



The Effect of Lightings Period on Eggs Production Present and Hatchable Eggs Percent in Broiler-Breeders Flocks

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Abstract

This study was conducted to determine the effects of increasing lighting after peak production on eggs production and Hatchable Eggs in broiler breeder Hubbard F15. In this research we used from 4 growing saloons, that in per saloons were 5250 Hubbards broiler breeder hens. In this Experiment we used by Line design way of GLM for analysed data, that we considered the Effects of two parameters, such as 14 and 16 hours lighting in 4 saloons. The Experiment did during 21 weeks(30-50) after the production peak(29). We study the Effects of lighting , week, lighting*week, day(week), and saloons parameters on eggs production persent and hatchable eggs persent. The Results of this study show us that the lightings effect on eggs production persent was significant ($P<0.05$), and had a little increased in saloons with 16 hours lighting. Forther more it was no significant on hatchable eggs percent ($P>0.05$). The Weeks effect was significant on both parameters, and had a natural performance on eggs production uggest. The Effect of lighting*week Variable and was significant ($P<0.05$) on eggs production uggest and hatchable eggs uggest, And other Variables are significant on these Parameters. This Observations show us tahs the Stability of eggs product was more in 16 hours lighting saloons in this 21 weeks. The results uggested Increasing the light length for 2 hours after peak production canbe effects on eggs production and have improve effect on eggs production stability.

Keywords: The lighting effect, Weeks effect, Eggs production, Hatchable eggs, Production peak

Introduction

Today the most producers follow to finding a new and developed ways that to increased their benefit of their products, and did works with easier methods. Electricitys energy is vitals problem in industrial aviculturs specially for supplied lighting of nurturs saloons. As result of increasing lightings priod after peak production in broiler breeders show us that sensitivity of broiler breeder to light changed with increased their age, and they can responded as increased scale of laying to complex of increases days length after about 40 weekly (Zaghari and Taherkhani 2011). In experiments of Lewis and Perry (1990),

transporting Broiler breeders from slowing lightings program show that the all eggs producted 24 numbers were less than normal position, and The hatchable eggs had 21 numbers decrease to weeks 64 too. Sharps et al (1992) reported that with decreasing Layig hens, as derease the LH hormones density in pelasma and pituitary and decreasing sensitive to GnRH decreased the hens lay. In other place Morris et al (1995), about new mixed race that can layed more than 330 eggs in a 12 months period, Its seem pale we can improve the application of production eggs with lightings program. In fact the results of experiment of these lightings perogerams showed that these lightings programs cannot effect on numbers of eggs producted and numbers of hatchable eggs producted. In observations of Lewis (1996) annual production of eggs in broiler breeder that kepted under fixed photoperiod until hatch time, or after arrived to maturity had only one level photoperiod increased, for every hours increased lighting in per day (to 10 hours), 4 numbers increased, so yhe numbers of hatchable eggs had increased too. Robinson and Renema (1999), in their experiments showed that the top intensity of lighting maybe decreasing the hatchable eggs percent in a specials period. In observation of gous and cherry (2004), pullets of broiler breeders in age more than 21 weeks transport to the length day, the daly result associated to age will compensated by effect of lightings simulation on havier body weight. Lewis and Gous (2006) in their researches show that the broiler breeders acording body weight based Breeders companies recommendations, didn't should simulated befor at least 19 weeks. Robinson et al (2006) in an experiment changed lightings period 8 hours lighting- 16 hours silence to 14 hours lighting- 10 hours silence that did in age 120-160 days, resulted that very soon lightings simulated can decrease the age of maturity so much. Lewis et al (2009) reported that increase or decrease the length of lighting like naturals position (between 10 to 14 hours) and keeping broiler breeder from young age under 14 hours lightind didn't have any influence on their age in fifty percent eggs production time, Despie the birds that received 14 hours lighting per day, finally to age 60 weeks ratio the birds that received natural lighting producted 6 to 10 less eggs.

Materials and Methods

Experimental reatments

A experiment was conducted in four saloon. We using 5250 female and 375 male Hubbard F15 in per saloons. The length of each saloon is 102 m and the with of that is 15 m, with 3.5 m height. Per saloon contained 3 fanjet gasoline's Heater, 10 ventilation fans (140 power), 2 Padcooling with 14 m length and 1.60 m with, 4 Ceiling Airmixer,

Statistical analysis

All data of tests first arranged in Excel software then was analysed by ANOVA using the Line design way of GLM (SAS institute, 1999). And see the summary of analysed in below tables:

Table 1: Variance Analysis of Eggs production percent

Source	DF	F Value	Pr > F
Lighting Ef	1	33.56	< 0.0001
Weeks Ef.	20	197.28	< 0.0001
Lighting&Week Ef.	20	4.00	< 0.0001
Days Ef. (Nest)	127	1.78	< 0.0001
Saloons Ef.	2	3.10	0.04

