Tikrit Journal for Agricultural Sciences (2022) 22 (4):45-53
https://doi.org/10.25130/tjas.22.4.7

IRAQI Academic Scientific Journals
العراقية المجلات الأكاديمية العلمية

ISSN:1813-1646 (Print); 2664-0597 (Online)
Tikrit Journal for Agricultural Sciences
Journal Homepage: http://www.tjas.org
E-mail: tjas@tu.edu.iq

TJAS
Tikrit Journal for Agricultural Sciences

Haitham Rajab Al-Kaisi

Department of Animal Production College of Agriculture - Tikrit University – Iraq

KEY WORDS:

quail females, body weight, egg production, eggs weight

ARTICLE HISTORY:

Received: 30/11/2022

Accepted: 26/12/2022

Available online: 31/12/2022

© 2022 COLLEGE OF AGRICULTURAL, TIKRIT UNIVERSITY. THIS IS AN OPEN ACCESS ARTICLE UNDER THE CC BY LICENSE http://creativecommons.org/licenses/by/4.0/

Tikrit Journal for Agricultural Sciences (TJAS) *Tikrit Journal for Agricultural Sciences (TJAS)*

Comparison of the Production Performance of the third Generation Among four lines Selection on the Basis of Plumage Color in Quail

ABSTRACT

This study aimed to evaluate the productive performance of the third-generation of quails selected according to the color of the plumage to produce a hybrid line distinguished by the productive performance depending on the color of the plumage. 48 females of different plumage (Black, Golden, White and Brown) were compared and transferred at the age of five weeks. To a hall dedicated to breeding containing rooms with dimensions of 40 x 40 x 40 cm and numbered. The females were randomly distributed to the rooms individually and for each line (12 females). The results of the study showed that there were significant ($p \leq 0.05$) differences in the effect of the colour of the plumage selection according to each line (golden, brown, white and black) in the average body weight at the age of five and six weeks, body weight at sexual maturity, weight of eggs produced within 60 days, and the number of days required to produce the first 60 eggs And mass of eggs during 60 days, while there was no significant effect between the plumage colour lines in the trait of average age at sexual maturity, weight of the first egg, number of days needed to produce the first 30 eggs, and number of eggs produced during 60 days. As for the phenotypic correlations, a positive and highly significant phenotypic correlation was found between the traits of body weight at five and six weeks of age and body weight at sexual maturity, as well as between egg weight, body weight at sexual maturity and egg mass.

© 2022 TJAS. College of Agriculture, Tikrit University

INTRODUCTION

Quail is the smallest breed of domesticated bird that is growing in importance for the poultry industry, and they are valuable birds for research and are also used as experimental animals as well as in many selection experiments because of its low breeding costs as it requires small spaces and is related to its small body size (80-300 g). In addition, to its short generation period (3-4) generations per year, early puberty, resistance to disease, and high egg production make it an excellent laboratory bird (Vali, 2008., Jatoi et al., 2013 and Rabie, 2019). The quail bird has been widely used in many genetic, physiological, biomedical and behavioural studies (Huss et al., 2008)

The domestication and breeding of quail have led to many breeds with different plumage colours and patterns (Tavaniello, 2014). According to Nadeau (2006) the color of the plumage is one of the important traits in the success of reproductive success through sexual selection, that is, stimulating the male and female to close and mate with each other and produce new offspring. Quail plumage

colours include ((grey, brown, white, golden (yellow-orange) black and tuxedo)) (Duymus et al., 2013). found that the colour of plumage has a relationship with some productive traits, including body weight (Bed hom et al., 2012).

Plumage color mutations in Japanese quail have not received much attention and this is due to the limited number of stock available in different countries (Baylan, 2017). Moreover, information about growth performance and plumage color mutations is insufficient to evaluate their use in commercial production and therefore an approach can be implemented, The required optimization strategy by conducting a direct comparative study between several strains of Japanese quail (Inci et al., 2015). Also, the selection program affects not only egg production traits but also plumage color and there is a strong possibility that different plumage colors are associated with quantitative traits that must be explored (Delmore et al., 2016). This study aimed to evaluate the productive performance of the third-generation of quails selected according to the color of the plumage to produce a hybrid line distinguished by the productive performance depending on the color of the plumage.

