Artificial Control of the Photoperiod
Courtesy of University of PA, New Bolton Center

Referred to as “putting mares under lights”, this is a management tool used to hasten the onset of ovulation and regulate cyclicity. Day length is extended to 16 hours by providing artificial light. Eight to ten weeks are required for mares to respond. Exact requirements of length of time, spectrum of wavelength, and minimum amount of light necessary are not known.

Current Recommendations:

1. Initiate supplemental lighting program December 1st to start the breeding season on February 15th.

2. Add light at the end of the day before dusk. Added light in the morning does not seem to be beneficial.

3. Provide a minimum of 10 foot candles (107 lux; may be incandescent or fluorescent). This can be measured with a sensitive photometer. This is enough light to comfortably read a newspaper.

4. A 12x12 foot stall would require one 100 watt bulb or two 40 watt bulbs.

5. Add light to make 16 hours of light total per day. Some Florida studies indicate only 2.5 to 3 hour added in the evening is sufficient.

6. Mares can be illuminated as a group in a lighted paddock.

7. Light can be added abruptly to produce a 16-hour “day” or increased gradually to 16 hours over 60 days. Examples:

   Constant: Add light from 4:30 pm until 11pm daily for 10 weeks prior to desired breeding date.

   Stepwise: Add three hours of light per day the first week. Add ½ hour per day each additional week (this method is cheaper). An automatic timer saves money and time.

8. The largest increase of melatonin occurs at dusk. During long nights, melatonin again is high 10 hours after dusk. Work in France demonstrated that a one-hour flash of light given 9.5 and 10.5 hours after dusk is effective.

9. Stallions may benefit from artificial lighting. Testicular weight and daily spermatozoal production increase during the breeding season. Stallions that have undergone an artificial light program may also reach their reproductive performance peak too early in the breeding season.