

Bob Rehurek, Director of Sales and Marketing Aurora Pharmaceutical, LLC

The Start of Something Big

We are proud and honored to launch the inaugural issue of our new publication – *DVM Business Essentials*. This quarterly publication will be mailed to veterinarians, distribution partners, key academia, industry influencers and veterinary students. Our editorial plan is to bring you relevant, informative articles and news that allows you

to better understand Aurora Pharmaceutical's product offering, our manufacturing capabilities, our outstanding people and most of all, our customers.

For 35 years I've devoted myself to the service of animal health professionals with honesty and integrity. Since my early days as sales and marketing manager at Grand Laboratories to helping build Northland Vet Supply into one of the most successful veterinary product distribution companies in the country, my business goal has always been one of exceptional service and professionalism.

When I had the opportunity to work with both Dr. Mike Strobel and Dr. Mark Werner (who happened to be customers at Grand Labs), I embraced the opportunity to be in the forefront of building an animal health company from scratch that was veterinarian-owned and completely focused on the customers' needs.

For example like many companies in our industry, we don't encourage stocking up products and we don't have end-of-

month discounts to try
to push product out of
our warehouse. There is
no artificial movement
of our product. We
offer one price and let
our partners make
the margins they
need to build their
businesses.

We'd like our partners to sell and reorder when it's gone vs. stocking up

and being stuck with out-of-date "specials" that never make you money. No one wins with that antiquated business plan. While other companies are bound to their shareholders and have to inflate numbers, we don't. I quickly found out customers really appreciated this and consequently continue to build their business with Aurora products.

We didn't want the corporate mentality of "predator programs" where everyone thinks they're ordering a better price based on large inventories or purchases and load-ups. No one really wins, and the margins just aren't there when it's over. Our distribution partners all have the same minimums –

regardless of the size of the company – and we pay the freight to their warehouse. The shorter the time a product is in inventory, the more profit a company can realize. It costs money

All of our distributors buy our product for the same price.
Not a penny more or less.

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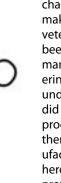
to keep those products on the shelf or refrigerate them.

Our message to veterinarians is that we are intently listening to them and that we have put people in the field to listen to them. We know the challenges they are facing

and work diligently to bring products to market that will address those issues.

we listen

A great example is the new label we just received for the 150 mL bottle of Altren® (altrenogest) Solution 0.22%. Veterinarians have been asking for this single horse treatment package since the pioneer product, Regu-Mate® was brought onto the market in the early 1980s. We did it within six months of receiving our original Altren label. We were responsive to our customers' needs and they are supporting it in record numbers.



Having a veterinarian in charge of our company should make most distributors and veterinarians feel good. They've been on the other side where a manufacturer went around veterinarians and sold direct. They understand that the veterinarian did all the work to develop many product successes just to see them bypassed by the manufacturer. That won't happen here. We will only sell through professional channels. And, a lot of our products are prescription,

a

so the veterinarian is paramount to the success and growth of our company. We never forget that. And, we provide packaging that fits their needs.

We look forward to showing you how we like to do business and why we are changing the way our customers do business as well. We welcome your comments, story ideas and partnership.

Please enjoy the issue.



Our message is simple – Build a level playing field for our distribution partners by offering exceptional products, above average margins and industryleading incentive programs.



For more than 25 years, equine veterinarians have relied on human labeled trimetho-prim/sulfamethoxazole (SMZ) tablets orally in the horse for the treatment of lower respiratory diseases.

This has perpetuated misuse and increasing resistance and resulted in misinformation on sensitivity and dosing effectiveness.

That has all changed with the FDA-approval of **Equisul-SDT®** (sulfadiazine/trimethoprim), a broad-spectrum antimicrobial from the potentiated sulfonamide class of chemotherapeutic agents.

Equisul-SDT contains 400 mg combined active ingredient (333 mg sulfadiazine and 67 mg of trimethoprim) in a unique, FDA-approved formulation *specifically* designed for equine veterinarians.

These two drugs block different sequential steps in the biosynthesis of nucleic acids. Sulfadiazine inhibits bacterial synthesis of dihydrofolic acid by competing with para-aminobenzoic acid. Trimethoprim blocks the production of tetrahydrofolic acid from dihydrofolic acid by reversibly inhibiting dihydrofolate reductase.

The effect of the dual action is to reduce the minimum inhibitory concentration of each agent (synergism) and to convert a bacteriostatic action to a bactericidal action.

Unique Formulation

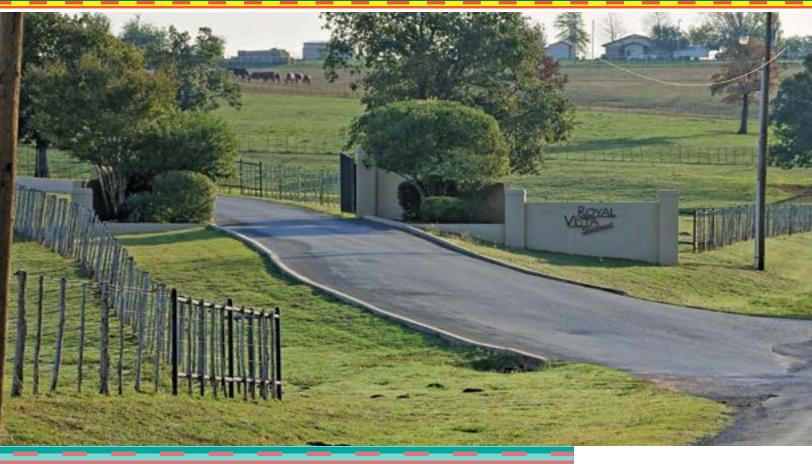
- pH ideal for solubility and stability of sulfadiazine and trimethoprim (10) compared to pH of 14 for most currently used compounded products.
- Proven stability of drug product - 2 years at 30°C (86°F) compared to days to weeks or totally unknown for most compounded products or tablets in water.
- Stable suspension does not separate for at least 2 years after shaking.
- Water based formulation.
- Micronized trimethoprim particles aid in the formation of a stable suspension.
- Formulation allows a 20% reduction in dosage compared to previously published recommendations for other approved products.
- Artificially sweetened no sugar in the product, artificially apple flavored.

Safety You Can Count On

- Statistically no difference in stool scores between treatment and control groups in the efficacy and safety studies at label dose.
- ▶ In the safety trials, the 24 mg/kg label dose twice daily for 30 days found no statistical difference when compared to controls for all adverse events. (*Refer to website for complete information*.)
- ► In clinical field trials, incidence of adverse events seen in animals treated with **Equisul-SDT** were comparable to those seen in the saline control group.

Improved Bioavailability

- 20+ % better than current products on the market based on a bioequivalence study.
- ▶ 20% less label dose than recommended in previously published studies.
- Higher bioavailability means a lower chance of disrupting intestinal flora.
- Virtually 100% of the time over MIC-90 for Strep Equi subsp. zooepidemicus. Increased time over MIC results in increased effectiveness of sulfonamide drugs.



