

Better Mare Management:

How to manage broodmares and performance mares more efficiently



MERCK
Animal Health

Mare care in the 21st century

Tools such as shipped semen and embryo transfer have made equine reproduction a modern science. As the costs associated with breeding rise, getting a mare in foal the first time, at the right time, is more critical than ever.

Performance mares also are expected to perform consistently at a very high level. If your mare's behavior changes when she's in heat, she may be a candidate for hormone management.

Whether your goal is breeding or performance, your best resource for mare management is your veterinarian.

Put your mare's cycle on your schedule

Whether you show, breed or do both, the mare management is the same: You want to control when your mare comes into heat. Regu-Mate® (altrenogest) is a form of progesterone that can help you reliably manage your mare's estrous cycle.

How hormone suppression works

As a mare enters estrus and prepares for breeding, her levels of estrogen rise. After ovulation, estrogen drops and is replaced with an increasing amount of progesterone. Progesterone prepares her uterus for pregnancy and helps prevent abortion of the fetus. Roughly 14 to 16 days after ovulation, if the mare is not pregnant, her progesterone levels decline and the cycle starts over.

When given daily for up to 15 consecutive days, Regu-Mate reliably keeps mares from entering estrus. When use of Regu-Mate is discontinued, mares will come into heat within 4 to 5 days.

As the costs associated with breeding rise, getting a mare in foal the first time, at the right time, is more critical than ever.



Managing the breeding mare with hormones

There are a variety of tools available to help take some of the guesswork out of breeding, including hormone treatment. Most breedings will result in conception when they occur 24-36 hours before ovulation or the day of ovulation. Consult your veterinarian for more information.

The transitional mare

Mares transitioning from winter anestrus to normal cycling often experience irregular and erratic cycles. Progestin hormones combined with 60 days of artificial lighting have the highest success rate in inducing normal estrus sooner.



Shipped semen and embryo transfers with normally cycling mares

Whether you want to ensure your mare is ready when the transported semen arrives, breed multiple mares at once or get donor and recipient mares on the same schedule, there are many benefits to scheduled breeding. The timing between treatment and ovulation should be more consistent with normally cycling mares than with transitional mares.

Postpartum mare

The first estrous cycle after a mare foals may not be the most fertile. Suppressing the cycle and allowing more time for the uterus to involute and return to normal can increase conception rates. In fact, ovulation may only need to be delayed as little as four days for a significantly higher conception rate.

Managing the performance mare with hormones

If your performance mare's behavior and focus change when she's in heat, she can not only cost you the class, she can cost you the hundreds to thousands of dollars it took to get there.

You can help reduce undesirable changes in behavior and mood by suppressing your mare's estrous (heat) cycle with Regu-Mate (altrenogest). Within three days of the start of treatment, Regu-Mate will effectively suppress estrus in 95% of mares.

It's important to note Regu-Mate cannot improve your mare's normal performance, it can only eliminate hormonal distractions so she can focus and perform more predictably.



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Learn the language

Estrus: Time when a mare is in heat and receptive to stallions. Usually lasts about a week, or 5 to 7 days. Estrogen is the primary hormone.

Diestrus: Time when a mare is out of heat. Usually lasts two weeks, or 14 to 16 days. Progesterone is the primary hormone.

Anestrus: Time when mare ceases all ovarian activity and is unable to be bred. During the winter months, 80 percent of mares experience anestrus.

Transitional period: Time between winter anestrus and normal estrous cycles, usually February to March. Cycles during this period are erratic and may or may not include ovulation.

Progestin: Synthetic progesterone hormone, such as Regu-Mate (oral altrenogest).

The Science of Estrus Suppression

With more than 50 million doses sold¹, Regu-Mate is trusted by veterinarians and mare owners for good reason:

- 30-year record of proven results
- Regu-Mate effectively suppresses estrus in 95 percent of mares after 3 days of treatment. When treatment is discontinued, mares return to estrus within 4 to 5 days
- Regu-Mate can help alleviate moodiness and temperament changes associated with estrus
- Regu-Mate lets you breed earlier in the season by helping transitional mares cycle regularly
- Scheduled breeding with Regu-Mate in cycling mares may be useful for:
 - Managing costs of shipped semen
 - Reducing number of stallion collections needed
 - Scheduling the estrous cycles of donor and recipient mares for embryo transfer
 - Suppressing estrus in postpartum mares to help increase fertility
- Regu-Mate is easy to administer — orally or top dressed on grain



Regu-Mate® Intervet/Merck Animal Health (altrenogest)

**ORAL PROGESTIN
FOR USE IN ANIMALS ONLY
SOLUTION 0.22% (2.2 mg/mL)**

For suppression of estrus in mares. Suppression of estrus allows for a predictable occurrence of estrus following drug withdrawal in mares with ovarian follicles 20 mm or greater.

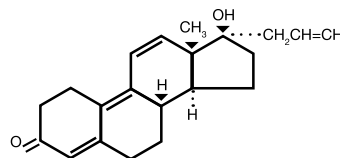
Suppression of estrus will facilitate:

- Attainment of regular cyclicity during the transition from winter anestrus to the physiological breeding season.
- Management of prolonged estrus conditions.
- Scheduled breeding during the physiological breeding season.

WARNING: DO NOT USE IN HORSES INTENDED FOR HUMAN CONSUMPTION. **Keep this and all medication out of the reach of children.**

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

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



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

ACTIONS: Regu-Mate® (altrenogest) Solution 0.22% produces a progestational effect in mares.

