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EFFECT OF SELECTION FOR HIGH LIVE BODY WEIGHT ON SLAUGHTER PERFORMANCE OF BROILER BREEDERS

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ABSTRACT: The performance of the Cairo B-2 line was evaluated after eight generations of selection for increasing six week live body weight (LBW) compared with a Random Bred Control (RBC) line. Three thousand chicks, from the ninth generation, from both lines were raised in the same house until 6 weeks of age. Water and feed were provided ad libitum. Light was provided 24 hours per day. LBW at 0, 2, 4, and 6 weeks of age were determined for the Cairo B-2 and RBC lines. At 6 week of age 30 males and 30 females from each line were slaughtered to determined carcass characteristics. Our results indicated that, Cairo B-2 line weighed 35% more than the RBC in the ninth generation. The difference in LBW between the Cairo B-2 and RBC lines was 396 g at 6 weeks of age. In addition, the Cairo B-2 line had significantly higher carcass, breast meat, leg meat, abdominal fat weight and percentages than the RBC line. However, the RBC line had significantly higher wings with bones percentages than the Cairo B-2 line. Also, Cairo B-2 line had significantly longer shanks and keels than the RBC line. On the other hand, the RBC line had significantly higher edible giblets percentages than Cairo the B-2 line. It was concluded that, selection for increasing 6-week LBW, in chicken, caused concurrent increases in carcass parts percentages and decreases in edible giblets percentages. Also, continuous selection for increasing 6-week LBW, in Cairo B-2 line, caused improvement in its performance from one generation to the next.

Key Words: Broiler breeder, Body weight, Selection, Carcass parts, Abdominal Fat.

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INTRODUCTION

Body weight of birds is one of the most important traits that breeders consider for their genetic improvement program. This is due to a number of reasons. First, body weight is easily measured. Second, it can be correlated with a number of other meat performance traits. However, the genetic background of body weight is complex. Body weight may be determined by direct genetic and maternal effects (Le Bihan-Duval et al., 2001; Velleman et al., 2003) as well as environmental factors.

Live Body weight (LBW) and carcass traits were under intensive selection for more than half a century. They are considered as the most important economic traits in broiler breeding programs. Progress in rapid growth has been accompanied by an increase in abdominal fat deposition in broilers (Crossley and Altimiras, 2012 and Baéza et al., 2012). It is considered as the most important economic trait in broiler breeding programs. Progress in rapid growth has been accompanied by an increase in abdominal fat deposition in broilers (Howie et al., 2011).

Live Body weight directly influences the proportion of other traits associated with the carcass. Also there is significant positive regression coefficient between live body weight and body measurements in chickens (Olawumi, 2013). McElory et al. (2006) reported that breast meat is the most economically valuable part of a broiler chicken. Increasing breast meat percentage makes a broiler, gram for gram, a more valuable animal. Breast muscles have been given particular attention (Gous et al., 1999; Scheuermann et al., 2003) because they are the most important carcass parts from an economic standpoint. Although prediction of breast muscles yield is of primary importance in commercial marketing, the ability to predict the weight of all carcass parts is needed to optimize production and processing decisions (Zuidhof, 2005).

Nassar et al., (2012) started a selection improvement program at the Poultry Farm, Animal Production Department, Faculty of Agriculture, Cairo University, Giza, Egypt, to develop the Cairo B-2 line as a local broiler female line. The phenotypic selection of this line was based on the individual's 6-week body weight. The highest body weight males and females were selected as parents of the next generation. However, for the females an independent culling level for egg production, until 36 weeks of age, was also applied. Females that didn't produce at least 50 eggs during this period were not chosen as parents for the next generation, regardless of their 6-week body weight. Live body weight of Cairo B-2 line, which have been subjected to intensive selection for six generations, were compared with the RBC line at the age of six weeks. The results indicate that, the Cairo B-2 line males and females exhibited significantly higher live body weight compared with the RBC males and females.

The objective of the current study was to determine the effects of selection for Nine generations for increasing 6-week body weight on the live body weight and slaughter performance of Cairo B-2 line in comparison with the RBC line.

