*Assiut J. of Agric. Sci., 42 No.(3) (21-33)*

# Evaluation of Growth Performance of Two Selected Genotypes of Fayoumi Chicks Under Assiut Conditions.

***Amira A. M. Abd El-Wahab, Asad E. M. Abd- El Rahman, Mohamed A. Abdellatif and Hamdy H. Sharara.**

Dept. Animal & Poultry Production., Assiut Univ., Assiut , Egypt.

***Email: pinkpanther_mira@yahoo.com cell phone:0167272979**

**Abstract**

This study was carried out to evaluate the growth performance of selected genotypes of Fayoumi raised under Assiut conditions. Eight hundred and eighty, unsexed, one day old Fayoumi chicks representing three genotypes were used in this experiment. The two genotypes were obtained from Fayoumi chickens selected for high (HBW) and light (LBW) body weight, respectively. Where, the third genotype represented the original population (without selection) as a control group. Chicks were wing banded, kept in floor pens and maintained under the prevailing conditions throughout the experiment time. Feed and water were available *ad libitum*. Body weight (BW) and feed consumption (FC) were measured and recorded monthly. Body weight gain (BWG), relative growth rate (R%) and feed to gain ratio (F:G ratio) were monthly calculated and analyzed.

The results showed that the effect of genotype and sex on (BW) and (BWG) were highly significant ($P \leq 0.01$) from hatch to 16 weeks of age. Body weight of different genotypes during the experiment period (0-16 weeks of age) increased in cubic manner with a positive increase in relation to age. The males relative growth rates in general increased significantly than females, but it decreased with the progress of chicks age. The interactions between genotype and sex for BW, BWG and relative growth rate were not significant. Also, analysis of variance showed no significant effect of genotype on monthly feed consumption (FC) (gram/chick/day) and F: G ratio during the first and second months of age, but it was significant ($P \leq 0.05$) during the third and fourth months of age for (FC) and during fourth month for F: G Ratio. The control group had an efficient in feed conversion during the fourth months of the growing period. The HBW genotype had significant higher BW, BWG and FC than the LBW genotype. It was noticed that, actual body weight of all studied genotypes over all studied ages were in general LBW and HBW chicks could be used in the future breeding programs strategy.

**Received on**: 21/9/2011 **Accepted for publication on**: 9/10/2011

**Referees**: Prof.Dr. Farouk H. Abdo Prof.Dr. Mohamed A. Kosba

(**Key words:** Fayoumi , growth, body weight, feed consumption)

**Introduction**

Evaluation of local breeds is necessary before planning a breeding strategy (Hetzel, 1983a, 1983b).The increased demand for imported commercial hybrid strains from raised a major threat on the future of indigenous chickens which may lead to their total loss. As a result, many efforts were carried out to improve these local strains. El-Hossari, (1970) was able to establish two lines from Fayoumi strains through a selection program, the first one was selected for egg production (PP), while the second strain was selected for fast growth (GG), the original flock was considered as a control and designated (RR). El-Hossari, (1970), Abdel-Rahman, (1999) ,Abdel Magid, (2006) Khalifa, (2007) and Rizkalla, *et al.,* (2007a,b) found a significant difference in body weight between the GG and PP at four and eight weeks of age, where the GG line had significantly higher body weight than the PP lines Furthermore, it was reported by Rizkalla , *et al.* (2007a) that the relative growth rate of GG train was higher than the PP strain. In addition, they found that the relative growth rates for males were higher than that of females in both strains over all studied periods.

The present research was proposed to re-evaluate the performance of the two selected Fayoumi genotypes of chickens under Assiut conditions to compute appropriate curves that describe the relationship between body weight with age in this genotype and to assess the merit of using these genotypes for any future breeding program under the prevailing conditions at Assiut.

**Materials and Methods**

The present study was carried out the Poultry Research Farm, Animal and Poultry Production Dept., Faculty of Agriculture, Assiut University. Chicks used in this experiment were obtained from Fayoum Research Center El-Hossari, (1970) and introduced to the poultry farm in 2006. This study was conducted during the period from December 2008 to March 2009.

