

ARTIFICIAL LIGHT TO INCREASE EGG PRODUCTION

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The use of artificial light to increase winter egg production has come to stay, and the quicker we realize the fact and make use of it, just that much sooner will our poultry profits be increased. Of all the recent developments along poultry lines, that of the use of artificial light probably has the greatest potential possibilities. It should be remembered, however, that it is a relatively new field, in which there is a great deal yet to be learned. Its use, where not properly understood and correctly put into practice, is likely to result in disastrous consequences to the poultry flock.

Ohio, because of the type of her agriculture and the fact that the keeping of poultry is as a rule merely a neglected side line, has been slow to accept this practice. However, there are a large number of people in the state who are using artificial light with great success. There are others who have used it without success, because of the lack of a clear understanding of the problem.

A Longer Working Day Pays

It may be well to state at the outset that the use of artificial light in the poultry house during the winter is to induce the hens to eat more feed by making their day longer. It is an established fact that high egg production is impossible without a large consumption of the proper kinds of feed. Consequently, anything the poultryman can do to get his birds to consume more feed will increase the egg production.

It must be borne in mind, however, that proper feeding and management must accompany this forced production. If the egg is considered the manufactured product, it will be evident that the hens must be fed a ration containing the various kinds of feed necessary for use in manufacture. To force production, without feeding a ration of the right kind and in sufficient quantity for producing, would probably result in the hens being thrown into a molt at a time when the demand for fresh eggs exceeds the supply, and thus defeat the sole object of lighting.

It is held by some, that more efficient use is made of the food by birds under lights, yet this is, so far as we know at the present time, an indefinite factor and a point very difficult of proof because of the lack of nutrition experiments with poultry.

When to Begin the Use of Lights

HENS NEED A VACATION.—The majority of lighting should be done on pullets. Hens should be allowed a good rest in the fall and winter in which to molt, recover from the previous laying season, and get their bodies in good condition for the next laying season. Generally speaking, this will have been accomplished by the good hens in two months. During this resting period, special effort should be made to get the hens in good condition. This may be done by feeding a dry mash containing at least 20 percent by weight of meat scraps or tankage and giving the hens an abundance of grain during the molting season, to hasten the storage of a surplus supply of body fat. When this is accomplished, lights can be turned on them with assurance of safety against a molt. However, if the eggs are to be used for hatching, experience has proved that it is advisable to withhold the lights until the latter part of January; particularly is this necessary where the hens have been under lights the previous season, as poor fertility and poor hatches may result if lights are used too soon.

It is a good plan to have the hens that are molting placed in a pen by themselves. They can then be fed separately. Another advantage of the separate pen is that a muslin or burlap curtain can be used over the pen when the lights are turned on.

USE THE LIGHTS ON PULLETS.—For pullets, the lights can be turned on about the first of November. If turned on much earlier than this, a very noticeable slump is likely to occur at any time during the winter because of the heavy fall production. The lights on both hens and pullets should be turned off gradually, beginning about April 1. It is very important that changes of whatever nature with lights be gradual, as an abnormal molt is almost sure to accompany sudden changes.

How Much Light?

The question of the amount of light is of paramount importance, and is one on which there is some disagreement at present. Probably no set amount can be given, for the simple reason that since no two flocks will act the same without lights it is not reasonable to expect that they would react alike with lights.

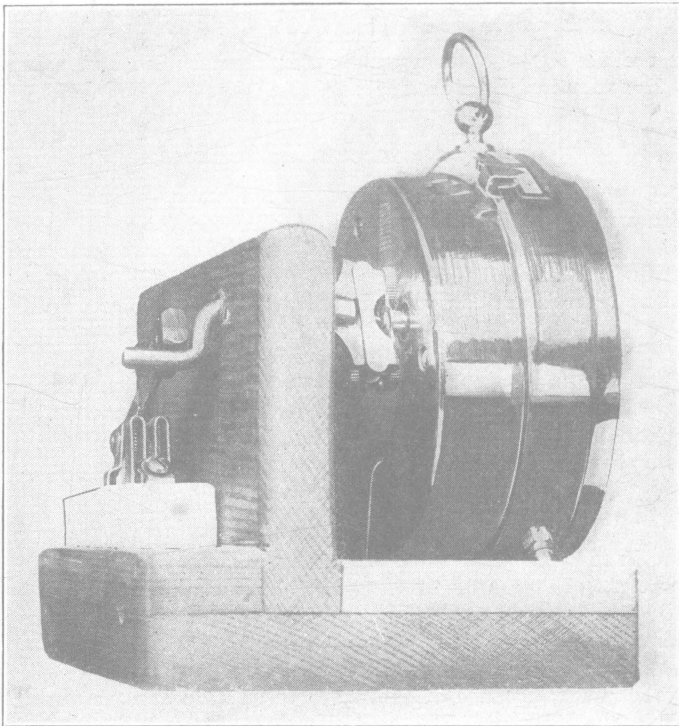
The rate of production is probably the best indication as to the length of time necessary to leave the lights burning. Investigators making experiments, and practical poultrymen who have used lights, seem to agree that about a 50 percent production is as high as ought to be maintained thruout the winter. Some have run higher than this with no bad results, yet this is as high as it is safe to run and still be in the safety zone. The amount of light used should be governed by the rate of production and the time lengthened or shortened accordingly.