MATERIALS AND METHODS

This study was conducted in the quail farm, Department of Animal Production, College of Agriculture, Tikrit University for the period from 15/12/2019 to 7/4/2020. The third generation was obtained by collecting eggs from the second generation according to the color of plumage for 7 days and stored at 18-20°C and a humidity of 60-65%, the eggs were hatched in Italian incubator vim, After hatching the chicks and according to the color of the plumage, the chicks were raised in four rooms, one for the color of black, golden and white plumage, and another for the color of brown plumage. Each room was (1.5 x 1.5 m) in dimensions and 90 cm high from the floor. The floor was covered with sawdust and gas incubators were used to maintain the temperature of 35°C during the first week, then the temperature was gradually reduced by 2 degrees per week to reach the optimum temperature (Abu El-Ala, 2005). The water and feed for the birds were prepared freely, and the lighting was continuous in the first week, the quails were fed on a diet with a crude protein level of 24% and representative energy of 2976 kilocalories/kg of feed from one day of age to 30 days of age, and then fed on a diet containing 20% crude protein, and representative energy of 2850 kilocalories/kg of feed until the end of the experiment, and according to the information provided by National Research Council (NRC, 1994). The birds were naturalized at the age of 35 days through a secretory gland called the Cloacal gland. This gland is located above the opening of the complex and its size is about 1-1.5 cm^3. One of the traits of this gland is that it is found in the male only and that it secretes foamy substances similar to soap foam, and therefore it is also called the foamy gland. (Foam gland) (Al-Sabil and Al-Badri, 2008) and the females were transferred to a hall dedicated to raising quail, as it contains homemade cages consisting of three floors and divided into rooms with dimensions 40 x 40 x 40 cm and numbered. The birds were randomly distributed among the rooms each individual with 12 females from each line, and then the productive traits of each female were measured according to the color of the plumage.

Data collection

The productive traits of each female were measured according to the color of the plumage and used using a Citizen Fr-H1200 sensitive scale with an accuracy of 0.01 g as follows:

-Average body weight (g) during week five was weighed individually at 35 days of age.

-Average body weight (g) during week six was weighed individually at 42 days of age.

- Average body weight (g) at sexual maturity was weighed individually at the first egg laying of each generation.

-Average age at sexual maturity (day) of the laying of the first egg was adopted as evidence that each female reached the age of sexual maturity (Sultan, 2005).

-Average weight of the first egg (g).

-Average egg weight (g) was weighed the eggs daily during the period is 60 days at one o'clock in the afternoon for each generation. Its average was calculated by the weight of the eggs produced during the experiment period divided by the number of eggs produced according to the equation (Al-Fayyad and Naji, 1989).

$$\text{Average egg weight(g)} = \frac{\text{Weight of total eggs produced during the first 60 days of production}}{\text{Number of eggs produced during the first 60 days of production}}$$

-Number of days needed to produce the first 30 eggs (day) the daily production was collected at one o'clock in the afternoon for each female and according to the number of days needed to produce the first 30 eggs from the start of age at sexual maturity for each female according to (Sultan, 2005).
-Number of days needed to produce the first 30 eggs (day) the daily production was collected at one o'clock in the afternoon for each female and according to the number of days needed to produce the first 60 eggs from the start of age at sexual maturity for each female according to (Sultan, 2005).
-Number of eggs produced (day) the daily production was collected at one o'clock in the afternoon for each female and the number of eggs produced during 60 days from the start of age at sexual maturity for each female was calculated according to (Sultan, 2005).
-Average egg mass (g/bird) the mass of eggs produced was calculated according to (Rose, 1997).
Mass of eggs produced = number of eggs produced during a certain period of time × average egg weight (g).

