety section for additional information.

ADVERSE REACTIONS: No adverse reactions were observed during clinical trials.

ANIMAL SAFETY:
In cattle safety studies, clinical signs of depression, incoordination and muscle fasciculation were observed in calves when doses of 15 or 25 mg/kg were administered for 10 to 15 days. Clinical signs of depression, inappetance and incoordination were observed when a dose of 50 mg/kg was administered for 3 days. An injection site study conducted in feeder calves demonstrated that the formulation may induce a transient reaction in the subcutaneous tissue and underlying muscle. In swine safety studies, incidental lameness of short duration was observed in all groups, including the saline-treated controls. Musculoskeletal stiffness was observed following the 15 and 25 mg/kg treatments with clinical signs appearing during the second week of treatment. Clinical signs of lameness improved after treatment ceased and most animals were clinically normal at necropsy. An injection site study conducted in pigs demonstrated that the formulation may induce a transient reaction in the subcutaneous tissue.

Norbrook Laboratories Limited,
Newry, BT35 6PU, Co. Down, Northern Ireland

I02 September 2016

The Norbrook logos and Enroflox® are registered trademarks of Norbrook Laboratories Limited.

ANADA 200-591, Approved by FDA

Norfenicol®
(florfenicol)
Injectable Solution
300 mg/mL

For intramuscular and subcutaneous use in beef and non-lactating dairy cattle only.

BRIEF SUMMARY (For full Prescribing Information, see package insert.)

INDICATIONS: Norfenicol is indicated for treatment of bovine respiratory disease (BRD) associated with *Mannheimia haemolytica, Pasteurella multocida,* and *Histophilus somni,* and for the treatment of foot rot. Also, it is indicated for control of respiratory disease in cattle at high risk of developing BRD associated with *M.haemolytica, P. multocida,* and *H. somni.*

CONTRAINDICATIONS: Do not use in animals that have shown hypersensitivity to florfenicol.

NOT FOR HUMAN USE.
KEEP OUT OF REACH OF CHILDREN.
Can be irritating to skin and eyes. Avoid direct contact with skin, eyes, and clothing. In case of accidental eye exposure, flush with water for 15 minutes. In case of accidental skin exposure, wash with soap and water. Remove contaminated clothing. Consult physician if irritation persists. Accidental injection of this product may cause local irritation. Consult physician immediately. The risk information provided here is not comprehensive. To learn more, talk about Norfenicol with your veterinarian.
For customer service, adverse effects reporting, or to obtain a copy of the MSDS or FDA-approved package insert, call 1-866-591-5777.

PRECAUTIONS: Not for use in animals intended for breeding. Effects on bovine reproductive performance, pregnancy, and lactation have not been determined. Intramuscular injection may result in local tissue reaction which persists beyond 28 days. This may result in trim loss at slaughter. Tissue reaction at injection sites other than the neck is likely to be more severe.

RESIDUE WARNINGS: Animals intended for human consumption must not be slaughtered within 28 days of the last intramuscular treatment. Animals intended for human consumption must not be slaughtered within 33 days of subcutaneous treatment.
Not approved for use in female dairy cattle 20 months of age or older, including dry dairy cows as such use may cause drug residues in milk and/or in calves born to these cows. A withdrawal period has not been established in pre-ruminating calves. Do not use in calves to be processed for veal.

ADVERSE REACTIONS: Inappetence, decreased water consumption, or diarrhea may occur transiently.

Manufactured by:
Norbrook Laboratories Limited, Newry, BT35 6PU, Co. Down, Northern Ireland.

The Norbrook logos and Norfenicol ® are registered trademarks of Norbrook Laboratories Limited.

PROVEN BENEFITS AT THE RIGHT PRICE

BRD, shipping fever, footrot, pinkeye and *E. coli* scours come on fast and hit hard. Veterinarians and beef producers demand a proven, broad-spectrum antibiotic that delivers:

- **Economical per dose costs**
- **Long duration of activity (up to 8 days) at 4.5 mL/100 lbs.**
- **Lower dose volume than 200 mg/mL oxytetracyclines**



www.norbrook.com

300 PRO LA® IS AVAILABLE ONLY THROUGH VETERINARIANS. Observe label directions and withdrawal times. Not for use in lactating dairy animals. Adverse reactions, including injection site swelling, restlessness, ataxia, trembling, respiratory abnormalities (labored breathing), collapse and possibly death have been reported. See product labeling for full product information.

The Norbrook logos and 300 PRO LA are registered trademarks of Norbrook Laboratories Limited

Norbrook®

300 PRO LA®

(oxytetracycline) Injection

ANTIBIOTIC: Each mL contains 300 mg of oxytetracycline base as amphoteric oxytetracycline. For Use in Beef, Non-lactating Dairy Cattle, Calves, Including Pre-ruminating (Veal) Calves and Swine.

READ ENTIRE LABEL CAREFULLY BEFORE USING THIS PRODUCT.

Caution: Federal law restricts this drug to use by or on the order of a licensed veterinarian.

INTRODUCTION: 300 PRO LA (oxytetracycline) Injection is a sterile, ready to use solution of the broad-spectrum antibiotic oxytetracycline dihydrate. Oxytetracycline is an antimicrobial agent that is effective in treatment of a wide range of diseases caused by susceptible gram-positive and gram-negative bacteria.

300 PRO LA should be stored at room temperature 56°-86°F (15°-30°C). The antibiotic activity of oxytetracycline is not appreciably diminished in the presence of body fluids, serum or exudates.

