## **HEALTH ZONE** | Breeding



## Wise Moves

## EXERCISE OFTEN IMPORTANT IN KEEPING OLDER STALLIONS HEALTHY, PRODUCTIVE

By AMANDA DUCKWORTH / Photos by ANNE M. EBERHARDT

**MANAGING THE CAREER** of a successful stallion is a multifaceted endeavor and some of his needs change as he ages and his body and abilities likely change. It is up to his handlers to recognize and accommodate those needs as time advances.

Two big issues older stallions face relate to fertility and mobility. Some horses remain physically able to do the job, but their fertility lowers to a point where pensioning is a logical step. On the other hand, some stallions experience little in the way of fertility woes, but they are no longer able to jump mares safely. As live cover is a requirement for Thoroughbreds, either of these problems can lead to the end of a stallion's breeding career.

As is true with most other things relating to equine health and welfare, a good working relationship between the stallion manager and the horse's veterinarian is the best bet for a long-term success story.

The American Association of Equine Practitioners (AAEP) explains it thusly: "It is the opinion of the AAEP that proper management of the breeding stallion is paramount in obtaining optimum breeding efficiency. Proper management requires close cooperation between the licensed veterinarian and stallion manager. The licensed veterinarian can contribute various diagnostic and therapeutic procedures to this partnership."

When it comes to managing older stallions and pensioners, Larry Mc-Ginnis, the longtime stallion manager at WinStar Farm, boils it down to four words: "Listen to the horse."

WinStar is home to two pensioners: Distorted Humor, who will turn 30 in January, and Tiznow, who will be 26. The former was pensioned for physical reasons at the end of 2021 while the latter was pensioned at the end of 2020 due to fertility issues. Leading sire Speightstown, who is still actively breeding and is about to turn 25, is also under the care of McGinnis. Famed shuttle stallion More Than Ready was active this year, at age 25, before being euthanized in August because of the cumulative effects of old age.

"You can manage some physical issues, but fertility is harder to control," McGinnis said. "With Tiznow, his fertility was the first to go while Distorted Humor began having physical limitations breeding mares. Tiznow was fertile his whole life, and then just all of a sudden, when he was 22 or 23, it began to tank. They are on



supplements most of their lives, and Congrats and Tiznow are the only two we've had here where their fertility went down pretty quick. There's not a whole lot you can do about it. Then you have stallions like More Than Ready, who was bred this year, and his fertility was 90%."

It should come as little surprise that McGinnis believes a main factor in helping stallions remain active as they age involves keeping them in good health when they are younger. At WinStar, that policy involves providing stallions ample exercise and turnout time.

"Our belief is that we want our stallions to have happy, healthy lives," McGinnis said. "They are outside as much as they can be. Speightstown has some limitations because of his

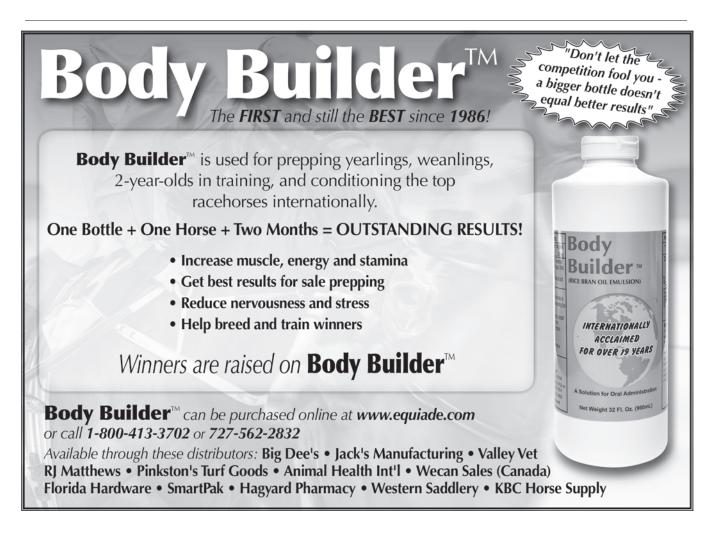


LET THEIR BODIES
HANDLE THINGS
AS MUCH AS YOU
CAN. HELP THEM,
OBVIOUSLY, BUT
TRY TO GIVE THEM
A NATURAL LIFE."

-WINSTAR FARM STALLION MANAGER LARRY McGINNIS ON A LESS-IS-MORE APPROACH previous colic issues, but More Than Ready, Distorted Humor, and Tiznow were out every night up until the last few years when they really started to get older. That's very important.

"We also have an exercise routine we did with those guys. Tiznow was not involved with that because he really didn't want to do it, and More Than Ready didn't because he traveled a lot, but Distorted Humor and Speightstown got ridden or put on the walker for most of their lives, and I think that is an important thing. We only ride the ones that enjoy it. If they don't, we put them on the walker, but most of them are pretty good. It's just like with humans—you have to eat right and get exercise. That's what we did with these guys."

In November 2022, Pflugers



## **HEALTH ZONE**

## **Breeding**



WinStar Farm president, CEO, and racing manager Elliott Walden enjoys some time with Distorted Humor, who will turn 30 in 2023

Archiv: European Journal of Physiology published a study that examined the scientific reasons why staying active can lengthen a horse's life expectancy in "Exercise regulates shelterin genes and microRNAs implicated in aging in Thoroughbred horses."