MATERIALS AND METHODS

1. **Experimental populations and management:**

In this experiment, Cairo B-2 line selected males and females, from the eighth selected generation, were mated to produce the ninth generation (S9). Also, males and females from the eighth generation RBC line were mated to produce the RBC chicks. About two thousand Cairo B-2 and one thousand RBC pedigreed chicks' were wing banded and sexed at hatch, using the vent method. All chicks were reared intermingled, 10 birds/m^2, in an open house, deep litter system.

Birds were provided with a commercial broiler starter (23% CP and 3,050 kcal ME/kg) and a broiler grower (21% CP and 3,100 kcal ME/kg) diets from 1 to 14 days and from 15 days to 6 weeks of age respectively. Water and feed were provided ad libitum form hatch until 6 weeks of age, Light was provided 24 hours per day.

Chicks were vaccinated against Newcastle disease at 7 days (Hitchner, eye drop) at 10 days (inactivated S/C injection) and at 21 days (La Sota, eye drop). Chicks were also vaccinated against infectious bursal disease at 14 and 24 days (eye drop). Chicks were vaccinated against avian influenza virus by using (S/C) injection of H_5N_2 inactivated vaccine at one week of age.

2. Experimental measurements:

In this study, live body weights (LBW) at hatch, 14, 28, 42 days were obtained individually by using a digital scale for all birds. Slaughter traits were obtained

at 6 weeks of age. Fifteen males and 15 females, from each of the Cairo B-2 and the RBC lines, were chosen at random. Bird were weighted (LBW) and slaughtered after 8 hours of fasting (Papa, 1991). Birds were slaughtered by slitting the throat, cutting the carotid arteries, jugular veins, esophagus and trachea without severing the head (Sams, 2001). After slaughtering each bird was hanged in a bleeding funnel for 3 minutes and weighted again to obtain the blood weight. Birds were then scalded in a 68^{O} C water bath for 30 seconds, and then the feathers were removed by an automatic circular feather plucker. The birds were then weighted again to get the feathers weight. The shanks and head (without neck) were then removed and the birds where eviscerated and chilled. Each empty chilled carcass was weighted to obtain the dressed weight. Dressing percentages were expressed as the percentage of dressed weight to LBW. The wings, with, bones, were then removed from the front parts and weighted. Also, the skinless pictoralis major and minor muscles were removed to obtain breast muscles weight. The bones from the thighs and drumsticks were removed then the skinless leg muscles were weighted as leg meat. The liver, heart and gizzard (empty) and abdominal fat were weighted. All previous muscles and organs were also calculated as percentages of LBW.

3. Statistical analysis:

Data were analyzed as a two-way analysis of variance using the SAS software, general linear model (SAS Institute, 2008). The main effects were line and sex. The following model was used:

$Y_{ijk} = \mu + L_i + S_j + LS_{ij} + e_{ijk}$

Where:

Y_{ijk}: The k^{th} observation of the j^{th} sex within the i^{th} line.

μ: The overall mean.

L_i: The effect of the i^{th} line.

S_j: The effect of the j^{th} sex

LS_{ij}: The interaction between the i^{th} line and the j^{th} sex

E_{ijk}: Random error.

All data are reported as least square means (LSM) ± standard errors (SE). Mean values were separated, when significance existed, using Duncan's multiple range test (Duncan's, 1955). Significance level was set at 5%.

RESULTS AND DISCUSSION

1- Cairo B-2 and RBC lines live body weight from hatch until 42 days of age:

After eight generations of selection, the Cairo B-2 line had significantly higher LBW, as straight run, at hatch, 14, 28, and 42 days of age in comparison to the RBC line. The average LBW of Cairo B-2 and RBC lines by generation at 6 weeks of age were 1121g vs. 725g respectively (Table 1). Nassar, (2013), reported that 6 weeks live body weight of the Cairo B-2 and the RBC lines were 1085 vs. 700 g respectively, in the seventh generation. The difference between these lines was 385 g after six generations of selection for high LBW at 6 weeks of age. In the present results the differences between Cairo B-2 and RBC lines were 396 g after eight generations of selection for high LBW at 6 weeks of age.