Statistical analysis

The data were analysed using Complete Randomized Design to study the effect of plumage color for some of the studied traits, and the significant differences between the means were compared using Duncan's polynomial test (Duncan, 1955) and below a significant level (0.05), and the statistical program SAS (2012) was used in the analysis Statistical according to the following mathematical model:

$Y_{ij} = \mu + T_i + e_{ij}$

Since:

Y_{ij} = value of the studied view.
μ = general average of the trait studied
T_i = plumage color effect
e_{ij} = the normally and independently distributed random error with a mean of zero and an equal variance of S^2e.

RESULTS AND DISCUSSION

The results of Table (1) showed that there were significant differences at the level ($p\leq0.05$) between black, golden, white and brown plumage in the mean body weight trait during the fifth week (176.71 and 165.55 g) for brown, golden yellow and white compared to the black plumage color line. On the other hand, the data analyzing the results in Table (1) showed that there were significant ($p\leq0.05$) differences in mean body weight during the sixth week for golden, white and brown (210.64, 210.33 and 191.57 g) compared to black (191.57 g) respectively. Therefore, the results showed that there were significant differences at the level ($p\leq0.05$) between black, golden, white and brown plumage in the trait of average body weight at sexual maturity (189.52, 208.78, 210.05 and 217.73 g) respectively (Table 1). The reason for this is due to the influence of genetic factors in determining body weight (Zayed et al., 2000 and Al-Maeeni et al., 2007). These results agreed with Thornberry (1998), who reported a relationship between plumage color and productive and reproductive traits in Japanese quail. The results of the study agreed with Inci et al. (2015) and Hassan and Abd-Alsattar (2016), as they noticed significant differences in the traits of body weight at the age of five and six weeks in their study on the color of the plumage of Japanese quail.
These results also agreed with Islam et al. (2014) and Eissa et al. (2014) in their study, as they found significant differences in the trait of body weight at sexual maturity between the colors of the plumage of Japanese quail.

While the results of Adam (2017) did not agree with his study on the color of the brown and black plumage of the quail bird, as he did not find any significant differences in the trait of body weight at sexual maturity.

Table 1- Effect of plumage color line on average body weight (g) during week five, six, and average body weight at sexual maturity (g) for female quail (Mean ± SE)

Plumage color line*	Average body weight (g)		
	Week Five	Week Six	Sexual maturity
Black	165.55 ± 4.18 b	191.57 ± 3.48 b	189.52 ± 4.33 b
Golden	182.18 ± 3.83 a	210.33 ± 3.12 a	208.78 ± 2.80 a
White	176.71 ± 4.79 ab	210.64 ± 3.95 a	210.05 ± 2.15 a
Brown	183.32 ± 4.57 a	219.46 ± 3.32 a	217.73 ± 3.53 a
Sign.	*	*	*

*Different lowercase letters within the same column indicate significant differences (p≤ 0.05) between the plumage color line.
*Each line *n*=12 female.

Table (2) showed that there were no significant differences at the level (p>0.05) between black, golden, white and brown plumage in the mean age at sexual maturity and their values were (42.17, 39.58, 41.17 and 40.00) days, respectively. There were no significant differences (p>0.05) between the plumage color lines in the trait of the average weight of the first egg, and their values were (7.58, 8.28, 8.98 and 8.67 g) for each of the black, golden, white and brown plumage, respectively. Therefore, there are significant (p≤0.05) differences between golden, white and brown plumage color lines compared to the black plumage color line in the trait of the average weight of eggs during 60 days, and its values were (11.60, 11.52, 11.57 and 10.34 g) respectively.

The reason for the presence of significant differences in egg weight is due to the existence of a positive and high correlation coefficient between egg weight, live body weight, and body weight at sexual maturity (Ismail, 1997, Attia, 2006, and Al-Tikriti, 2010).

The results of this study agreed with both Al-Tikriti and Al-Nadawi (2017) in their study on the colors of quail plumage, as they did not find any significant differences in the trait of age at sexual maturity and an average weight of the first egg.

While the results did not agree with Eissa et al. (2014), as they found significant differences in the trait of age at sexual maturity and an average weight of the first egg during their study of the colors of quail plumage.

As for the trait of egg weight, the results of the study agreed with Jassem (2011) and both Al-Tikriti and Al-Nadawi (2017) and Walid (2020) during their studies, as they noticed significant differences between the colors of quail plumage.

