

TEXAS A&M UNIVERSITY
DEPARTMENT OF ANIMAL SCIENCE
EQUINE SCIENCES PROGRAM



CONTROLLING HAIR LENGTH IN HORSES
USING EXTENDED DAY LENGTH REGIMES

D. Douglas Householder, Ph.D. and Pete G. Gibbs, Ph.D.

Horsemen who show, fit and or sell horses on a year round basis are concerned with controlling hair length. Old traditional procedures for maintaining short hair or shedding hair off horses have involved keeping horses hooded and blanketed in heated barns. Heating barns is very expensive. Keeping horses in warm barns, then taking them outside in cold temperatures for exercise, may cause health problems. To minimize these problems, horseman should consider utilizing extended day length regimens to control hair length in horses.

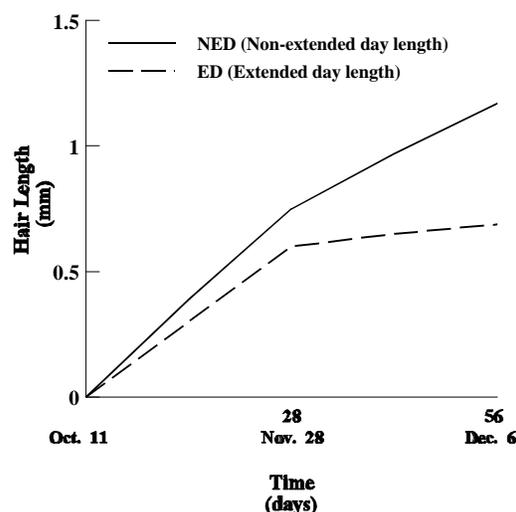
Theory

Research by Burkhardt (1947) first demonstrated that ovarian activity in mares was influenced by photoperiod and with the hastening of estrus came the early shedding of hair¹. Photoperiod (day length) is a major factor governing hair growth in horses. June 21 (summer solstice) is the longest day (16 hours day length) of the year; December 21 (winter solstice) is the shortest day (10 hours day length) of the year. The theory is simple....mechanically provide horses 16 hours of day length during the fall and winter, to mimic the natural spring and summer hours of day length. This procedure will retard fall hair growth and will cause shedding premature if a horse has grown his winter hair coat.

Hodge and Householder (1980) studied the effects of extended vs. traditional day length regimens for controlling hair length in horses^{2,3}. In this study 16 yearlings and 2-year-old mares and geldings were randomly assigned to natural day length or extended day length

groups. The project started October 1 when the extended day length (ED) group started receiving 16 hours of day light per day and the non-extended day length (NED) groups received natural day light only. All horses were housed in the same non-heated barn and none of the horses were blanketed throughout the project. On day 1 the hair on a 1x2 inch square, under the mane, was clipped then shaved to skin level. Hair from these areas was reclipped on days 28 and 56 and measured for growth. Figure 1. shows the effect of extended photoperiod on hair growth.

Figure 1. The Effect of Photoperiod on Hair Growth in Horses



On day 28, regrowth of hair on the non-extended day length (NED) horses and extended day length (ED) horses was approximately equal. As the natural day length became shorter through November and into December, the hair on the NED horses

continued to grow longer and the hair growth on the ED horses was retarded. On December 6, the last day of the experiment hair length on the NED horses was almost three times longer than the ED horses.

e.g. extended daylight (3 hrs.)
+ natural daylight (10 hrs.)
+ extended daylight (3 hrs.)
16 hours

Dec. 1 4:30 a.m. - 7:00 a.m.-----5:30 p.m. - 8:30 p.m.

Bulbs/Location/Measuring Light

Incandescent (clear or frosted) or fluorescent bulbs, and not colored heat lamps, should be used over or close to a horse's stall. Research indicates that as little as 3 foot candles of light at the horse's eye height will elicit the response.⁴ Ten (10) foot candles is; however, the general routine recommendation. Foot candles can easily be measured with an electrician's photometer (light meter). Another technique to measure light in stalls is to use the light meter in single lens camera. To measure light: 1) set the ASA to 400, 2) set the shutter speed at 1/4 seconds, 3) place a styrofoam cup over the lens and 4) read the aperture when the camera is held at the level of a horse's eye height in the stall⁵. Practically, if a newspaper can be easily read, in any area of the stall, an excess of 3 foot candles of light is present. A 200 watt incandescent bulb located approximately 10 foot above the floor, in a 12x12 stall, provides approximately 10 foot candles of light in the stall.

Types of Timers

Two types of timers are usually utilized. A box timer can be mounted between the power source and the bulb(s). This timer will turn all lights on/off mornings and on/off nights. Box timers cost approximately \$45.00. A receptacle timer plugs into a wall outlet. A treble light then is plugged into the unit. The timer turns individual lights on/off in the morning and on/off again at night. These type timers cost approximately \$15.00.

Procedure

Horses should receive 16 hours of continuous light of at least 3 foot candles with 8 hours of darkness each day. Light can be added to either end of the day. Practically most horsemen add light both in the morning and evening as this compliments barn work schedules.

Most horsemen set their timers and do not change them anytime during the year. A gradual buildup of light is not necessary. Twenty-four (24) hours of continuous light each day will not elicit the response as a switch from dark to light to dark is needed each day. Be sure to replace burnt out bulbs and reset timers after power outages to maintain consistency in artificial lighting schedules. A few days out of the above regimen (ie. off at a show) will not cause horses to start growing hair; however, horses removed for longer periods of time (i.e. several days) will get out of "synch" and will start growing hair. In an attempt to save energy, limited research has been conducted to see if a single pulse of light might elicit the same response as 3 hours of continuous light. The exact time of the photo inducible phase has not yet been identified by research; therefore, utilizing a pulse lighting program is not yet practical at this time⁶.

Results

In the fall when horses are put under an extended lighting regimen, hair growth will be retarded. If put under lights in winter, hair coat should start to slip by about 45 days, with another 60 or more days required for the horse to shed completely. (Note: Horse owners will certainly need to brush horses daily, especially as hair first begins to turn loose. This will help loosen long hair.) In colder weather (under approximately 55° F) a blanket or hood may be necessary to keep horses comfortable. Stallions and geldings, as well as mares, respond to extended day length by shedding coat. Field observations show that, occasionally, some horses under extended light for 3-4 years, will become refractory to light and will "jump out" or start growing hair. Once these horses have grown hair, an extended lighting regimen can again be used and will control hair length for several years. Remember that mares under lights will cycle through the winter. Exposure of stallions to an artificial photoperiod in the fall, late winter and early spring will result in peaking of the breeding season earlier in the

year. If mares are to be bred between February and June, a lighting program will not interfere with a stallion's reproductive performance. If mares are to be bred in late spring and late summer, an artificial lighting program maybe unsatisfactory as it causes the stallion to peak too early in the year.

Conclusion

The use of an extended lighting program is an important management tool for horsemen who need to get horses to slip winter hair or keep hair short throughout the year. Owners can combine artificial either incandescent or fluorescent and natural light to give horses 16 hours of light and 8 hours of darkness. With limited investment in a timer and proper installation, horse persons can keep their horses hair coat short with a minimal amount of labor.

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