

RESEARCH ON THE MEAT YIELD OF GREY GUINEA FOWL (*NUMIDA MELEAGRIS*)

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Abstract

Intensive rearing of Guinea fowl has great development perspectives, due to consumers' increasing demand the meat and eggs yielded by this species, as well as to their high valuable biological features.

The goal of the paper was to assess the quantitative meat production, on a biological material group of 50 heads of Guinea fowl, procured from a local breeder. Certain traits were investigated: live weight, fresh and refrigerated carcass weight, dressed yield on fresh and maturated carcass and, finally, the proportion of cut parts in whole carcass formation. These parameters have been assessed in accordance with the recognized poultry science methodology. The data was statistically analyzed using ANOVA (Analysis of variance). By the end of the experiment, the fowl body weight was measured within the 1645.76g – 2250.32g limits. Dressed yield, calculated on refrigerated carcass basis was 5.38% lower than the one calculated right after slaughtering (fresh carcass). Concerning the carcass cut parts proportion, the best results were noticed in the female individuals for breast (28.44%) and thighs (14.09%), while the males provided better developed shanks (12.08%), wings (12.27%), back (27.51%), head (5.12 %) and feet (3.23%).

Rearing of Guinea fowl could become a reliable business if modern technology and high quality biological material are used together, knowing that the meat yielded by this species is more and more demanded throughout the world.

Key words: Guinea fowl, dressed yield, cut parts

INTRODUCTION

From a zootechnical point of view, poultry farming has been heavily enforced as an important and cost-effective branch of animal production, as domestic animals have been grown only to a limited extent over time, with no scientific concerns about the peculiarities of feeding, shelter or rational care.[4].

Poultry is considered an important food in human nutrition, due its quality. Compared to other meat-producing animals, the bird has a great advantage in providing, due its body weight, meat always fresh.

Although, worldwide there are is a limited number of companies producing Guinea fowl hybrids, and the selection methods are different, each hybrid has a certain technological feature of growth. Knowing in detail, theoretically and

practically the particularities of the Guinea fowls hybrids reared for meat, it guarantees the right choice of the hybrid according to the technical particularities of a farm.

MATERIAL AND METHODS

The biological material was a group of 50 heads of Guinea fowl (*Numida Meleagris*) which were reared on a intensive system, in accordance with the recognized poultry science methodology. The certain traits were performed on 16 heads (5 males and 11 females) that were slaughtered at the age of 77 days. Along the reasearch, 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. The carcasses were weighed before and after refrigeration (24h at 0°C - +4°C).

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With the resulted data, the dressed yield, was calculated as the ratio between the weight of the fresh and maturated carcass (with head and claws) and the live weight, then multiplied by 100, to be expressed as a percentage; the proportion of cut parts in whole carcass formation was calculated by reporting the weight of each anatomical part to the weight of the refrigerated carcass.

The data was statistically analyzed using ANOVA (Analysis of variance).

RESULTS AND DISCUSSIONS

Live weight. Following the weighing of the studied males, the values oscilated between a minimum of 1850.07g and a maximum of 2005.55g, resulting a mean value of 1942.12±28.55g. The coefficient of

variation (V%=3.29) was at a specific level of a very good homogeneity of the studied character.

On females, the recorded mean body weight, was 1925.54±48.33g; the coefficient of variation indicated a fairly good homogeneity (V%=8.49), amid fairly wide variations limits, the minimum weight of the females being 1645.76g, and the maximum was 2250.32g.

The live body weight calculated for both genders was 1933.88±38.44g, with variation that ranges between 645.76g (minimum) și 2250.32g (maximum). The value of the coefficient of variation (V%=5.89), indicated a good homogeneity of the studied characteristic (Table 1).