While it did not agree with each of Hassan and Abd-Alsattar (2016), as they did not find significant differences in the trait of egg weight during their study on the color of the plumage of Japanese quail.

Table 2- Effect of plumage color line on average sexual maturity (day), the average weight of the first egg (g), and an average weight of eggs during 60 days (g) for quail (Mean ± SE)

Plumage color line*	Average age at sexual maturity (days)	Average weight of the first egg (grams)	Average egg weight over 60 days (grams)
Black	42.17 ± 2.88	7.58 ± 0.21	10.34 ± 0.10 b
Golden	39.58 ± 0.61	8.28 ± 0.28	11.60 ± 0.15 a
White	41.17 ± 0.52	8.98 ± 0.60	11.52 ± 0.23 a
Brown	40.00 ± 0.72	8.67 ± 0.61	11.57 ± 0.14 a
Sign.	ns	ns	*

*Different lowercase letters within the same column indicate significant differences (p≤ 0.05) between the plumage color line.

*Each line *n*=12 female.

Table (3) shows that there were no significant differences at the level (p>0.05) between black, golden, white and brown plumage in the trait of the number of days needed to produce the first 30 eggs and their values were (34.92, 34.17, 34.25 and 34.08) days, respectively. In addition, the data showed that there were significant differences at (p≤0.05) in the superiority of the black plumage color line over the golden and brown plumage color line between black, golden, white and brown plumage in the number of days needed to produce the first 60 eggs and their values were (68.42, 67.58 and 66.25 and 65.83) days for black, white, gold and brown plumage line, respectively table (3).

The reason is due to the presence of a negative relationship between the number of eggs and the age at sexual maturity, that is, the earlier the age at sexual maturity, the greater the number of eggs (Tikriti, 2010 and Al-kaisi et al., 2016).

The results of the study agreed with Eissa et al. (2014) in their study on two colors of brown and white quail, as they did not find significant differences in the number of days needed to produce the first 10 eggs, while they noticed significant differences in the number of days required to produce the first 30 eggs, as the color of white plumage was superior to the color of the plumage is brown.

Table 3- Effect of plumage color on the number of days needed to produce the first 30 eggs (day) and number of days needed to produce the first 60 eggs (day) for a quail (Mean ± SE)

Plumage color line*	Number of days needed to produce the first 30 eggs (day)	Number of days needed to produce the first 60 eggs (day)
Black	34.92 ± 0.47	68.42 ± 0.65 a
Golden	34.17 ± 0.30	66.25 ± 0.39 b
White	34.25 ± 0.64	67.58 ± 0.73 ab
Brown	34.08 ± 0.54	65.83 ± 0.56 b
Sign.	ns	*

*Different lowercase letters within the same column indicate significant differences (p≤ 0.05) between the plumage color line.

*Each line *n*=12 female.

The results of Table (4) showed that there were no significant differences (p>0.05) between black, golden, white and brown plumage in the number of eggs produced during 60 days, and their values were (52.83, 53.92, 53.25 and 54.25) days, respectively. There were significant differences (p≤0.05) between the golden, white and brown plumage color line compared to the black plumage color line in the trait of the average mass of eggs during 60 days, and its values reached (625.3942, 613.69, 627.38 and 546.34g) respectively.

The reason for the existence of significant differences in egg mass is due to the existence of a positive and highly significant correlation between egg mass and egg weight (Al-Tikriti, 2010).

The results of the study agreed with Walid (2020) that there was no significant difference between the three stripes (desert, black and white) in terms of the number of eggs during the first 60 days of her study of the different colors of the plumage of the Japanese quail.

As for the traits of the egg mass, this study agreed with both Al-Tikriti and Al-Nadawi (2017), as they found significant differences in the egg mass during the first 100 days between the color of the black and brown plumage in their study on the Japanese quail.

And it did not agree with the results of Walid (2020) in her study on the Japanese quail, she did not find any significant difference between the three stripes (desert, black and white) in the traits of the egg mass during the first 60 days.

