

Study on the Influence of Lysine and Methionine Essential Amino Acid Supplementation of Compound Feed Recipes on Growth and Slaughter Performance in Jumbo Meat Quails Between 1 and 56 Days

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Abstract

To establish the influence of the diet on growth and slaughter results, an experiment was organized on two batches of Jumbo meat quails between 1-56 days. To determine the optimal age for slaughter, slaughter was performed at 42, 49 and 56 days.

The mean body weight at the age of 42 days was 243.60±4.80 g in the control group and 267.44±9.33 g in the experimental group, the difference between the groups being very significant; at the age of 49 days it was 271.10±9.20 g in the control group and 291.40±13.06 g in the experimental group, the difference being significant, while at the age of 56 days it was 294.80±12.80 g in the group control and 301.00±11.50 g in the experimental one, the difference being not statistically assured.

The results obtained in the present study recommend the use of compound feed recipes in meat quails with higher levels of lysine and methionine in rising for 42 and 49 days, which ensures superior growth and slaughter performance in meat quails. At the same time, it is recommended to establish the optimal age for slaughter according to the specific consumption of compound feeds, an age that in the present experiment turned out to be 42 days, or 49 days if a larger carcass is desired.

Keywords: amino acid supplementation, feeding, growth, meat quails, slaughtering performances

1. Introduction

The influence of diet, especially lysine and methionine levels in compound feeds, on the productivity of meat quails is an insufficiently studied aspect, although these two amino acids greatly influence the productivity of birds. Nutrition research has shown the favorable effect of increasing the levels of lysine and methionine in compound feeds on poultry growth, by improving the biological value of protein,

optimizing compound feed recipes according to the growth phase, reducing the amount of nitrogen in manure, production performance is improved and the quality of animal products increases [1, 2]. In general, the feeding of quail youth is done biphasic, with compound feeds specific to quail youth. Thus, in the first 3-4 weeks of growth is often used in our country a forage with a nutritional value of 3010 kcal metabolizable energy/kg c.f., 24.80% PB, 1.58% lysine and 0.97% methionine, while in the period 4-6 weeks a fodder with a nutritional value of 3140 kcal metabolizable energy / kg c.f., 22.50% PB, 1.33% lysine and 0.98% methionine is used [1]. In most cases, due to the growth technology applied by farmers, the quail youth exceeds the growing age

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of 6 weeks, which requires finding ways to reduce production costs as much as possible in a period of time in which the gain is much lower [1].

Improving the genetic potential and productive performance of animals in general, and therefore of quails specialized in the direction of meat production, has greatly increased their requirements in essential amino acids.

Large companies specialize in creating recommended claims for the use of compound feeds with higher levels of essential amino acids, especially in youth, which generally has a fast growth and a low capacity to ingest food. In this regard, nutrition research has shown the favorable effect of lysine and methionine overdose in food on animal growth performance [2].

The purpose of the experiment was to test supplementation with essential amino acids (lysine and methionine) in the direction of meat

production of meat quails Jumbo compared to a feed that is traditionally applied to mixed quails.

2. Materials and methods

The research took place on a herd of 200 “Jumbo” meat quail chickens, which at hatching were divided into two groups: 100 chickens formed the control group and 100 chickens formed the experimental group. The chicks were raised in the same space on the ground, on a permanent bedding, being separated by a dividing fence. The heating was done with the help of 150 W infrared bulbs, and the lighting duration was 24 hours for both lots. Watering and feeding were done at will. Feeding was done biphasic, respectively: phase I: 1-3 weeks and phase II: 4-8 weeks. The recipes administered to the two batches had the following calculated nutritional values (Table 1):

Table 1. Calculated nutritional value of compound feed recipes administered two batches in the period 1 - 56 days

| Specification | Control lot | | Experimental lot | |
|--------------------------------|----------------------|-----------------------|----------------------|-----------------------|
| | Phase I 0-3 weeks | Phase II 4-8 weeks | Phase I 0-3 weeks | Phase II 4-8 weeks |
| Energy value (kcal ME/kg c.f.) | 3010 | 3140 | 3010 | 3150 |
| Crude protein (%) | 24.80 | 22.20 | 26.10 | 23.20 |
| Lysine (%) | 1.58 | 1.35 | 1.80 | 1.50 |
| Methionine + cystine (%) | 0.98 | 0.95 | 1.10 | 1.07 |
| Methionine (%) | 0.60 | 0.64 | 0.67 | 0.68 |
| Calcium (%) | 0.96 | 0.98 | 0.97 | 0.98 |
| Phosphorus (%) | 0.74 | 0.74 | 0.75 | 0.75 |
| Crude cellulose (%) | 3.20 | 3.50 | 3.30 | 3.50 |