Joseph et al. (2005), Schmidt et al. (2006) and Nassar (2013) reported that selection for increased LBW in broiler breeders includes maternal effects which have positive association with the LBW of its progenies after hatch. Our data indicated that, Cairo B-2 line had significant increases in its LBW for all ages studied in the nineth generation in comparison to the RBC line. This is due to selection for increased LBW at 6 weeks of age in the Cairo B-2 line from one generation to the next. These results are in agreement with the results previously reported by Joseph et al. (2005) and Schmidt et al. (2006). Tixier-Boichard et al. (2012) and Nassar, (2013), stated that continuous intensive selection, with focus on minimal marketable age, causes rapid progress, with mass selection, for a trait with moderately high heritability, based on early measurement of LBW. Continuous intensive selection, with focus on 6-week LBW, in Cairo B-2 line resulted in increased LBW at 6 weeks of age, from one generation to the next.

2- **Live body weight, carcass, breast meat, leg meat and wings with bones weight at 6 weeks of age:**

Our results, from the slaughter trial, indicated that Cairo B-2 line had significantly higher LBW and carcass, breast meat, leg meat, and wings with bones weights than the RBC line at 6 weeks of age (Table 2). As expected, the males, of both lines, had significantly higher carcass weight, breast meat, leg meat, and wings with bones weights compared with the females.

These results also indicate that, LBW of Cairo B-2 line, at 6 weeks of age, was significantly improved due to the intensive selection that had been done for eight generations. These results are in agreement with the results previously reported by Kestin et al. (1999) and Nassar et al. (2012). Also, these results are in agreement with Nassar et al. (2012). They reported significant genetic improvement of six weeks live body and carcass weights of Cairo B-2 line, after six generation of selection over the RBC line. The Cairo B-2 line had higher body weight, breast meat, and carcass parts than the control line. Similar results were also reported by Schmidt et al. (2006), Henderson et al. (2009) and Ali et al. (2010)

3- **Live body weight, carcass, breast meat, leg meat and wings with bones percentages at 6 weeks of age:**

Our results also indicated that Cairo B-2 line had significantly higher carcass, breast meat, and leg meat percentages than the RBC line at 6 weeks of age (Table 3). However, the RBC line had significantly higher wings with bone percentage compared with the Cairo B-2 line at 6 weeks of age (Table 3). Our results also indicated that, the Cairo B-2 line males had higher carcass, breast meat, and leg meat percentages compared to the males of the RBC line at 6 weeks of age. However, the females had significantly higher wings with bones percentages than the males (Table 3). Similar trends were observed in the Cairo B-2 line females compared with the females of the RBC line at 6 weeks of age. However, the RBC females had significantly higher wing with bone percentages (Table 3).

Orr et al. (1984) reported that the dressing percentages, of eight commercial broiler lines, ranged from 69.9 to 71.5% with body weights from 1935 to 2133 g at 49 days of age. In the current study the dressing percentages was 60.7 for the RBC line and 68.5 for the Cairo B -2 line. This indicates a significant improvement of the selected Cairo B-2 line in comparison with the RBC line (Table3).

Breast and leg meat percentages were also significantly higher for the Cairo B-2 line than the RBC line (Table 3). However, the Wings (with bones) percentages were significantly higher in the RBC line than the Cairo B-2 line. This would indicate that the increase in the wings weight, due to selection for high 6-week body weight did not match the increase in the overall carcass weight (Table 2). Thus, as a percentage, the selected Cairo B-2 line had lower wing percentage than the unselected RBC line.

The keel and shank lengths of the Cairo B-2 line were significantly longer than those of the RBC line (Table 3). These associations between the keel and shank lengths and the LBW, carcass weights and other carcass parts are evident from the significant correlation between them (Table 6). These results are in agreement with the results reported by Bochno et al. (2000).

The Cairo B-2 line had significantly longer keels and shanks compared to the RBC line at 6 weeks of age. Also the Cairo B-2 and RBC males had significantly longer keels and shanks than their corresponding females (Table 3).