**Experimental Birds:**

Two selected Fayoumi genotypes for heavy (HBW) and light (LBW) body weights and the original population, which considered as a control group (which established start by El Hosari, 1958) were raised and maintained to provide chicks required for this experiment. A total number of 880 unsexed day-old chicks representing the three genotypes were used in this study. Chicks hatched from the original group represented the control group (328), while the other two groups represented the heavy body weight (287) and light body weight (265), respectively. Chicks from each genotype were wing banded, randomly divided into two

replicates and brooded in a floor pens. At 8 weeks old, pullets were sub-divided into 4 replicates and were kept till 16 weeks of age. All birds were maintained under the same managerial, hygienic and environmental conditions. In addition, feed and water were available ad libitum during the experimental period (16 weeks).

**Studied Traits:**

**Body Weight (BW):**

was recorded individually to the nearest gram at hatch, .4, 8, 12 and 16 weeks of age, respectively.

**Absolute Body Weight Gain (BWG):** was calculated (gram/chick/day) each 4 weeks intervals from hatch to 16 weeks of age. It was calculated according to the following formula:

BWG = (BW2- BW1) /P.

Where:

BW1 = weight at the beginning of the period.

BW2 = weight at the end of that period.

P = period in days (28 day).

**Relative Growth Rate (R%):**

was calculated according to Lerner and Asmundson, (1932) for the periods of 0-4, 4-8, 8-12, and 12-16 weeks of age, respectively as follows:

R% = [(BW2 - BW1) / (1/2 (BW1 + BW2))] X 100

**Feed Consumption (FC):** was measured and recorded at weekly intervals (grams) then calculated on the basis of gram feed/chick/day in the first 4, 8, 12, and 16 weeks of age.

**Feed to Gain Ratio (F: G Ratio)** : was calculated as (g feed/chick/day per one g gain) for the same experimental periods.

**Statistical Analysis:**

Data of unequal subclass number were analyzed using the General Linear Models Procedure (GLM procedure) (SAS Institute, Version 9.00, 2002) and the differences among genetic groups means were determined using t test at a 5% level of probability. Data of equal subclass number were subjected to analysis of variance using the ANOVA procedure. Differences among treatments means tested by using Duncan's new multiple range test (Duncan, 1955).

Computer program using factorial design as the following model:

$Y_{ijk} = \mu + G_i + S_j + (GS)_{ij} + e_{ijk}$

Where $Y_{ijk}$ = The observed dependent variable, $\mu$ = Overall mean, $G_i$ = Effect of genotype (i=1,2 and 3), $S_j$ = Effect of sex (j=1,2), $(GS)_{ij}$ = The interaction of genotype with sex (ij= 1,....6), and $e_{ijk}$ = The random residual errors.

To compute the appropriate mathematical curves that describe the prediction equations showing the relationship of body weight with age from hatching through 16 weeks of age calculated by using SPSS software computer program (SPSS, Version 15, 2002). The polynomial relationship methods expressed the regression as the

following equations:

$\hat{Y} = a + b_1 x$ or $\hat{Y} = a + b_1 x + b_2 x_2 + \ldots\ldots\ldots\ldots\ldots b_n x_n$

Where X=independent variable; Y = dependent variables.

**Results and Discussion**

**1-Body Weight (BW):**

The results in (Table 1) showed that the effect of genotype on chicks' body weight from hatch to 16 weeks of age was highly significant ($P \leq 0.01$). Heavy body weight (HBW) chicks had the highest body weight, where the lightest one was (LBW) had lighter weights at all ages.

It was noticed that although the previous selection program which carried by El-Hossari (1970) and succeeded in the purpose of increasing body weight, where the HBW (GG) line had significantly higher body weight than the LBW (PP) lines. This increase was cleared in the previous and present study but it is worthily to mentioned that the actual body weight at all studied ages in the present study was lower when compared with previous studies for example body weight at 8 weeks for males and females were 657 and 504 by El-Hossari (1970), 588 and 468 by Rizkalla, *et al.*, (2007a) while it was 453 and 410 under Assuit conditions in the present study.