It was determined at 1 day and weekly, the weight of each chick, and then the average and the average error were calculated. Differences between averages were analyzed using the Student's test. By the difference between the body weights, the average weekly gain was established and then the average daily gain. The consumption of compound feeds was also determined at the end of each week of growth, then the specific consumption. At the ages of 42, 49 and 56 days, birds were slaughtered, establishing the average results at slaughter and the component parts of the carcass for each batch, the statistical significance of the differences between the averages being established using the Student test.

The research took place within the quail farm Ioniță T. Lucian Individual Enterprise located in Gherghița commune, Prahova County.

3. Results and discussion

Body weight in quail chickens from the two groups studied in the period 1-56 days

If at the ages of 1 day, 7 and 14 days the differences between the two groups in terms of average body weight (Table 2 and Figure 1) were very small and statistically insignificant, at the age of 21 days the average weight was 7.93% higher in the experimental group, the difference between the two groups being distinctly significant. At the age of 28 days the body weight was 7.48% higher in the experimental group, the difference between the two groups was very significant and at the age of 35 days it was 9.90% higher in the experimental group, the difference being very significant.

At 42 days, the mean weight was 8.91% higher in the experimental group, of 267.44 ± 9.33 g, the difference being very significant, while at 49 days

it was 6.96% higher in the experimental group, of 291.40 ± 13.06 g, the difference between the two lots being significant.

Table 2. Average weekly body weight during the growth period 1-56 days

| Age | Average body weight (g) | |
|---------|-------------------------|-----------------------|
| | Control lot | Experimental lot |
| 1 day | 9.10 ± 0.03 ns | 9.49 ± 0.04 ns |
| 7 days | 29.91 ± 0.16 ns | 30.35 ± 0.14 ns |
| 14 days | 68.08 ± 0.45 ns | 74.27 ± 0.32 ns |
| 21 days | 120.68 ± 0.54 ** | 131.08 ± 0.48 ** |
| 28 days | 180.23 ± 0.60 *** | 194.81 ± 0.52 *** |

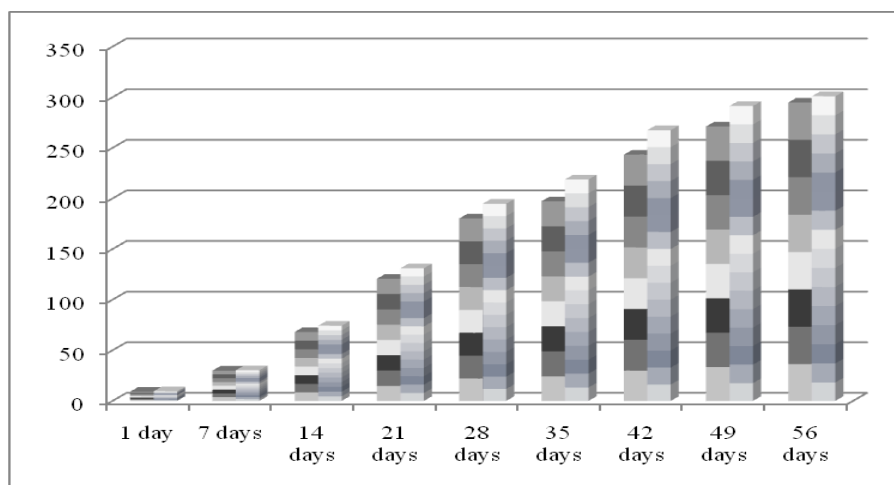


Figure 1. Average weekly body weight (g) during the growth period of 1-56 days

At the age of 56 days, the average weight was 2.06% higher in the experimental group, the difference between the two groups not being statistically assured.