The major effect of selection to produce the Cairo B-2 line has been the increase in the overall muscle mass of the chickens (Tables 2 & 3). This is particularly evident in the breast and leg muscles. The heavier body weight of Cairo B-2 line is mainly due to higher relative breast and leg meat yield. Heavier birds produced greater breast portions. These results are in agreement with the results previously reported by Goliomytis et al. (2003), Schmidt et al. (2009), Sandercock et al. (2009), and Nassar et al. (2012).

For all studied traits, males from both the Cairo B-2 and RBC lines had higher body, carcass, breast meat, leg meat and wings (with bones) weights than females, indicating, as expected, the presence of sexual dimorphism. These results are in agreement with the results previously reported by Mignon-Grasteau et al. (2000).

In general, shank length provided the most accurate measure of growth potential when compared with the predictive value of chick weight. Also, shank length is correlated more strongly with body weight (Table 6). Our results are in agreement with the results reported by Wolanski et al. (2006) and Nassar (2008). In the current study the longer keels of the Cairo B-2 line were associated with higher breast meat weights and percentages (Table 6). These results are also in agreement with the results previously reported by Bochno et al. (2000) and Nassar (2008).

4- Liver, heart, gizzard, giblet and abdominal fat weights:

Our results indicated that Cairo B-2 line had significantly higher liver, heart, gizzard, giblet and abdominal fat weights than the RBC line at 6 weeks of age (Table 4). Moreover, Cairo B-2 male line had significantly the highest liver, heart, gizzard, giblets and abdominal fat weights than the Cairo B-2 females or the RBC, males or females, lines at 6 weeks of age (Table 4).

5- Liver, heart, gizzard, giblet and abdominal fat percentages:

The RBC line had significantly higher liver, heart, gizzard and giblets percentages than the Cairo B-2 line at 6 weeks of age (Table 5). However, the Cairo B-2 line has significantly higher abdominal fat percentages compared with the RBC line at 6 weeks of age (Table 5). The RBC females had significantly high liver, heart, gizzard, and giblet percentages compared to most other males or most of the Cairo B-2 females (Table 5).

In general, the observed changes in the internal organs were associated with the body weights of both lines. Selection for increased body weight induced changes in the sizes of various organs. These results are in agreement with the results reported by Rance et al. (2002). When Cairo B-2 line carcass weights increased, the percentages of liver, gizzard, and heart were reduced. These results were in agreement with the results previously reported by Brake et al. (1993). Selection for higher protein deposition in broilers could cause a decrease in internal organs size. These modifications in organ size should be considered in breeding programs. These results are also in agreement with the results of Gaya et al. (2006). The abdominal fat percentages for Cairo B-2 line were significantly higher than those of the RBC line. This could be due to selecting the Cairo B-2 line for increased LBW and its association with the increase in fat pad percentage (Zerehdaran et al., 2004).

Our results indicated that, the phenotypic correlations between all the studied traits were positive and very high (Tables 6). The phenotypic correlations, between all traits studied, in the Cairo B-2 line (above the diagonal) were higher than most of their corresponding values in the RBC line (blow the diagonal Tables 6). Phenotypic correlations were calculated first for each sex, separately, within lines. However, the results were similar to the combined sex's calculations. Thus, only the combined sex's results were reported.

CONCLUSION

It can concluded that selection to increase 6-week body weight, in the Cairo B-2 line, resulted in concurrent increases in muscles weight and percentages, and decreased offal yields. Also, since there where high positive correlations between chicken fasted live body weights and carcass parts weights, this indicates that direct selection for live body weight at 6 weeks of age produced indirect gains for carcass, breast muscles, and leg muscles weights. Our results also, indicated significant improvements in live body weights of Cairo B-2 line from one generation to the next. Thus, if these improvements, in live body weight, of Cairo B-2 line would continue, at the same rate, we can expect that after several generations of selection, Cairo B-2 will be a promising local Egyptian female broiler line with very good commercial performance.

Table (1): Least Square Means and SE of Live body weight (g) at different ages of the 9th generation of both Cairo B-2 and the RBC lines.