The effect of sex on body weight (Table 1) was insignificant at hatch but it was highly significant ($P \leq 0.01$) from 4 to 16 weeks of age. Male chicks were heavier than females as mentioned in previous studies (Abd El-warith, 1976; Hataba, 1980; Rizkalla, *et al.*, 2007a). It is obvious that the difference between the two sexs increased as the age progressed. This is in agreement with Ojedapo *et al.* (2008) who pointed out that the age is a major determinant of growth and physiological development.

Differences among HBW chicks and the control group were 3.6, 15.6, 17.0, 8.0 and 8.7% at hatch, 4, 8, 12 and 16 weeks of age, respectively. On the other hand, comparing the light body weight (LBW) chicks with the control it noticed differences of 4.6, 12.0, 1.0, 5.6 and 7.5% at hatch, 4, 8, 12 and 16 weeks of age, where it was clear between the first and the second one ,respectively. The increases , in Fayoumi chicks' body weight had directly Increases proportionaly like that mentioned by El-Sheikh (1989).

No interactions between genotypes and sexes considering body weight at all studied ages.

Body weight of different genotypes during the growth period (0-16 weeks of age) increased in cubic manner (Figure 1) with a positive increase in relation with age. The predicted equations fitted these curves for each genotype shown in (Figure 1). From these equations, it could be possible to predict body weight at any age for any genotype. The curve represented the relationship between age (X) as independent variable and body weight (Y) as

dependent variable. The obtained results indicated that the increase in Fayuomi chick's body weight had a positive increase with the progress of chicks age.

Figure 1. Body weight means for the three genotypes through the growth period (from hatch to 16 weeks of age).

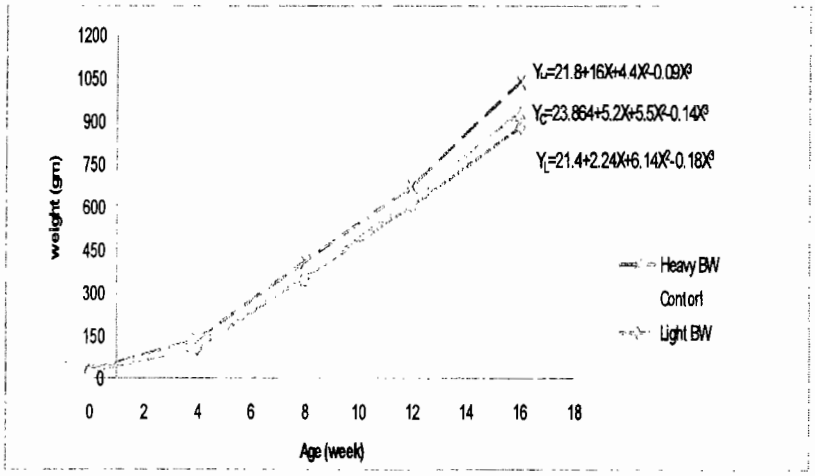


Table1. Means of body weight (grams) at different ages during growth period by genotype, sex and pooled data.

| Source of Variance | At Hatch | 4 Weeks | 8 Weeks | 12 Weeks | 16 Weeks |
|---|---|---|---|---|---|
| **Overall mean ± S.E.** | 25.1±0.1 | 125.6±1.4 | 387.9±3.1 | 701.4±6.0 | 1065.2±8.8 |
| **Genotype** | **[1] | ** | ** | ** | ** |
| **Control (C)** | 25.1[b2] | 123.5[b] | 368.7[b] | 697.4[b] | 1063.0[b] |
| **Heavy BW (HBW)** | 26.0[a] | 142.8[a] | 431.3[a] | 753.0[a] | 1155.7[a] |
| **Light BW (LBW)** | 24.0[c] | 110.3[c] | 365.1[b] | 660.4[c] | 988.7[c] |
| **Sex** | NS | ** | ** | ** | ** |
| **Female (F)** | 25.0 | 119.6[b] | 371.6[b] | 634.5[b] | 948.4[b] |
| **Male (M)** | 25.0 | 131.5[a] | 405.2[a] | 772.6[a] | 1189.8[a] |
| **Interaction (Genotype x Sex)** | NS | NS | NS | NS | NS |
| **C x F** | 25.1 | 118.4 | 351.1 | 625.2 | 929.2 |
| **C x M** | 25.1 | 128.7 | 386.4 | 769.6 | 1196.8 |
| **HBW x F** | 25.9 | 134.2 | 409.5 | 675.2 | 1038.8 |
| **HBW x M** | 26.2 | 151.3 | 453.1 | 830.9 | 1272.7 |
| **LBW x F** | 24.1 | 106.0 | 354.1 | 603.3 | 877.3 |
| **LBW x M** | 23.9 | 114.7 | 376.2 | 717.4 | 1100.1 |

