

RESULTS OF MEAT YIELD PRODUCED FROM GUINEA FOWL SLAUGHTERED AT DIFFERENT AGES

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Abstract

Exploitation of Guinea fowl in intensive farming has broad development prospects due to the increasing demand of consumers for the meat and eggs yielded from this species, but also for the very valuable biological features.

In the present paper we intend to analyze the quantitative production of meat obtained from guinea-fowl slaughtered at different ages. The studied biological material was represented by 50 heads of gray Guinea fowl (Numida Meleagris), reared by species-specific technology. The actual determinations were performed on 31 individuals (10 males and 21 females) who were slaughtered at the age of 77 and 91 days, respectively.

The target indicators were body weight at slaughter time, fresh and maturated carcass weight, weight and the proportion of cut parts in whole carcass formation, determined in accordance with the poultry research methodology. The data were statistically processed using the Anova (Analysis of variance) program.

At the time of slaughter at the age of 77 days, body weight of Guinea fowl was between 1545.04g and 2250.12g; at the age of 91 days, body weight oscillated between a minimum of 2100.35g and a maximum of 2555.05g,

The growth of guinea-pigs can be seen as a profitable business with the use of modern technologies, but also of good quality biological material.

Key words: guinea fowl, carcass, cut parts, slaughter

INTRODUCTION

From a zootechnical point of view, poultry farming has been heavily enforced as an very important and cost-effective branch of animal production since, over time, domestic poultry have been grown only in small flocks, with no scientific concerns about eating, shelter or rational care [4].

Compared to the other meat-producing animals, the bird has a great advantage in providing, due to its body weight, fresh meat that is always fresh.

Worldwide there are a relatively small number of companies producing guinea-pig hybrids for meat, the selection methods are different, and each hybrid has specific particularities of growth.

MATERIAL AND METHODS

The studied biological material was represented by 50 specimens of gray Guinea fowl, reared by species-specific technology.

The actual determinations were performed on 31 individuals (10 males and 21 females) who were slaughtered at the age of 77 and 91 days, respectively. During the research, one of the monitored indicators was the live weight, by weighing the Guinea fowls, using an electronic weighing machine.

After slaughter, the carcasses were transported to the Animal Production Processing Laboratory of the Faculty of Animal Husbandry. Weighing was performed before and after refrigeration (24h at 0-+4°C).

Each carcass obtained was cut into anatomical portions (drumstick, thighs, breast, wings), these were weighed and then reported on the weight of the carcass from which they came from.

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The data were statistically processed using the Anova (Analysis of variance) program.

RESULTS AND DISCUSSIONS

Live weight. At the end of the 77-day period, 16 individuals were selected, of which 5 males and 11 females. Thus, body weights ranging from a minimum of 1545.04 g to a maximum of 2250.12 g were recorded, the average for this moment in the life of guinea-fowl being 1919.68±12.68 g.

The value of the coefficient of variability is 8.37%, which indicates a good homogeneity of the studied characteristic.

The males had an average weight of 1942.06±7.99 g with variation limits between the minimum of 1850.03 g and the maximum of 2005.09 g. The very good homogeneity of the males analyzed is given by the low value of the coefficient of variability (V% = 3.29).

The females showed values between 1545.04 g (minimum) and 2250.12 g (maximum), with an average of 1907.87±13.80 g. The coefficient of variation

(V% = 9.88) indicates the uniformity of the character.

At the age of 91 days, the analyzed group comprised 15 individuals, namely 5 males and 10 females. Body weights of 2100.35 g (minimum) and 2555.05 g (maximum) were recorded, resulting in an average of 2277.80±10.97 g. In this case, the value of the coefficient of variability indicates a good homogeneity of the studied characteristic, this being of 5.29%.

The males had an average weight of 2261.10±10.12 g with variation limits ranging from a minimum of 2100.35 g to a maximum of 2385.15 g. The very good homogeneity of the batch of males analyzed is given by the low value of the coefficient of variability (V% = 4.53).

