

## STUDY ABOUT SLAUGHTERING RESULTS BY SEX AT ADULT QUAILS FROM BOBWHITE SPECIES (*Colinus virginianus*)

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### Abstract

In a study conducted on a total of 30 males and females of Bobwhite quail, *Colinus virginianus* species, was monitored to determine the average results at slaughter at 70 weeks of age. As a result of the research carried out was determined an average body weight similar in the two sexes, of  $245.00 \pm 2.35$  g/head in the female, while in male was of  $250.00 \pm 2.65$  g/head, and the weight of the carcass after evisceration was  $170.00 \pm 2.35$  g for females and of  $167.00 \pm 2.05$  g in males. The yield was of  $68.16 \pm 1.75$  % in females and of  $68.00 \pm 1.25$  % in males, the difference was not significant. The average breast weight was of  $87.00 \pm 1.05$  g in females and less with 2.3% in males, of  $85.00 \pm 1.13$  g, the difference being statistically not ensured. The average proportion of the chest was  $52.10 \pm 1.55$  % in females and of  $50.00 \pm 1.05$  % in males.

**Key words:** Bobwhite quail, slaughtering, carcass, yield.

### INTRODUCTION

Raising Bobwhite quail, called Virginia quail too (*Colinus virginianus*) in specialized establishments is less widespread, being the most common in the USA, where this quail lives in a natural way, in the wild too. In Pennsylvania are produced annually approximately 250,000 Bobwhite quails in private farms ([www.extension.psu.edu/bobwhite-quail-production](http://www.extension.psu.edu/bobwhite-quail-production)), and in Georgia are produced annually approximately 5,000,000 heads annually for hunting lands and trading (Dozier and Bramwell, 2009). Bobwhite quails were introduced as game birds in some countries in the European Union and in New Zealand.

From the point of view of the taxonomic, Bobwhite make part of the kingdom Animalia, Chordata phylum, class Aves, order Galliformes, Odontophoridae family, genus *Colinus*, species *Colinus virginianus* (Linnaeus, 1758) ([https://en.wikipedia.org/wiki/Northern\\_bobwhite](https://en.wikipedia.org/wiki/Northern_bobwhite)).

The live medium weight in wild quails is between 170 and 255 g/head. The average weight of the egg is 9.5 - 11 g and the colour of the egg shells is white. The duration of incubation period at Bobwhite quails is 23 - 24

days, and the females begin to lay eggs at the age of 22 weeks from their hatchability (Dozier and Bramwell, 2009) ([https://en.wikipedia.org/wiki/Northern\\_bobwhite](https://en.wikipedia.org/wiki/Northern_bobwhite)).

It is considered that Bobwhite quails are easily raised and reproduced. Adult quails ensures good production even at an ambient temperature between very wide limits, 10°C/50°F to 33°C/85°F while providing at the same time a duration of at least 17 hours light per day (Skewes and Wilson, 2003). You can feed them with a mixture of a commercial small seeds, supplemented with green feed or with compound feed for meat chicken in the form of crumbles.

The viability of the adult Bobwhite quails is very high considering that in the wild state they are more sedentary and adjusts easily to the winter conditions (C. Clark, <http://www.birdwatchersgeneralstore.com/quails.htm>;

[www.sdakotabirds.com/species/northern-quail](http://www.sdakotabirds.com/species/northern-quail)).

The rate of sexual dimorphism at Bobwhite quail species is between 50.85% and 51.20% at young quails (in the first year of life) and between 56.70% and 62.90% on adult quails (Leopold, 1945, 1951; Kabat and Thompson, 1963; Sinn, 1978, quoted by Brown and Guttierrez, 1980). Sexual dimorphism less

pronounced in these quail requires the age of slaughter to be greater for a good differentiation between male and female when the females shall be retained for the eggs production.

Raising Bobwhite quails represents a perspective activity and a very good opportunity considering that are less widespread in specialized poultry farms in Romania and the market price is very high. This quail can be raised for the décor, either for the population of hunting lands or for meat. Raising for meat production is a prospective activity for these quails in our country too, in view of the fact that it is a product with great taste, new and rare.

The literature is very limited as regarding farmed Bobwhite quails, and the present paper is also intended to be a starting point for research into the productivity of these quails, especially in our country.

## MATERIALS AND METHODS

Research has taken place within the holding of quails Ionita T. Lucian Individual Enterprise located in the village Gherghița, Prahova County, Romania.

Has been analysed a number of 30 adult Bobwhite quails, of which 15 females and 15 males, have been slaughtered in average age of 70 weeks from the hatching (20 weeks of growth and 50 weeks of laying).



