RESEARCH REGARDING THE QUANTITATIVE PRODUCTION OF MEAT IN ROSS-308 CHICKENS UNDER THE USE OF NATURAL BIOSTIMULATORS

Gabriela Atudosiei[1*], Alina Teodorescu[1], D.C. Roşca[1], R.M. Radu-Rusu[1], M.G. Usturoi[1]

[1]Faculty of Animal Sciences, University of Agricultural Sciences and Veterinary Medicine of Iasi, Romania

Abstract

Meat processing involves several successive transformations, the first consisting in obtaining the carcass, and the second ensures the separation of the carcass from by-products (bones, skin, feathers), the meat being used in the manufacture of the products.

In this paper we aim to analyze the quantitative meat production obtained from the chicken broiler Ross-308

The biological material was 100 commercial hybrids of ROSS-308 chicken. The birds were reared according to the species-specific technology, and the actual determinations were performed on 20 individuals (10 males and 10 females) who were slaughtered at the age of 42 days.

During the research, one of the indicators followed was the live weight, by weighing the flock of birds, using an electronic scale.

After slaughter, the poultry carcasses were weighed fresht, but also after refrigeration (24h at 4°C). With the data provided, the slaughter yield and the share of participation in the carcass composition of the cut portions were calculated. The data were statistically processed using the Anova (Analysis of variance) program.

After weighing the studied males, an average weight of 2622.98 g was found, and in females, the average recorded weight was 2480.04 g. and 76.67% on refrigerated carcasses). In the case of females, slightly lower values were obtained, of 74.28% for the cold yield and 75.68% for the hot yield; recorded the best performance in the thighs (21%) and in the chest (24%). Females had higher values in the case of back, which occupied about 49% of the total carcass. In both sexes, the wings had a participation rate of about 9%.

Due to the qualities that poultry broiler meat presents, there is a growing demand for this type of meat on the world market, therefore, such research is of continuous interest.

The rearing of the Ross-308 broiler in an intensive system has wide development perspectives, if an optimal technology is used, but also a good quality biological material.

Key words: yield, broiler, ross, weight

INTRODUCTION

Compared to other species of zootechnical interest, the bird is the species with the highest efficiency of meat production. This is due to the fact that it can easily withstand high densities per unit

surface, presents a production cycle with short duration, high growth rate, and good yields at slaughter.

Increasing incomes can stimulate demand for meat, especially in developing countries where per capita consumption of animal products is less than a third of that in industrialized countries [1]. The superiority of poultry is due to the fact that it has a thinner muscle sarcolemma than mammals, a finer "grain" and a smaller amount of connective tissue, and in the chemical composition contains more high quality protein and fat [2].

Scientific research has thus made available to breeders new genotypes of high value, with advanced precocity and high growth rate, able

*Corresponding author: gabriela_ado@yahoo.com
The manuscript was received: 19.10.2020
Accepted for publication: 03.11.2020

to make better use of fodder, obtaining highly economical productions [3].

Meat processing involves several successive transformations, the first consisting in obtaining the carcass, and the second ensures the separation of the carcass from by-products (bones, skin, feathers), the meat being used in the manufacture of products [4].

MATERIAL AND METHODS

The biological material was represented by 100 commercial hybrids of ROSS-308 chicken, purchased from a producer in our country.

The actual determinations were performed on 20 individuals (10 males and 10 females) who were slaughtered at the age of 42 days.

During the research, one of the indicators followed was the live weight, by weighing the flock of birds, using an electronic scale.

After slaughter, the poultry carcasses were transported to the laborator. These were weighed fresh, but also after refrigeration (24h at 4 ° C). With the data provided, the slaughter yield was calculated, this being expressed as the ratio between the weight of the fresh or cold carcass and the live weight * 100. The share of participation in the carcass composition of the cut portions was calculated by relating the anatomical portion weights to the refrigerated carcass weight.

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

RESULTS AND DISSCUSIONS

Live weight. After weighing the studied males, values were found that ranged between a minimum of 2408.15 g and a maximum of 2816.22 g, resulting in an average weight of 2622.98 g. The coefficient of variation (V% = 5.59) was at levels specific to a very good homogeneities of this character.