Weight gain, combined feed consumption and specific consumption of quail chickens in the two groups during the period 1 to 56 days

If in the first week of growth (Table. 3), in both groups approximately the same value of the gain was registered, in the second week of growth, it was 13.10% higher in the experimental group, and in the third week with 7.41% higher in the experimental group compared to the control group. In the 5th week of growth, in the experimental group the increase was 29.40% higher compared to the control group, the difference being statistically assured. In the 4th and 6th week, the highest weight gains were recorded in both groups, which were 6.56% higher in the experimental group in the fourth week and 4.50 % higher in the experimental group

in the sixth week compared to the control group, the differences not being statistically assured.

In the seventh week of growth the gain increase in growth was 12.87% higher in the control group, while in the eighth week of growth it was 59.47% higher in the control group compared to the experimental group, the differences being statistically assured.

The total weight gain in the period 1-8 weeks was 285.60 g/head in the control group and 2.11% higher in the experimental group (291.76 g/head), the difference not being statistically assured.

The average daily consumption of compound feeds increased steadily from 8.74 g/head in chickens in the control group and 9.32 g/head in the experimental group in the first week, to 46.91 g/head in the control group and 45.00 g/head in the experimental group in the eighth week.

The lowest specific consumption in the control group was registered in week I (2.94 g c.f./g gain) and in the experimental group in week II (2.68 g c.f./g gain). The highest specific consumptions

were registered in the 7th and 8th weeks when the lowest weight gain was registered.

Table 3. Average weekly and daily increase in weight gain, average daily consumption of compound feeds and specific consumption of chickens in the two groups in the period 1 to 56 days (g)

| Week of growth | Control group | | | | Experimental group | | | |
|----------------|---------------|---------|---------|-------|--------------------|---------|---------|-------|
| | AWG (g) | ADG (g) | ADC (g) | SC | AWG (g) | ADG (g) | ADC (g) | SC |
| I | 20.81 | 2.97 | 8.74 | 2.94 | 20.86 | 2.98 | 9.32 | 3.12 |
| II | 38.17 | 5.45 | 16.67 | 3.06 | 43.92 | 6.27 | 16.79 | 2.68 |
| III | 52.60 | 7.51 | 32.66 | 4.38 | 56.81 | 8.12 | 35.55 | 4.37 |
| IV | 59.55 | 8.51 | 33.88 | 3.98 | 63.73 | 9.10 | 32.96 | 3.62 |
| V | 17.00 | 2.43 | 33.91 | 13.95 | 24.08 | 3.44 | 33.01 | 9.60 |
| VI | 46.37 | 6.62 | 36.08 | 5.45 | 48.55 | 6.94 | 38.61 | 5.56 |
| VII | 27.50 | 3.93 | 44.00 | 11.19 | 23.96 | 3.42 | 42.60 | 12.46 |
| VIII | 23.70 | 3.39 | 46.91 | 13.84 | 9.60 | 1.37 | 45.00 | 32.85 |
| Average I-VI | - | 5.58 | 27.00 | 5.63 | - | 6.14 | 27.70 | 4.82 |
| Total I-VI | 234.50 | - | 1133.58 | - | 257.95 | - | 1163.68 | - |
| Average I-VII | - | 5.35 | 29.42 | 6.42 | - | 5.75 | 29.83 | 5.92 |
| Total I-VII | 262.00 | - | 1441.58 | - | 281.91 | - | 1461.88 | - |
| Average I-VIII | - | 5.10 | 31.50 | 7.35 | - | 5.21 | 31.73 | 9.28 |
| Total I-VIII | 285.7 | - | 1769.95 | - | 291.51 | - | 1776.88 | - |

Note: ADG-average weekly weight gain (g/head/week); ADG-average daily weight gain (g/head/day); ADC-average daily consumption of compound feed (g c.f./head/day); SC-specific consumption of compound feed (g c.f./g weight gain)

The average growth performances in the period I–VI weeks in the chicks from the two groups.

- The mean live weight at the age of 42 days was 243.60±4.80 g in the control group and 267.44±9.33 g in the experimental group, the difference being very significant in favor of the experimental group.
- The average daily weight gain in the control group was 5.58 g/head, while the total gain was 234.50 g/head. In the experimental group, the average daily gain was 6.14 g/head, while the total gain was 257.50 g/head.
- The total consumption of compound feeds in the control group was 1133.58 g/head, while in the experimental group it was 1163.68 g/head.
- The specific consumption of compound feeds/gain in the control group was 5.63 g c.f./g gain, and in the experimental group it was 4.82 g c.f./g gain.