Figure 1. Male (left) and female (right) of Bobwhite quail

The quails were housed in battery cages of wire mesh and have been fed with compound feed. The nutritional value of the recipe of the used

compound feed was the following: 2720 kcal metabolisable energy/kg of compound feed, 21% crude protein, 3.24% calcium, 0.66% phosphorus, 1.14% lysine, 0.56% methionine, 3.6% crude fat and 4.8% crude fibre. In the structure of the recipe of compound feed entered maize, wheat, soybean meal, sunflower meal, calcium carbonate, dicalcium phosphate, and vitamin-mineral premix.

The primary data have been obtained by individual weighing, before and after slaughter, and then, on the basis of them have been established the proportions of the various parts of the carcass and was done their statistical processing. The differences were tested by the Student test.

## RESULTS AND DISCUSSIONS

The body weight in females was of  $245.00 \pm 2.35$  g/head, while in males was of  $250.00 \pm 2.65$  g/head, the difference between the sexes being of only 2%, insignificant.

The weight of the carcass after bleeding has been with 2.45% higher in males ( $245.00 \pm 2.15$  g/head) compared with that of the females ( $239.00 \pm 2.25$  g), the difference being statistically uninsured.

The carcass weight after plucking was of  $214.00 \pm 2.15$  g in females and of  $217.00 \pm 2.55$  g to males, difference being insignificant.

The weight of the carcass after evisceration was of  $170.00 \pm 2.35$  g in females and of  $167.00 \pm 2.05$  g to males, the difference being insignificant between the two sexes.

The yield of the carcass was of  $68.16 \pm 1.75\%$  in females and  $68.00 \pm 1.25\%$  in males, the difference being insignificant.

The average weight of blood was of  $5.00 \pm 0.75$  g in females and by 16.67% higher, of  $6.00 \pm 0.35$  g in males, the difference being statistically significant. The average proportion of blood was of  $2.00 \pm 0.15\%$  to females and of  $2.45 \pm 0.25\%$  to males.

The average weight of flakes was of  $28.00 \pm 1.35$  g in females and less with 10.71 %, of  $25.00 \pm 1.65$  g in males, the difference being statistically significant. The average proportion of flakes was of  $11.42\% \pm 0.95$  in females and of  $10.46\% \pm 0.65$  to males.

Table 1. Slaughter results in females and males from the Bobwhite quail population at the age of 70 weeks

Specification	Females	Males
Body weight (BW) (g)	245.00 ± 2.35ns	250.00 ± 2.65ns
Carcase weight after bleeding (CWB) (g)	239.00 ± 2.25ns	245.00 ± 2.15ns
Carcase weight after plucking (CWP) (g)	214.00 ± 2.15ns	217.00 ± 2.55ns
Carcase weight after evisceration (CWE) (g)	170.00 ± 2.35ns	167.00 ± 2.05ns
The carcase yield (carcase eviscerated/body weight) (%)	68.16 ± 1.75ns	68.00 ± 1.25ns
Blood weight (g)	5.00 ± 0.75*	6.00 ± 0.35*
Flakes weight (g)	28.00 ± 1.85*	25.00 ± 1.65*
Organs and intestines weight (g)	31.00 ± 1.35ns	32.00 ± 1.45ns
Blood proportion (%)	2.00 ± 0.15*	2.45 ± 0.25*
Flakes proportion (%)	11.42 ± 0.95*	10.46 ± 0.65*
Organs and intestines proportion (%)	14.74 ± 1.05ns	14.95 ± 1.35ns

Note: ns – insignificant difference; \* - significant difference

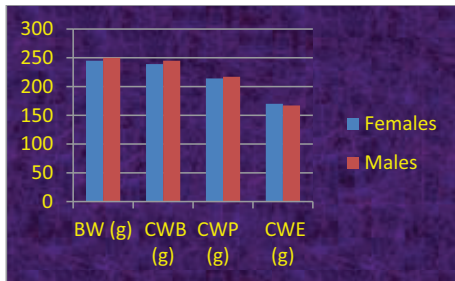


Figure 2. Comparative results in the two sexes of a Bobwhite quail population slaughtered at 70 weeks

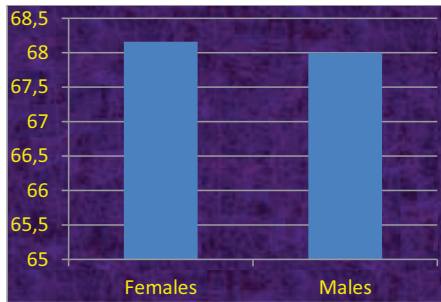


Figure 3. The yield of the carcass at the Bobwhite females and males slaughtered at 70 weeks

The average weight of the organs and intestines was of 31.00 ± 1.35 g to females and of 32.00 ± 1.45 g to males, the difference being statistically insignificant. The average proportion of organs and intestines was of 14.74% ± 1.05 to females and of 14.95 ± 1.35% to males.