"Aging is a complex biological process involving the progressive loss of bodily functions and degradation of serial, repeated DNA located at the end of chromosomes-the telomeres," explained researchers. "The rate of telomere shortening is predictive of lifespan, which is an observation consistent amongst vertebrates. It also seems to be affected by psychological stress and exercise training. Whilst the former is associated with accelerated telomere shortening, those regularly active or engaged in endurance training possess longer leukocyte telomeres than inactive controls."

For the study, the exercise training used on Thoroughbreds was a typical high-intensity workday and comprised a short warm-up of walking and trotting before increasing to a canter and finally a gallop. In all,

40 Australian Thoroughbreds of differing ages were used. The younger horses were all in active race training while the older horses were retired. All of the horses in the study had raced multiple times.

Researchers tracked the GPS and heart rate data, which showed the horses were working at near-maximum intensity during the exercise session. Researchers examined the influence of a single bout of vigorous exercise training on leukocyte telomerase reverse transcriptase (TERT) and shelterin gene expression, and the abundance of three microRNAs (miRNAs) implicated in biological aging in Thoroughbreds.

"Regular exercise training improves health span and may attenuate biological aging through the preservation of telomeres," researchers concluded. "Current evidence suggests that exercise modulates TERT and telomerase activity, yet whether other molecules, such as miRNAs, have roles in telomere regulation is unclear. Here, we observed dynamic up-regulation of whole blood leuko-

cyte TRF1, TRF2, and POT1 gene expression and concomitant decreases in miR-223 and miR-486-5p, immediately after a single bout of vigorous exercise, which returned to baseline levels 24 hours after the training session in Thoroughbred racehorses.

"Furthermore, relative to the younger horses, retired—middle-aged—horses, not currently in training, exhibited significantly lower whole blood leukocyte TERT mRNA and elevated POT1 mRNA and miR-223 expression. Therefore, a vigorous bout of exercise led to transient increases in key shelterin components and miRNAs implicated in biological aging in a large, athletic mammal, the Thoroughbred racehorse."

More Than Ready's routine differed from others at WinStar because he was the poster boy for successful shuttle stallions. He shuttled to Australia a remarkable 19 consecutive seasons and was a top stallion in both regions. There has been some debate about the effects of shuttling on a stallion's fertility, but, according to research, More Than Ready's extended period of success was not just a fluke. In 2017, *Theriogenology* published the study "The effect of dual-hemisphere breeding on stallion fertility."

For the study, researchers examined the breeding records of both first-year shuttle stallions and experienced dual-hemisphere stallions. They also took into account variables such as seasonal pregnancy rate, pregnancy rate per cycle, and first-cycle pregnancy rate, book size, total number of covers, distribution of mare type (maiden, foaling, and barren) within a stallion's book, cycles per mare, and mare age. Several different considerations were analyzed, including comparing fertility to stallions that did not shuttle as well as long-term effects of shuttling for multiple seasons.

"Fertility of dual-hemisphere breeding seasons was compared to single hemisphere (SIN) breeding seasons within the same 16 stallions and was found to be similar between the two groups," researchers concluded. "The effect of the number of consecutive dual-hemisphere breeding seasons on fertility was examined and was found to remain unchanged. In summary, no adverse effects of dual-hemisphere breeding on fertility were detected."

Although they have aged, and two were not bred this year, the older stallion guard at WinStar is still being represented at elite levels. Speightstown ranks among the Top 10 leading sires, More Than Ready is in the Top 25, and Distorted Humor and Tiznow are in or near the Top 40. This year Distorted Humor was represented by his 19th

grade 1 winner with Santin, who won the Old Forester Bourbon Turf Classic Stakes and Arlington Million Stakes (both G1T), while Speightstown has sired 25 grade 1 winners overall, including three in 2022, thanks to the efforts of Olympiad, Shirl's Speight, and Switzerland.

In addition to using optimized nutrition and exercise regiments, McGinnis is a believer in the "less is more" approach to animal husbandry. Supporting a horse through an issue is important, but so is providing the horse's body a chance to do what it is designed to do.

"We don't do a whole lot to them," he said. "Their whole careers I haven't done much to them. Issues pop up, and they may have been on antiinflammatories for a bit, but they came back off of it. We didn't do a lot of injecting things. The less you do, the more you have in your pocket as they get older, and even then, you may not need it. They may just get older and not be able to breed anymore.

"For instance, our oldest horse, Distorted Humor, had some issues over the years, but he never stayed on anything for any length of time. I think that's important, too. Let their bodies handle things as much as you can. Help them, obviously, but try to give them a natural life. At 29, Humor is amazing. His father, Forty Niner, passed away in Japan not too long ago at 35, and we hope to keep Humor around that long, too. He is part of our family."

## Hawthorne Sole Pack Promotes Hoof Growth

awthorne's Sole Pack draws heat, reduces inflammation, and promotes hoof growth. It also relieves dry, hard, sore hooves, while combating bacterial and fungal infections. Sole Pack also draws heat from fevered hooves and treats white line disease. Sole Pack hoof packing is extremely effective in treating stone bruises, gravels, and abscesses.