Table 1 The live body weight of the studied Guinea fowls

Nr. of heads	Gender	$\bar{X} \pm s \bar{x}$ (g)	V%	Min (g)	Max (g)
5	Males	1942.12±28.55	3.29	1850.07	2005.55
11	Females	1925.54±48.33	8.49	1645.76	2250.32
16	Both genders	1933.83±38.44	5.89	1645.76	2250.32

Fresh and refrigerated carcass weight. After weighing the males (fresh carcass), the obtained results ranged between a minimum of 1492.10g and a maximum of 1677.24g resulting in an average weight of 1553.15±33.73g. In terms of variability (9.94%), the studied characteristic expressed quite good homogeneity.

In females, the mean weight (fresh carcass) was 1622.45±46.54g with a coefficient of variation (V%=4.65) specific for a very good homogeneity; the values oscilated between a minimum of 1246.21g and a maximum of 1735.50g.

In males (maturated carcass), the body weights ranged between 1370.21g (minimum) and 1587.39 (maximum). The value of the coefficient of variation (V%=5.76) has indicated a good uniformity of the studied characteristic.

In females, the obtained values oscilated between a minimum of 1340.88g and a maximum of 1834.50g, resulting a mean value of 1518.23±43.98g. The coefficient of variation indicated a fairly good homogeneity (V%=9.83).

The weight of the fresh carcasses for both genders was 1587.79±40.12g, amid fairly wide variation limits, the minimum was 1246.21g, and the maximum was 1735.50g. A coefficient of variation of 7.21% expressed a quite good homogeneity. On maturated carcasses, the recored mean value was 1521.76±42.12g; the coefficient of variation indicated a rather good homogeneity (V%=7.29), with variation limits between 1340.88g (minimum) and 1834.50g (maximum) (Table 2).

Table 2 Weight of the fresh and maturated carcasses

Gender	Weight of the fresh carcass (g)				Weight of the maturated carcass (g)			
	$\bar{X} \pm s \bar{x}$ (g)	V%	Min (g)	Max (g)	$\bar{X} \pm s \bar{x}$ (g)	V%	Min (g)	Max (g)
♂	1553.15±33.73	9.94	1492.10	1677.24	1525.26±39.24	5.76	1370.21	1587.39
♀	1622.45±46.54	4.65	1246.21	1735.50	1518.23±43.98	9.83	1340.88	1834.50
♂+♀	1587.79±40.12	7.21	1246.21	1735.50	1521.76±42.12	7.29	1340.88	1834.50

Dressed yield

According the formula for dressed yield (fresh and maturated) it was found that the mean values obtained on fresh carcass were higher by 5.38% compared to the ones on maturated carcasses. The highest values for

dressed yield were recorded in males (83.51% on fresh carcass and 77.89% on maturated carcass). In females, lower values were noticed 82.61% for fresh carcass and 77.48% for maturated carcass (Figure 1).

