

A REVIEW

Role and importance of light in farm animals and birds

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Photoperiod is the most common environmental factor monitored by animals to alter long-term physiological processes, particularly reproduction and production through its effect on physical activity, hormonal regulation, behaviour etc. Lighting of animal premises is essential elements of animal (Mitev, 2012). Solar radiation directly or indirectly exerts a profound effect on the behavior of animals. In the form of visible radiation (light), the photoperiod governs diurnal and seasonal activity patterns of the animal. Photoperiod is important for the improvement of production efficiency and profitability (Dahl, 2005). A true photoperiodism response is a response to the changing day or night. Some species respond to increasing day lengths and decreasing night lengths this is called a long day response. Other species may exhibit the same response, to decreasing days and increasing nights; this is a shortday response. Sometimes a response is independent or nearly independent of day length and is said to be day-neutral.

Photoperiod for cow :

Long-day lighting usually increases dry matter intake (upto 6%) to supply the extra nutrients needed for milk production. Long-day photoperiod causes increase in milk production (Miller *et al.*, 1999; Stanisiewski *et al.*, 1985; Phillips and Schofield, 1989; Bilodeau *et al.*, 1989 and

Marcek and Swanson, 1984). Many authors reported about the importance of short day photoperiod during dry period causes more milk production (Petitclerc *et al.*, 1989 and 1998). There is no effect of light in the on fat composition in the milk (Dahl *et al.*, 2000). The initial response takes about 2-4 weeks to be seen. Higher light level causes the elevation of IGF-I in milk yield observed in cows on long days period (Dahl *et al.*, 1997) and increase dry matter intake (Miller *et al.*, 1999). Todorov and Mitev (1995) reported that the short photoperiod during the dry period causes the more rapid body condition recovery. In case of heifer long day exposure to the light causes the early puberty (Hansen *et al.*, 1983 and Peters *et al.*, 1980). Light also play important role in the immune function in the body (Auchtung *et al.*, 2001). Researchers have found that increasing light from less than 12 hours/day to 16-18 hours/day, increases milk production by 7-10 per cent. Milk composition in cows is generally unaffected by photoperiod, although slight depressions of milk fat percentage have been observed. The use of light in dairy animals suppresses the release of melatonin hormones (Rieter, 1991 and Illnerova and Sumova, 1997). Parenchymal cell number was greater in heifers exposed to long days during the prepubertal period. For dry cows, limiting light exposure to 8 hours/day can be achieved using well-ventilated, enclosed barns. Cows