Table 4- Effect of plumage color on the number of eggs produced during 60 days (day) and the average mass of eggs during 60 days (g) for quail (Mean ± SE)

Plumage color line*	Number of eggs produced in 60 days (day)	Average egg mass over 60 days (g)
Black	52.83 ± 0.55	546.34 ± 6.69 b
Golden	53.92 ± 0.43	625.39 ± 9.75 a
White	53.25 ± 0.73	613.69 ± 16.04 a
Brown	54.25 ± 0.57	627.38 ± 9.43 a
Sign.	ns	*

*Different lowercase letters within the same column indicate significant differences (p≤ 0.05) between the plumage color line.
*Each line *n*=12 female.

The results of Table (5) indicate that the phenotypic correlations between the trait of body weight at the age of five and six weeks were positive and highly significant (p≤0.01), and the correlation coefficient was estimated at 0.70. Sexual maturity recorded a value of 0.88. These results agreed with Shebl et al. (1996) in their study on Japanese quail. The value of the correlation coefficient between the trait of body weight at six weeks of age and body weight at sexual maturity was 0.16.

The results of Table (5) also showed a positive phenotypic correlation between egg weight and body weight at the age of six weeks on the one hand, and body weight at sexual maturity on the other hand. And these results agreed with Al-Tikriti (2010) in his study on brown quail.

While the correlation coefficient was positive and highly significant between egg weight and egg mass, with a value of 0.90, and these results agreed with Al-Takriti and Al-Nadawi (2017), as they found a positive and highly significant phenotypic correlation in their study on Japanese quail.

While the phenotypic correlation coefficient was negative between the two traits of age at sexual maturity and egg weight on the one hand, and body weight at six weeks of age and body weight at sexual maturity on the other hand, and its values were -0.03, -0.10 and -0.15, respectively, and the results of the two traits of age at sexual maturity and weight were consistent. The body at sexual maturity with Nasser and Abbas (2012) during their studies on quail. We conclude from this that selection to increase one of the two traits leads to an increase in the other trait in the case of positive correlation, but in the case of negative correlation, selection for one of the two traits wool leads to deterioration of the other trait Al-Tikriti (2010).

Table 5- Phenotypic correlations between some studied productive traits of female quail

Traits	Correlation of phenotype
Body weight at five weeks of age and body weight at six weeks of age	0.70 **
Body weight at six weeks and of age and body weight at sexual maturity	0.88 **
Average egg weight and body weight at six	0.42 **
Average egg weight and body weight at sexual maturity	0.49 **
Average Egg weight and average egg mass	0.90 **
Average age at sexual maturity and Number of eggs produced	-0.03

Average age at sexual maturity and body weight at six weeks	-0.10
Average age at sexual maturity and body weight at sexual maturity	-0.15

**Highly significant differences at the probability level ($p \leq 0.01$)
*Significant differences at the level of probability ($p \leq 0.05$)

CONCLUSIONS

1. The selection can be made according to the color of the plumage, as it was observed that the quail with the color of golden, white and brown plumage had a significant superiority compared to the quail with the color of black plumage in terms of body weight, egg weight, egg mass and the number of days required to produce the first 60 eggs.
2. Selection for the trait with a high and positive Phenotypic correlation coefficient means selection will be made automatically for the other trait.

REFERENCES

Adam, Y. E. A. (2017). Genetic Effect on Some Productive and Reproductive Traits of Black and Brown Quails Under Hot Conditions (Doctoral dissertation, Sudan University of Science and Technology).

Al-Fayad, H. A. and Naji, S. A. (1989). Poultry technology. Edition 1 Directorate of Higher Education Printing Press - Baghdad - Iraq.

Al-kaisi, H. R. M, B. T. O. Al-Tikriti and S. S. A. Al-Tikriti (2016). Selection for age at sexual maturity and its relationship to some productive traits in brown Japanese quail. Tikrit University Journal of Agricultural Sciences. 16(2): 146-152.

Al-Maeini, Y. M., N. Al-Hadithi, and F. A. Al-Obaidi (2007). Comparison between brown and white Japanese quail in growth parameters. Iraqi journal of agricultural sciences, 38(5): 68-73.

