

DAIRY-UPDATE

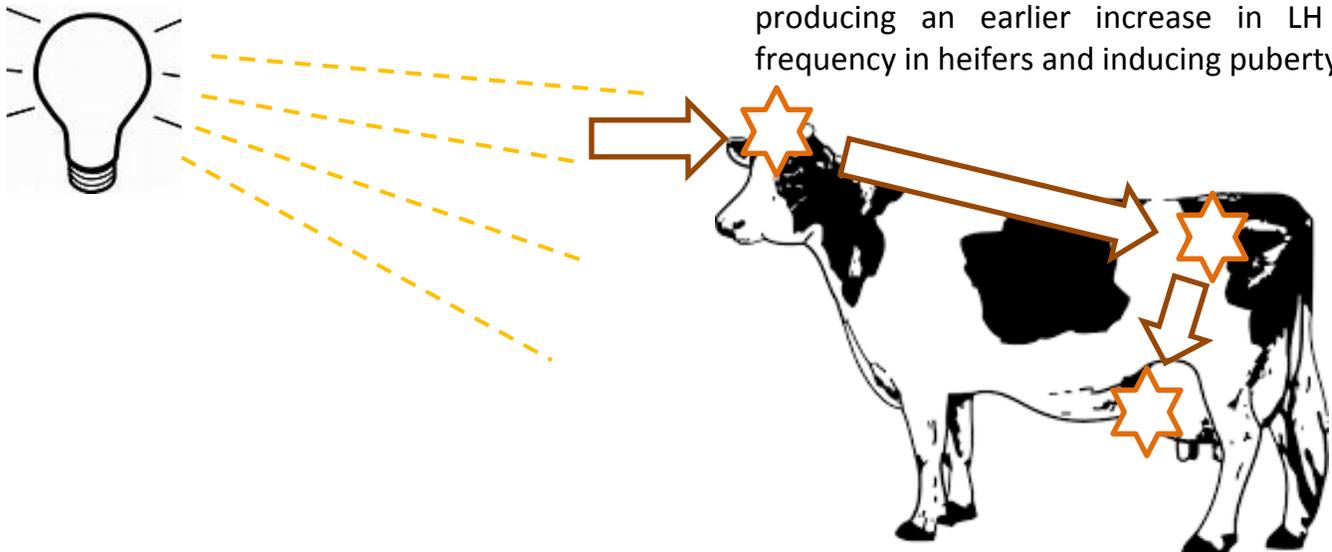
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The Importance of Light and Photoperiod in Dairy Cattle

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Did you know that LIGHT can affect the productivity of your cows?

COWS can produce 8-10% more milk if exposed to 16 hours of bright light (minimum 160 lux) each day, and 8 hours of darkness (maximum 50 lux). This response is independent of days in milk. Light also affects reproductive performance, primarily by increased signs of heat, especially in the early morning.



HEIFERS exposed to spring-summer like conditions of temperature and long photoperiods during the second 6 months of their life have reduced ages at puberty. Research has shown that supplemental lighting (16 h/d) during the winter improved the growth rate and reduced the age at puberty for those heifers born in the spring and summer. Under this same light regime (16 h/d) heifers grow more mammary tissue, and produce more milk after first calving.

DRY COWS, on the other hand, have more milk production at the start of lactation if they are exposed to a very different regime with only 8 hours of bright light and 16 hours of darkness. One study showed that cows under this regime of 16 hours of darkness produced 3.2 kg/day more milk after calving versus dry cows exposed to 16 hours of light.

How does it work?

Exposure to light decreases melatonin secretion into the blood. This changes the secretion of hormones such as Prolactin and Insulin-like Growth Factor-1 (IGF-1), which are involved in dry cow potential milk production and lactating cow milk production respectively. It seems that the photoperiod may influence (by photo stimuli), the neuro-humoral system, producing an earlier increase in LH pulse frequency in heifers and inducing puberty.

Is more light better?

No. Cows exposed to continuous light do not show increased milk production. The period of 6-8 hours of complete darkness is just as important as the exposure to 16 hours of bright light. It is important to turn off all lights in the barn at night to achieve this effect. "Night lights" are not needed by cows, and can alter the effects of increased lighting in the day.

How long is the response?

It takes 2-4 weeks for the increase in milk production to occur, but studies have shown an increased milk production that lasted up to 43 weeks. The effect should last for the entire lactation.

Where should the lights be placed?

For free-stall barns the lighting must be increased throughout the entire area and especially over the free-stalls where cows spend 12-16 hours lying each day. Increasing lighting over the feed bunk is also beneficial, but adding lights in this area alone will not increase milk production. Cows will not eat more simply because there is more light offered at the bunk. The typical response is that the cows will eat more because of the increased demands of higher milk production, induced by overall increased lighting though the barn. In tie-stalls, increased light 3 feet from the floor and at the angle of the cow's eye is the best measure. In this situation increased lighting at the bunk alone should produce the effect of increased milk production.

Ask your BSC Representative today about **measuring the light intensity in your barn**. We are committed to offering our customers opportunities to increase profit through our quality products, service and advice.

Mark your calendars!

Winter Meeting 2016

At the Dairy Congress in London

February 4th, 2016

10:30 to 2:30

Topics directly related to current challenges will be addressed:

- How can Canadian dairy farmers compete with international markets?
- Targeted mineral and vitamin feeding
- Analysis of production costs and windows of opportunity to reduce costs
- Strategies and innovations that will increase profit

Registration information available soon.

DAIRY UPDATE is published in the interest of helping dairy producers become more profitable. We welcome your comments.

Also available on-line at www.bsccanimalnutrition.com

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