ROYAL VISTA SOUTHWEST

A Tribute to Hard Work and Embryo Transfer Expertise

hen Jim Bailey, D.V.M., was in veterinary school at the University of Minnesota in the mid-1970s, he already knew where he wanted to practice equine medicine – Central Oklahoma, or more precise, Purcell, OK.

When Dr. Bailey was in vet school, Oklahoma was the heart for the breeding industry, specifically the Quarter Horse race business and secondarily, the barrel racing horse. It continues even today to be an extremely strong equine area because Oklahoma is centrally

located and semen and embryos travel all over the globe.

After graduating in 1977, Dr. Bailey worked for famed racehorse veterinarian Dr. M.B. Tiegland in Miami for two years. In 1990 he was offered a residency job at the Lazy E Ranch – the premier equine breeding and sales prep facility that continues to stand many of the world's top racing American Quarter Horse stallions. Then in 2001, Dr. Bailey opened Royal Vista Southwest, a private equine practice based in Purcell, OK,

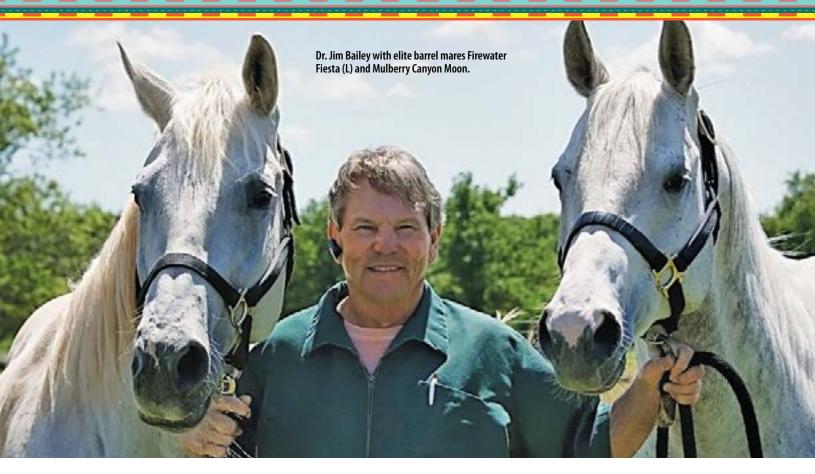
specifically for assisted reproduction in mares, with a focus on embryo transfer.

"Embryo Transfer (ET) is still our primary focus," states Dr. Bailey. "In 2001 we transferred around 200 embryos. Now we are doing well over 1,000 ETs a year. We've grown to a staff of four veterinarians, four technicians, an office staff and farm hands to help manage the 160-acre facility."

Assisted reproduction in the mare is their sole focus. Dr. Bailey and staff provide a high level of detailed

care for the 300+ donor mares they manage yearly. They also manage the breeding mares at Royal Vista Ranches, LLC, in Wayne, OK. As a direct result of using quality recipient mares, attention to detail and an experienced staff, their nationally respected ET program comes with an unprecedented live foal quarantee. "Year after year, this program boasts industry leading pregnancy rates (per embryo that has a viable heartbeat at 25 days) for both shipped and on-site transfers," Dr. Bailey proudly states. "This allows Royal Vista to back its ET service with such a guarantee."

As Dr. Bailey will attest, this guarantee didn't come easily and is certainly backed by years of meticulous work. It starts with screening all mares for uterine infections or abnormalities, endometritis, etc. before bringing them onto the ranch. "We see metritis quite frequently as well as endometriosis and inflammatory changes in the uterus without infection," Dr. Bailey outlines. "Many mares that come to our facility haven't



had production issues in the past or missed breeding the previous year. However, most of these mares are confirmed positive for some type of uterine issue. It's the most common issue of subfertility in the mare.

"Any mare, except a maiden donor, will receive a biopsy and culture," Dr. Bailey continues. "For mares that are

residents here year 'round we start working on them in October while they're still cycling in the fall. But we will do biopsies and culture after their previous season, even though they may have been bred and flushed 3-4 times, we want to make sure we have no issues in taking the embryo.

"We also look at the inflammatory cell types to determine if it's a bacterial infection or not," Dr. Bailey outlines. "We may get a clean culture, but if you look at a biopsy showing neutrophils or inflammatory changes, it's a good bet we need to do a low-volume lavage, culture it and look a little harder.

"Many times, we have mares that culture clean, but we look at the biopsy and it

> shows some inflammatory changes sometimes small amounts all the way to chronic, large amounts with no neutrophils and no evidence of infection. We immediately treat those mares for inflammation.

"We're not only going to treat intrauterine, but systemically as well," he

stresses. "We treat all infections based on sensitivities. We will select a systemic antibiotic like Equisul-SDT®Sulfadiazine/ **Trimethoprim** for a full 10-day course of treatment as well as lavage and/or intrauterine infusion with a different drug that's also sensitive. We might treat intrauterine 3-4 days, but we always treat systemically for 10 days. We also reach for Equisul-SDT for persistent illnesses anytime we see a sensitivity to sulfadiazine/trimethoprim.

"We have had tremendous success with Equisul-SDT, especially using it for the prescribed 10-day treatment protocol," adds Dr. Bailey. "We find it very easy to administer to the mare and prefer to give it orally vs. on the feed as we don't always watch them eat."

Another Aurora product Dr. Bailey has found a treatment niche for is the new 150 mL bottle of Altren® (altrenogest) Solution 0.22%. "We really like the convenience of the smaller, single horse dosing 150 mL bottles,"

states Dr. Bailey. "Previously,

we'd buy prescription bottles, fill and label them to be able to send them home with an owner who was wanting to use an approved altrenogest to manage estrus issues. Now, if a recipient mare needs to be on an altrenogest product when the owner comes to pick her up, we don't hesitate to give them the 15-day, 150-mL dose to take home until they can get with their local veterinarian. I feel confident it's just as effective as Merck's Regu-Mate® product."





liazine/Trimethoprin

Equisul-SDT® Provides Equine Vets with a Safe, FDA-Approved Systemic Antibiotic Weapon When Facing Endometritis in Mares



Front row (L to R): Dr. Kelli Beavers, Dr. Jenny Sones, Dr. Chelsey Leisinger, Dr. Babiche Heil and Dr. Victor Medina. Back row (L to R): Dr. Gabriel Davolli, Dr. Carlos Pinto, Mariah Markle and Dr. Dale Paccamonti (not pictured), senior researcher at LSU SVM.

very year equine veterinarians face the problem of mare reproductive failure. Likewise, they face the decision to rebreed or not. In many cases, veterinarians and owners have exhausted all possibilities, which usually involve a uterine culture and cytology, colleague consults and various uterine treatments. The underlying cause, in many cases, is unresolved endometritis.