[1]** significant at (P≤0.01).

[2]Means in the same column with no common superscript are significantly different at (P≤0.05).

**2- Absolute Body Weight Gain (BWG):** The monthly absolute body weight gain (gram/chick/day) at

the first, second, third and fourth month of age are presented in (Table 2). The overall mean of monthly BWG showed that the body weight gain increased as the chicks advanced in age, This agrees with El-Sheikh (1989) who estimated BWG in first, second and third month, but BWG of Fayoumi chicks for fourth month decreased. Also the same author estimated Dandarawi BWG which less than Fayoumi. This indicated that this increase existed between the different strains.

At first month of age, body weight gain was 3.6 gram/chick/day then reached 13.0 gram/chick/day at the fourth month of age.

Also, males had higher BWG than females in the first, second, third and fourth month of age, respectively. This result was realistic simply because males are usually heavier than the females especially during the growing period. This is harmony with Enaiat *et al.*, 2010 who found males always higher (BWG) than females during all periods of growth.

Analysis of variance showed that the effect of genotype and sex on BWG were highly significant (P≤0.01) from hatch to 16 weeks of age. In contrast, No interaction between these two factors were found due to the fact that, the male chicks from the HBW genotype had the heaviest BWG, while the female chicks of the LBW genotype had the lowest BWG.

Table 2. Means of absolute body weight gain (g/chick/day) at different ages during growth period by genotypes, sex and pooled data.

| Source of Variance | First month | Second month | Third month | Fourth month |
|---|---|---|---|---|
| **Overall mean± S.E** | 3.6±0.1 | 9.4±0.1 | 11.1±0.2 | 13.0±0.2 |
| **Genotype** | **[1] | ** | ** | ** |
| **Control ( C )** | 3.5[b2] | 8.9[b] | 11.6[a] | 13.1[b] |
| **Heavy BW (HBW)** | 4.2[a] | 10.3[a] | 11.4[a] | 14.3[a] |
| **Light BW (LBW)** | 3.1[c] | 9.1[b] | 10.5[b] | 11.6[c] |
| **Sex** | ** | ** | ** | ** |
| **Female (F)** | 3.4[b] | 9.1[b] | 9.3[b] | 11.2[b] |
| **Male (M)** | 3.8[a] | 9.8[a] | 13.1[a] | 14.8[a] |
| **Interaction (Genotype x Sex)** | NS | NS | NS | NS |
| **C x F** | 3.3 | 8.5 | 9.7 | 10.9 |
| **C x M** | 3.7 | 9.4 | 13.6 | 15.3 |
| **HBW x F** | 3.8 | 9.9 | 9.4 | 12.9 |
| **HBW x M** | 4.5 | 10.8 | 13.4 | 15.8 |
| **LBW x F** | 2.9 | 8.8 | 8.7 | 9.9 |
| **LBW x M** | 3.2 | 9.3 | 12.3 | 13.3 |

[1]** significant at (P≤0.01).

[2]Means in the same column with no common superscript are significantly different at (P≤0.05).