Sole Pack liquid and hoof packing are equally effective in maintaining the

natural pliability of the hoof. Both products are fast-acting, quick-penetrating and formulated with soothing natural ingredients. Hawthorne's Sole Pack products are available in a dressing or packing and in multiple sizes for convenience.

Hawthorne Products are made from the





purest, natural ingredients and can be used before and after racing, or for any other activity. We combine quality products with education and instruction to help you provide the best possible care for your horse.

We pledge to always maintain high standards to provide you and your horse the best natural equine medications possible.

Please visit Hawthorne-Products.com to learn how

our complete line of products will maintain the health of your horse and repair those weathered hooves.

Visit your local tack shop to purchase Hawthorne's products. Or call us at 800.548.5658 for more information or to place an order.

#### Altren<sup>e</sup> (altrenogest)

SOLUTION 0.22% (2.2 mg/mL)

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

#### DESCRIPTION:

DESCRIPTION:
Altren® (altrenogest) Solution 0.22% contains the active synthetic progestin, altrenogest. The chemical name is 17α-allyl-17β-hydroxyestra-4,9,11-trien-3-one. The CAS Registry Number is 850-52-2. The chemical structure is:

Each mL of Altren® (altrenogest) Solution 0.22% contains 2.2 mg of altrenogest in an oil solution

#### ACTIONS:

nonest) Solution 0.22% produces a Altren® (altrenogest) Solution progestational effect in mares.

#### INDICATIONS:

Altren® (altrenogest) Solution 0.22% is indicated Altren' (allenogest) Solution 0.27% is indicated to suppress estimates. Suppression of estrus allows for a predictable occurrence of estrus allows for a predictable occurrence of estrus allows the suppression of estrus allows the suppression of estrus suppression of estrus will also facilitate management of prolonged estrus conditions. Suppression of estrus will also facilitate management of prolonged estrus conditions. Suppression of estrus may be used to facilitate stretchilds threation uniform the physicionical scheduled breeding during the physiological breeding season

#### CONTRAINDICATIONS:

CON HANDILATIONS: Altren® (altrenogest) Solution 0.22% is contra-indicated for use in mares having a previous or current history of uterine inflammation (i.e., acute, subacute, or chronic endometritis). Natural or synthetic gestagen therapy may exacerbate existing low-grade or "smoldering" uterine ition into a fulminating uterine infection in some instances

#### PRECAUTIONS:

Various synthetic progestins, including altrenogest, when administered to rats during the embryogenic stage of pregnancy at doses manyfold greater than the recommended equine se caused fetal anomalies, specifically masculinization of the female genitalia

#### DOSAGE AND DIRECTIONS:

While wearing protective gloves, remove shipping cap and seal; replace with enclosed plastic dispensing cap. Remove cover from bottle dispensing tip and connect luer lock syringe (without needle). Draw out appropriate volume of Altren® solution. (Note: Do not remove syringe of Auter's Solution. (Wole: Do Ind reinrive syning while bottle is inverted as spillage may result.) Detach syringe and administer solution orally at the rate of 1 mL per 110 pounds of body weight (0.044 mg/kg) once daily for 15 consecutive days. Administer solution directly on the base of the mare's tongue or on the mare's usual grain ration. Replace cover on bottle dispensing tip to prevent leakage. Excessive use of a syringe y cause the syringe to stick; therefore, re-

#### DOSAGE CHART

| Approximate Weight in Pounds | Dose<br>in mL |
|------------------------------|---------------|
| 770                          | 7             |
| 880                          | 8             |
| 990                          | 9             |
| 1100                         | 10            |
| 1210                         | 11            |
| 1320                         | 12            |

### WHICH MARES WILL RESPOND TO ALTREN

(altrenogest) SOLUTION 0.22%: Extensive clinical trials have demonstrated that estrus will be suppressed in approximately 95% of the mares within three days; however, the or the inales within the days, involved, the post-treatment response depended on the level of ovarian activity when treatment was initiated. Estrus in mares exhibiting regular estrus cycles during the breeding season will be suppressed during treatment; these mares return to estrus four to five days following treatment and continue to cycle normally. Mares in winter anestrus with small follicles continued in anestrus and failed to exhibit normal estrus following withdrawal

Resnanse in mares in the transition phase between winter anestrus and the summer breed-ing season depended on the degree of follicular activity. Mares with inactive ovaries and small follicles failed to respond with normal cycles post treatment, whereas a higher proportion of mares treatment, whereas a higher proportion of mares with ovarian folloles 20 mm or greater in diame-ter exhibited normal estrus cycles post-breatment. Altrenogest Solution 0.22% was very effective for suppressing the prolonged estrus behavior frequently observed in mares during the transition period (February, March and April). In addition, a high presenting of these more proceeded with high proportion of these mares responded with regular estrus cycles post-treatment.

