

Lighting Programs for Turkey Breeders

Lighting is a major factor influencing the performance of the breeder candidate. A good lighting program may be the difference between profit or loss.

What works with one type of barn, may not work with another type and what works at one latitude, may not necessarily work at another latitude. In addition, one must consider age and reproductive maturity of the bird when implementing a lighting program.

It is impossible to recommend a lighting program that will work for all flocks in all geographical locations, with different types of housing, climatic conditions and management systems. Instead, we offer the following general guidelines which we have found useful in developing lighting programs.

Lighting Program - Hens

1. It takes a hen's reproductive system 14 to 19 days to develop, provided sufficient light and weight are attained. Hens are capable of responding to light

when the last juvenile molt is completed between 17 and 20 weeks. However, hens lit prior to 28 weeks of age may tend to lay more cull eggs, have lower hatchability and poorer poult quality. It is recommended to keep the hens in the dark house until lighting at 29-30 weeks.

2. It is recommended to use six hours of light in the dark house for a minimum of ten weeks.
3. **Never decrease light** once the stimulatory phase prior to the onset of egg production has been initiated. During the fall and winter when the natural day is shortening, additional care must be taken to assure the hens are not exposed to shortening day length.
4. Lights should be placed to uniformly spread light and to reduce shadows.
5. The time from when the lights come on until nests are opened should not exceed 4-5 hours.

Suggested Light Schedule for Breeder Hens

Period	Open Housing and Light Controlled Housing	Minimum Intensity
Hatch to 17 weeks	Provide hens with 10 – 14 hours of continuous light. If the natural day length is less than 10 hours, add artificial light.	8-10 foot candle 80 – 100 lux
16-18 weeks to Lighting (29 or 30 weeks)	Reduce the hours of light the hens receive to a maximum of 6 hours a day. The purpose of the darkening period is to control or synchronize sexual development of the hen. During this stage, the hens should be in a lightproof barn so that when the lights are out, the barn is <u>totally</u> dark.	2 – 10 foot candle 20 - 100 lux
Lighting to market	Provide hens with 14 hours of continuous light. If the hens are exposed to natural daylight and the day length is less than 14 hours, add artificial light. If the hens are laying in a solid sidewall barn, give 14 hours of artificial light. The day length should never be decreased during the laying period.	12 foot candle 120 lux

Lighting Programs - Toms

1. Toms are capable of responding to very low light intensities. In addition, there is evidence they can respond to somewhat shorter day lengths than hens. Thus, they can readily respond to morning and evening twilight as well as any light leaking into the barns. It is advisable to eliminate all light leaks.
2. In a healthy, fit tom, it takes approximately six to eight weeks for the testis to develop from a non-stimulated state to its full, active state. For this reason, the tom lighting program should start at least 8-10 weeks before semen is needed. Toms should be in semen production a minimum of two weeks prior to the first insemination to allow sufficient time for two pre-milkings.
3. Once toms have completed their last juvenile molt, gonadal development will occur any time they are exposed to 12 or more hours of light.
4. When implementing a lighting program, the current daylength the toms are exposed to should be considered. For example, if the toms are on more than 12 hours of light and have completed their last juvenile molt prior to commencement of the lighting program, they may already have initiated gonadal development. If the lighting program has fewer hours of light than what the toms are currently on, some toms will respond to the decreased light negatively (i.e., the onset of semen production in these toms will be delayed). Wattle and caruncular development, increased strutting, aggressiveness and gobbling are early signs that toms are responding to light.
5. Once light stimulation has been initiated, **do not decrease the light or intensity.** This will have a negative effect on sexual development and delay the onset of semen production.
6. Lighting patterns in the tom barn should be uniform. The lights should be placed so shadows in the pens are minimized.
7. Control fed toms do better on higher light intensities - 10 foot candles or more. Full fed toms do well on lower light intensities - 2-3 foot candles.
8. Weekly weighing and evaluation of strutting, gobbling and phallus development is an integral part of breeder tom management. If the toms are behind schedule in sexual development, it may be advisable to give them more light and/or feed. Sexual maturity is influenced by both light and body weight. If the toms are full fed and below the target body weight, it will be necessary to keep them on a higher nutrient diet until they catch up to the target weight, then lower the protein level. If the toms are control fed and below the target body weight, the daily feed allotment should be increased.

These recommendations assume the turkeys are fit, of good health and relatively close to our suggested weight curve.

Suggested Light Schedule for *Control Fed Breeder Toms*

Period	Open Housing*	Light Controlled Housing	Minimum Intensity
Hatch to Selection (16-19 weeks)	Ambient Light	10L:14D	8-10 foot candles 80-100 lux
Selection to the end of Production	Ambient + artificial light to maintain at least a 14L:10D daylength or longest natural daylength between selection and the end of production. <u>Lights should not be decreased at any time in daylength or intensity.</u>	A constant 14L:10D** or a gradual increase to a maximum daylength of 16L:8D by the end of production. If the toms appear to be behind in development, lights can be increased by one hour.	10 foot candles 100 lux
** When moving toms from open housing to light controlled housing, the artificial daylength must be equal to or longer than the ambient daylength.			

