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<https://pubmed.ncbi.nlm.nih.gov/32219929/#:~:text=These%20results%20suggest%20that%20blue,LED%20light%20color%3B%20milk%20production>

Effects of white, yellow, and blue coloured LEDs on milk production, milk composition, and physiological responses in dairy cattle

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Abstract:

Light emitting diode (LED) is more energy efficient than incandescent or fluorescent light. This study was to evaluate effects of different coloured LEDs on milk production, milk composition, and physiology of Holstein cow. According to milk production and parity, cows (n = 186) were allotted to four treatments: control (natural daylight), white, yellow, and blue LED groups.

Of these, 40 cows that had passed 57 day-in-milk were used. **Yellow and blue LED groups demonstrated greater rates of decline in milk production than control and white LED groups.**

At the finish point, milk fat, protein, and lactose contents were the lowest in the blue LED group, whereas milk-urea-nitrogen levels were the highest in the yellow and blue LED groups.

Extended exposure to blue LED light lowered antioxidant enzyme activity and insulin-like growth factor-1 levels. Prolactin concentrations were higher in the white and blue LED groups than in the control. Cortisol level was the highest in the blue LED group among the groups. Nonesterified fatty acid levels in the yellow and blue LED groups decreased to the greatest extent compared to the start point.

These results suggest that blue LED light can decrease milk production and generate more stress than white and yellow LED lights.