The females presented values between 2115.03 g (minimum) and 2555.05 g (maximum), with an average of 2286.30±11.53 g. The variation coefficient of 5.81% indicated a good uniformity of the character studied (tab. 1).

Table 1 Body weight of Guinea fowl at the time of slaughter

Age of slaughter (days)	Sex	n	Statistical estimators			
			$\overline{X} \pm s \overline{x}$ (g)	V%	Min (g)	Max (g)
77	M	5	1942.06±7.99	3.29	1850.03	2005.09
	F	11	1907.87±13.80	9.88	1545.04	2250.12
	Both genders	16	1919.68±12.68	8.37	1545.04	2250.12
91	M	5	2261.10±10.12	4.53	2100.35	2385.15
	F	10	2286.30±11.53	5.81	2115.03	2555.05
	Both genders	15	2277.80±10.97	5.29	2100.35	2555.05

Carcass weight

In order to assess the quantitative side of meat production obtained from Guinea fowl weighing and slaughter at 2 different ages (77 and 91 days) were carried out. After evisceration, the carcass weight was determined. The situation was also repeated after determining the carcass weight after 24 hours of refrigeration.

At the first slaughter performed (day 77), measurements were made that among males the values for the weight of the hot carcass

ranged between 1491.1 g and 1673.24 g, resulting in an average of 1622.45±8.68 g. The coefficient of variation revealed a very good uniformity of this lot (V = 4.64%). In females, an average carcass weight of 1578.52±12.97 g with a minimum of 1264.24 g and a maximum of 1815.5 g resulted in a coefficient of variation of 9.65%, indicating the homogeneity of the character analyzed. So it resulted in an average for both sexes of 1592.24±12.01 g with a minimum value of 1246.24 g and a maximum value of 1815.5 g,

the value of the coefficient of variability was below 10%, indicating the homogeneity of the analyzed attribute.

After 24 hours of refrigeration, the average carcass weights decreased slightly. Thus males recorded an average weight of 1525.27 ± 9.36 g with variation limits in the range 1370.24g-1585.4g, the females had an average weight of 1481.89 ± 13.17 g with a minimum of 1140.00

g and a maximum of 1736.5 g, resulting in an average for both genders of 1495.44 ± 12.25 g, due to fairly wide variation limits, the minimum being 1140.00 g, and the maximum of 1736.5 g. Values of the coefficient of variability ($V\%=5.75-11.71$) denote both a good homogeneity and its lack in certain situations (fig. 1).