"Endometritis, which is the inflammation of the inner layer of the uterus, is currently the main reason for mares not to become pregnant," says Gabriel Davolli, MedVet, MSc, DACT, LSU School of Veterinary Medicine, Baton Rouge, LA. "This acute (or chronic) inflammation could be something that is starting to occur or, in other cases, has been a chronic, undiagnosed problem. It is reported that 15% to 40% of broodmares can have endometritis during the breeding season."

Dr. Davolli notes that a mare whose reproductive tract is functioning normally is able to effectively protect the uterus from contamination and to evacuate excess fluids and contaminants after breeding and foaling. However, the natural mechanisms of protection can be hindered by a wide array of changes to the mare's anatomy such

as an angled vulva, pendulous uterus and incompetent cervix, to name a few, making it difficult to expel an excess of fluid. Degenerative changes of the endometrium and an inadequate immune response also contribute to lack of uterine drainage and intrauterine persistence of microorganisms.

"When there is failure of the mechanisms of uterine clearance, bacterial endometritis can be brought about by the persistence of

one or more bacteria species," Dr. Davolli notes. "Once established, bacteria have developed means to evade the immune system of the mare and intrauterine (IU) antibiotics can become ineffective.

"Gram-negative bacteria such as *E. coli* and *Pseudomonas aeruginosa* adhere to the inner lining of the uterus by forming a biofilm, while others such as *Streptococcus*

equi subsp. zooepidemicus (S. zooepidemicus) produce proteins with tightly adhesive properties to the endometrial epithelium," Dr. Davolli adds. "These mechanisms of evasion by the pathogens end up compromising the efficacy of local antibiotic treatment and decreasing the power of diagnosis by the typical means that we use."

Dr. Gabriel Davolli is part of the teaching mission at the LSU School of Veterinary Medicine in Baton Rouge, LA





Systemic Vs. Intrauterine Antibiotic Discussion

Dr. Davolli hypothesizes, "As we learn more about these bacteria and understand that they are persisting within deeper layers of the endometrium, it makes you wonder if a systemic therapeutic option is more beneficial?" The main choice by many veterinarians is to use an intrauterine antibiotic because it reaches therapeutic concentration in the endometrium with a smaller dose.

"So, it is potentially less expensive than using an antibiotic systemically. The problem," he notes, "is you don't know if the chosen antibiotic is reaching the deeper layers where the bacteria can be remaining."

Dr. Davolli says veterinarians need to examine the list of reasons why a systemic approach to treating endometritis may be a better option vs. intrauterine. *For example*:

- Bacteria may be in layers that are harder to reach via the uterus with an intrauterine antibiotic:
- You can maintain a more consistent theraputic concentration of antibiotics over the treatment time;
- You will have less chance of introducing an infection into the uterus – you don't have to invade the uterus as you do when infusing intrauterine antibiotics;
- 4. Oftentime you want to treat a mare that does not have an open cervix, such as a mare no longer in heat or prior to her being in heat, because intrauterine antibiotics are preferably used when the mare is in full heat and has an open cervix.

"Also," Dr. Davolli adds, "it is known that repeated use of intrauterine antibiotics without proper indication based on sensitivity, will most likely drive bacterial resistance to anti-

biotics. That will require us to use higher end antibiotics, which is against antibiotic stewardship directives. Instead of depleting our antibiotics options because of acquired resistance, maybe we just need to be smarter about how we use our more available options."

It is also understood today that uterine fungal infections, which are much less common than bacterial endometritis, may establish in the uterus due to intrauterine antibiotic overuse. Fungal endometritis is deemed harder to treat as it requires a longer course (typically 7-10 days) of antifungals.

Given these demands and recent release of the FDA-approved oral suspension consisting of sulfadiazine/trimethoprim (**Equisul-SDT®**, **Aurora Pharmaceutical**) research was performed at LSU by Dr. Davolli and a team of reproduction specialists.

Equine Endometritis Study

Dr. Davolli's team hypothesized that a novel oral suspension of potentiated sulfonamide would reach adequate tissue penetration for treatment of bacterial endometritis. The objective of their experiment was to assess the concentrations of sulfadiazine/trimethoprim in plasma and the endometrium in non-pregnant mares following treatment with an oral formulation.

To test their hypothesis, twenty healthy cycling mares, (ages 3 to 18 y; mean 11 y) had endometrial biopsies performed and were declared free of endometrial inflammation per histology. In a subsequent estrus, transrectal ultrasonography was performed on the mares to determine the presence of uterine edema and a follicle ≥30 mm in diameter. These mares were started (0 hour) on treatment with a suspension (Equisul-SDT®) of sulfadiazine/tri-

methoprim, 333 mg/67 mg combination per mL, at a dosage of 24 mg/kg administered PO (nasogastric gavage) every 12 hours for five treatments. Blood samples were obtained at 0 hour, 12 hours, 36 hours and 60 hours. An endometrial biopsy was also performed at 60 hours; then endometrial samples were snap-frozen in liquid nitrogen.

Drug concentrations in the endometrial tissue were determined by liquid chromatography. A Pearson product-moment correlation test was used to measure the strength of association of the relative concentrations of antimicrobials in the plasma and endometrium.

Concentrations of plasma antibiotics increased with time during treatment.* Mean (\pm SEM) concentrations of plasma sulfadiazine were 5.17 \pm 0.34, 10.22 \pm 0.64 and 13.39 \pm 0.71 μ g /mL and of trimethoprim 0.04 \pm 0.01, 0.15 \pm 0.03 and 0.27 \pm 0.04 μ g/mL at 12, 36 and 60 h, respectively. Endometrial concentrations of sulfadiazine and trimethoprim at



Dr. Davolli palpates a mare and stresses the importance of veterinary students always taking the needed extra steps when dealing with problem mares.

60h were $7.96\pm0.47~\mu g/mL$ and $0.23\pm0.03~\mu g/mL$, respectively. The correlation coefficients between plasma and endometrial tissue concentration of sulfadiazine and trimethoprim were R^2 =0.66 and R^2 =0.89 (p<0.0001), respectively.

Sulfadiazine/trimethoprim concentrations achieved in the endometrium after five consecutive treatments with the oral suspension were above the in vitro minimum inhibitory concentrations (MIC) reported for common pathogens known to cause bacterial endometritis, e.g., Streptococcus zooepidemicus (MIC= 0.25 to 4 µg/mL) and Escherichia coli (>0.25 to 4 µg/mL). "The oral suspension of sulfadiazine/trimethoprim should be an efficacious and viable treatment for bacterial endometritis," Dr. Davolli concludes.

* See MIC90 Comparison data on Page 13



ecently Aurora Pharmaceutical received FDA approval for the new 150 mL package of their popular **Altren**® (altrenogest) **Solution 0.22%** estrus synchronization product. While a packaging change isn't usually newsworthy, this new single horse dosing size is changing the way many equine veterinarians are now managing estrus.