In a study conducted in Romania by (Popescu-M. Elena et al., 2006) [3] on two batches of mixed quail and meat chickens, the batch of meat quail chickens mentions at the age of 42 days an average weight of 244.9 g/head, an average daily weight gain of 6.1 g/head, a combined feed consumption of 870.24 g/head and a specific consumption of 3.47 g c.f./g gain.

A study conducted in Estonia by Lember and Laan (2013) [4] presents the average production

performance of quails exploited in farms in this country. The authors show, among other things, the results of slaughter on meat quails.

Thus, at the age of 42 days, an average live weight of 239.2 g/head and a eviscerated carcass weight of 158.40 g were recorded in the Pharaoh quail, performances similar to those recorded in the control group in the present experiment, and in the French quail it is mentioned an average live weight of 281.80 g/head and an eviscerated carcass weight of 177.80 g, performances similar to those of the present experiment recorded in the experimental group.

In a study conducted in India on a herd of meat quail during 1 to 5 weeks of growth in which the testing of different energy-protein levels of combined feed recipes on growth performance was tested, the authors (Dowarah and Sethi, 2014) [5], mentions an average live weight at the age of 3 weeks of 159.8 g/head and 244.6 g/head at the age of 5 weeks. At the same time, a specific consumption of 2.45 g c.f./head in the period 1-3 weeks and of 5.12 g c.f./head in the period 4-5 weeks is mentioned.

In a study conducted in Egypt which aimed to determine the influence of different protein levels, but also lysine on growth performance in Japanese quails, the authors (Reda et al., 2015) [6], established at 1 week a weight 32.97 g, similar to that set in the two groups in the present

experiment. At the age of 3 weeks the average live weight was 111.79 g, so that at 5 weeks the average live weight was 187.89 g. The results showed that the positive effect of higher levels of protein and lysine takes effect only in the third week of growth.

In a study conducted in Brazil (2017) by a team of researchers led by Dumont [7], the authors studied 5 protein levels, applying a three-phase feeding (0-14 days, 14-28 days and 28-42 days). It is mentioned a live weight according to the level of crude protein in the combined feed recipe used between 28 and 42 days for meat quails during 1-42 days as follows: 229 g/head at an average level of 19% CP, 226 g/head, at an average level of 21%, 243 g/head, at a level of 23%, 247 g/head, at an average level of 25%, of 242 g/head at an average level of 27% CP.

The average growth performances in the period I–VII weeks in the chicks from the two groups

- The mean live weight at the age of 56 days was 271.10 ± 9.20 g in the control group and 291.40 ± 13.06 g in the experimental group, the difference between the two groups being significant.
- The average daily increase in weight gain in the control group was 5.35 g/head, while the total gain I-VIII weeks was 262.00 g/head. In the experimental group, the average daily gain was 5.75 g/head, while the total gain was 281.91 g/head.
- The total consumption of compound feeds in the control group was 1441.58 g/head, while in the experimental group it was 1461.88 g/head.
- The specific consumption of compound feeds/gain in the control group was 6.42 g c.f./g gain, and in the experimental group it was 5.92 g c.f./g gain.

The average growth performances in the period I–VIII weeks in the chicks from the two groups.

- The mean live weight at the age of 56 days was 294.80 ± 12.80 g in the control group and 301.00 ± 11.50 g in the experimental group, the difference between the two groups being insignificant.
- The average daily weight gain in the control group was 5.10 g/head, while the total increase I-

VIII weeks was 285.70 g/head. In the experimental group, the average daily gain was 5.21 g/head, while the total gain was 291.51 g/head.

The total consumption of compound feeds in the control group was 1769.95 g/head, while in the experimental group it was 1776.88 g/head.

- The specific consumption in the control group was 7.35 g c.f./g gain, and in the experimental group it was 9.28 g c.f./g gain.

Average slaughter results for quail chicks in the two groups at 42, 49 and 56 days of age

At the age of 42 days, the average carcass weights after bleeding, plucked and eviscerated were very significantly higher in the experimental group compared to the control group (Table 4, Figure 2).

At the age of 49 days, they had significantly higher values in the control group than in the experimental group, while at the age of 56 days the differences between the two groups were statistically insignificant. The highest mean carcass weight after evisceration was recorded in the experimental group at 56 days of age (213.30 ± 3.22 g), and the lowest in the control group at 42 days of age (168.30 ± 4.27 g).