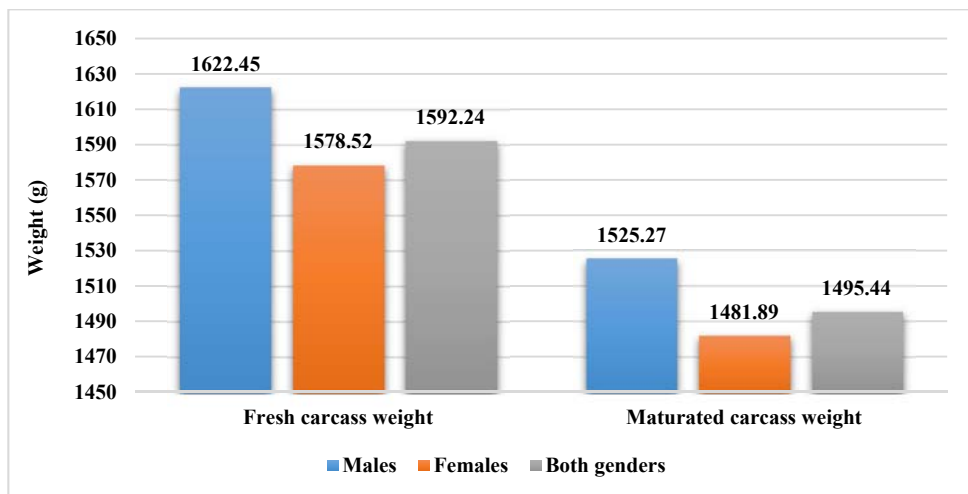


Fig. 1 Carcass weight resulted from Guinea fowl slaughtered at 77 days

After the slaughter from day 91, weighing the male carcasses, values ranging from a minimum of 1795.25 g to a maximum of 1925.45 g were found, resulting in an average weight of 1881.14 ± 7.16 g. The coefficient of variation ($V\%=6.03$) was at levels specific to a very good homogeneity of the studied character. For females, the average recorded weight was 1884.5 ± 9.82 g; the coefficient of variation indicated a very good homogeneity ($V\% = 4.76$), amid variation limits between 1785.15 g (minimum) and 2015.00 g (maximum).

Therefore, a mean value for both genders of 1883.35 ± 9.06 g was obtained with values between 1785.15 g (minimum) and 2105.00 g (maximum). The value of the coefficient of

variation ($V\%=4.36$) indicated a very good uniformity of the studied characteristic. After refrigeration, the average carcass weights decreased slightly. Thus, among males we recorded an average weight of 1764.53 ± 7.08 g with variation limits in the range 1677.22 g-1804.1 g, the females had an average weight of 1761.01 ± 9.16 g with a minimum of 1699.01 g and a maximum of 1985.00 g, thus resulting in an average for both genders of 1762.21 ± 8.5 g amid wide range of variations, the minimum being of 1677.22 g, and the maximum of 1985.00 g. Values of the coefficient of variability ($V\%=2.84-6.57$) denote a very good homogeneity (fig. 2)

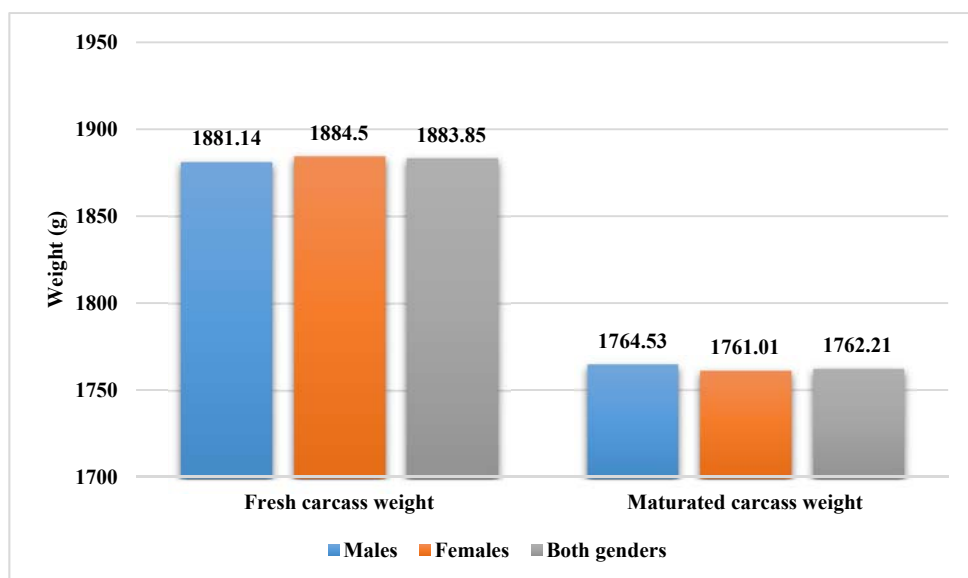


Fig. 2 Carcass weight resulted from Guinea fowl slaughtered at 91 days

The weight of cut parts in carcass formation

At 77 days. Chest weight averaged 410.07 ± 20.18 with a minimum of 297.30g and a maximum of 530.95g among females with a variation coefficient of 16.32%; Among males, the limits were 327.93g (minimum) and 476.54g (maximum), obtaining an average weight of 400.83 ± 25.26 g with a coefficient of variation of 14.09%. The values of the coefficient of variation denote the lack of homogeneity.