"The new packaging is a direct result of our distribution and veterinary partners requesting a more convenient product presentation that benefits practices who treat individual horses," says Matt Klotz, D.V.M. Equine Technical Services Veterinarian for Aurora. "This product presentation has been needed since the pioneer product (Regu-Mate®) was introduced in the early 1980s. As soon as we received FDA approval for our Altren product, we immediately pursued FDA approval for the 150 mL package. Six months later we have it."

With the new 150 mL bottle, veterinarians can conveniently and cost-effectively manage suppression of estrus in a single horse without purchasing the much larger 1,000 mL bottle of the product.

"Additionally," adds Dr. Klotz, "we feel that more effective therapy will result from this new 'individualized approach' to estrus therapy because a veterinarian can instruct a horse owner how to administer the oral dose daily and ensure the horse is treated for the full 15-day duration of the prescribed therapy.

"That, along with the cost and labor of repacking product to send home with an owner, was something our veterinary partners were concerned about in the past."

The new FDA-approved 150 mL bottle of Altren Solution 0.22% – the only oral progestin available in a single horse dosing package – is designed to effectively treat a single mature mare (administered orally at 1 mL per 110 pounds body weight (0.044 mg/kg) once daily for 15 consecutive days) for the suppression of estrus in mares. Effectively suppressing estrus allows for a more predictable breeding cycle following drug removal.



New 150 mL Altren® Package Size Allows Safer More Economical Option for Mare Synchronization



We really like to use Altren on older mares or those that have a history of losing early pregnancies. Once I've bred the mare, I wait about five days and start them on Altren at 10 cc once a day until I preg-check them on Day 16. If they happen to be open at Day 16, we pull them off the progesterone product and they come right back into heat.

That hasn't always been the result with just a standard progesterone

John Bennett, D.V.M. Equine Services, LLC Shelbyville, TN. product. Altren has been a fantastic product specifically to assist these mares and help them maintain a pregnancy.





Supplementing Nursery Pigs with Oral Vitamin D3 at Birth Provides Health & Handling Benefits

By Mike Strobel, D.V.M., M.S., President/CEO, Aurora Pharmaceutical, LLC

I'm am constantly asked, "At what moment does a piglet need help? At weaning or does stress protection have to start sooner?"

As a swine veterinarian, I understand the importance of 'hitting the ground running' when it comes to raising pigs, especially for those working in the farrowing unit. While day-one pig care remains critical, what about the remaining roughly 20 days in the farrowing unit? With such a naïve immune system, nursing piglets are prone to intestinal disorders that result in diarrhea. That's why I have always believed it is critical to provide immediate immune help early in the piglet's life.

Waiting too long can be especially risky at such a young age as it doesn't take much water loss for piglets to become dehydrated, quickly leading to decreases in growth.

Additionally, with the density of pigs in modern farrowing units, if one litter breaks with an intestinal disorder, the likelihood of the remaining litters breaking is exponentially higher.

Understanding this, veterinarians (and producers) have often turned to using antibiotics to assist with keeping piglets healthy. Unfortunately, with the increasing incidence of antibiotic resis-

tance, alternatives must be found. One such alternative that has quickly gained the favor of swine veterinarians is supplementing Vitamin D3 and Vitamin E early in the pig's life.

Vitamin D3 supplementation in pigs has become nutritionally important due to the lack of sunlight in modern pork production. Vitamin D3 is the preferred form of Vitamin D over the plant-based D2, which has poor bioavailability in pigs.

Swine veterinarians report seeing an improvement in nursery pigs given oral supplemented D3 (the form of Vitamin D most readily used by the pig's body) as compared to feed-based vitamin D3 supplementation. Additionally, the literature supports that pigs given oral D3 at processing vs. relying on D3 in the feed, tend to be significantly heavier at weaning and seven days post weaning, and fewer pigs lose weight during the first seven days post weaning. In most cases D3-supplemented pigs began consuming pelleted nursery feed more quickly than controls during the first 7 days post weaning. ¹

Vitamin E Supplementation

As swine veterinarians, we have known for some time the benefits of Vitamin E, especially in conjunction with D3 supplementation. Recent research has highlighted that Vitamin E (used in conjunction with D3) has been shown to be essential for integrity and optimum function of reproductive, muscular, circulatory, nervous and immune systems (Hoekstra, 1975; Sheffy and Schultz, 1979; Bendich, 1987; McDowell, 2000).

Additionally, as an antioxidant, Vitamin E contributes to multiple functions of swine metabolism, including immune response, detoxification, reproduction, enzyme functions and vitamin absorption, cellular respiration and meat quality. Swine veterinarians looking for a safe, cost-effective alternative to antibiotics to help their swine clients

Oral-Pro® Vitamin D3 plus NATURAL E500 Dosing Options

- ▲ Baby Pigs Administer ½ to 1 mL orally to baby pigs at processing. Each dose delivers a minimum of 40,000 IU of Vitamin D3 and 500 IU of Vitamin E activity
- ▲ Nursery and Finishing Pigs Mix 2–4 oz. per gallon of stock solution. Use for 5 to 7 days
- ▲ Unique micelle formulation creates a water-stable emulsion for easy mixing in water
- ▲ Minimum 40,000 IU per mL of Vitamin D3 to meet the piglets' needs in the farrowing crate



optimize piglet health and growth, avoid deficiencies and mortality and improve meat quality should **consider the benefits of combining Vitamin E and D3**.

One of the first products we developed at Aurora was Oral-Pro Vitamin D3 *plus* NATURAL E500. We wanted a product that was superior to the competition in raising and maintaining higher serum blood levels.

We also developed a product that was easy to use. It is easy to give as a 1 mL pump in the mouth of the piglet or delivered in the drinking water to nursery age pigs. We recommend (and have data to support) dosing pigs at 2–4 oz. per gallon stock solution to maintain normal (25–30 ng. mL) Vitamin D3 blood levels.

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— Volume 21, Number 2



MWI Animal Health ...

Real Growth Happens Through Collaboration and Relationships

ounded in true entrepreneurial spirit in 1976, MWI has grown from its rural Western Coastal roots into one of the largest animal health products and services distribution networks in North America. "Going far beyond the call of duty. Doing more than others expect. This is what excellence is all about," says Paul Mercier, Vice President for Production Animals for MWI Animal Health, Boise, ID. "It comes from striving, maintaining the highest standards, looking after the smallest detail and going the extra mile. Excellence means caring. It means making a special effort to do more."

