Montana Equine
Medical & Surgical Center

Three Forks, MT 59752
406-285-0123

Surgery · Medicine · Performance · Reproduction · Preventative Care · Emergency

Authorities have recently increased <u>semen shipping regulations!</u>
Please contact us at 406-285-0123 <u>in advance</u> of breeding

Behavior Seminar Open House, April 4, 2009, 10:00 - 2:00 p.m.

Late Winter/Spring 2009

Hello and Happy February.

We all hope that you and your loved ones are enjoying this mild winter. Like us, you're probably making plans for spring. In this issue, Dr. Flint discusses a very timely topic – breeding and breeding management.

<u>Breeding Business</u>

Mares that were bred last spring and summer are on autopilot except for a few vaccinations. Even though it has been a mild winter, the breeding season can seem pretty far away. But preparations are underway, and pregnant mares that were bred last spring and summer are getting their vaccines, and some extra groceries during their final trimester.

In nature, the equine reproductive system remains dormant through spring, so when we work to get early foals, the first challenge is to get mares to cycle consistently during this time of year. Of course, it makes good evolutionary sense for mares to start cycling when the days are longer, and are considered "long day breeders". That is because, following their 11-month gestation, their foals survive best if they are born when the grass is getting green, so both foal and mare can get plenty to eat. In Montana, peak breeding season naturally stretches from April to August.

But there are many disciplines where early foals are at a real advantage, especially in racing, cutting and reining disciplines. In these cases, preparations should be underway to help stimulate your mares to begin cycling early in the season. In fact, we have already gotten started doing work on some of these types of cases in our clinic this year.

So how does the mare's body know when she should start cycling? It turns out that there is a complex hormonal system that controls cycling, both seasonal cycling and the 21-day estrus cycle. During the off-season, most mares stay in *anestrous*, marked by the lack of ovarian activity. Beginning when the days begin to lengthen, mares enter *transition*, marked by irregular ovulation and estrus patterns.

Ovulation is regulated by hormones released from the hypothalamus (part of the brain), the pituitary (a gland at the base of the brain), and the ovaries. These three major regions form the "*Hypothalamic-Pituitary-Gonadal axis*." This axis, in turn, is governed predominantly by photoperiod (day-length) and secondarily by environmental temperature. During periods of darkness, melatonin is released locally, down-regulating the release of the hormone GnRH from the hypothalamus, and thus suspending ovulation during longer periods of darkness.

As the levels of melatonin decrease with increasing light, GnRH increases, as do FSH and LH, the hormones required for the development of a healthy mature ovulatory follicle. Once LH reaches a critical threshold, the mare ovulates. Typically, she will begin cycle normally after this threshold is crossed, and will continue cycling until photoperiod shortens significantly.

With that in mind, it makes sense that we have to manipulate the mare's photoperiod in order to trip the system early and allow for early-season foals. Mares require 15-16 hours of daylight and 8-9 hours of darkness for approximately 30-60 days to stimulate transition and to begin ovulating. The amount of light required to trick the system is a 200-watt light bulb in a 12'x12' stall. The typical rule of thumb is that a person should be able to comfortably read a newspaper in all corners of the stall. Adding light during the dusk hours is more effective than at dawn. Therefore, in order to begin the breeding season on February 15th, one should begin providing artificial lighting around December 1st. While photoperiod is the most important stimulant to bring a mare into estrous, horses, like any other biologic system, require multiple signals to trigger change. Environmental temperature also plays a significant role in regulating a mare's reproductive cycle. Consequently, keeping a mare in heavy blankets during the winter months in addition to increasing the photoperiod will provide the best combination for bringing a mare into estrous out of season.

Independent of manipulation of the environment, some mares benefit from hormone therapy to hasten transition. The most widely used pharmaceutical is Regu-Mate, an oral medication that mimics progesterone. Progesterone inhibits the production of LH, the hormone that causes ovulation. I know it seems backwards, but following withdrawal of progesterone there is a strong surge of LH, thus stimulating ovulation even in irregular mares. Recently, some veterinarians have been using progesterone impregnated intra-vaginal devices to achieve the same outcome.