The weight of drumsticks among males had values that varied between 167.06g (minimum) and 206.51g (maximum), the mean value for this portion being 184.27 ± 7.54 . This resulted in a coefficient of variation of 9.15%, indicating a fairly good homogeneity.

In females, the values are between 129.29g and 205.67g, with an average of 166.11 ± 8.12 g. Here too, the value obtained for the coefficient of variation indicates a fairly good homogeneity, this being 9.21%.

In the case of thighs in females, their weight reached an average value of 225.01 ± 12.84 with variation limits between 158.27g (minimum) and 291.78g (maximum). The coefficient of variation was at a level of good homogeneity of 8.95%.

For males the mean value is somewhat lower, namely 194.20 ± 7.36 ; the coefficient of variation indicated a fairly good homogeneity ($V\% = 8.48$) amid wide variation ranges, the minimum being 177.93g and the maximum of 221.74g.

The wings of males recorded weights between 164.73g (minimum) and 209.40g (maximum), averaging 182.55 ± 7.77 ; the coefficient of variation indicated a fairly good homogeneity ($V\% = 9.54$). Females had an average wing weight of 179.45 ± 3.22 g with values ranging from a minimum of 170.13g to a maximum of 202.29g. The coefficient of variation was 5.66%, indicating a good uniformity of the studied characteristic (Table 2).

Table 2 The weight of cut parts (77 days)

Sex	Males				Females			
Statistical estimators	$\bar{X} \pm s \bar{x}$	V%	Min	Max	$\bar{X} \pm s \bar{x}$	V%	Min	Max
Breast weight	400.83±25.26	14.09	327.93	476.54	410.07±20.18	16.32	297.30	530.95
Drumsticks weight	184.27±7.54	9.15	167.06	206.51	166.11±8.12	9.21	129.29	205.67
Thighs weight	194.20±7.36	8.48	177.93	221.74	225.01±12.84	8.95	158.27	291.78
Wings weight	182.55±7.77	9.54	164.73	209.40	179.45±3.22	5.66	170.13	202.29

At 91 days. Breast weight in males recorded values ranging from a minimum of 390.65g to a maximum of 545.08, resulting in an average weight of 473.14±28.09g. The coefficient of variation had a value of 9.28%, which shows a good homogeneity of the studied character.

In the case of females, we recorded an average weight of 459.61±10.76g with variation limits ranging from 395.69g to 523.40g. Also in this case the value of the coefficient of variation 7.41% indicated a good uniformity of the studied characteristic. Among males, the weight of the drumsticks had an average of 198.77±2.70g with a minimum of 193.80g and a maximum of 209.20. The coefficient of variation had a value of 3.03%, indicating a very good homogeneity.

For females, the minimum reached was 187.06g and the maximum of 231.56g, resulting in an average of 204.12 ± 3.90. Also in this case the coefficient of variation (V% = 6.04) indicated quite good homogeneity.

After weighing the thighs, the males recorded the average of 235.61±21.92 with values ranging from a minimum of 196.31g (minimum) and 317.21g (maximum). The coefficient of variation in this case was 20.81%, indicating a lack of homogeneity. For females the values were similar, with an average of 230.32±6.96g with limits ranging from 207.35-272.06g. In this case, the coefficient of variation indicates a good uniformity of this parameter, its value being 9.56%.

The wings of the males had an average weight of 229.14±11.75 with a minimum of 196.51g and a maximum of 259.26g, the coefficient of variation indicating good homogeneity (V%=9.47).

Similar values were also seen in females, resulting in an average of 221.70±5.49g with a minimum of 197.48g and a maximum of 238.12g. In this case, the coefficient of variation had a value of 7.83%, indicating the good uniformity of the studied characteristic (Table 3).

