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Force-Molting of Hens and All-Night Lighting As Factors in Egg Production

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HENS FEEDING UNDER ALL-NIGHT LIGHT

AGRICULTURAL EXPERIMENT STATION
OF THE
ALABAMA POLYTECHNIC INSTITUTE

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FORCE-MOLTING OF HENS* AND ALL-NIGHT LIGHTING AS FACTORS IN EGG PRODUCTION

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(Prepared for publication August 1933)

THE PROFITS from birds two or more years old kept for market egg production are very limited. Most birds take a rest period following the first, or pullet year of egg production. During this period the birds molt and egg production practically ceases. Logically, the period of high egg prices occurs during the molting season.

Various attempts have been made to force an early and more rapid molt and to bring hens into egg production during the period of high egg prices. Rice, *et al.*, (1) concluded from a study of the molting of hens, one, two, and three years old, that it was unprofitable to force a molt because of the attending difficulties resulting from the natural molt which usually follows at a later season. Mairs' (2) investigation prompted the observation that the net results of force-molting (without lights) are unsatisfactory. The results of work on force-molting (without lights) conducted by Ivey and reported by King (3) showed an average return above feed cost of \$2.25 per hen in the force-molted pen of 100 Single Comb White Leghorn hens, as compared to a \$3.00 return in the control pen. The average egg production per bird was 129 eggs in the molted pen and 165 eggs in the control pen.

Several methods of artificially lighting poultry houses as a means of increasing seasonal egg production in pullet flocks are generally practiced by poultry raisers. The work of Kable, Fox, and Lunn (4) showed a winter egg production of 53 to 62 per cent for pullets under lights and 14 to 23 per cent for hens under lights and not force-molted. Lippincott (5) reported artificial lighting less profitable with hens than with pullets. He observed that hens must have time to finish molting and regain their body weight before satisfactory egg production could be secured. Kenard and Chamberlin (6) reported on work in which hens were force-molted and placed under all-night lights. The hens maintained a 50 per cent egg production throughout the winter. The practice of combining the force-molt with artificial lighting was

*The term "hens" as used in this circular refers to female chickens one or more years old.

studied by King (7) at this station during 1930-32 to determine the feasibility of increasing profits from hens by this system of management. The results of this work along with general suggestions on force-molting of hens and the use of all-night lighting for increased egg production are given in this circular.

EXPERIMENTAL

Hens two and three years old, in good condition and carefully selected for uniformity, were used in testing the practice of force-molting and all-night lighting. The birds were divided into two pens. In Pen 1, 150 hens in 1931 and 100 hens in 1932 were managed in the general manner approved by successful poultry raisers, without lights and with no attempt to force-molt. The birds in this pen had a good laying mash before them continuously, were allowed free range on seasonal green feed, were given scratch grain each evening, and in addition received a daily feed consisting of laying mash moistened with a limited amount of water and condensed milk. In Pen 2, there were 242 hens in 1931 and 100 hens in 1932, housed in the same manner as the control group. The hens were force-molted and managed according to the method described later in this circular. The results of these experiments are summarized in Table 1.

TABLE 1.—Influence of Force-Molting of Hens and All-Night Lighting on Egg Production, Fertility, and Bird Mortality.

	1930-31		1931-32	
	No molt No lights	Force-molt Lights	No molt No lights	Force-molt Lights
Duration of experiment	6 months		8 months	
Number of hens per pen	150	242	100	100
Eggs produced per bird	48	62	66	90
Per cent fertile eggs hatched	74.7	69.5	57.3	52.3
Per cent hen mortality	15.3	9.5	18.3	15.0
Value of eggs per bird	\$1.10	\$1.47	\$1.47	\$2.22
Return above feed cost per bird	\$.10	\$.52	\$.72	\$1.25

The results show that the hens force-molted and under all-night lights had a lower mortality, produced more eggs, and gave a larger return above feed cost than the birds in the control pen, which did not receive lights and were allowed to molt normally. Hatchability was slightly lower in the lighted than in the unlighted pens, but this disadvantage was offset by the greater number of eggs laid and available during the early season of incubation. According to these results, poultry raisers who do not have the time or facilities to produce good pullets or who fail to produce enough pullets may be able to supply their winter eggs by using hens properly molted, conditioned, and placed under the influence of all-night lights.