**3- Relative growth rate (R %).**

Generally, the overall mean showed that the relative growth rate (R %) decreased by the increase of chicks age from 1.3, 1.0, 0.6 and 0.4 at the first, second, third and fourth month of growth period, respectively (Table 3). Similar results were mentioned by Rizkalla, *et al.* (2007a) who calculated relative growth rates for the GG (HBW) males and females and noticed that they were faster than the PP (LBW) males and females during the periods (0-4) wks, (4-8) wks and (0-8) wks. . This was due to that GG line was selected for high body weight at eight weeks of age "growth line" while the PP line was selected for high egg number "egg production line". Moreover, the effect of genotype was highly significant in the first, second and third months of growth period but it was not significant in the fourth month. The HBW chicks (Table 3) had the large relative growth rate with a significant difference in the first month, but it decreased by icreasing of chicks age. The relative growth rates (R %) were 1.4, 1.0, 0.53 and 0.42 times in the first, second, third and fourth month of growth period for the HBW chicks. In addition, it was noticed that decreasing in relative growth rate as the age increased was found. This result is in agreement with Younis and Abd El–Ghany (2003) who calculated the average relative growth rate for 4 local strains and found highly significant differences during periods of (0-4), (4-8), and (0-12) wks between these genotypes.

Also, the relative growth rates (R %) of males were generally increased significantly than females, but it decreased by the advance of chicks age. This in full agreement with (Rizkalla; 1996) who found that relative growth rates of Fayoumi males were 160.15 % and 62.83 % while these rates were 159.10 % and 61.48% for Fayoumi females from (0-4) and (4-8) wks, respectively.

The interactions between genotype and sex on relative growth rates (R %) was not significant.

Table 3. Means of relative growth rate (R %) at different ages during growth period by genotype, sex and pooled data.

| Source of Variance | First month | Second month | Third month | Fourth month |
|---|---|---|---|---|
| **Overall mean± S.E** | 129.9±0.7 | 103.0±0.6 | 56.0±0.6 | 41.2±0.5 |
| **Genotype** | ** [1] | ** | ** | NS |
| **Control ( C )** | $129.2^{b2}$ | $101.4^{b}$ | $59.6^{a}$ | $41.9^{a}$ |
| **Heavy BW (HBW)** | $135.8^{a}$ | $100.3^{b}$ | $53.2^{b}$ | $42.0^{a}$ |
| **Light BW (LBW)** | $124.8^{c}$ | $107.5^{a}$ | $55.8^{b}$ | $39.5^{b}$ |
| **Sex** | ** | NS | ** | * |
| **Female (F)** | $127.3^{b}$ | 103.6 | $50.9^{b}$ | $40.0^{b}$ |
| **Male (M)** | $132.5^{a}$ | 102.6 | $61.5^{a}$ | $42.2^{a}$ |
| **Interaction (Genotype x Sex)** | NS | NS | NS | NS |
| **C x F** | 127.0 | 101.3 | 54.4 | 39.8 |
| **C x M** | 131.4 | 101.5 | 64.8 | 44.1 |
| **HBW x F** | 133.1 | 101.2 | 48.3 | 42.1 |
| **HBW x M** | 138.5 | 99.5 | 58.0 | 41.9 |
| **LBW x F** | 121.8 | 108.2 | 49.8 | 38.2 |
| **LBW x M** | 127.7 | 106.7 | 61.8 | 40.8 |

**[1]NS not significant, * significant at (P≤0.05), ** significant at (P≤0.01).**
**[2]Means in the same column with no common superscript are significantly different at (P≤0.05).**

**4- Feed consumption (FC).**

Analysis of variance, weekly and monthly means of feed consumption (gram/chick/day) and differences among treatments means are summarized in Table 4. The overall mean of monthly FC (gram/chick/day) were 8.3, 40.5, 64.2 and 89.4 during the first, second, third and fourth month of age, respectively. Significant increases in daily FC and body weight were also observed by advancing the chick age.

The analysis of variance showed no significant effect of genotype on weekly and monthly FC (gram/chick/day) during the first and second months of age, but the effect of genotype was significant (P≤0.05) during the third and fourth months of age. It was found that HBW genotype significantly (P≤0.05) consumed higher FC (67.6 and 101.5 gram/chick/day during the third and fourth month, respectively) than the control chicks. The increase in heavier genotype feed consumption than lighter ones due to increase their maintenance and growth requirements. In this respect, El-Hossari and Dorgham (1992) and Enaiat *et al.* (2010) reached to the same conclusion. And this was in harmony with the results of BW and BWG.