Finally, once a mare is cycling, we have to plan carefully to correctly time semen shipments and insemination. Different from other species, mares are in estrus for 5-7 days. During this time, the follicle finalizes its preparation for ovulation. Shipped semen is viable for 36 - 48 hours after collection. This requires that veterinarians know the approximate time of ovulation, ideally within a few hours. Serial ultrasounds are performed to look for characteristic changes of the developing follicle, the uterus and the cervix. Prior to ovulation, the follicle will begin to develop a hyperechoic wall on ultrasound and feel soft on palpation. The uterus will have lost a majority of its folds and edema and the cervix will be very soft and open. Prior to these observed changes, two drugs can be employed to time ovulation when a mare has a 35-45mm follicle. The first is HCG. This is a human hormone that mimics LH in the horse and causes ovulation in 24-36 hours. Another commonly used drug is deslorelin. This medication mimics GnRH, thus stimulating the pituitary to produce LH and cause ovulation in 48-72 hours.

Many factors determine the need for manipulating the estrous cycle. Drop us a line; we would be happy to discuss your individual management needs. Before you know it there will be foals on the ground and mares to breed! AF

MONTANA EQUINE
3934 FRONTAGE RD.
THREE FORKS, MT 59752

RETURN SERVICE REQUESTED

PRSRT STD
US POSTAGE
PAID
THREE FORKS, MT
PERMIT NO. 6

Exclusively Dedicated to the Highest Quality Care of Horses

Why does Montana Equine recommend Spring Vaccinations be given in April/May and not in March?

Basically, our recommendations are due to issues related to West Nile Virus (WNV). Peak incidence occurs in August and September, but in our region, the season has historically lasted from July through October. And although it is relatively rare in Montana, scores of horses die in our state every year from this preventable disease.

The vaccines against WNV are very well tested, and all 3 provide excellent protection against this serious disease. However, many horses' immunity from vaccination is known to wane quickly, even within 6 months. Other than measuring WNV titers (which is partially correlated with protection), recent vaccination is critical. Therefore, we recommend spring vaccines be given in late April, providing more reliable immunity through the peak WNV season 5-6 months later. This strategy allows horses to stay well-protected after just one annual dose of the WNV vaccine.

Having seen too many horses die from WNV, we highly recommend protecting your horses. In the near future, new vaccine technologies may mean that these vaccinations may be given even less often, perhaps just every second year.

Jeannine M. Berger, D.V.M., is an associate staff veterinarian in the Department of Medicine and Epidemiology, Clinical Animal Behavior at the University of California at Davis' School of Veterinary Medicine. She is a Diplomate of the American College of Veterinary Behaviorists and is a well-traveled and versatile lecturer. In conjunction with her veterinary education, she has completed many years of practice at both the University of Zurich and at UC Davis. Dr. Berger has also completed several instructional Natural Horsemanship's clinics and has conducted seminars in horse handling locally and internationally. Dr. Berger is highly regarded for her ability to communicate behavior science to audiences of all ages and levels of experience.

Dr. Berger has done research in the areas of repetitive behavior such as cribbing and headshaking as well as foal rejection and weaning. She currently works with problem horses and teaches owners how to conduct behavior modification which improves the horse-human relationship.

DISCOUNTS on Preventative Care!!!

We know that the economic realities have the potential to affect everyone. In consideration of that, and because we are so committed to prevention over cure, Montana Equine will offer reduced fees for our routine preventative care as outlined here.

FEES RETURN TO 2006 prices:

- Reduced fees for vaccination and de-worming: We have cut our fees by almost $10 per horse!

- EXTENDED 15% discount on routine dental floats!!!

We normally offer discounts on routine dentals in the winter, ending in March. This year, we will continue to offer the 15% discount until May 15.

Behavior Seminar Open House

April 4, 2009 • 10:00 - 2:00 p.m.

Bring this newsletter to the Open House for entry into the door prize drawing!