(Pr< 0.05) Experiment Error

Table 2: Variance Analysis of Hatchable Eggs percent

Source	DF	F Value	Pr > F
Lighting Ef	1	0.33	0.56
Weeks Ef.	20	3.27	< 0.0001
Lighting&Week Ef.	20	1.75	0.02
Days Ef. (Nest)	127	1.66	0.0001
Saloons Ef.	2	1.81	0.16

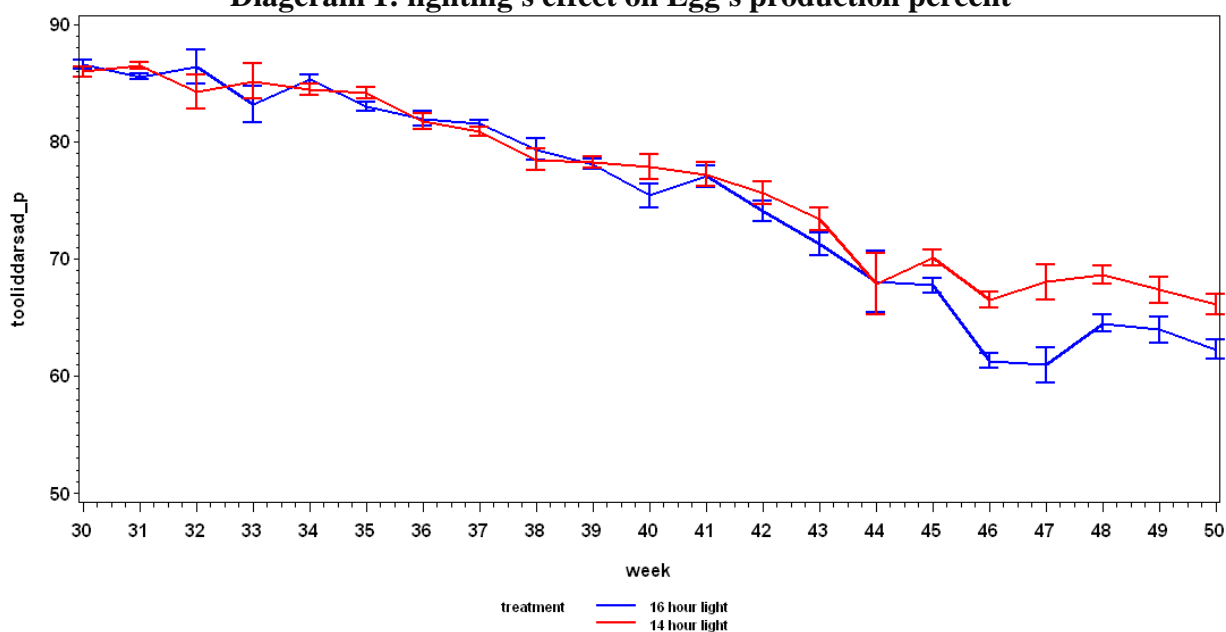
(Pr< 0.05) Experiment Error

Results

Eggs production percent

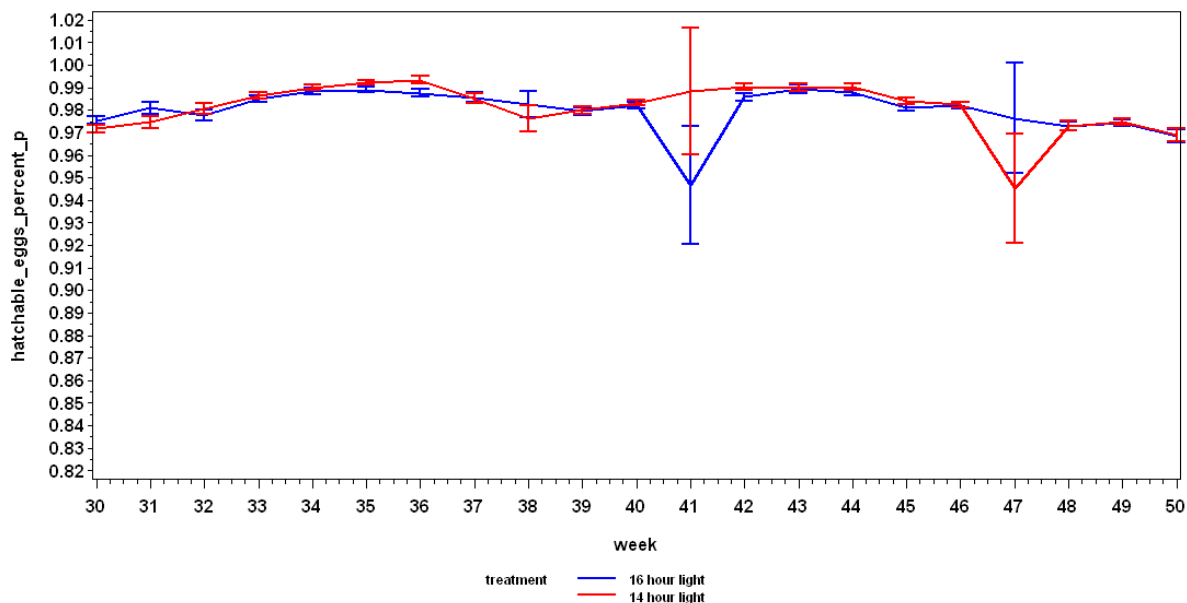
Investigate of results show us that lightings effect on increase eggs production was signifant ($P<0.05$), same see in diageram 1, eggs production in 16 hours lighting saloons (%76.6) partly was more than 14 hours lighting saloons (%75.14). There is an increase of eggs production present in saloons with 16 hours lighting and the effects of week variable, lighting&week, day were significant on this treatment. The week effect after peak production had a reduction procedure. In other hand we faced with reduction of eggs production when the hens age go up. Diageram 1 shows that the most eggs production percent (%86.56) is in saloons with 14 hours lighting in week 30, and the least production (%60.95) is in week 47. In saloons with 16 hours lighting the most eggs production precent (%86.60) is in week 31, and the lest production (%66.15) is in week 50. Both saloons nearly had equal production in week 41 but the important case about this variable is the stability of production in saloons with 16 hours lighting was less slump than saloon with 14 hours lighting, also the effect of saloon in level ($P>0.05$) was no significant.

Diageram 1: lighting's effect on Egg's production percent



Hatchable eggs percent

Investigate of results show us that lightings effect on Hatchable eggs was no significant ($P>0.05$), and the lighting didn't have any effect on Hatchable eggs, same see in diageram 2, hatchable eggs percent in 16 hours lighting saloons (%98.10) nearly was equall with 14 hours lighting saloons (%97.99). Diageram 2 shows that the most hatchable eggs percent is %98.91 in week 43, and in week with 14 hours lighting is 99.34 in week 36. The least hatchable eggs is 94.67 in week 47 in saloons with 14 hours lighting, and in saloons with 16 lighting is 94.52 in week 47. The effect of saloon like lightings effect was no significant ($P>0.05$) on this treatment. But the effects of week. Lighting&week, and day was significant ($P<0.05$) on the hatchable eggs percent. In other hand SAS analysed shows that the week and day effects on this treatment in different saloons had variable turnover.



Discussion