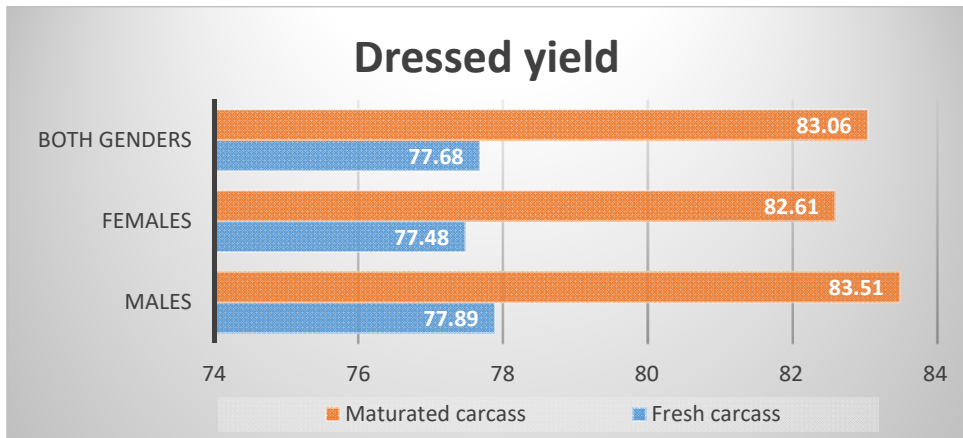


Fig. 1 Dressed yield

The proportion of cut parts

The chest weight averaged 410.06±48.28 with a minimum of 296.30g and a maximum of 531.95g among females with a coefficient of variation of 9.32%; among males, the limits were 326.93g (minimum) and 475.75g (maximum) averaging 400.73±80.64g with a coefficient of variation of 9.09%. Statistically there were no significant differences between the two genders. For both genders, resulted coefficients of variation below 10%, which shows a good homogeneity.

In females, the weight of the thighs, averaged 224.01±23.66 with variation limits ranging from 157.28g (minimum) and 292.78g (maximum). The coefficient of variation (8.93%) indicated a good homogeneity.

In males, the mean value of thighs was lower, 193.20±33.54; the coefficient of variation indicated a fairly good homogeneity (V%=8.43) amid wide variation limits, the minimum being 176.93g and a maximum of 220.74g.

The weight of shanks in males, had values that varied between 167.95g (minimum) and 205.51g (maximum), the mean value for this portion being 183.17±23.98g. This resulted in a coefficient of variation of 9.13%, indicating a fairly good homogeneity.

In females, the values are between 128.29g (minimum) and 204.57g (maximum), with a mean value of 166.12±12.45g. In this case too, the obtained

value for the coefficient of variation indicates a fairly good homogeneity ($V=9.21\%$).

After weighing the back, the males had a mean value of $447.92 \pm 34.21\text{g}$ with variation limits that ranged between 355.00 (minimum) and 507.56g (maximum). The value of the coefficient of variation ($V\%=9.94$) indicated quite good homogeneity.

After weighing the back of females, their weight reached an average of 406.62 ± 23.87 with variation limits ranging from a minimum of 259.17g to a maximum of 504.50g . The coefficient of variation ($V\%=9.83$) indicated a fairly good homogeneity.

The wings of males recorded weights between 165.73g (minimum) and 209.39g (maximum), averaging 181.55 ± 32.67 the coefficient of variation indicated a fairly good homogeneity ($V=9.51\%$).

In females, after weighing the wings, the average weight was $178.45 \pm 47.51\text{g}$, with values ranging from a minimum of 171.12g and a maximum of 201.19g . The coefficient

of variation of 5.96% , indicated a good uniformity on the studied characteristic.

The mean head weight among males was $70.61 \pm 17.98\text{g}$ with variation that ranged between 59.77g (minimum) and 79.77g (maximum). The coefficient of variation indicated a fairly good homogeneity ($V\%=9.79$).

In females, the mean value of head weight was $68.34 \pm 23.34\text{g}$; the coefficient of variation was 9.24% indicating a good uniformity of the studied characteristic, amid the minimum value of 55.02g and a maximum value of 74.87g .

Regarding the weight of feet in males, the minimum reached was 39.43g and the maximum was 46.49g , resulting a mean value of $43.82 \pm 17.88\text{g}$. The coefficient of variation indicated a fairly good homogeneity with a value of 7.19% .

In females, the weight of feet had a mean value of $41.36 \pm 21.02\text{g}$ with a minimum of 30.05g and a maximum of 51.00g . The coefficient of variation of 7.69% indicated a good uniformity of the studied characteristic (Table 3).