Moreover, chicks of LBW genotype had lower and non-significant FC than the control and HBW chicks during the third and fourth months of age.

Table 4: Means of weekly or monthly feed consumption (g/chick/day) at different ages during growth period by genotype and pooled data.

| Week | Overall Mean±S.E. | Sig. | Genotype | | |
|---|---|---|---|---|---|
| | | | Control | Heavy BW | Light BW |
| **First** | 3.3±0.1 | *[1] | 3.0[b2] | 3.3[ab] | 3.5[a] |
| **Second** | 6.5±0.2 | NS | 6.0 | 6.5 | 7.0 |
| **Third** | 9.5±0.4 | NS | 9.2 | 10.6 | 8.6 |
| **Fourth** | 14.0±2.1 | NS | 15.7 | 16.7 | 9.5 |
| **First month** | 8.3±0.6 | NS | 8.5 | 9.3 | 7.1 |
| **Fifth** | 29.4±0.8 | NS | 28.5 | 30.7 | 29.1 |
| **Six** | 42.2±1.1 | NS | 41.4 | 43.8 | 41.5 |
| **Seventh** | 44.4±1.2 | NS | 43.2 | 45.8 | 44.2 |
| **Eighth** | 46.0±2.2 | NS | 43.3 | 46.1 | 48.6 |
| **Second month** | 40.5±1.2 | NS | 39.1 | 41.6 | 40.8 |
| **Nine** | 45.0±1.9 | NS | 41.9 | 44.3 | 48.9 |
| **Ten** | 54.9±1.1 | * | 52.4[b] | 58.3[a] | 54.0[ab] |
| **Eleventh** | 75.8±2.1 | NS | 74.9 | 79.0 | 73.6 |
| **Twelfth** | 81.2±2.3 | ** | 73.5[b] | 88.8[a] | 81.1[ab] |
| **Third month** | 64.2±1.2 | * | 60.7[b] | 67.6[a] | 64.4[ab] |
| **Thirteenth** | 83.8±3.2 | * | 74.5[b] | 94.2[a] | 82.6[ab] |
| **Fourteenth** | 82.9±4.5 | * | 71.1[b] | 96.3[a] | 81.5[ab] |
| **Fifteenth** | 90.9±3.4 | * | 81.6[b] | 102.6[a] | 88.4[b] |
| **Sixteenth** | 99.9±3.7 | * | 89.8[b] | 112.9[a] | 97.2[b] |
| **Fourth month** | 89.4±3.7 | * | 79.3[b] | 101.5[a] | 87.4[ab] |

**[1]NS not significant, * significant (P≤0.05).**

**[2]Means in the same row with no common superscript are significantly different at (P≤0.05).**

**5-Feed to Gain Ratio (F: G Ratio).**

Feed to Gain Ratio (F: G Ratio) records are presented in Table 5. The overall means of F: G Ratio were 2.3, 4.3, 5.9 and 7.1 during the first, second, third and fourth month of age. This is in agreement with Younis and Abd El–Ghany (2003) who estimated the average of F: G Ratio during summer for 4 local strains. They found significant differences between these strains in the periods of 0-4, 4-8, 8-12 and 0-12, which were 2.88, 4.03, 5.76

and 4.22, respectively. It noticed that the results of Fayoumi feed: gain ratio that obtained in the present study was less than that who found .

Analysis of variance showed non-significant effect of genotype on F: G Ratio during the first, second and third month of age, but it was significant ($P \leq 0.05$) during the fourth month of age. The control group was the most efficient in feed conversion during the fourth month during the growing period, while LBW group was the lowest efficient feed conversion. The difference between control and HBW group was not significant.

In general, it is worth to mention that the difference in F: G Ratio between the HBW and LBW genotypes was not significant during the first three months of age, In spite of the existence of significant differences in body weight between the two genotypes. This result indicates that the HBW chicks might be more efficient in feed utilization than the chicks of LBW genotype.

In final although the actual body weight of all studied genotypes and at all ages had lower means from 1970 to 2011, HBW chicks could be used in the future breeding strategy.