And anyone who has had the privilege of working with Mercier knows he means and lives every word. As a matter of fact, Mercier himself explains his career as a "very fortunate journey." Starting out as a territory salesman for Lextron (now AHI/Patterson) in the early 1990s, Mercier joined MWI as a Territory Rep in 1996 and today is Vice President overseeing the production animal business. "It has been a long, but very fortunate journey for me," remarks Mercier. "I feel like I was quite fortunate to land at MWI when I did. Our business motto when I arrived - Whatever it takes - is an extremely simplistic approach to business, however, it allows us to be extremely aggressive in reaching our ultimate goal of servicing the customer."

While Mercier does not see himself as the man who put the proverbial cart-before-the-horse, his entire career has been built on doing the tough job no one else could do. One of the very first projects Mercier tackled was the daunting job of delivering highly regulated prescription drugs to veterinarians' customers. While easy today, back in 2000, it had never been done. His answer was the first nationwide animal health-specific pharmacy program appropriately named **AnimalRx**.

While there are many veterinary product

pharmacies around today, Mercier and MWI pioneered the concept.

"We worked with the individual State Pharmacy Boards and various national regulatory agencies to find the best legal approach to supplying prescription drugs to a third-party recipient. It was painstaking, but in the end provided a huge benefit to our veterinary custom-



"We wanted to help alleviate some of the veterinarian's inventory cost, so they were not tying up their capital on inventory," Mercier notes. "Regardless of where they have a customer in the country, we can have any amount of product shipped overnight to that customer.

"The veterinarian can service his customers much more efficiently and in a timely manner with this type of pharmacy relationship. And of course, all of this is invoiced directly from the veterinarian to his customers. We are just the logistics in between to make sure the product is packaged and shipped according to the individual states laws."

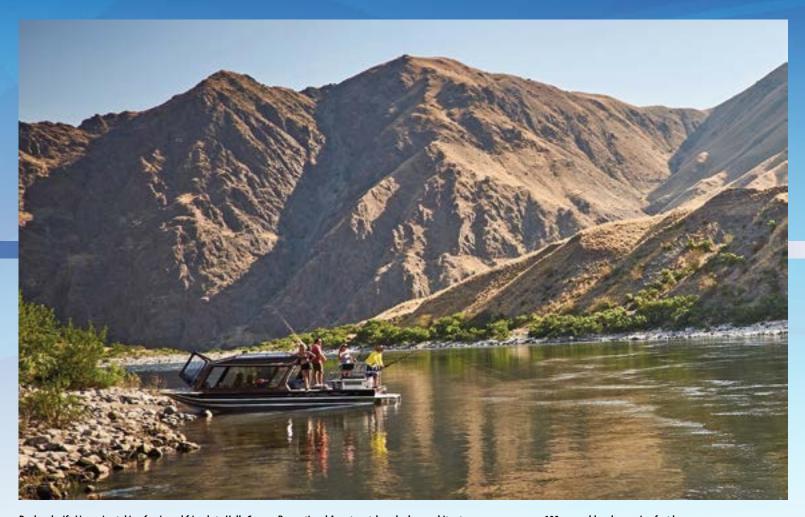
Growth Through Relationships

A few years ago, Mercier's team felt they could do more, and lead in a much more inclusive manner. "In 2006 that mandate resulted in a partnership with Northland



Paul Mercier, Vice President for Production Animals, MWI.





Paul and wife Lisa enjoy taking famiy and friends to Hells Canyon Recreational Area to catch and release white sturgeon – many over 100 years old and over nine feet long.



Vet Supply in Clear Lake, WI. "This was our conduit into the upper Midwest where we had not been selling," Mercier states. "Since then, MWI continues to evolve with some highly strategic acquisitions – all focused on enhancing our service role to the veterinarian.

"When we were able to acquire Micro Technologies in 2011, that put us clearly in the technology sector of the cattle feeding business," he outlines. "With all of the state-of-the-art technologies and long-term relationships they had in the cattle feeding business, it allowed us to expand our business in a very measured way.

"We purchased IVESCO in 2013 and while some of that business was clearly overlap business, it allowed us to get a foothold in the poultry and swine business and incorporate some incredibly good people who had worked hard to develop customer relationships."

Like most companies, MWI has very specific growth expectations. "We can obviously grow organically in services and infrastructure, but at the end of the day, this industry is very relationship driven. And when you acquire a company, you're also acquiring relationships," believes Mercier.

"A company can certainly muscle their way into a territory or geographical area. Or," he adds, "you can buy good businesses that have developed fantastic relationships with their customer base. That's what we chose to do. That proactive business plan makes growth so much more effective and long-lasting when it's based on relationships."

Even though MWI has grown in scope and has certainly evolved, Mercier wants customers to clearly understand MWI is virtually the same people that were there when they started their significant growth curve. "The management structure is very similar to what it

Continued on page 16



Aurora Pharmaceutical, LLC Sales & Consulting Team

Morgan Cooley (North East)

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I grew up in Plymouth, MA, have always loved horses and was riding before I could even walk. I majored in chemistry at Mount Holyoke College, played volleyball

and rode competitively on the intercollegiate equestrian team. Upon graduation, I managed a hunter/jumper stable, traveling to Wellington, FL, during the winter show seasons. Most recently, I worked as a veterinary technician for an internationally recognized equine veterinarian in Wellington.

In my spare time I enjoy riding, spending time outdoors, baking and cooking and have recently relocated to northern Connecticut - thrilled to be back in the northeast especially because I am a die-hard New England sports fan!



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I was born and raised in a small, rural town just north of San Diego, CA, where my passion for horses led me down the career path I am on now. After high school I worked as a tech for a mobile equine veterinarian and was introduced to the hospital atmosphere where I was an in-house

eguine technician and managed the office. I then pursued rodeoing, but after an injury that cost my horse the season, I wanted to get back to my roots in the veterinary industry.

I went back to work as an ambulatory equine technician. I am forever grateful that my mentor encouraged me to combine my knowledge of veterinary medicine and sales experience to pursue a career with a veterinary distributor.

After four years in distribution, I made the change to the manufacturing sector of veterinary medicine and joined the Aurora Pharmaceutical team. I now reside in north Texas and in my off time I enjoy raising and training barrel horses.





Rick Dawson (MI, OH, IN, PA, VA, NC)

Email: rdawson@aurorapharmaceutical.com

Phone: 507-301-2649

I received my Animal Science degree from The Ohio State University and began my career with DeKalb Swine Breeders. From there I moved into animal health pharmaceuticals, working in both the manufacturing and distribution aspects of the industry. Over the past

36 years I have managed territories from Nevada to the East Coast.

My wife of 39 years and I have three adult children and three grandchildren. We enjoy spending time with our family, traveling often to visit them, as well as enjoying most all outdoor activities and many home projects.



Tom Stover (SD, ND, NE, KS, MO)

Email: tstover@aurorapharmaceutical.com

Phone: 402-960-9938

I was raised on a farm in lowa that raised finishing pigs, managed a feedlot and grew corn and soybeans. While in high school, I worked for the local food animal veterinary clinic. This brought my interest to apply with Fort Dodge Laboratories. Thirty years later, I'm still in animal health sales. I have built and managed territories across many states, been in business development and have management experience.