SPECIFIC USES FOR ALTREN® (altrenogest)

#### SUPPRESSION OF ESTRUS TO:

 Facilitate attainment of regular cycles during the transition period from winter anestrus to the transition period from winter anestrus to the physiological breeding season. To facili-tate attainment of regular cycles during the transition phase, mares should be examined to determine the degree of ovarian activity. Estrus in mares with inactive ovaries (no fol-libles excels then 20 mm is directed) with licles greater than 20 mm in diameter) will be suppressed but these mares may not begin regular cycles following treatment. However nares with active ovaries (follicles greate than 20 mm in diameter) frequently

- CH<sub>2</sub>CH=CH<sub>2</sub>CH=CH<sub>2</sub>

  2. Facilitate management of the mare exhibiting protonged estrus during the transition period.

  Estrus will be suppressed in mares exhibiting prolonged behavioral estrus either early or late during the transition period. Again, the late during the transition period. Again, the post-treatment response depends on the level of ovarian activity. The mares with greater ovarian activity initiate regular cycles and conceive sooner than the inactive mares. Altren? (altrenogest) Solution 0.22% may be administered early in the transition period to suppress estrus in mares with inactive ovaries to aid in the management of these mares or to mares later in the transition period with active ovaries to prepare and schedule the mare for
  - Permit scheduled breeding of mares during the physiological breeding season. To permit scheduled breeding, mares which are permit scheduled breeding, mares which are regularly cycling or which have active ovarian function should be given Alten<sup>®</sup> (alternoges). Solution 0.22% daily for 15 consecutive days beginning 20 days before the date of the planned estrus. Ovalation will occur 5 to 7 days following the onset of estrus as expected for non-treated mares. Breeding should follow usual procedures for mares in estrus Mares may be regulated and scheduled either

#### ADDITIONAL INFORMATION:

A 3-year well controlled reproductive safety study was conducted in 27 pregnant mares, and compared with 24 untreated control mares Treated mares received 2 mL altrenogest solution 0.22%/110 lb body weight (2x dosage ded for estrus suppl 20 to day 325 of gestation. This study provided the following data:

- 1. In filly offspring (all ages) of treated mares,
- 2. Filly offspring from treated mares had shorter interval from Feb. 1 to first ovulation than fillies from their untreated mare counterparts.
- 3. There were no significant differences in reproductive performance between treated and untreated animals (mares & their respective offspring) measuring the following
- · interval from Feb. 1 to first ovulation, in
- mean interovulatory interval from first to second cycle and second to third cycle, mares only.
- follicle size mares only
- at 50 days gestation, pregnancy rate
- after 3 cycles, 11/12 treated mares were pregnant (91.7%) and 4/4 untreated mares were pregnant (100%).
- colt offspring of treated and control mares reached puberty at approximately the same age (82 & 84 weeks respective
- stallion offspring from treated and control mares showed no differences in seminal volume, spermatozoal concentration, tozoal motility, and total sperm per eiaculate.
- stallion offspring from treated and control mares showed no difference in sexual
- testicular characteristics (scrotal width, testis weight, parenchymal weight, epididymal weight and height, testicular height, width & length) were the same between stallion offspring of treated

Shoemaker, C.F., E.L. Squires, and R.K. Shideler 1989 Safety of Altrenogest in Pregnant Mares and on

Health and Development of Offspring. Eq. Vet. Sci. (9); No. 2: 69–72. Squires, E.L., R.K. Shideler, and A.O. McKinnon. 1989.

Reproductive Performance of Offspring from Mares Administered Altrenogest During Gestation. Eq. Vet. Sci. (9); No. 2: 73–76.

WARNING: For oral use in horses only. Keep this and all other medications out of the reach of children. Do not use in horses intended for human consumption.

#### HUMAN WARNINGS

Homan Warkinuss:
Skin contact must be avoided as Altren®
(altrenogest) Solution 0.22% is readily
absorbed through unbroken skin. Protective
gloves must be worn by all persons handling
this product. Pregnant women or women. who suspect they are pregnant should not handle Altren® (altrenogest) Solution 0.22%. nandle Altrem' (altrenogest) Solution 0.22%. Women of child bearing age should exercise extreme caution when handling this product. Accidental absorption could lead to a disruption of the menstrual cycle or prolongation of pregnancy. Direct contact with the skin should therefore be avoided. Accidental services of the product of the skin should be wheeled off spillage on the skin should be washed off nediately with soap and water

INFORMATION FOR HANDLERS: WARNING: Altren® (altrenogest) Solution 0.22% is readily absorbed by the skin. Skin contact must be avoided; protective gloves must be worn when handling this product.

#### Effects of Overexposure

There has been no human use of this specific product. The information contained in this section product. The illimination contained in this security is extrapolated from data available on other products of the same pharmacological class that have been used in humans. Effects anticipated are due to the progestational activity of altrenogest.

Acute effects after a single exposure are possible; however, continued daily exposure has the potential for more untoward effects such as disruption of the menstrual cycle, uterine or as disruption of the menstrual cycle, uterine or abdominal cramping, increased or decreased uterine bleeding, prolongation of pregnancy and headaches. The oil base may also cause complications if swallowed.