Al-Sabil, A. A. and Al-Badri, M. A. (2008). Quail production. King Saud University - College of Agriculture - Department of Animal Production.

Al-Tikriti, S. S. A. (2010). Constructing some of selection indices for Coturnix Coturnix Japonica productive Performance and physiological characters. PhD thesis - College of Agriculture - Tikrit University.

Al-Tikriti, S.S., and N.A.A. AL-Nidawi (2017). compared to some of productive performance and phenotypic correlation for two strains of japanese quail bird (black, brown). Al-Furat Journal of Agricultural Sciences / The Second National Scientific Conference for Veterinary Medicine, 1-9.

Attia, Y. M. (2006). Comparison of two strains of Japanese quail (brown and white) in the productive and immunological indicators and the qualitative and chemical traits of eggs. Master's Thesis - College of Agriculture - University of Baghdad.

Baylan, M. (2017). Effects of different selection methods using body weight on egg yield parameters in Japanese Quail. Brazilian Journal of Poultry Science. 19(4): 623-628 .

Bed'hom, B., M. Vaez, J. L. Coville, D. Gourichon, O. Chastel, S. Follett, T. Burke and F. Minvielle (2012). The lavender plumage colour in Japanese quail is associated with a complex mutation in the region of MLPH that is related to differences in growth, feed consumption and body temperature. BMC genomics. 13(1): 1-10 .

Delmore, K. E., D. P. L. Toews, R. R. Germain, G. L. Owens, and D. E. Irwin. (2016). The genetics of seasonal migration and plumage color. Current Biology. 26(16): 2167-2173 .

Duncan, D. B. (1955). Multiple range and multiple F tests. Biometrics, 11(1): 1-42.

Duymuş, M., Y. Demiraslan, Y. Akbulut, G. Orman, K. Aslan, and S. Ozcan (2013). The statistical analysis of some volumetric measurements in the japanese quails' head with different feather color: a computed tomography study. Journal of the Faculty of Veterinary Medicine Kafkas University. 19(4): 681-686 .

Eissa, E. A., G. S. Farahat, B. Y. F. Mahmoud, and E. A. El-Full (2014). Productive performance and molecular genetic characterization of brown and white japanese quail genotypes using rapd and issrs-pcr markers. Egyptian Journal of Genetics and Cytology. 43(1): 73-98.

Hassan, K. H., and A. R. Abd–Alsattar. (2016). Effect of genotype and genotype–environment interaction on productive performance of Japanese quail varieties. American Journal of BioScience. 4(4): 49-52.

Huss, D., G. Poynter, and R. Lansford (2008). Japanese quail (*Coturnix japonica*) as a laboratory animal model. Lab animal. 37(11): 513-519.

Inci, H., B. Sogut, T. Sengul, A. Y. Sengul, and M. R. Taysi (2015). Comparison of fattening performance, carcass characteristics, and egg quality characteristics of Japanese quails with different feather colors. Revista Brasileira de Zootecnia. 44(11): 390-396 .

Islam, M. S., S. Faruque, H. Khatun, and M. N. Islam (2014). Comparative production performances of different types of quail (Coturnix coturnix japonica). The Agriculturists. 12(2): 151-155 .

Ismail, I. H. (1997). Estimation of phenotypic and genetic parameters of some quantitative traits of Iraqi brown chickens. PhD thesis - College of Agriculture - University of Baghdad.

Jassim, A. M. (2011). Effect of genetic group and ration protein level on some productive traits of quail. Master's thesis - College of Agriculture - University of Mosul.

Jatoi, A. S., A. W. Sahota, M. Akram, K. Javed, M. H. Jaspal, J. Hussain, and S. Mehmood (2013) Effect of different body weight categories on the productive performance of four close-bred flocks of Japanese quails (*Coturnix coturnix japonica*). Journal of Animal and Plant Sciences. 23(1): 7-13 .

N.R.C ., National Research Council (1994). Nutrient requirements of Poultry,9th ed . National Academyress ,Washington ,D.C.

Nadeau, N. J. (2006). The evolutionary genetics of sexually selected plumage colour traits in the galliform birds (Doctoral dissertation, University of Cambridge).