INDICATIONS: Regu-Mate® (altrenogest) Solution 0.22% is indicated to suppress estrus in mares. Suppression of estrus allows for a predictable occurrence of estrus following drug withdrawal. This facilitates the attainment of regular cyclicity during the transition from winter anestrus to the physiological breeding season. Suppression of estrus will also facilitate management of prolonged estrus conditions. Suppression of estrus may be used to facilitate scheduled breeding during the physiological breeding season.

CONTRAINDICATIONS: Regu-Mate® (altrenogest) Solution 0.22% is contraindicated 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 inflammation 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 manifold greater than the recommended equine dose caused fetal anomalies, specifically masculinization of the female genitalia.

DOSAGE AND ADMINISTRATION: 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 Regu-Mate® solution. (Note: Do not remove syringe while bottle is inverted as spillage may result.) Detach syringe and administer solution orally at the rate of 1 mL per 110 pounds 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 may cause the syringe to stick; therefore, replace syringe as necessary.

DOSAGE CHART:	
Approximate Weight in Pounds	Dose in mL
770	7
880	8
990	9
1100	10
1210	11
1320	12

¹Data on file. Merck Animal Health.

WHICH MARES WILL RESPOND TO REGU-MATE® (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 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.

Response in mares in the transition phase between winter anestrus and the summer breeding 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 with ovarian follicles 20 mm or greater in diameter exhibited normal estrus cycles post-treatment. Regu-Mate® (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 proportion of these mares responded with regular estrus cycles post-treatment.

SPECIFIC USES FOR REGU-MATE® (altrenogest) SOLUTION 0.22%: SUPPRESSION OF ESTRUS TO:

1. Facilitate attainment of regular cycles during the transition period from winter anestrus to the physiological breeding season. To facilitate 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 follicles greater than 20 mm in diameter) will be suppressed but these mares may not begin regular cycles following treatment. However, mares with active ovaries (follicles greater than 20 mm in diameter) frequently respond with regular post-treatment estrus cycles.
2. Facilitate management of the mare exhibiting prolonged 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 posttreatment response depends on the level of ovarian activity. The mares with greater ovarian activity initiate regular cycles and conceive sooner than the inactive mares. Regu-Mate® (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 breeding.
3. Permit scheduled breeding of mares during the physiological breeding season. To permit scheduled breeding, mares which are regularly cycling or which have active ovarian function should be given Regu-Mate® (altrenogest) Solution 0.22% daily for 15 consecutive days beginning 20 days before the date of the planned estrus. Ovulation 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 individually or in groups.

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 Regu-Mate® (altrenogest) Solution 0.22% /110 lb body weight (2 x dosage recommended for estrus suppression) from day 20 to day 325 of gestation. This study provided the following data:

1. In filly offspring (all ages) of treated mares, clitoral size was increased.
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 parameters:
 - interval from Feb. 1 to first ovulation, in mares only.
 - 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 in treated mares was 81.8% (9/11) and untreated mares was 100% (4/4).
 - 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 respectively).
 - stallion offspring from treated and control mares showed no differences in seminal volume, spermatozoal concentration, spermatozoal motility, and total sperm per ejaculate.
 - stallion offspring from treated and control mares showed no difference in sexual behavior.
 - testicular characteristics (scrotal width, testis weight, parenchymal weight, epididymal weight and height, testicular height, width & length) were the same between stallion offspring of treated and control mares.

REFERENCES:

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: Skin contact must be avoided as Regu-Mate® (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 Regu-Mate® (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 spillage on the skin should be washed off immediately with soap and water.

INFORMATION FOR HANDLERS:

WARNING: Regu-Mate® (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 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 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 basis.

PEOPLE WHO SHOULD NOT HANDLE THIS PRODUCT.

1. Women who are or suspect they are pregnant.
2. Anyone with thrombophlebitis or thromboembolic disorders or with a history of these events.
3. Anyone with cerebral-vascular or coronary-artery disease.
4. Women with known or suspected carcinoma of the breast.
5. People with known or suspected estrogen-dependent neoplasia.
6. Women with undiagnosed vaginal tumors.
7. People with benign or malignant tumors which developed during the use of oral contraceptives or other estrogen-containing products.
8. Anyone with liver dysfunction or disease.

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; however, if there is leakage (i.e., pinhole, spillage, etc.), the contaminated area covered by such occlusive materials may have increased absorption. The following measures are recommended in case of accidental exposure.

Skin Exposure: Wash immediately with soap and water.

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

If Swallowed: Do not induce vomiting. Regu-Mate® (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.

Store at or below 25°C (77°F).

HOW SUPPLIED:

Regu-Mate® (altrenogest) Solution 0.22% (2.2 mg/mL).

Each mL contains 2.2 mg altrenogest in an oil solution.

Available in 1000 mL plastic bottles.

Manufactured for: Intervet Inc (d/b/a Merck Animal Health), Summit, NJ 07901

Made in France

NADA # 131-310, Approved by FDA

01/07

141990 R1

CPN:

1047378.2



The Science of Estrus Suppression

Ask your veterinarian for Regu-Mate,
the original altrenogest.

Talk to your veterinarian about proper use and safe handling of Regu-Mate. Avoid skin contact. Always wear protective gloves when administering Regu-Mate. This product is contraindicated for use in mares with a previous or current history of uterine inflammation. **Pregnant women, or women who suspect they are pregnant, should not handle this product.**

Regu-Mate® (altrenogest)



For more information,
visit merck-animal-health-equine.com