Table 5. Means of Feed to Gain Ratio (F: G Ratio) for the different genotypes (g feed: g gain) at different ages during growth period by genotype and pooled data.

| Source of Variance | First month | Second month | Third month | Fourth month |
|---|---|---|---|---|
| **Overall mean± S.E** | 2.3±0.1 | 4.3±0.2 | 5.9±0.2 | 7.1±0.3 |
| **Genotype** | NS[1] | NS | NS | * |
| **Control ( C )** | 2.4 | 4.3 | 5.4 | $6.1^{b2}$ |
| **Heavy BW (HBW)** | 2.3 | 4.0 | 6.1 | $7.2^{ab}$ |
| **Light BW (LBW)** | 2.3 | 4.5 | 6.1 | $7.9^{a}$ |

**[1]NS not significant, * significant at ($P \leq 0.05$).**

**[2]Means in the same column with no common superscript are significantly different at ($P \leq 0.05$).**

## References

Abdel Magid M. H. (2006). Inheriterance of certain plasma constituents and their association with some productive traits in two strains of Fayoumi hens. M.sc. Thesis., Fac. Agric., Fayoum, Univ.

Abdel-Rahman H. A. H. (1999). Estimation of some phenotypic parameters for growth and productive traits in two lines of Fayoumi chickens. M. Sc. Thesis, Fac. Agric., Fayoum, Cairo Univ., Egypt.

Abd El-Warith, A.1976. Selection for egg production based on brothers characters. M.Sc. Thesis, Fac. Agric., Ain Shams Univ.

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

El- Hossari, M. A., 1958. Productive and breed characteristics of Fayoumi chicken. Ministry of Agriculture, Technical Bulletin 292, Vsito (in Arabic).

El-Hossari, M. A.1970: Effects of Natural Selection on selection for high body weight at 8 genetic and phenotypic variation in two strains of Fayoumi chickens. U.A.R., J. Anim. Prod.10 : 55-63 .

El-Hossary, M.A. and S.A. Dorgham. 1992. Economic evaluation of local chicken crosses under control environmental houses. Egypt. Poult. Sci., 12: 843- 866.

El-Sheikh, T. M. 1989. Effect of light and protein level on some productive traits in Dandarawi and fayoumi chickens. M. Sc. Thesis, Fac. Agric., Assiut Univ., Egypt.

Enaiat, M.M. El-Anwer, Amina, A. Salem and Eman M. Abou-Eitta. 2010. A comparative study of productive and physiological performance between two local strains of chicks. Egypt. Poult. Sci. 30: 297-316.

Hataba, N.A. 1980. Heterosis within Fayoumi chickens. M.Sc. Thesis, Fac. Agric., Ain Shams Univ.

Hetzel, D.T.S. 1983a. The growth and carcass characteristics of crosses between Alabio and Tegal ducks, and Muscovy and Pekin drakes.Brit. Poult. Sci. 24:555-563.

Hetzel, D.T.S. 1983b. The egg production of intensively managed Alabio and Tegal ducks and their reciprocal crosses. World Rev. Ani. Prod. 19:41-46.

Khalifa H. A. A. 2007. Effectiveness of indirect selection for some productive traits using shorter eight-week shank length in Fayoumi chickens. Ph. D. Thesis., Fac. Agric., Fayoum, Univ.

Lerner, I.H., and V.S. Asmunsdon. 1932. Inheritance of rate of growth in domestic fowl. Sci. Agric. 12: 652.

Ojedapo, L.O. ,O. Akinokun, T.A.Adedeji, T.B. Olayeni, SA Ameen, A.O. Ige and S.R. Amao. 2008. Evaluation of growth traits and short-term laying performance of three different strains of chicken in the derived savannah zone of Nigeria. Int. J. Poult. Sci., 7:92-96.

Rizkalla, H. E. 1996. Evaluation of some local breeds for the physiologicc characteristics related to productive efficiency. Ph. D. Thesis, Fac. Agric., Zagazig Univ. (Benha Branch).