PLACING LIGHTS FOR BEST RESULTS.—The lights should be placed 10 feet apart lengthwise of the house, midway between the front of the house and the front of the dropping boards. It is advisable to have the lights dropped to within 5 feet of the floor, using shades 4 inches deep with a diameter of about 15 inches. If this is done, 25-watt lamps are sufficient, as the light is concentrated over the feeding area. If lights are placed near the roof 40- or 50-watt lamps will be needed.

Systems of Lighting, and Feeding Methods for Each System

There are several different systems of lighting in use. Results in production are approximately the same for all systems, so that the deciding factors should be convenience and economy in electric current. Two systems which have special merit in these respects are (1) morning lights and (2) evening lunch.

(1) **MORNING LIGHTS.**—Turn on lights from about 3 or 4 a. m. until daylight. This requires less labor than any other system, and has given splendid results where used. The time switch shown below can be used where this



Home-made time switch. The end of the crank is threaded to receive a $\frac{1}{4}$ -inch wing nut which fits snugly into the slotted winding key of the alarm clock

system is followed. The method of feeding is to put grain in litter evening before; a light grain feeding at noon; normal evening feeding of grain.

(2) **EVENING LUNCH.**—Turn on lights from 8 to 9 in the evening. Feed grain early in morning; light feeding of grain at noon; grain during evening lunch hour. Eliminate normal afternoon grain feeding or make it very light. This system has also given good results. It requires less light, thereby entailing less cost; and allows the birds to go to roost and get up at the normal time.

The other two systems, while giving practically the same results in increased egg production, are less economical, more troublesome, and require some system of dimming the lights.

(3) MORNING AND EVENING.—Turn on lights at 5:30 a. m. until daylight. and again at 4:30 p. m. for about 3 hours. Grain in litter evening before or first thing in morning. Light grain feeding at noon. Grain at night about half hour before lights are turned off.

(4) EVENING ONLY.—The lights are left on all evening, until about 8 p. m. Give normal morning feed. Light grain feed at noon. Heavy grain feed half hour before lights are turned off.

It is very important that a good dry mash be left in front of the birds at all times. A foot of mash hopper space should be available for each 6 hens. *They should be able to consume all they want, and this is impossible unless plenty of hopper space is available.* Ninety-nine percent of the farmers have too little hopper space and this is to a considerable extent responsible for the poor egg production on a large number of farms. See Extension Bulletin, "Feeding Hens for Egg Production," for a full discussion of feeding problems.

The Key to Success With Lighting

GOOD CONDITION OF FLOCK AN ESSENTIAL FACTOR.—Hens that are laying heavily draw on their body reserve to a certain extent even when fed the best of rations. It is a commonly known fact that the body weight of the heavy laying hens decreases as the laying season progresses. When this body reserve is all used up there is nothing further to draw from and consequently the hens molt, rest up, and restore their body reserve for another laying season. Naturally, then, one of the most important points in the entire management of birds under lights is to see that they are in the pink of condition in the fall when the lights are turned on so that they will have the largest possible body reserve from which to draw. The use of too much light must be guarded against, as it will cause a short period of exceptionally heavy production, during which time the reserve will be quickly exhausted, and a cessation of production and very likely a molt will be the result.

EXTRA FEED NEEDED TO KEEP UP BODY WEIGHT.—In order to maintain this body weight of birds under lights it has been found necessary to give them more grain than is given to birds not under lights. Much of the trouble with lights is the result of a failure to take cognizance of this fact.

It is, of course, a difficult matter to recommend any set or definite amounts of feed to be given, because of the characteristic differences in flocks whose requirements are different. The real keen poultryman will always go by the condition and action of his birds, which is the only safe means by which to judge.

However, since so many are not of this type it is advisable to give approximate rules for guidance. It has been found by experiment that about 14 pounds of grain daily for each 100 hens is the correct amount during the winter months. In addition, of course, dry mash is left in open hoppers in *bountiful* supply at all times. Feeding formulas as given in bulletin, "Feeding Hens for Egg Production" should be followed as being best suited for Ohio conditions, all things considered. This bulletin discusses feeding problems in full, and outlines some balanced rations.

Good clean water is absolutely essential at all times, unless milk is given; the birds should never be without an available supply of one or the other. They cannot eat very heavily without water or milk, and unless one is available there will certainly be poor results. The egg is 66 percent water and the hen is 55 percent water, so the importance of this substance can readily be seen.