I have three children and soon to be eight grandchildren. I enjoy spending time with my family and being involved with their activities. I am a Harley Davidson enthusiast and love riding my motorcycle.

Jim Murray (IA)

Email: jmurray@aurorapharmaceutical.com **Phone:** 605-370-1739

I graduated from South Dakota State University in 1978 with an Animal Science degree, and with my wife Laurie, moved to lowa to raise a family. I worked in animal nutrition sales for 15 years. In 1993 I started in the animal health business as a distributor rep for Animal Health International (DVM Resources) at the time.

I called on veterinarians in Iowa and Minnesota and moved to the manufacturing side in 2010 working for Merck Animal Health in swine. Not long after that an Aurora Pharmaceutical territory opened up in Iowa and I jumped at the chance to work with Dr. Strobel and Dr. Werner.

lowa has a rich history of leadership in swine production and lead the country in egg production. Our turkey production numbers are growing.

My wife and I live in northwest lowa in a little town close to Lake Okoboji. It's the place to be in the summer time. Our five grandkids bring their parents and visit us often. We love it.



Casey Ulve (MN, WI, IL)

Email: culve@aurorapharmaceutical.com

I was born and raised in Bemidji, MN, and after school worked as a dairy herdsman in central, Minnesota. This is where I met my wife Deb who was working as a Veterinary Technician. We eventually moved to Omaha, NE, and took jobs with Professional Veterinary Products, starting my career in

animal health sales. My relationships with veterinarians over the years prompted the opportunity to work for Aurora Pharmaceutical in 2007. Since starting with the company, I have had many roles but enjoy outside sales and marketing.

I enjoy spending time with Deb, my wife of 23 years, who is also an employee of Aurora, and especially watching our two boys, 16 and 14 play football. We have a 4-year-old female boxer named Bella, and two trouble-making cats. In my spare time I enjoy hunting, shooting and remodeling our house.



Email: csanchez@aurorapharmaceutical.com

Phone: 507-301-5846

I grew up in a small farming community in North Central New Mexico around cattle and horses on my family's cattle ranch. I showed in 4H horse shows and lambs and steers at the local county fair. Through high school and college I worked at Dead Horse Ranch where I was introduced to Cutting Horses and natural

While in college I went to AAEP in San Diego with DVM Resources as a translator for vets from Mexico and South America and got my start in the veterinary sales industry where I've been for seven years.

I enjoy spending time on the ranch with my cattle and using my dogs to gather and catch stubborn cattle. I show horses at local stock horse shows, roping and training on the horses and live in Conifer, CO, with my wife Ashleigh.



Phone: 507-301-2372



Email: mduvall@aurorapharmaceutical.com

Phone: 865-207-7563

Born and raised in Louisville, KY, my family owned a cow/calf operation an hour from Louisville where we had a couple of horses. I attended Tennessee Wesleyan College and the University of Kentucky and spent four years in the U.S. Coast Guard. I entered the animal health industry in early 1978 with Jensen-Salsbery in veterinary sales and regional management and in 1994 joined Boehringer Ingelheim Vetmedica to start their equine



division, retiring at the end of 2012. I joined Aurora on a part-time basis covering KY, FL, LA, TN and work with an FDA-approved unique antibiotic for horses similar to a product I helped launch in the mid 1980s.

I enjoy woodworking, cooking, traveling with my wife of 46 years Elaine, and spending time with our three grown kids and seven grandkids (#8 due in May) all aged 5 and under who reside in TX, NC, and TN.



Gerri Brown, PhD (CA, OR, WA)

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Phone: 530-867-2066

I have been a lifelong equestrian owner and enthusiast, starting with my BS in Agribusiness, finance and appraisal from Cal Poly SLO. While working for a finance and appraisal firm, I went on to receive an MS from Texas Tech University and was a lecturer and facility manager for the University. I managed and operated a large equine breeding farm in Texas and later became an assistant professor at Laramie County Community College in Cheyenne, WY, and a lecturer and researcher for the Dept. of Animal Science for the University of California Davis.



During that time, I completed both a doctorate and post doctorate in Animal Biology. I recently joined the Aurora Pharmaceutical Equine team as a consultant for the West Coast, working closely with veterinarians and promoting Aurora equine products with a scientific approach.

Gary Jacques (Western U.S.)

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Phone: 303-888-1306

I was born in California but grew up in rural central North Carolina. For my sixth birthday I received a pony and I've owned a horse ever since.

I pursued a BS in Biology at Columbia Union College, Takoma Park, MD, and while taking animal science graduate courses at North Carolina State, I joined the Animal Health Division of Burroughs Wellcome RTP, NC.



Over the course of the last 40 years I've participated in sales and marketing, regional management, and as one of the original Equine Specialist for BIVI.

I assist in Aurora's sales and marketing and equine contract consulting for the western region based in Texas.

My wife Liza and I love to travel, cook and spend time with our five grandchildren scattered across the country. I like to hunt and fish, but most of all ride cutting horses competitively at weekend events.



Technical Services



Matt Klotz, DVM, Equine Technical Service

Email: mklotz@aurorapharmaceutical.com

Phone: 817-608-6979

I graduated from Oklahoma State University in 1992 with my BS in Physiology and in 1996 with my DVM. After nine years as an associate in an Equine referral practice primarily focused on surgery, racetrack and western performance horse medicine, I founded Legacy Equine Centre in Oklahoma in 2007 where I served as managing partner. In 2014 I started my career in the industry with Ceya Animal Health and then joined Aurora Pharmaceutical in 2015.

My wife Laurel and I reside in Newcastle, OK, with our two dogs, two miniature donkeys and one horse. In my spare time I enjoy cowboy mounted shooting, sporting clays and hunting.

Peggy Anne Hawkins, DVM, MS, Swine Technical Service

Email: phawkins@cannonvallevvet.com

Phone: 507-649-0798

I am a three-time graduate of lowa State University, BS 1982, DVM 1991, and MS 1992. I served as a Peace Corps volunteer in Lesotho, Africa, teaching junior high students. I started as a swine veterinarian for White Oak Mills/ProGenetics. I worked for Pfizer Animal Health, Monsanto Choice Genetics) and Minitube of America.

enetics) and Minitube of America.

When offered the chance to go back to practice, I took the challenge and oversaw 500,000 hogs to market for five years with Veterinary Provisions, Inc.

I currently work for VPI but I have reduced my veterinary practice to about 10,000 hogs to market. I work full time as the microbiologist for Aurora Pharmaceutical. I live in Northfield, MN, with my two cats, Izra and Kira. I like to kayak, take photos and walk 10,000 steps a day.

Equisul-SDT® Safety and Efficacy Unmatched

Equisul-SDT® was tested extensively in horses for safety and efficacy. Use in horses was not an afterthought of the label or an extra-label-use prescription — neither was the formulation.

