Dairy Cows: Lighting and/or rbST

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There has been much controversy regarding the use of rbST recently, even though science has found no difference in the milk from rbST treated cows and non-treated cows.

Extended lighting for cows can produce about the same level of extra milk production as treatment with rbST and without the controversy. There is a wealth of research on lighting for dairy cows both milking and dry, as well as for growing heifers and bulls.

Sixteen to eighteen hours of light and six to eight hours of dark for milking cows has given an increase in milk production of 6-10%. The light needs to be wherever the cows are: feed bunks, waters, bed areas, holding pens, alley ways, etc. The light intensity should be measured within two to three feet of the floor.

An intensity of thirteen foot candles of light is adequate for the light effect. Any kind of light, incandescent, florescent, etc. as long as the intensity is adequate. It is recommended that twenty foot candle intensity be used to start. As lights get older and dirty, the intensity will decrease but remain at the thirteen foot candle or above level.

The increase in milk production will usually offset the cost of the lighting in twelve months or less.

The twenty foot candles of light will also increase growth rate of heifers and bulls, but research has found no effect for steers.

Dr. Geoff Dahl, formerly at the University of Illinois Department of Animal Sciences and now at the University of Florida, wondered if and how long day lighting impacted heifer growth and first lactation performance.

Thus, Dahl reviewed previous studies that revealed significant advantages to appropriate lighting for heifers, particularly during the pre-pubertal period. He discovered that exposure to long days hastens puberty, improves growth and helps mammary development. Additional photoperiod research, conducted more recently, showed heifers grew taller and produced more milk during their first lactation.

Dahl noted that long day lighting is not continuous lighting. Long day lighting is defined as 16-18 hours of light and six to eight hours of dark.

Accelerating Estrous Cyclicity

There are subtle influences of photoperiod on reproduction in cattle. However, it primarily impacts the speed at which heifers and bulls achieve puberty. For heifers, long day lighting accelerates estrous cyclicity. Regardless of season, ambient temperature or nutritional regimen, long day lighting causes cattle to reach puberty about a month sooner, compared to herdmates exposed to short day lighting. "Long day lighting simply causes pre-pubertal cattle to grow faster – regardless of their plane of nutrition," Dahl reported. "This is a physiologic drive."

"Because the number of cycles an animal experiences before breeding may be positively associated with breeding success, earlier puberty may be a positive outcome of photoperiod manipulation – even if heifers are not bred to calve at an earlier age," Dahl stated.

Dry cows need short day lighting, six to eight hours of light, and sixteen to eighteen hours of dark. Research has shown this will increase production in the next lactation. If dry cows are given long day lighting, sixteen to eighteen hours of light and six to eight hours of dark, research indicates this will decrease production in the next lactation.

If a dairy is on 3x milking, this presents some obstacles to getting the light effect.

Research has shown workers with 1 to 1.5 foot candles of white light can do their work effectively, even reading ear tags. Using red light, workers have problems seeing adequately to do the work safely. The light needs to be spread evenly so the worker has even lighting and not going from bright to dark areas.

In the dead of winter the people working in the lighted area also feel better. Turn on the lights and reap the rewards.