Naser, M. A., and A.A. Abbas (2012). Genetic evaluation and estimation of genetic and phenotypic parameters of productive traits in quails. iraqi poultry sciences journal, 7(1).

Rabie, T. S. (2019). Evaluation Of Productive Performance In Two Plumage-Color Types Of Japanese Quail Using Microsatellite Markers. Egyptian Poultry Science Journal. 39(2): 537-551.

Rose, S. P. (1997). Principles of poultry science.

SAS, (2012). SAS/ Stat User's Guide : Statistics Version 6.12 Edition. SAS. Institute Inc., Cary, NC. USA .

Shebl, M.K., M. Bahie El-Deen and M.A.Kosba (1996). selection for 6 weeks body weight in japanese quail - direct and correlated responses Egypt Poultry Science. 16:703-723.

Somes, R. G. (1975). Registry of poultry genetic stocks in North America.

Sultan, M. E. (2005). Poultry heredity and breeding. Osiris Library - 50 Kasr El Nil Street - Cairo.

Tavaniello, S. (2014). Effect of cross-breed of meat and egg line on productive performance and meat quality in Japanese quail (*Coturnix japonica*) from different generations (Doctoral dissertation, University of Molise).

Thornberry, F. D. (1998). Producing quail for home consumption. Texas FARMER Collection.

Vali, N. (2008). The Japanese quail: A review. International journal of poultry science. 7(9): 925-931 .

Walid, R. N. (2020). Effect of the feed form on the productive performance of three strains of Japanese quail. Journal of Agricultural, Environmental and Veterinary Sciences. 4(1): 12-29.

Zayed, A. A. R, M. K. A. Ahmad and N. S. Yahya (2000). Poultry genetics and breeding. Translator book of Omar Al-Mukhtar University of Al-Bayda, Benghazi - Libya.

مقارنة الأداء الإنتاجي للجيل الثالث بين أربعة خطوط منتخبة على أساس لون الريش في طائر السمان

هيثم رجب منهي القيسي

قسم الإنتاج الحيواني – كلية الزراعة – جامعة تكريت – العراق

haithamalkaisi85@tu.edu.iq

الملخص:

هدفت هذه الدراسة لتقييم الأداء الإنتاجي للجيل الثالث والمنتخب حسب لون الريش لطائر السمان لانتاج خط هجين متميز بالاداء الانتاجي اعتماداً على لون الريش، تمت مقارنة 48 انثى مختلفة لون الريش من طائر السمان هي (الاسود و الذهبي و الابيض و البني) وتم نقلها بعمر خمسة اسابيع الى قاعة مخصصة للتربية تحتوي على حجرات بأبعاد 40×40×40 سم ومرقمة ووزعت الاناث عشوائياً على الحجرات بشكل فردي ولكل خط (12 انثى). وأظهرت نتائج الدراسة وجود فروق معنوية ($p\leq0.05$) في تأثير لون الريش المنتخب حسب كل خط (اسود ، ذهبي ، أبيض ، بني) في متوسط وزن الجسم عند عمر 5 و 6 أسابيع، وزن الجسم عند النضج الجنسي، وزن البيض المنتج خلال 60 يومًا، وعدد الأيام المطلوبة لإنتاج أول 60 بيضة وكتلة البيض خلال 60 يومًا، بينما لم يكن هناك تأثير معنوي بين خطوط لون الريش في صفة متوسط العمر عند النضج الجنسي، ووزن اول بيضة، وعدد الأيام اللازمة لإنتاج أول 30 بيضة، وعدد البيض المنتج خلال 60 يومًا. أما بالنسبة للارتباطات المظهرية فقد وجد ارتباط مظهري موجب وعالي المعنوية بين صفات وزن الجسم عند عمر خمسة وستة أسابيع ووزن الجسم عند النضج الجنسي، وكذلك بين وزن البيض ووزن الجسم عند النضج الجنسي وكتلة البيض.

الكلمات المفتاحية : اناث السمان، وزن الجسم، انتاج بيض، وزن البيض، ارتباطات مظهرية