In addition, the list of people who should not handle this product (see below) is based upon the known effects of progestins used in humans on a chronic hasi

### PEOPLE WHO SHOULD NOT HANDLE THIS

- 1. Women who are or suspect they are pregnant.
- 2. Anyone with thrombophlebitis or thrombo olic disorders or with a history of these
- 3. Anyone with cerebral-vascular or coronaryartery disease
- 4. Women with known or suspected carcinoma
- 5. People with known or suspected estrogen-
- 6. Women with undiagnosed vaginal bleeding.
- 7. People with benign or malignant tumors which loped during the use of oral contra tives or other estrogen-containing products.
- 8. Anyone with liver dysfunction or dise

Accidental Exposure
Altrenogest is readily absorbed from contact with the skin. In addition, this oil based product can penetrate porous gloves. Altrenogest should not penetrate intact rubber or impervious gloves; penetrate infact rubber or impervious groves; however, if there is leakage (i.e., pinhole, spill-age, etc.), the contaminated area covered by such occlusive materials may have increased absorption. The following measures are recom-mended in case of accidental exposure.

Skin Exposure: Wash immediately with soap

Eye Exposure: Immediately flush with plenty of water for 15 minutes. Get medical attention.

(altrenogest) Solution 0.22% contains an oil. Call a physician. Vomiting should be supervised by a physician because of possible pulmonary damage via aspiration of the oil base. If possible bring the container and labeling to the physician

#### HOW SUPPLIED:

Altren® (altrenogest) Solution 0.22% (2.2 mg/mL). Each mL contains 2.2 mg altrenogest in an oil solution. Available in 150 mL and 1000 mL plastic bottles

Manufactured by: Aurora Pharmaceutical, Inc. Northfield, Minnesota 55057

Approved by FDA under ANADA # 200-620



07/2021

#### EQUISUL-SDT

#### (Sulfadiazine/Trimethoprim) Oral Suspension

Approved by FDA under NADA # 141-360

### CAUTION

Federal law (USA) restricts this drug to use by or on the order of a licensed veteri

#### DESCRIPTION

EQUISUL-SDT is a broad-spectrum antimicrobial from the potentiated sulfonamide class of chemotherapeutic agents. These two drugs block different equential steps in the biosynthesis of nucleic acids ulfadiazine inhibits bacterial synthesis of dihydrofolio 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 is to reduce the minimum innitionary concentration of each agent (synergism) and to convert a bacte-riostatic action to a bactericidal action. Sulfadiazine is the non-proprietary name for 4-mino-N-2-py-rimidinylbenzenesulfonamide. Trimethorpim is the non-proprietary name for 5-[(3,4,5-trimethoxyphenyl) methyl)-2,4-pyrimidinedamine.

Each mL of EQUISUL-SDT contains 400 mg ts (333 mg sulfadia n an aqueous susp combined active ingredients (333 r and 67 mg trimethoprim) in an aqu

EQUISUL-SDT is indicated for the treatment of lower respiratory tract infections in horses caused by susceptible strains of Streptococcus equi subsp.

#### DOSAGE AND ADMINISTRATION

#### Shake well before use.

Administer EQUISUL-SDT orally at the dosage of 24 mg combined active ingredients per kilogram body weight (10.9 mg/lb) twice daily for 10 days. EQUISUL-SDT can be administered by volume at 2.7 mL per 45.4 kg (2.7 mL/100 lb) body weight.

EQUISUL-SDT in containers of 280 mL and 560 mL EQUISUL-SOT in containers of 280 mL and 550 mL with drawer draps. Remove cap. Peal of the lib blacked bottle seal and replace cap. Peal of fouter cap seal exposing (bol) popring. Peal an oral fig syringe into the cap opening, Invest and draw cut appropriate volume of EQUISUL-SOT solution. (Note: Do not remove syringe while the bottle is invented as possible spillage may result.) Detach syringe and administer crally at the dosage of 24 mg comhorted active ingredients power bildgram body weight (109 mg/bl) block calls for 10 days. The COUNTIES of the COU

#### CONTRAINDICATIONS

QUISUL-SDT is contraindicated in horses nown allergy to sulfadiazine, sulfonamide ntimicrobials, or trimethoprim.

not use in horses intended for human

#### HIIMAN WARNINGS

Not for use in humans. For use in animals only. Keep this and all drugs out of the reach of children. Consult a physician in the case of

Antimicrobial drugs, including sulfonamides, ca cause mild to severe allergic reactions in some individuals. Avoid direct contact of the product with the skin, eyes, mouth, and clothing. Persons with a known sensitivity to sulfonamides or orim should avoid exposure to thi product. If an allergic reaction occurs (e.g., skir rash, hives, difficulty breathing, facial sw seek medical attentio

#### PRECAUTIONS

Prescribing antibacterial drugs in the absence of a proven or strongly suspected bacterial infection is unlikely to provide benefit to treated animals and may increase the risk of development of drugresistant animal pathogens.

The administration of antimicrobials, including sulfa The administration of antimicrobials, including sulfa-diazine and trimethoprim, to horses under conditions of stress may be associated with acute diarnhes that can be fatal. If acute diarnhes or persistent changes in fecal consistency are observed, additional doses of EQUISUL-SDT should not be administered and appropriate therapy should be initiated.

