

Equine Reproduction: Preparing for the breeding season using artificial lighting

By Amy K. McLean, Equine Specialist, University of Wyoming

Authored 2009

We typically think of horses as long day breeders, meaning they will display signs of estrus (heat) when the day light hours began to lengthen. However, many horses are bred during the winter months such as, January and February, so the foals can be born as close to January 1st as possible. For most horse registries January 1st is the universal birth date, so if your horse were born on December 31, 2009 then on January 1, 2010 that horse would be considered a year old. As crazy as it sounds that's the way it works! In order to have an advantage competing with your horse(s) most breeders will synchronize their mares to come into estrus starting in November and then breed in late January or February so she will foal as close as possible to January. The mare's estrus cycle can be manipulated using artificial lighting. The mare will need to be exposed to at least 16 hours of light each day. Most breeders will turn on or have lights set to a timer about 30 minutes before dusk. It will take approximately 60 to 90 days to induce the first ovulation, so if you are trying to breed in February, then you need to start your mare on lights in November. Also, too much light (supplying light over 16 hours) will cause the mare to not cycle properly, so avoid leaving the lights on all day. The use of lights will also cause the mare to shed her winter coat sooner, so be prepared to blanket her if living in cold conditions.

Another important aspect when preparing for the breeding seasons is stallion management. Keeping in mind that it will take approximately 45-55 days for a stallion to produce mature spermatozoa. If the stallion is sick, injured or has an infection this can all inhibit normal sperm production. A rise in body temperature can also decrease production. A stallion should be in good body condition prior to the breeding season meaning the stallion should have some condition (fat) over his body and have a body condition score of at least 5 or preferably 6 going into the season. Body condition scoring is a system that helps horse owners measure the amount of fat or condition their horse is carrying based on its past nutrition and management history. The scoring system assigns a number on a scale of 1 to 9 according to how much fat or condition is covering key areas such as the neck, withers, ribs, and hips. A horse with a body condition score of 1 is considered very thin, 5 being moderate and a score of 9 is considered to be obese.

Another factor that can decrease spermatozoa production is the season. Stallions typically decrease production in the winter months. It's assumed that a stallion's daily production will decrease approximately 50% from September through February. Keeping in mind that many broodmare owners will want to bred when the stallion's natural spermatozoa production is at its lowest. The stallion like the mare, can be exposed to artificial lighting prior to the breeding season and increase production. When using artificial lighting to manipulate spermatozoa production or

the mare's estrous cycle use one 200-watt bulb in a 12 x 12' stall and the light should be sufficient so one can easily read a newspaper in any corner of the stall.

For more information on reproduction and breeding, visit
<http://www.extension.org/category/horse%20reproduction>.

Also, check out these free webinars on reproduction offered by My Horse University at http://www.myhorseuniversity.com/resources/webcasts/mare_nov_09,

http://www.myhorseuniversity.com/resources/webcasts/broodmare_nutrition_dec07

http://www.myhorseuniversity.com/webcasts/foaling_process_dec_2008

This article was first published in the University of Wyoming's publication "Riding Point with Animal Science"