



## LESSONS IN LIGHTS

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The physiologic or natural breeding season of the mare extends from April to October in the Northern Hemisphere. An increase in day length, or more appropriately, the decrease in duration of darkness in the spring stimulates ovarian follicular activity in mares. The first ovulation of the year in horses maintained under natural or ambient photoperiod conditions is approximately May 1.

The most common management strategy for advancement of the first ovulation of the year is by use of a stimulatory artificial photoperiod. Techniques for providing an artificial photoperiod have been described for over 40 years. Mares should be put under lights in late November or early December to stimulate follicular development and ovulation by early February. In general, approximately 60 to 70 days of an artificial photoperiod are required to induce ovulation. The most common techniques are to provide 16 hours of light and allow 8 hours of darkness (i.e. lights on at 7:00 am and lights off at 11:00 pm) or to provide approximately 3 additional hours of artificial light beginning at dusk. Gradual increases in duration of light exposure are not required. Incorporation of timing devices to control the lighting system is recommended. The type of light (i.e. fluorescent or incandescent) is not as important as the

intensity of the light. Follicular development will usually be stimulated if mares are housed under 10 or more ft candles of artificial light. Ovarian effects will be inconsistent or ineffective if less light intensity is used. One 200-watt incandescent light bulb in a 12-ft by 12-ft stall is usually sufficient to provide 10 to 12 foot-candles of light. Accurate photometers may be obtained or borrowed from local electrical contractors to test farm light programs.

Mares housed in stalls with outside runs attached need to be locked in the stalls in the late afternoon to take advantage of the barn lights. Stimulation will be insufficient if mares are allowed to wander in and out of the stalls in the evening, if the outside run is not illuminated. Mares that have been maintained under lights should be kept in that same environment until they are confirmed in foal. Recent studies have shown that if mares initially housed under lights to stimulate an early ovulation are turned out into a paddock or pasture with only natural lights in February or early March may revert to anestrus for 2 months or more. Mares turned out later in the spring are more likely to continue to cycle. In fact, shorter periods of artificial light stimulation (i.e. 35 days) may be sufficient to stimulate the onset of follicular development in late winter or early spring. Exposure of

seasonally anestrus to a 1- to 2-hour period of light beginning 9.5 hours after the onset of darkness has also been reported to stimulate follicular development.

The use of an artificial photoperiod does not eliminate the spring transition period. It just moves the transition period earlier in the year. Mares will still have prolonged periods of estrus and waves of follicular development and regression. However, the mares will be ready to breed 2-3 months earlier than they would have been otherwise.