In females, the average weight was 2480.04 g; the coefficient of variation indicated a fairly good homogeneity (V% = 5.92), against the background of quite wide variation limits, the minimum weight of females being 2305.15 g, and the maximum 2744.15 g (table 1).

Table 1 The live weight of the studied birds

Nr	Sex	$\overline{X} \pm s_{\overline{x}}$ (g)	V%	Min (g)	Max (g)
10	Males	2622.98±46.36	5.59	2408.15	2816.22
10	Females	2480.04±46.40	5.92	2305.15	2744.15

Carcass weight. After weighing the males, carcass weights were obtained (fresh) between a minimum of 1882.22 g and a maximum of 2200.05 g, resulting in an average weight of 2009.03 g. In terms of variability (4.43%), the studied characteristic showed a very good homogeneity.

In females, the average carcass weight (fresh) was 1876.95 g with a coefficient of variation (V% = 6.36) specific to a very good homogeneity; values ranged from a low of 1705.15g to a high of 2100.40g.

After refrigeration, the carcasses of the males had body weights between 1830.13 g (minimum) and 2166.90 g (maximum). The value of the coefficient of variation (V% = 4.47) indicated a uniformity of the studied characteristic.

In females, values were found that ranged between a minimum of 1685.60 g and a maximum of 2060.40 g, resulting in an average weight of 1842.42 g. The coefficient of variation indicated a fairly good homogeneity (V% = 6.52) (Table 2).

Table 2 The weight of the carcasses

Sex	Fresh carcass weight (g)				Refrigerated carcass weight (g)			
	$\overline{X} \pm s_{\overline{x}}$ (g)	V%	Min (g)	Max (g)	$\overline{X} \pm s_{\overline{x}}$ (g)	V%	Min (g)	Max (g)
♂	2009.03±28.13	4.43	1884.22	2200.05	1974.30±37.99	4.47	1830.13	2166.90
♀	1876.95±38.37	6.46	1705.15	2100.40	1842.42±37.99	6.52	1685.60	2060.40

Dressing yield. Applying the calculation formula for the slaughter yield, the values of this indicator were obtained for both measurement moments (fresh and refrigerated carcasses). It is found that the average values obtained from the measurements made immediately after slaughter were higher by about 1.06% in females and 0.99% in males.

The highest values for dressing yield were recorded in males (75.34% on fresh carcasses and 76.67% on refrigerated carcasses). In the case of females, slightly lower values were obtained, of 74.28% for the refrigerated yield and 75.68% for the hot yield (figure 1).

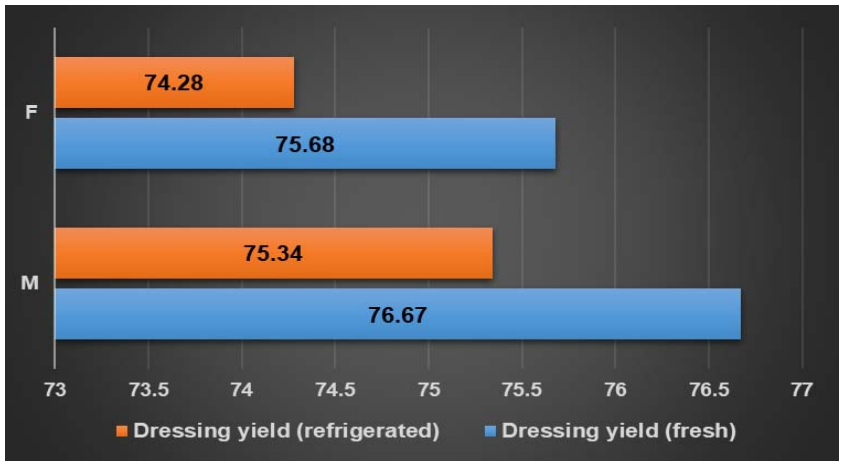

Fig. 1 Dressing yield

Sliced portions of carcasses

The average weight of the chest was 469.79 ± 13.72 g with a minimum of 455.50 g and a maximum of 490.14 g among males with a coefficient of variation of 2.50%; Among females the limits were 390.50 g (minimum) and 450.55 g (maximum) obtaining an average weight of 427.29 ± 16.08 g with a coefficient of variation of 4.50%. For both the male and female groups, values of coefficients of variation below 5% were obtained, which indicates a very good homogeneity.