INGREDIENTS: 300 PRO LA Injection is a sterile, pre-constituted solution of the broad-spectrum antibiotic oxytetracycline dihydrate. Each mL contains 300 mg oxytetracycline as base, 40% (v/v) glycerol formal, 10% (v/v) polyethylene glycol 200, 2.7% (w/v) magnesium oxide, 0.4% (w/v) sodium formaldehyde sulphoxylate (as a preservative) and monoethanolamine (as required to adjust pH).

INDICATIONS: 300 PRO LA is intended for use in treatment for the following diseases when due to oxytetracycline-susceptible organisms: Beef cattle, non-lactating dairy cattle, calves, including pre-ruminating (veal) calves: 300 PRO LA is indicated in the treatment of pneumonia and shipping fever complex associated with Pasteurella spp., and Histophilus spp. 300 PRO LA is indicated for the treatment of infectious bovine keratoconjunctivitis (pink eye) caused by Moraxella bovis, foot-rot and diphtheria caused by Fusobacterium necrophorum; bacterial enteritis (scours) caused by Escherichia coli; wooden tongue caused by Actinobacillus lignieresi; leptospirosis caused by Leptospira pomona; and wound infections and acute metritis caused by strains of staphylococcal and streptococcal organisms sensitive to oxytetracycline. Also, it is indicated for the control of respiratory disease in cattle at high risk of developing BRD associated with Mannheimia (Pasteurella) haemolytica.

Swine: 300 PRO LA is indicated in the treatment of bacterial enteritis (scours, colibacillosis) caused by Escherichia coli; pneumonia cause by Pasteurella multocida; and leptospirosis caused by Leptospira pomona. In sows 300 PRO LA is indicated as an aid in control of infectious enteritis (baby pig scours, colibacillosis) in suckling pigs caused by Escherichia coli.

PHARMACOLOGY: Oxytetracycline is derived from the metabolic activity of the actinomycete, Streptomyces rimosus. Oxytetracycline is an antimicrobial agent that is effective in the treatment of a wide range of diseases cause by susceptible gram-positive and gram-negative bacteria. The antibiotic activity of oxytetracycline is not appreciably diminished in the presence of body fluids, serum or exudates.

Studies have shown that the half-life of oxytetracycline in blood following intramuscular treatment with 300 PRO LA at 5 mg per pound of bodyweight is approximately 23 hours in cattle and 18 hours in swine. Studies have shown when 300 PRO LA is administered once intramuscularly to cattle or swine at 9 mg per pound of bodyweight, blood oxytetracycline concentration of greater than 0.2 mcg/mL have been observed for 3 to 4 days.

Studies have shown when 300 PRO LA is administered once intramuscularly or subcutaneously to cattle at 13.6 mg per pound of bodyweight, blood oxytetracycline concentration of greater than 0.2 mcg/mL have been observed for at least 7 to 8 days.

DOSAGE AND ADMINISTRATION: Beef cattle, non-lactating dairy cattle, calves, including pre-ruminating (veal) calves: A single intramuscular or subcutaneous dosage of 13.6 mg of oxytetracycline per pound of bodyweight, 300 PRO LA is recommended for the control of respiratory disease in cattle at high risk of developing BRD associated with Mannheimia (pasteurella) haemolytica.

At a single intramuscular or subcutaneous dose range of 9 to 13.6 mg of oxytetracycline per pound of bodyweight, 300 PRO LA is recommended in the treatment of the following conditions:
(1) Bacterial pneumonia caused by Pasteurella spp (shipping fever) in calves and yearlings where retreatment is impractical due to husbandry conditions, such as cattle on range, or where their repeated restraint is inadvisable (2) Infectious bovine keratoconjunctivitis (pink eye) caused by Moraxella bovis.

For other indications 300 PRO LA is to be administered intramuscularly, subcutaneously or intravenously at a level of 3 to 5 mg of oxytetracycline per pound of bodyweight per day. In treatment of foot-rot and advance cases of other indicated diseases, a dosage level of 5 mg per pound of bodyweight per day is recommended. Treatment should be continued 24 to 48 hours following remission of disease signs, however, not to exceed a total of four (4) consecutive days. If improvement is not noted within 24 to 48 hours of the beginning of treatment, diagnosis and therapy should be re-evaluated.

Do not administer intramuscularly in the neck of small calves due to lack of sufficient muscle mass. Use extreme care when administering this product by intravenous injection. Perivascular injection or leakage from an intravenous injection may cause severe swelling at the injection site.

ADVERSE REACTIONS: Reports of adverse reactions associated with oxytetracycline administration include injection site swelling, restlessness, ataxia, trembling, swelling of eyelids, ears, muzzle, anus and vulva (or scrotum and sheath in males), respiratory abnormalities (labored breathing), frothing at the mouth, collapse and possibly death. Some of these reactions may be attributed either to anaphylaxis (an allergic reaction) or to cardiovascular collapse of unknown cause.

1017-143-I04A



The bottom line is there for a reason. We put cattle above it.

From producers to veterinarians, everybody in this industry is here for the same reason: the animals they raise. That's why we expanded our portfolio — to put cattle first, and everything else second. Because when we put the health and well-being of the animal before profit and quick fixes, the rest just takes care of itself.

Boehringer Ingelheim

Cattle First.

SEE OUR UPDATED PORTFOLIO
OF PRODUCTS AT BICATTLEFIRST.COM

Merial is now part of Boehringer Ingelheim.
©2018 Boehringer Ingelheim Vetmedica, Inc. BOV-0920-GEN0118