The formulation of Equisul-SDT is completely different than any other antibiotic product on the market. Blood levels were maintained well above the MIC90 for *S. equi subsp. zooepidemicus*. That means 90% of all *Strep. zoo*. isolates tested were susceptible at the minimum inhibitory concentration of Equisul-SDT in the blood. (*See Figures 1 and 2*)

Safety

Equisul-SDT was administered up to five times the recommended dosage twice daily for 30 consecutive days. The only sign of adverse reaction attributed to the antibiotic was loose feces. Fifteen of the 24 horses treated with Equisul-SDT had loose feces at least once during the study as compared to three of eight control horses. Most of these cases were from horses receiving 3x and 5x the dosage and in all cases, episodes of loose feces were self-limiting and resolved within 24 hours.

Efficacy

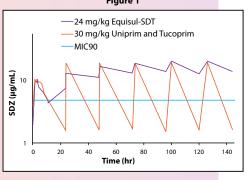
There were 180 horses with a *Strep. zoo.* infection. 119 of them received Equisul-SDT and 61 received placebo. Success/efficacy was determined by improvement of clinical signs by day 10 and no relapse by day 17. By those criteria, 58% (69/119) of the Equisul-SDT group were successful as compared to only 15% (9/61) of the control animals that got better on their own. Using *Strep. zoo.* elimination as a secondary criterion, 66% (76/116) were successful as compared to 21% (12/56) of the controls that eliminated the bacteria on their own. By controlled study standards, these results are very good. Equisul-SDT was significantly (P<0.05) better at relieving clinical signs of disease and at eliminating *Strep. zoo.* from the lower respiratory tract.

MIC90 Comparison of Equisul-SDT vs. Uniprim® and Tucoprim®

Sulfadiazine from Equilsul-SDT° remains above the MIC90 4.75(mcg/mL) for most of the dosing interval. Figure 1

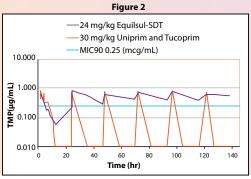
 Uniprim® and Tucoprim® serum/plasma concentration data for 0-24 hours are taken from the product insert; subsequent days were projected assuming no accumulation.

 Based on the pilot study of Equilsul-SDT® sulfadiazine plasma concentrations at steady state remain above the MIC90 s. equi subsp. zooepidemicus for most of the dosing interval.



<u>Irimethoprim from Equilsul-SDT remains above the MIC90 0.25(mcg/mL) for most of the dosing interval.</u>

 Uniprim and Tucoprim serum/plasma concentration data for 0-24 hours are taken from the product insert; subsequent days were projected assuming no accumulation.



Based on the pilot study of Equilsul-SDT sulfadiazine plasma concentrations at steady state remain above the MIC90 s. equi subsp. zooepidemicus for most of the dosing interval.



For more information on Equisul-SDT® visit https://aurorapharmaceutical.com/ wn-content/unloads/2018/06/Fauisul-Insert-information.pdf

Business Essentials / 13

Oral-Pro® Oregano ... The Non-Antibiotic *Alternative* to Reducing

Stress in Pigs and Poultry

The use of non-antibiotic feed additives to enhance performance continues to gain strength and recognition as a result of the EU AGP ban in 2006, and the increasing global pressure to limit the use of antibiotics in pig production. Plant-derived or phytogenic feed additives have become an accepted group of such additives. It has recently been estimated that the phytogenic feed additive sector is worth around \$500 million in sales per year, a figure which is anticipated to grow significantly in the coming years (*Pig World*, 2016).

Oregano essential oil (OEO) is a well-accepted example of a phytogenic feed additive which can be used in feeds or water to flavor and/or naturally preserve them primarily through the two active polyphenol components carvacrol and thymol. These components are associated with nutritional support for a healthy immune system, support for healthy microbial flora, immune system support and a healthy antioxidant environment.

Modern pigs bred for commercial purposes are fast-growing, lean and generate a lot of body heat. This is further complicated with confined housing and high stocking densities that make it difficult to thermoregulate and eliminate excessive body heat. Heat stressed pigs have low performance, poor production results and impaired reproductive function.

Literature supports the fact that pregnant sows with elevated oxidative stress during

late gestation and lactation show signs of impaired milk production, reproductive performance and overall longevity.¹

Recent feeding trials, (Li et al.) compared the performance of piglets fed an unsupple-

Weight gain, feed

conversion and fecal

fed oregano/EOs was

essentially equal to that

of pigs fed antibiotics.

consistency of pigs

mented control diet with that of piglets fed a diet supplemented with antibiotics or a combination of oregano/EOs.

Likewise, several studies conducted to investigate the

influence of oregano products on broiler performance have concluded that oregano has the potential to promote broiler performance and reduce bacterial inhabitants of the gastrointestinal tract such as Clostridium perfringens and Escherichia coli.²

Oregano, as well as several types of herbal products and their oil extracts, have enhanced piglet and broiler performance and resulted in growth-promoting effects.

The proposed mode of action of oregano and key herbal products is attributed to their nutritional support of healthy flora, impact on oxidative stress, support of the immune system and consequently, improvement in pig and poultry performance.

"With the reduction in use of antibiotics, Aurora recognized the need to supply veterinarians a high-end, oregano-based product to help with stress caused by environmental conditions, transport-

ing, weaning and disease challenges," states Richard Mihalik, Research and Development Director at Aurora. "And we wanted to provide it in a convenient solution that's easy to administer in the water or on feed.

"Aurora did not enter the oregano market to clone the products out there. Instead we recognized the opportunity to

make improvements in the quality and convenience of the delivery systems," adds Mihalik.

"The previously existing products were gloppy suspensions of gums and other emulsifiers intended

ished benefits."

to make oil-in-water emulsions. Unfortunately, these oil-in-water emulsions tended to separate easily and were difficult to resuspend. This results in never really knowing how much oregano oil you are giving from administration to administration. Too much oregano oil in a dose can result in reduced water or feed intake due to objectionable flavor and not enough can result in dimin-

Oregano

Mihalik notes these various oregano products also suffer from poor odor masking, and excessive odor from the objectionable portions of the oil can result in decreased consumption of feed or water, both of which

can result in reduced benefits. Finally, some of the products out there require the discontinuation of chlorination and the use of a separate water stabilizer when used.

"This is a risky practice, because when the transition from chlorinated water to non-chlorinated water is made, there is an opportunity for a significant unhealthy biofilm to form and be deposited as a stubborn biofilm in a water medicator

system," stresses Mihalik.

To address these issues with the current products, Aurora first leveraged its sourcing



Richard Milhalik R&D Director, Aurora

expertise to obtain a high-quality oregano extract at a competitive price, so that it could pass that value on to its customers. "We then used our extensive product formulation experience to design a next generation formula that completely avoids the issues of oil-in-water solutions," states Mihalik.