The weight of the thighs among the males had values that ranged between 370.70 g (minimum) and 460.16 g (maximum), the average value for this portion being 409.14 ± 29.93 g. Thus resulted a coefficient of variation of 7.67%, indicating a fairly good homogeneity.

In females the values are between a minimum of 317.70 g and a maximum of 370.20 g, with an average value of 343.58 ± 15.27 g. Here, too, the value obtained for the coefficient of variation indicates a fairly good homogeneity, which is 4.85%.

After weighing the back, the males had an average value of 908.69 ± 29.17 g with variation limits between 776.21 g (minimum) and 1125.45 g (maximum). The value of the

coefficient of variation (V% = 9.15) indicated a fairly good homogeneity.

After weighing the back from the females, their weight reached the average value of 912.75 ± 46.93 g with variation limits between a minimum of 718.90 g and a maximum of 1148.76 g. The coefficient of variation indicated an average homogeneity, this being 16.26 %

The wings of the males weighed between 170.15 g (minimum) and 200.15 g (maximum), with an average weight of 186.68 ± 12.69; the coefficient of variation indicated a fairly good homogeneity (V% = 4.55).

The females had an average wing weight of 158.80 ± 13.09 g with values between the minimum of 144.90 g and the maximum of 175.15 g. The coefficient of variation had the value of 6.16%, indicating a good uniformity of the studied characteristic (table 3).

Table 3 The weight of the sliced portions

Nr	Sliced portion	Sex	$\overline{X}$ ±s $\overline{x}$ (g)	V%	Min (g)	Max (g)
1.	Chest	Male	469.79±13.72	2.50	455.50	490.14
		Female	427.29±16.08	4.50	390.50	450.55
2.	Thighs	Male	409.14±29.93	7.67	370.70	460.16
		Female	343.58±15.27	4.85	317.70	370.20
3.	Back	Male	908.69±29.17	9.15	776.21	1125.45
		Female	912.75±46.93	16.26	718.90	1148.76
5.	Wings	Male	186.68±12.69	4.55	170.15	200.15
		Female	158.80±13.09	6.16	144.90	175.15

Share ratio of the sliced portions

For the participation of the main parts in the carcass composition, by analyzing the results obtained, we can say that in the case of males the best performances were recorded in the thighs (21%) and in the chest (24%) (figure 2).

Females had higher values in the case of back, which occupied about 49% of the total carcass (figure 3). In both sexes, the wings had a participation rate of about 9%.

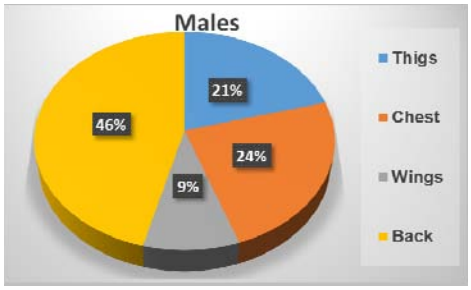

Fig. 2 Share ratio of the sliced parts (males)

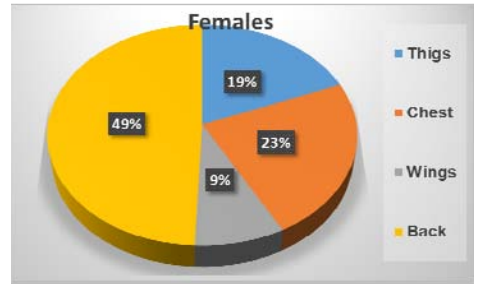

Fig. 3 Share ratio of the sliced parts (females)

CONCLUSION

Due to the qualities that poultry broiler meat presents, there is a growing demand for this type of meat on the world market, therefore, such research is of continuous interest.

The rearing of the Ross-308 broiler in an intensive system has wide development perspectives, if an optimal technology is used, but also a good quality biological material.

REFERENCES

[1] Evans T., 2015 – Global Poultry Trends – Growth in Chicken Consumption. The Poultry Sites.
[2] Usturoi, M.G. – Creşterea păsărilor, 2008.
[3] Vacaru-Opris, I. şi colab., 2000 – Tratat de avicultură. Vol. I. Editura Ceres, Bucureşti.
[4] Vidu, Livia. (2006). Filiera carnii.