Rizkalla, H. E.; M. I. Amer and S. A. Dorgham. 2007a. Natural molting in Fayoumi fowl :1- A study of feathiring and its relationship to body weight in two lines of Fayoumi fowl. Egypt Poult. Sci. 27: 1113-1129.

Rizkalla, H. E.; M. I. Amer and S. A. Dorgham 2007b. Natural molting in the Fayoumi fowl :2- A comparative study of two lines of Fayoumi females feathiring and its relationship with egg production traits . Egypt Poult. Sci. 27: 1131-1149.

SAS Institute. 2002. SAS® User's Guide: Statistics Version 9, SAS Institute Inc., Cary, NC, USA.

SPSS Statistics. 2010. SPSS Users Guide Statistics. Version 17.0. Copyright SPSS Inc., USA.

Younis, H.H. and F. A. Abd El–Ghany. 2003. Productive and reproductive performance of four local chicken strains during winter and summer seasons. Egypt. Poult. Sci., 23:893 – 910.

*Assiut J. of Agric. Sci., 42 No.(3) (21-33)*

# تقييم أداء النمو لأثنين من التراكيب الوراثية المنتخبة لكتاكيت الفيومى تحت ظروف أسيوط.

**أميرة أحمد محمد عبد الوهاب، أسعد السيد محمد عبد الرحمن، محمد أبو القاسم عبد اللطيف، حمدى حسين شراره**

قسم الإنتاج الحيوانى والدواجن – كلية الزراعة – جامعة أسيوط

**الملخص العربى**

هذه الدراسة تم إجراؤها لتقييم أداء النمو لتركيبين وراثيين منتخبين للفيومى مرباه تحت ظروف اسيوط . فى هذه التجربة تم استخدام 880 كتكوت فيومى غير مجنس تمثل 3 تراكيب وراثية لسلالتان منتخبتان من الدجاج الفيومى لوزن الجسم العالى و المنخفض. بينما التركيب الوراثى الثالث يمثل العشيرة الأصلية (بدون انتخاب) والتى تعتبر المجموعة الكنترول. تم ترقيم الجناح للكتاكيت ووضعها فى حظائر أرضية تحت الظروف السائدة طوال فترة التجربة. وتم تقديم الغذاء والماء على الطريقة الحرة. تم قياس وتسجيل وزن الجسم والعلف المستهلك شهريا. تم حساب وتحليل الزيادة فى وزن الجسم ، معدل النمو و كمية العلف المستهلك مقابل الزيادة فى الوزن شهريا.

أوضحت النتائج ان تأثير التركيب الوراثى و الجنس على وزن الجسم والزيادة فى وزن الجسم كان عالى المعنوية من الفقس وحتى عمر 16 أسبوع. وزن الجسم لمختلف التراكيب الوراثية كان يزداد طرديا فى علاقته مع وزن الجسم بصورة متعرجة. وعامة فان معدل النمو فى الذكور ازداد معنويا عن الاناث لكن كان ينخفض مع التقدم فى العمر. التداخل بين التركيب الوراثى و الجنس لكلا من وزن الجسم والزيادة فى وزن الجسم كان غير معنوى. كما أظهر تحليل التباين عدم وجود تاثير معنوى للتركيب الوراثى على الاستهلاك الشهرى للعلف (جم/ كتكوت/اليوم) وكمية العلف المستهلك مقابل الزيادة فى الوزن خلال الشهر الاول والثانى ولكن كان معنويا للعلف المستهلك خلال الشهر الثالث والرابع من العمر وللعلف المستهلك مقابل الزيادة فى الوزن خلال الشهر الرابع. المجموعة الكنترول كانت الاكثر كفاءة غذائية خلال الاربع شهور لفترة النمو. التركيب الوراثى الثقيل فى الوزن كان اعلى معنويا فى وزن الجسم و الزيادة فى وزن الجسم و العلف المستهلك عن التركيب الوراثى المنخفض فى الجسم. من الملاحظ ان الوزن للثلاث تراكيب الوراثية خلال الأعمار موضع الدراسة كان اقل من المسجل فى الأبحاث من عام 1970الى 2011 . التركيب الوراثى الاثقل وزنا يمكن استخدامه فى استراتيجيات برامج التربية