Trait / S.O.V	Age			
	Hatch	**14**	**28**	**42**
Line				
Cairo B-2	40.0[a]	281[a]	571[a]	1121[a]
RBC	37.4[b]	160[b]	381[b]	725[b]
SE	0.12	1.48	2.09	4.39
Sex				
Male	39[a]	222[a]	494[a]	951[a]
Female	38.5 [a]	216[b]	444[b]	830[b]
SE	0.19	1.89	3.93	6.22
Line*Sex				
Cairo B-2 ♂	40.6[a]	283 [a]	589[a]	1138[a]
Cairo B-2 ♀	39.8[a]	275[b]	520[b]	986[b]
RBC ♂	37.3[b]	161[c]	399[c]	764[c]
RBC ♀	37.2[b]	157[d]	368[d]	674[d]
SE	0.14	2.14	3.25	5.88
Probabilities				
line	0.0001	0.0001	0.0001	0.0001
Sex	0.0670	0.0001	0.0001	0.0001
line *Sex	0.0084	0.0011	0.0035	0.0044

a-d Means, within age and source of variation (S.O.V), with different superscripts are significantly different (Duncan, 1955).

Table (2): Least Square Means and SE of carcass parts weights (g) of 6-week old Cairo B-2 and RBC lines.

Trait / S.O.V	LBW gm	Carcass wt	Breast meat wt	Leg meat wt	Wings with bones wt
Line					
Cairo B-2	1113^{a*}	757^{a}	159^{a}	171^{a}	88^{a}
RBC	730^{b}	444^{b}	73^{b}	94^{b}	66^{b}
SE	20.07	10.38	3.00	2.82	0.87
Sex					
Male	1003^{a}	664^{a}	130^{a}	146^{a}	82^{a}
Female	839^{b}	537^{b}	103^{b}	119^{b}	72^{b}
SE	19.34	10.37	3.00	2.82	0.87
Line*Sex					
Cairo B-2 ♂	1217^{a}	829^{a}	177^{a}	190^{a}	94^{a}
Cairo B-2 ♀	1009^{b}	686^{b}	142^{b}	152^{b}	82^{b}
RBC ♂	798.^{c}	500^{c}	83^{c}	102^{c}	70^{c}
RBC ♀	670^{d}	389^{d}	64^{d}	87^{d}	63^{d}
SE	28.38	14.67	4.25	4.00	1.23
Probabilities					
Line	0.0001	0.0001	0.0001	0.0001	0.0001
Sex	0.0014	0.0011	0.0075	0.0040	0.0008
Line*Sex	0.0001	0.0001	0.0001	0.0037	0.0001

a-d Means, within trait and source of variation (S.O.V), followed by different superscripts, differ significantly (Duncan, 1955).

Table (3): Least Square Means and SE carcass parts percentages, shank and keel length (cm) of 6-week old Cairo B-2 and RBC lines.

S.O.V. \ Trait	Carcass %	Breast meat %	Leg meat %	Wings with Bones %	Keel length (cm)	Shank length (cm)
Line						
Cairo B-2	68.47[a]	14.34[a]	15.41[a]	8.11[b]	10.13[a]	8.16[a]
RBC	60.73[b]	10.10[b]	12.87[b]	9.13[a]	8.03[b]	6.83[b]
SE	0.75	0.21	0.21	0.13	0.16	0.11
Sex						
Male	66.14[a]	12.51[a]	14.31[a]	8.38[b]	9.43[a]	7.89[a]
Female	63.07[b]	11.93[b]	13.97[b]	8.87[a]	8.73[b]	7.10[b]
SE	0.75	0.20	0.21	0.13	0.15	0.11
Line*Sex						
Cairo B-2 ♂	68.94[a]	14.56[a]	15.89[a]	7.89[c]	10.33[a]	8.44[a]
Cairo B-2 ♀	68.00[a]	14.13[a]	14.93[b]	8.3[c]	9.93[a]	7.87[b]
RBC ♂	63.33[b]	10.46[b]	13.00[c]	8.87[b]	8.53[b]	7.33[c]
RBC ♀	58.13[c]	9.73[b]	12.73[c]	9.40[a]	7.53[c]	6.33[d]
SE	1.07	0.29	0.29	0.18	0.22	0.16
Probability						
Line	0.0109	0.0011	0.0012	0.0012	0.0001	0.0001
Sex	0.0001	0.0001	0.0001	0.0001	0.0200	0.0008
Line*Sex	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001

a-d means, within trait and source of variation (S.O.V), followed by different superscripts, differ significantly (Duncan, 1955).