Table 3 The weight of cut parts (91 days)

Sex	Males				Females			
Statistical estimators	$\bar{X} \pm s \bar{x}$	V%	Min	Max	$\bar{X} \pm s \bar{x}$	V%	Min	Max
Breast weight	473.14±28.09	9.28	390.65	545.08	459.61±10.76	7.41	395.69	523.40
Drumsticks weight	198.77±2.70	3.03	193.80	209.20	204.12±3.90	6.04	187.06	231.56
Thighs weight	235.61±21.92	20.81	196.31	317.21	230.32±6.96	9.56	207.35	272.06
Wings weight	229.14±11.75	9.47	196.51	259.26	221.70±5.49	7.83	197.48	238.12

Proportion of cut parts

For the participation of the main cuts in the carcass, analyzing the results obtained, we can state that the males recorded the best performances in the cutlery 29.04% (day 77) and in the case of the chest 27.02% (day 91) (fig. 3).

The best values for females on day 77 were recorded in the back part with a proportion of approximately 28.11%, and on day 91, the females scored a proportion of the breast of about 30.1%.

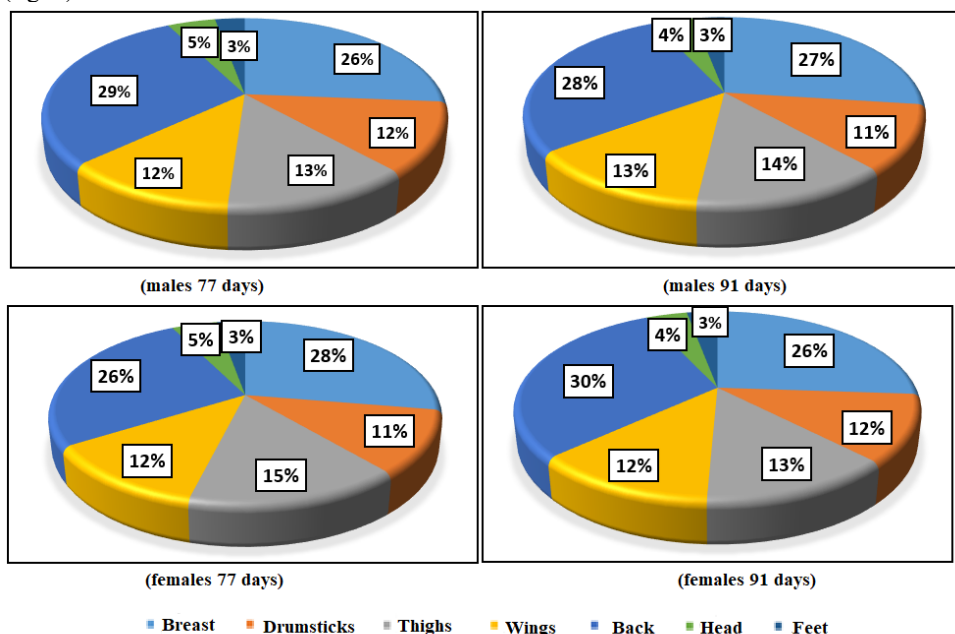


Fig. 3 Proportion of cut parts

CONCLUSIONS

Nowadays, due to the quality of the meat presented by the poultry broiler, there is an increasing demand for this type of meat on the international market, which makes research in this field a continuous interest.

Regarding the body weight of the studied birds, the values obtained by us were much better than those obtained by authors like Nahashon S.N. which in 2006 showed average values of weights between 1263.83 ± 130.04 g and 1239.77 ± 140.81 g females [3]. Data from the literature on carcass weight shows average values of 889.0 ± 0.90 g (Bernacki Z., et al. 2014), 866 ± 23.54 (Kokoszynski D. (2011)), much lower than those obtained by us [1], [3].

Exploitation of guinea-pigs in the intensive system has wide prospects of development, observing a growing consumer

demand for meat and eggs obtained from guinea fowl, but also for a number of very valuable biological features.

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