The lighting period is an important problem in broiler breeders production period. As observations show that in saloons with 16 hours lighting, the average of eggs production percent were upper than saloons with 14 hours lighting. So we can result that the lighting effected on eggs production but only this subject cannot be a strong reason that we can increasing eggs production with increased lightings length in broiler breeders. In other hands if eggs production percent in saloon with 16 hours lighting were 1.44 % more than sallons with 14 hours lighting but its possible this difference will be change in continue. Hence increase the length of lighting or in other words decrease the length of lighting by make a simulation of lighting and with inside effects on hormones activities of birds and pituitary and hypotalamous glands, caused this change in eggs production. According to stability of production the saloons with 16 hours lighting we had less fall in this 21 weeks. This subject show the effect of lighting period on stability of production in broiler breeders. By increased the lighting period didn't show any difference in hatchable eggs production. Normally the main reasons effect on eggs production included: the number of birds traps in saloons, the speed of eggs collecting by workers, quality of eggs bed and etc. Offered that lack of increase the days length is useful immediately after primery increase and its better that this increased applied on end of laying period. Its supposed when the chicks simulated by 11-12 hours lighting in per day for receive to maturity, its irrational to wasted more lighting time. The researchers belief is the sensitive if broiler breeders to light changed by growing, and they can response to rate of laying to collection of days length after about 40 weeks.Unfortunately transport the broiler breeders from mild simulators days like 11 hours to 16 hours lighting by increased 15 minutes per week and increased 1 hours per month didn't have any reducer effect and any simulators effect on eggs production. Since the

broiler breeders have seasonal reproduction, it seems that transporting birds to simulators length days caused acceleration the final of reproductions season (Zaghari and Taherkhani 2011). The experiments and researchs about effects of lighting in broiler breeders show that the lighting have direct influence on eggs production and eggs properties. So growing birds caused decrease the LH hormones density in pelasma and pituitary and decrease the sensitive to GnRH too, that totally decreased the laying. It seems 2 hours increase the lighting have a few positive effect on eggs production.

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