"The components of the true solution are also designed to retain the more pungent components of oregano oil when mixed with water so that the odor, and thus the flavor, is improved.

"Finally, this formula was designed to be compatible with both chlorinated and non-chlorinated water without the addition of stabilizers to avoid the opportunity for unhealthy biofilms to form during transition. In fact, the main non-essential oil component of the formula helps limit biofilm formation on surfaces, supporting a healthy water delivery system."

As the industry knows, not all oreganos are created equal. "Aurora's **Oral-Pro® Oregano** product offers a stable solution compared to some emulsion formulations that may separate and require frequent shaking," Mihalik notes.

We created a true solution of oregano oil that is completely water miscible resulting in accurate dosing and delivery.

"In addition to offering strong antioxidant characteristics which help support the immune system while improving gut health and greatly reducing environmental

and production stress, our highly improved manufacturing process helps increase the stability of the oregano solution, unlike many competitive products that report a considerable loss of activity with high pelleting temperatures.

"Combine ease of administration in either water or on feed with the fact that Oral-Pro Oregano can also serve as a water stabilizer, and you can see why veterinarians and their swine and poultry clients are quickly making the switch to this product."

1 J Anim Sci Biotechnol 2013; 4(1): 26 2 2010 J. Appl. Poult. Res. 19:137–145



FINAL THOUGHTS



By: Mike Strobel, DVM, MS, President/CEO Aurora Pharmaceutical, LLC

I hope you enjoyed the first issue of **DVM Business Essentials**. I also hope you now have a better understanding of who we are, how we conduct business and of our products. There's a lot more to talk about in upcoming issues as we continue to roll out many more products – not only in the swine and equine industries, but also the domestic and international beef, dairy and companion animal markets. We have some exciting growth plans in front of us. Stay tuned!

Since my Cannon Valley Veterinary and Aurora Pharmaceutical business partner, Dr. Mark Werner,

and I developed, patented and manufactured our first product back in the mid 1980s for ringworm in cattle and cats, we have always focused on veterinary stability and profit first and foremost. For me, it all boils down to the fact that I always want the veterinarian to make the best margins possible because in order for our industry to attract and retain talent going forward, especially given the levels of debt and the amount of time it takes students to get a veterinary degree, we need our clinics in a better position to pay them a wage commensurate with their education. Great products at a great price is our small way of helping the veterinary community do just that.

Big Pharma has built a system that forces veterinarians to compete with each other in unhealthy ways. When companies sell products at 20% to 30 % margin difference between individual veterinarians and clinics, they create unnatural competition in the marketplace. Over the past decade we've all witnessed a lot of product movement sideways in the veterinary channels and the steady decline in profit margins associated with these marketing strategies. This has led a lot of veterinarians to join with other veterinarians to better manage the tiered pricing that's rampant. All of this would be eliminated if the industry adopted a single price for products like Aurora has.

We hope more animal health companies will follow suit to help our veterinarians stay competitive in the industry. We have been following this type of one-price philosophy successfully in our pharmacy for 20 years. It works, and customers like it a lot. We've avoided competition between veterinary practices and made both small and large practices very happy because they've both been able to make decent margins on those products and they never worry about the practice down the street. Instead, they do what they are trained to do – take care of their customers' animals.

Because Aurora has its own manufacturing facility, operating under strict cGMP standards, we are able to bring new products to the market efficiently. Because we have everything in-house, we can do it much quicker. It only takes us 2 to 2 ½ years to get an FDA-approved generic product to the market. Most companies take 4-6 years to do the same process. I believe it's important to have more choices of products in the market. There are a lot of products that only have one manufacturer today. That's not good for veterinarians or our customers. Our goal is to provide an additional choice and better pricing to the market, so you as our customer, and your customers, have high quality economical alternatives. My hope is that we can help make everyone more successful and profitable.

See you next issue.





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Aurora Pharmaceutical, LLC Innovative Products Backed By Exceptional Service

 $Altren, Equisul-SDT \ and \ Oral-Pro \ are \ registered \ trademarks \ of \ Aurora \ Phamaceutical, LLC.$

Uniprim is a registered trademark of Macleod Pharmaceuticals, Inc. Tucoprim is a registered trademark of Pharmacia & Upjohn Co., LLC. Regu-Mate is a registered trademark of Merck Animal Health

For full prescribing information, please see the package insert on our website, www.aurorapharmaceutical.com

MWI continued from page 11



Paul and Linda Mercier enjoy their outdoor opportunities.

was several years back, and is strongly built on relationships," insists Mercier.

"Our basic business philosophy, even though we're much larger in scope now, has never changed. We are still a very customer-driven management team."

Vendor Relationships Critical to Success

While MWI has over 1,000 vendors and sells more than 50,000 products, Mercier says it's companies like Aurora Pharmaceutical that keeps veterinarians coming back to MWI for product fulfillment.

"I knew early in the developmental stages, Aurora Pharmaceutical was going to be an excellent vendor partner," Mercier states. "Because they are small and nimble, they can (and do) adjust to the rapidly changing landscape much quicker than most of their competition. And because they are being led by veterinarians and highly experienced animal health professionals, we knew they were going to be a force in the industry. Aurora provides a high-quality product line at a very good value."

Mercier also likes the idea that Aurora has one price for all vendors. "Obviously, we're all in this business to make money and the fact that Aurora's product pricing puts everyone on the same level playing field is great," the veteran manager notes. "Truthfully, I would rather have a level playing field where we can differentiate ourselves in our service and our unique tools that we bring to the veterinarian, versus having a bunch of

complicated pricing schemes. It really is a breath of fresh air that allows us all to do what we are supposed to be doing – servicing our customers. We all win with Aurora."

In conclusion Mercier states, "We have the great and sincere privilege of serving veterinarians in communities all over the country. How we do business in these communities symbolizes what we stand for as a company and aligns with our core values and our enduring pursuit of excellence. MWI is committed to excellence in everything we do."

Customers place a great deal of trust in us, particularly when it comes to delivering what they want, when they need it. Our reputation for integrity and



AmerisourceBergen

Headquarters: Boise, ID

Number of Animal Production Reps: 150 Number of Companion Animal Reps: 250

Founder: Millard Wallace Ickes, DVM

Year Founded: 1976

Parent Organization: AmerisourceBergen

Key Business Facts:

- A leading distributor of animal health products.
- Sells more than 50,000 products, of which over 25,000 are stocked in their own distribution centers, sourced from nearly 1,000 vendors.
- Provides pharmaceuticals, vaccines, parasiticides, diagnostics, capital equipment, supplies, veterinary pet food and nutritional products.
- Offers a variety of value-added services, including on-line ordering, technology management systems, pharmacy fulfillment, inventory management system, equipment procurement consultation and special-order fulfillment.