The safe use of EQUISUL-SDT has not been Ine safe use of EQUISUL-SD has not been evaluated in breeding, pregnant, or Estaling horness. Potentiated sulfonamides should only be used in pregnant or lactaling mares when the benefits to the mare justify the risks to the felus. Use of potentiated sulfonamides during pregnany has been associated with an increased risk of congenital abnormalities that may be related to foliate deficiency, in humans, sulfonamides pass through the pilacenta, are excreted in milk, and may cause hyperhillinchemia-induced neurotoxicity in nursing neonates. Decreased hematopoetic activity and blood dyscrasias have been associated with the use of elevated doses and/or protonged administration of potentiated sulfonamides. EQUISUL-SDT should be discontinued if protonged cotting times, or decreased platelet, white blood cell or red blood cell

Sulfonamides should be used with caution in horses sulfonamide use has been associated with fulminant hepatic necrosis in humans.

pecies following administration of potentiated namides. In horses, potentiated sulfonamides have been associated with gait alterations and ehavior changes that resolved after discontinuation

The safe use of FOUISUL-SDT has not been evalu-

#### ADVERSE REACTIONS

Adverse reactions reported during a field study of 270 horses of various breeds, ranging from 1 to 25 years of age, which had been treated with either EQUISUL-SDT (n = 182) or with a saline control (n = 88) are summarized in Table 1. At least one episode of loose stool of varying severity was observed in 69 of 182 (38%) of the EQUISUL-SDT-treated horses, and 29 of 88 (33%) saline control horses. Of those animals experiencing loose stool, 2 of 182 (1.1%) of the EQUISUL-SDT-treated horses and 0 (1.1%) of the EUDISUL-SUI-Ireation noises and u of 88 (0%) placebo-treated norses were removed from the study due to diarrhea (defined as at least one episode of watery stool). Both cases of diarrhea in this study were self-limiting and resolved without treatment within 5–10 days after discontinuation of EOUISUL-SDT.

#### Table 1. Number of Horses with Adverse Reactions

| Adverse<br>Reactions                | Equisul-SDT<br>(n=182) | Saline<br>control<br>(n=88) |
|-------------------------------------|------------------------|-----------------------------|
| Loose stool<br>(including diarrhea) | 69 (38%)               | 29 (33%)                    |
| Colic                               | 3 (1.6%)               | 2 (2.2%)                    |
| Diarrhea                            | 2 (1.1%)               | 0 (0%)                      |

To report suspected adverse events, for technical assistance or to obtain a copy of the SUS, contact Aurora Pharmaceutical, Inc. at 1882.151.250 or www.auroraphamaceutical. com. For additional information about adverse drug experience reporting for animal drugs, contact EOA at 1.888-FDA-VETS or online at

#### CLINICAL PHARMACOLOGY

Following oral administration, EQUISUL-SDT is rap-following oral administration, EQUISUL-SDT is rap-ingly absorbed and visibly distributed throughout bod, issues. Sufficiazine levels are usually highest in the kidney, while he issue concentration in other sides, while the issue concentration is other in the lang, kidney, and liver than in the bodo. Sufficiazione and trimethopini are both eliminated primarily by recall exercision. Surrouse American State of the American Stat and trimethoprim with food has no apparent effect or the absorption of sulfadiazine but the absorption of

Based on a study in fed horses, trimethoprim concentrations following repeat oral administration of 24 mg/kg EQUISUL-SDT to 6 horses reached k concentration in 0.5 to 12.0 hours. The median ama elimination half-life was 3 hours, with a range of 2.31 to 4.96 hours. Peak sulfadiazine concentra tions were reached within 1.0 to 12.0 hours in the same study. The median plasma elimination half-life for sulfadiazine was approximately 7.80 hours, with a range of 6.78 to 10.39 hours. Only minor accumulation of both drugs was observed following repeat oral administration of EQUISUL-SDT and both drugs reached steady state by day 3. Sulfadiazine and reaction steady state by day . Containance and trimethoprim key steady state parameters associated with administration in 6 fed horses over a period of 7 days are found in Table 2.

### Table 2. Median (Range) of sulfadiazine and trim ethoprim pharmacokinetics parameters following repeat dosing of 24 mg/kg bid EQUISUL-SDT for 7 days to six horses in fed condition

| Drug                                  | Sulfadiazine             | Trimethoprim         |
|---------------------------------------|--------------------------|----------------------|
| Tmax (hr)                             | 4.75<br>(1.00–12.00)     | 8.50<br>(0.50-12.00) |
| Cmax<br>(µg/mL)                       | 17.63<br>(10.10–31.15)   | 0.78<br>(0.60-1.14)  |
| AUC 0-12<br>(last dose)<br>(hr*µg/mL) | 159.35<br>(73.90–282.54) | 5.47<br>(3.31–10.91) |
| T 1/2<br>(hr)                         | 7.80                     | 3.00                 |

#### MICROBIOLOGY

MICROBIOLOSY

COUNCIL SOT is the combination of the sulfonamids sulfidations and trimefloopin. These two drugs those requirements and trimefloopin these two drugs those requested registers invalide and the biopythesis. Sulfidations inhalts in saterial synthesis of dhypothesis and by comprefing in planea minicipational and by comprefing in planea minicipational and from dhypotholia and by reversibly inhabiting dihydrobliat reductate. The two drugs and cynergies fleatily, reducing the minimum inhabitory concentration of each, while enthanging the bacteriostate action of each, while enthanging the bacteriostate action. of each senarately to a hartericidal action when