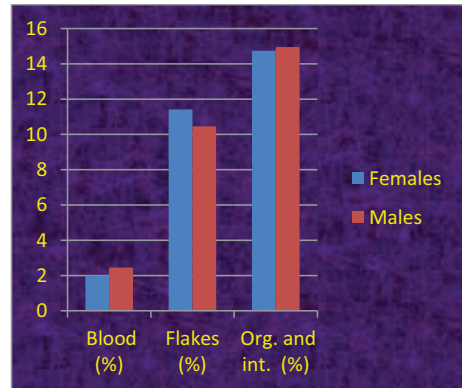


Figure 4. The average proportion of blood, flakes, organs and intestines to the studied females and males of Bobwhite quail at the age of 70 weeks

Table 2. The weight of the component parts of the carcass at the males and females of the Bobwhite population at the age of 70 weeks

Specification	Females	Males
Chest weight (g)	87.00 ± 1.05ns	85.00 ± 1.13ns
Thighs weight (g)	47.00 ± 0.85ns	46.00 ± 0.66ns
Back weight (g)	27.00 ± 0.37*	32.00 ± 0.44*
Wings weight (g)	10.00 ± 0.14*	12.00 ± 0.10*
Chest proportion (%)	52.10 ± 1.55ns	50.00 ± 1.05ns
Back proportion (%)	16.17 ± 0.87*	18.82 ± 0.19*
Thighs proportion (%)	27.64 ± 0.38ns	27.54 ± 0.47ns
Wings proportion (%)	6.00 ± 0.38*	7.05 ± 0.47*

Note: ns – insignificant difference; \* - significant difference

The average weight of the chest was of  $87.00 \pm 1.05$  g to females and of  $85.00 \pm 1.13$  g to males, the difference being statistically insignificant. The average proportion of the chest was of  $52.10 \pm 1.55\%$  to females and of  $50.00\% \pm 1.05$  to males.

The average weight of the thighs was of  $47.00 \pm 0.85$  g for females and  $46.00 \pm 0.66$  g for the males, the difference being statistically insignificant. The average proportion of the thighs was of  $27.64\% \pm 0.38$  in females and of  $27.54\% \pm 0.47$  in males.

The average weight of the back was of  $27.00 \pm 0.37$  g to females and  $32.00 \pm 0.44$  g to males, the difference being statistically significant. The average proportion of the back was of  $16.17 \pm 0.87\%$  in females and of  $18.82\% \pm 0.19$  to males.

The average weight of the wings was of  $10.00 \pm 0.14$  g in females and of  $12.00 \pm 0.10$  g to males, the difference being statistically significant. The average proportion of the wings was of  $6.00 \pm 0.38\%$  in females and of  $7.05\% \pm 0.47$  to males.

## CONCLUSIONS

The average body weight at the age of 70 weeks at the analysed Bobwhite quails (*Colinus virginianus*) was of  $245.00 \pm 2.35$  g/head in females, while in the males has been with only 2% higher, of  $250.00 \pm 2.65$  g/head, the difference between the two sexes being insignificant. The average weight of the carcass after evisceration was of  $170.00 \pm 2.35$  g in females and of  $167.00 \pm 2.05$  g to males, the difference being insignificant. The average weight of blood was significantly higher in males, as well as the proportion thereof, and the weight of flakes has been significantly less with 10.71%, in males, as well as their average proportion.

The mean breast size proportion was similar in both sexes, of  $52.10 \pm 1.55\%$  in females and of  $50.00 \pm 1.05\%$  in males. The average proportion of the thighs was of  $27.64 \pm 0.38\%$  in females and of  $27.54 \pm 0.47\%$  to males, without that the difference between females and males being significant. The mean proportion of the wings was of  $6.00\% \pm 0.38$  in females and significantly higher, of  $7.05\% \pm 0.47$  to males.

The yield of the carcass was of  $68.16\% \pm 1.75$  in females and of  $68.00\% \pm 1.25$  to males, the difference being insignificant.

As a general conclusion, the weight and the yield of the carcass are alike at the two sexes, in the same way as the weight and the proportion of the chest and thighs. Only the weight and the proportion of the wings and back are significantly higher in males.

Researches on the performance of Bobwhite quails production are pretty rare, wild Bobwhite quails being studied more frequently. However, for spreading in specialized farms new research is needed on the growth and production parameters, especially on the youth and the egg production of these quails.

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