

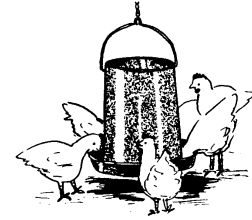


*The University of Georgia*

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*College of Agricultural and Environmental Sciences / Athens, Georgia 30602-4356*

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## ***BACKYARD FLOCK TIP . . .***

### **LIGHTING PROGRAMS FOR BACKYARD EGG PRODUCTION**

There are many factors that can influence the egg production of back yard flocks. Diet, plenty of water and environmental factors such as a temperature, relative humidity, and light can influence poultry performance. Controlling the light environment can improve egg production and growth. Light influences bird behavior, metabolic rate, physical activity and physiological factors such as reproduction. While it is important to optimize all environmental conditions, many times errors in managing light on backyard layers can have a direct impact on performance. Light is received by the eye and hypothalamus. In turn hormones are released by the hypothalamus that stimulates the pituitary gland. The pituitary gland produces hormones such as follicle stimulating hormone (FSH) and luteinizing hormone (LH) that are involved with gonad development and maturation. Day length is an important component of the poultry reproductive system. Birds are seasonal breeders and the reproductive system is stimulated by long day lengths. Much of this is Mother Nature's way of ensuring that the chicks would be reared in warmer weather to increase the probability of survival.

#### **Day Length**

Chickens used for egg production need to be exposed to a critical day length. The period of light needed to stimulate reproduction can vary with breed. Birds interpret day length by whether light is present or not during a "photosensitive period" which occurs approximately 11-16 hours after dawn. For example, if the lights come on at 5:00 am, and the bird detects light between 4 and 9 pm then the day will be perceived as a long day or a photostimulatory day. If there is no light detected during the photosensitive period, then the bird will interpret the day as a short day or non-photostimulatory day. If the day length is too short, then the birds may be delayed in the onset of lay, egg size could be reduced and egg production will be less than when birds were provided long photoperiods. Short days can also result in a molt. For most poultry, 14 to 16 hours of light is recommended to get a photostimulatory response. The most critical time for backyard flock owners is the fall and winter months when the days are shorter. During this time, the day length can be extended by supplementing daylight with house lights using a timer to control when the lights come

#### **PUTTING KNOWLEDGE TO WORK**

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on and go off. Extra time can be added in the morning and evenings to ensure that the birds perceive long days. June 21<sup>st</sup> is the longest day of the year. Backyard flocks that are in production during that time of the year should be provided a minimum of 15.5 hours of light per day using natural and supplemental light. Anything less than 15.5 hours during this time will result in a decrease in egg production and possible cessation of laying altogether.

### **Light Intensity**

Light intensity refers to light brightness and is important to avian reproduction because a minimal light intensity is needed to elicit a photostimulatory response. If natural light is being used and the birds are in outside pens then light intensity is not a critical factor. However, if the backyard flock is maintained indoors, then light intensity can become an important issue. Just as with day length, the intensity threshold needed to induce a response will vary among individual birds and breeds. For breeds that are selected for egg production, such as leghorns, 0.5 foot candles (fc) or 5 lux is needed to stimulate reproduction. Basically in a room with a dimmable light switch, 0.5 fc would be the light intensity where a newspaper could be barely read. However, heavier breeds such as Barred Rocks or Rhode Island Reds required higher light intensities of 2 to 5 fc or 20 to 50 lux. There are instances where people have reduced light intensities to control bird activity and aggression. In these cases, the contrast between dim light and dark periods needs to be great enough to ensure that the bird can distinguish between a light and dark period.

### **Summary**

Reproduction issue can be minimized by providing proper lighting, adequate protection from cold weather, properly formulated feed, and water at all times. By ensuring that birds are never exposed to decreasing day length and that the light intensity is adequate for the birds in the flock, egg production should not decrease or cease abruptly in the middle of an egg laying cycle.



Brian Fairchild  
Extension Poultry Scientist

Extension County Coordinator/Agent

“Your local County Extension Agent is a source of more information on this subject.”