FOUISUL-SDT administered as a combined sulfadiazine-trimethoprim dose of 24 mg/kg body weight twice daily for 7 days provided concentrations of sulfadiazine and trimethoprim with T>MIC90 (%T) values of 100% and 98% respectively. The minimum inhibitory concentration (MIC) values for Eu-against indicated pathogens isolated from lower respirately lact infections in horse enrolled in a 2010-2011 efficiences find study are presented in Table 3, MI MICs were determined in accordant with the Clinical and Lorantory Strandards Institul (CLSI) Approved Standard MSA-13 using a broth microdilution system and 3% lysed horse blood. ation (MIC) values for EQUISUL-SDT

nhibitory concentration (MIC) values<sup>a</sup> of isolates ecovered from horses with lower respiratory infection caused by Streptococcus equi subsp icus treated with EQUISUL-SDT in the U.S. (2010-2011)

| Treatment<br>Outcome           | Success                | Failure                |
|--------------------------------|------------------------|------------------------|
| Number of Isolates             | 65°                    | 46                     |
| Time of Sample<br>Collection   | Pre-<br>Treatment      | Pre-<br>Treatment      |
| MIC 50 <sup>b</sup><br>(µg/mL) | 0.25/4.75              | 0.25/4.75              |
| MIC 90 <sup>b</sup><br>(µg/mL) | 0.25/4.75              | 0.25/4.75              |
| MIC Range<br>(µg/mL)           | 0.12/2.4<br>to 0.5/9.5 | 0.12/2.4<br>to 0.5/9.5 |

- The correlation between in vitro susceptibility data and clinical effectiveness is unknown.
  The lowest MIC to encompass 50% and 90% of the most susceptible isolates, respectively.
  One isolate of S. equi subsp. zooepidemicus was

EFECTIVENESS

A negative control, randomized, masked, field study evaluated the effectiveness of EQUISUL-SDT administered at 24 mg/kg body weight, orally, twice daily for 10 days for the treatment of lower respiratory tract infections in horses caused by Streptococcus equi subsp. zoopedimicas. In this study, a total of 182 horses were treated with EQUISUL-SDT, and 182 horses were treated with scales. On bundred severety three horses (112 EQUISUL-SDT and 61 satisfies) were included in the statistical analysis. Therapeutic success was characterized by absence of fever and no worsening of clinical signs of lower respiratory text infection by Day 17. The observed success rates are 58.9% (6611tz) and 14.8% (961) for the EQUISUL-SDT. and 41.8% (961) for the FOURSUL SDT and saline-tr

Table 4 summarizes the statistical analysis results on the overall success rat

| Table 4. Overall Cillical Effectiveness Results       |             |        |          |  |  |
|---|-------------|--------|----------|--|--|
|   | Equisul-SDT | Saline | P-value* |  |  |
| Least Square<br>Means                                 | 61%         | 13.1%  | 0.0123   |  |  |
| * D. orlean and automated account materials are bound |             |        |          |  |  |

#### statistical analysis. ΔΝΙΜΔΙ SAFFTY

ANIMAL SAFETY
In a target animal safety study, EQUISUL-SDT was administered orally to 32 healthy adult horses at 0 (0X), 24 (1X), 72 (3X), or 120 (5X) mg/kg twice daily for 30 days. Loose stool was the most common abnormal observation. Observations of loose stool abnormal observation. Observations of loose stoc (pellets with liquid or unformed/cowpile stool) occumore often in horses treated with EQUISUL-SDT with the incidence of loose stool increasing in a di elated manner. All incidents of loose stool were selflimiting and resolved without treatm

Horses in all FOLIISUI «SDT arouns dem Horses in an EQUISUL-SUT groups demonstrated statistically significantly higher mean serum creati-nine concentrations, and those in the 3X and 5X groups demonstrated statistically significantly higher mean serum albumin concentrations. Statistically higher mean neutrophil counts and mean serur ma glutamyl transferase (GGT) activity were seen in the 1X and 5X groups. Individual animal cre atinine. GGT, and albumin concentrations remain within the reference range. Individual animal eleva tions in absolute neutrophil counts ranged up to 7.09 x 10<sup>3</sup>/mcL (reference range: 1.96-5.31 x 10<sup>3</sup>/mcL).

the study, it was noted that the sulfadiazine and trimethoprim plasma concentrations did not increase in proportion to dose. For sulfadiazine, a 3X and e resulted in an average exposure of 2.0X and 2.6X the concentrations observed following a 1X dose. For trimethoprim, the corresponding values were 2.5X and 3.5X as compared to the 1X dose. Furthermore, marked intersubject variability, particularly with sulfadiazine, resulted in substantia overlap of individual subject blood levels across the three dosing groups

## ree dosing groups.

STORAGE CONDITIONS
Store upright at 59"–86" F (15"–30" C).
Brief periods up to 104" F (40" C) are permitter
Protect from freezing. EQUISUL-SDT in contai
of 280 mL and 560 mL — discard 60 days after
removing bottle seal.