Table (4): Least Square Means and SE of liver, heart, gizzard, giblets, and abdominal fat weights (g) of 6-week old Cairo B-2 and RBC lines.

S.O.V \ Trait	Liver	Heart	Gizzard	Giblet	Abdominal fat
Line					
Cairo B-2	21.1[a]	5.8[a]	19.5[a]	46.4[a]	21.7[a]
RBC	16.3[b]	5.0 [b]	15.3[b]	36.6[b]	12.1[b]
SE	0.27	0.18	0.33	0.69	0.41
Sex					
Male	19.9[a]	5.8[a]	18.6[a]	44.3[a]	17.9[a]
Female	17.5[b]	5.0[b]	16.2[b]	38.7[b]	15.9[a]
SE	0.27	0.17	0.33	0.69	0.42
Line*Sex					
Cairo B-2 ♂	23.1[a]	6.3[a]	21.1[a]	50.5[a]	23.1[a]
Cairo B-2 ♀	19.1[b]	5.3[b]	17.9[b]	42.2[b]	20.3[b]
RBC ♂	16.7[c]	5.3[b]	16.1[c]	38.1[c]	12.7[c]
RBC ♀	15.9[c]	4.7[b]	14.5[d]	35.1[d]	11.5[c]
SE	0.39	0.25	0.47	0.98	0.59
Probability					
Line	0.0001	0.0031	0.0001	0.0001	0.0001
Sex	0.0005	0.0011	0.0003	0.0002	0.0582
Line*Sex	0.0001	0.0004	0.0001	0.0073	0.0001

a-d means, within trait and source of variation (S.O.V), followed by different superscripts, differ significantly (Duncan, 1955).

Table (5): Least Square Means and SE of liver, heart, gizzard, giblets, and abdominal fat percentages (of live weights) of 6-week old Cairo B-2 and RBC lines.

Trait / S.O.V	Liver	Heart	Gizzard	Giblet	Abdominal Fat
Line					
Cairo B-2	2.00[a]	0.59[b]	1.97[b]	4.22[b]	2.00[a]
RBC	2.10[a]	1.00[a]	2.00[a]	4.97[a]	1.83[b]
SE	0.03	0.06	0.02	0.07	0.05
Sex					
Male	2.00[a]	0.86[a]	1.97[a]	4.63[a]	1.90[a]
Female	2.07[a]	0.73[a]	2.00[a]	4.57[a]	1.93[a]
SE	0.03	0.06	0.02	0.07	0.05
Line*Sex					
Cairo B-2 ♂	2.00[b]	0.72[b]	1.94[a]	4.39[b]	2.00[a]
Cairo B-2 ♀	2.00[b]	0.47[b]	2.00[a]	4.07[c]	2.00[a]
RBC ♂	2.00[b]	1.00[a]	2.00[a]	4.87[a]	1.80[a]
RBC ♀	2.13[a]	1.00[a]	2.00[a]	5.07[a]	1.86[a]
SE	0.04	0.09	0.03	0.09	0.07
Probability					
Line	0.0576	0.0016	0.0016	0.0088	0.0021
Sex	0.1360	0.2666	0.3445	0.7700	0.7274
Line*Sex	0.0001	0.0001	0.2713	0.0061	0.1809

a-d means, within trait, , followed by different superscripts, differ significantly (Duncan, 1955).

Table (6): Phenotypic correlations between the studied traits for both the selected and the RBC lines.