METHOD OF MANAGEMENT

The information and discussion of procedure on force-molting and using all-night lights on hens presented in the following paragraphs are designed to guide those wishing to use this system of management.

Force-Molting the Hens.—When hens are allowed to molt naturally, the period of molt begins in the late summer or early fall and is usually prolonged to an extent that egg production starts too late for the poultry raiser to take advantage of the higher prices of fall eggs. To obtain the greatest number of fall and early winter eggs, the birds should be forced into a molt and be in good condition before the lights are started. Force-molting should be done during the late summer or early fall and may be accomplished by radical changes in the feeding schedule and management of the birds. The laying mash in the hoppers should be replaced with shelled corn, and the birds given a moist fattening mash twice daily. The fattening mash may consist of equal parts of corn meal and laying mash, moistened with water or milk, or a regular fattening mash mixture may be fed. Three pounds, dry weight, of this mixture to each one hundred hens is approximately the proper amount for each feeding. It is advisable to put the birds on free range where plenty of succulent green feed is available; however, if the birds are confined, green feed should be liberally supplied in the house. This system of management should be continued until the hens have molted and are in good body weight, which will embrace a period of from two to four weeks, depending largely upon the physical condition of the birds. Birds having gone through one season of egg production are usually infested with round or tape worms, or both. The molt may be hastened and the body condition improved by treating the hens for worms before attempting to condition them.

Bringing the Hens into Production.—After the hens have been molted they should be confined to the laying house and given a good laying ration to bring them into egg production. They should have access to all of the laying mash they will consume and should receive in addition a limited amount of grain daily. The scratch grain may consist of whole shelled corn or other grain mixtures. Egg production will be hastened if a moist feed, consisting of laying mash mixed with water or milk, is fed daily. The amount of moist mash fed should not be more than the birds will consume in fifteen or twenty minutes. All-night lights should be provided at the same time the birds are confined to the laying house for renewed production, otherwise the birds will not come into egg production and may go into a second molt. The birds should begin to come into egg production in about ten or fifteen days after the lights are turned on.

Method of Lighting.—The purpose of artificial light in a poultry house is to attract the birds from the roosts, stimulate them to activity, and provide enough light for them to find the feed and water. The first requirement is that some light shall fall on the roosts. There is danger in providing too much light, thus preventing the birds from getting their required rest. The lights should be bright enough for the hungry birds to eat, yet dim enough for those that are not hungry to sleep. If electricity is available a ten-watt or fifteen-watt light for approximately one hundred hens is sufficient. This light should be placed about the center of the house where it will shine on the mash hoppers, water vessels, and roosts. Reflectors make the light more efficient and should be approximately four inches in depth by sixteen inches in diameter. The cost of lighting is very small, and should not exceed three cents per bird for the winter months. An increase in production of one egg per bird will normally pay for the additional cost of lighting. If electricity is not available, one kerosene lantern for each 100 hens may be used with good results. Every precaution should be exercised to reduce the fire hazard where lanterns are used. The house should be lighted just before dark, and remain lighted until daylight the next morning. This practice should be continued until about April 1 or until such time in the spring when the reduced price of eggs does not warrant the continuation of this method of management.

Important Points.—At the present time it seems advisable to use this system of management only on hens. The system of using morning lights will perhaps prove more efficient for pullets than all-night lights. Hens two or three years old that are in good physical condition and free from disease are the most profitable under all-night lights. No attempt should be made to force diseased, thin, or wormy birds into production under lights.

If the eggs produced by the hens under all-night lights are to be used for hatching purposes, the birds should be fed codliver oil in the laying mash or allowed to run outside in the sunshine on seasonal green feed after they have been brought into production. Turning the hens out on range may cause a temporary decline in egg production, but production will soon return to normal and continue throughout the breeding season.

When the lights are discontinued in the spring, there may be a slight drop in egg production; however, this is not serious as the price of eggs about the first of April is comparatively low. The hens that molt or go out of production soon after the lights are discontinued should be sold. The remaining birds, if in good condition, may be retained another year.

SUMMARY

(1) Hens force-molted and under all-night lights produced more eggs, had a lower mortality, and gave a larger return above feed cost than the birds which did not receive lights and were allowed to molt normally.

(2) Hatchability was slightly lower in the lighted than in the unlighted pens.

(3) The cost of lighting was approximately three cents per bird for the winter months.

(4) If electricity is not available, kerosene lanterns may be used with good results.

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