## HOW SUPPLIED EQUISUL-SDT is available in the following

1 Kahn CM, Line S, eds, The Merck Veterinary Manual 10th Ed Merck & Co. 2010



01/2021

## ALTREN®

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Throughout the mare breeding season, Altren® (altrenogest) is quickly becoming the product of choice in handling estrus issues in horses.

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Wade Shoemaker, DVM Countryside Large Animal Veterinary Clinic Greeley, CO

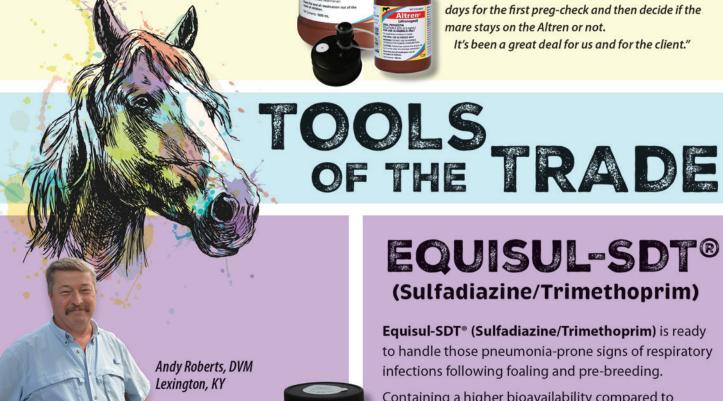
"Altren® (altrenogest) is a product our practice relies on to provide the same active ingredient as Regu-Mate® (altrenogest), but at a much better price point.

My clients appreciate the cost savings I can pass on to them. Altren has quickly become the #1 altrenogest in our practice due to the cost savings and specialized packaging.

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That will allow us to get out to the ranch at 15 days for the first preg-check and then decide if the mare stays on the Altren or not.

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"EQUISUL-SDT" is my first course broad spectrum antibiotic. Because the combination of Sulfadiazine/Trimethoprim is so broad spectrum, I can treat problematic respiratory bacteria before they become a major problem.

**EQUISUL-SDT** is mainly used for respiratory issues, i.e., a febrile horse, elevated SAA, no cough and making a presumptive diagnosis that they have an early respiratory issue. I want a horse on this product a minimum of 10 days.

With the convenient 560 mL bottles, I can script it out to a trainer/owner for 10 days."

## EQUISUL-SDT®

(Sulfadiazine/Trimethoprim)

Equisul-SDT® (Sulfadiazine/Trimethoprim) is ready to handle those pneumonia-prone signs of respiratory infections following foaling and pre-breeding.

Containing a higher bioavailability compared to

approved paste products, Equisul-SDT

is the equine veterinarian's go-to antibiotic of choice, especially when the treatment of lower respiratory tract infections caused by susceptible strain of *Streptococcus equi* subsp. Zooepidemicus are indicated.



Altren



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aurorapharmaceutical.com

## **HEALTH ZONE**

## **Breeding**





Speightstown, who has twice finished among North America's leading sires, is scheduled to stand for \$80,000 in the 2023 season

Having been the WinStar stallion manager for more than two decades gives McGinnis an edge when it comes to noticing any issues or changes in the stallions under his care. That awareness can be crucial as horses start to age. Tied into that is having a good relationship with the farm's management team. At WinStar, that means working with Elliott Walden, president of the operation, and David Hanley, general manager.

"As stallions get older, you can see how they change," McGinnis said. "I have been with our stallions forever, and so you notice subtle things that start to happen as they are breeding. You notice, 'Oh, he didn't do that last year,' or 'He's doing this differently.' You see things happen as they get older. As they get older, things change, and being aware of it means you can manage it and help them out. You do what you can.

"I can talk candidly to David and Elliott about what's going on with the "

REGULAR EXERCISE
TRAINING IMPROVES
HEALTH SPAN AND
MAY ATTENUATE
BIOLOGICAL AGING
THROUGH THE
PRESERVATION
OF TELOMERES."

-RESEARCHERS WHO STUDIED 40 THOROUGH-BREDS OF DIFFERENT AGES IN AUSTRALIA

horses and what I think. They will ask at the end of the breeding season, 'What do you think about next year?' I have to tell them if we should cut a stallion back a bit or if they are doing great. We don't want to overex-

ert them as they get older. As they get older, our stallions' books get smaller and smaller, and that's intentional. It makes it a little easier on them. Of course, if someone comes up and says, 'Hey we want to breed this really great mare to Speightstown,' we will figure it out, but we aren't going to push him too hard."

Management programs have to be tailored to fit both the expectations of an organization as well as the individual horses within it, but in the end, McGinnis strongly feels that the idea of letting horses be horses aids in any given stallion's longevity and welfare.

"I'm firmly convinced that the exercise and turnout schedule that we have has to do with their longevity," he said. "They are healthier for it. They will stay up if there are bad storms or it is extremely cold outside, but they are outside as much as possible. I think that helps them tremendously. Ultimately, my best advice is to listen to the horse."



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