Table 3 The weight of cut parts

Nr. crt.	Cut part	Gender	$\bar{X} \pm s \bar{x}$ (g)	V%	Min (g)	Max (g)
1.	Breast	Male	400.73 ± 80.64	9.09	326.93	475.75
		Female	410.06 ± 48.28	9.32	296.30	531.95
2.	Thigs	Male	193.20 ± 33.54	8.43	176.93	220.74
		Female	224.01 ± 23.66	8.93	157.28	292.78
3.	Shanks	Male	183.17 ± 23.98	9.13	167.05	205.51
		Female	166.12 ± 12.45	9.21	128.29	204.57
4.	Back	Male	447.92 ± 34.21	9.94	355.00	507.56
		Female	402.62 ± 23.87	9.83	259.17	504.50
5.	Wings	Male	181.55 ± 32.67	9.51	165.73	209.39
		Female	178.45 ± 47.51	5.96	171.12	201.19
6.	Head	Male	70.61 ± 17.98	9.79	59.77	79.77
		Female	68.34 ± 23.34	9.24	55.02	74.87
7.	Feet	Male	43.82 ± 17.88	7.19	39.43	46.49
		Female	41.36 ± 21.02	7.69	30.05	51.00

The proportion of cut parts in the carcass formation

The proportion of the main cut parts in the carcass formation showed us that the

females recorded the best performances on breast (28.44%) and thighs (14.09%) (Figure 2). The males had higher values on shanks

(12.08%), back (27.51%), wings (12.27%), head (5.12%) and feet (3.23%) (Figure 3).

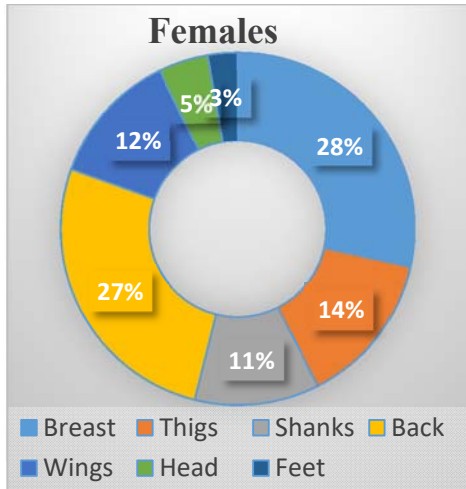


Figure 2 The proportion of cut parts - females

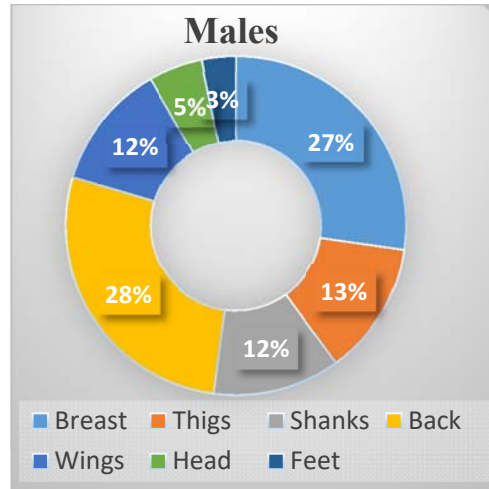


Figure 3 The proportion of cut parts - males

CONCLUSIONS

In the context of the current discussions, due to the qualities of poultry from broilers, there is a growing demand for this type of meat on worldwide, which makes the researches in this field a constant interest.

Regarding the body weight of the studied birds, the results obtained by us (1933.83±38.44g) were much higher than those recorded by *Kokoszyński D. (2012)* [3], which at the same slaughter age, recorded mean values of 970±8.40g, and *Kisne Do Thi Dong Xuan (2012)* [2], after 13 weeks, the average weight of his Guinea fowls was 1269g.

Kerketta N. și Mishra S. (2016) [1], analyzing the weight of the cuts, obtained on breast an average value 272±21.07g, much lower than that recorded by us (400.73±80.64g in males and 410.06±48.28g in females) and *Kokoszyński D. [3]*, obtained a maximum breast weight of 238±3.99g in males and 255±1.98g in females

The dressed yield showed us a value of 83.06%, compared to *Kerketta N. și Mishra S. [1] (2016)*, which recorded a percentage of 78.24%.

The exploitation of Guinea fowls in intensive system has wide development prospects, due the growing demand for meat and eggs obtained from this species, but also for a number of very valuable biological features.

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