



STALLION & MARE ASSISTED REPRODUCTION, SMART, PC

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WHERE'S THE LIGHTS?

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An often asked question is: **How can I get my mare to have a foal earlier in the year? She seems to not want to show heat (estrus) early on in the spring. Is there anything that can be done?**

Mares have multiple heat (*estrus*) cycles through the year. During certain seasons of the year there is a slowdown and in many cases a stopping of this cycling activity. We call this being *Seasonally Polyestrous*. In the Northern Hemisphere mares have regular estrus cycles only from late spring until mid-fall, unless they are pregnant. During late fall, mid-winter, and early spring, mares may demonstrate erratic to no estrus cycling. Some estimates as high as 85 percent of mares stop cycling completely (*anestrus*) in the winter. Year around estrus behavior and cycling can be seen in mares closer to the equator, mares carrying more body condition and in mares exposed to prolonged artificial lighting.

Daylight is the major external factor stimulating ovarian follicular activity. Short daylight periods mean less cycling or when the days are shortest, no cycling. A rule of thumb is to expect the first ovulation of the year in horses maintained under natural lighting conditions to be around May 1st. It makes sense to think we can influence they first cycle of the year date by changing the daylight periods. This in fact has been a common technique in breeding programs over the last 40 years.

In general it takes 60 to 70 days of increased light to stimulate follicular activity enough to develop early ovulations. The concept in the Northern Hemisphere is to increase the length of day light from mid-November or early December on to expect early February ovulations.

There are a few common principles:

1. Gradual increases in light duration are not necessary.
2. The type of light is not as important as the intensity of light.
3. Ten or more foot candles of artificial light are needed to affect the ovaries. Photometers can be used but a rule of thumb is you should be able to read a newspaper anywhere the mare or mares are to be housed. A single 200-watt incandescent light bulb in a 12 foot by 12 foot stall will produce ten to twelve foot candles of light.
4. Timing devices to control the lights are strongly suggested.
5. Mares housed in stalls with outside runs should be locked in the stalls in the afternoon or the outside areas must be lighted.

There are several protocols described, but two, stand out as easiest to facilitate.

1st Technique. This is a 16 hour of light and 8 hour of darkness cycle, for example lights on at 7 AM and off at 11 PM.

2nd Technique. Is to pulse two hours of light nine and one half hours after darkness, for example lights on at 2:30 AM, off at 4:30 AM. Research has shown this technique to be as effective as technique number 1.

Used correctly and consistently, increasing the photoperiod of light for mares will result in earlier cycling mares each spring. For more details do not hesitate to contact your local reproductive veterinarian.