Traits	LBW	Carcass	Breast meat	Leg meat	Wings	Abdominal fat	liver	Heart	Gizzard	Giblets	Keel	Shank
LBW	____	0.90*	0.95	0.93	0.87	0.81	0.85	0.84	0.91	0.90	0.83	0.84
Carcass	0.97	____	0.93	0.94	0.98	0.87	0.90	0.86	0.93	0.93	0.73	0.77
Breast meat	0.97	0.95	____	0.97	0.92	0.84	0.88	0.85	0.93	0.92	0.79	0.82
Leg meat	0.77	0.80	0.79	____	0.93	0.77	0.89	0.80	0.90	0.90	0.70	0.76
Wings	0.92	0.89	0.92	0.74	____	0.88	0.95	0.85	0.95	0.96	0.70	0.78
Abdominal fat	0.81	0.76	0.81	0.87	0.83	____	0.86	0.95	0.93	0.93	0.85	0.88
Liver	0.76	0.72	0.80	0.84	0.81	0.93	____	0.83	0.94	0.97	0.66	0.80
Heart	0.80	0.77	0.78	0.91	0.73	0.89	0.82	____	0.92	0.93	0.91	0.86
Gizzard	0.88	0.85	0.88	0.85	0.92	0.94	0.93	0.84	____	0.99	0.84	0.87
Giblets	0.86	0.82	0.87	0.90	0.87	0.97	0.97	0.90	0.98	____	0.81	0.86
Keel	0.85	0.88	0.86	0.88	0.82	0.83	0.79	0.83	0.85	0.86	____	0.85
Shank	0.88	0.89	0.91	0.86	0.78	0.83	0.78	0.84	0.82	0.85	0.87	____

* All correlations were highly significant ($p \leq 0.01$). , N= 30 per line, combined sexes,
Above diagonal Cairo B-2 line, Blow diagonal RBC line.

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الملخص العربي

تأثير الإنتخاب لوزن الجسم الحى المرتفع على صفات الذبيحة لامهات التسمين

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تم تقييم أداء خط أمهات التسمين (Cairo B-2) المحلية بعد ٨ أجيال من الإنتخاب لوزن الجسم الحى المرتفع عند عمر ٦ أسابيع بالمقارنة بخط الكنترول (RBC). تم تربية عدد ٣٠٠٠ كتكوت، من الجيل التاسع، من الخطين فى نفس العنبر حتى عمر ٦ أسابيع. تم تقديم ماء وعلف مفتوح والإضاءة ٢٤ ساعة في اليوم. تم وزن الطيور كلها فى أعمار صفر، ٢ ، ٤ ، ٦ أسابيع . تم ذبح عدد ٣٠ كتكوت ذكور و ٣٠ كتكوت إناث عند عمر ٦ أسابيع من كل خط لتقدير قياسات الذبيحة.

أوضحت النتائج أن وزن Cairo B-2 الحى عند عمر ٦ أسابيع كان أعلى من وزن RBC بمقدار ٣٩٦ جرام تمثل حوالي ٣٥% من وزن الجسم. سجل خط Cairo B-2 زيادة معنوية عن خط RBC فى وزن الذبيحة ولحم الصدر ولحم الأرجل ووزن ونسبة دهن البطن. أما خط RBC فلقد سجل نسبة أجنحة مع العظم أعلى من خط Cairo B-2. أيضاً، كان طول عظمة الساق والقص أطول في خط Cairo B-2 عن خط RBC. من جانب أخر، سجل خط RBC نسبة أعلى للأحشاء المأكولة من خط Cairo B-2.

من النتائج السابقة من الممكن أن نستنتج أن، الإنتخاب لزيادة الوزن عند عمر ٦ أسابيع في خط Cairo B-2 تسبب في زيادة متزامنة فى نسبة أجزاء الذبيحة المأكولة وتقليل من نسبة الأحشاء المأكولة. كما أن الإنتخاب المستمرفى خط Cairo B-2 لوزن الجسم عند عمر ٦ أسابيع تسبب في تحسن أداءها من جيل للتالى.

الكلمات الدالة: أمهات التسمين، وزن الجسم، الإنتخاب، أجزاء الذبيحة، دهن البطن.