The yield of the eviscerated carcass did not register a significant difference between the two groups at the age of 42 days (69.07 ± 0.25 % in the control group and 70.72 ± 1.03 %, higher, in the experimental group); at the age of 49 days the difference was significant in favor of the control group (71.62 ± 0.95 % in the control group and 69.16 ± 0.64 % in the experimental group), and at the age of 56 days the difference was statistically insignificant, but the value of the yield was higher in the experimental group (68.36 ± 1.56 % in the control group and 70.81 ± 0.20 % in the experimental group).

If at the age of 42 days the blood weight was significantly higher in the control group (11.50 ± 0.65 g and 4.71 ± 0.27 % of the mean carcass weight, respectively) compared to the experimental group (10.00 ± 1.12 g, respectively 3.76 ± 0.19 % of carcass weight), at the ages of 49 and 56 days the differences between the two groups were statistically insignificant.

There were no significant differences between the two groups in terms of average flake weight at 42 and 49 days of age, whereas at 56 days it was significantly higher in the experimental group (38.20 ± 2.73 g, respectively 12.57 ± 0.70 % of the

carcass weight) compared to the control group (30.40 g±2.38, respectively 10.28%±0.80 of the average carcass weight).

The mean weight of organs and intestines differed insignificantly at the age of 42 days, at the age of 49 days the difference was distinctly significant,

higher in the experimental group, of 37.20±0.90 g (respectively 12.63±0.04% of carcass weight), and at the age of 42 days it was only significant, higher in the control group, of 39.50±0.35 g (respectively 13.26±0.28% of the carcass weight).

Table 4. Slaughter results at the quails from two lots at 42, 49 and 56 days of age

| Specification | Control lot | | | Experimental lot | | |
|---------------------------------------|--------------------|---------------------|---------------------|--------------------|-------------------|--------------------|
| | 42 days | 49 days | 56 days | 42 days | 49 days | 56 days |
| Live weight (g) | 243.60±5.54 aaa | 271.10±8.17 b | 294.80±6.80 cns | 267.80±4.68 aaa | 291.40±6.78 b | 301.00±5.36 cns |
| Carcass weight after bleeding (g) | 232.10±5.43 aaa | 259.90±7.88 b | 279.90±11.72 cns | 257.80±4.67 aaa | 279.00±6.70 b | 289.49±4.89 cns |
| Carcass weight after plucking (g) | 223.70±6.37 aaa | 241.40±6.35 b | 264.40±5.33 cns | 240.10±5.18 aaa | 257.50±5.63 b | 262.80±3.38 cns |
| Carcass weight after evisceration (g) | 168.30±4.27 aaa | 193.60±3.89 b | 200.30±5.73 c | 189.40±4.57 aaa | 200.90±4.11 b | 213.30±3.22 c |
| Carcass yield (%) | 69.07±0.25 ans | 71.62±0.95 b | 68.36±1.56 cns | 70.72±1.03 ans | 69.16±0.64 b | 70.81±0.30 cns |
| Blood weight (g) | 11.50±0.65 a | 11.20±0.44 bns | 14.90±5.66 cns | 10.00±1.12 a | 12.40±0.94 bns | 11.60±0.60 cns |
| Flake weight (g) | 29.90±2.72 ans | 29.70±2.00 bns | 30.40±2.38 c | 27.70±3.18 ans | 33.90±1.62 bns | 38.20±2.73 c |
| Organs and intestines weight (g) | 33.50±0.74 ans | 31.10±1.11 bb | 39.50±0.35 c | 37.30±1.43 ans | 37.20±0.90 bb | 37.70±0.58 c |
| Blood proportion (%) | 4.71±0.27 a | 4.17±0.11 bns | 4.90±1.78 cns | 3.76±0.19 a | 4.13±0.30 bns | 3.80±0.13 cns |
| Flake proportion (%) | 12.36±1.14 ans | 10.92 ± 0.45 bns | 10.28±0.80 c | 10.25±1.28 ans | 11.64±0.38 bns | 12.57±0.70 c |
| Organs and intestines proportion (%) | 13.75±0.13 ans | 11.49±0.43 bb | 13.26±0.28 c | 13.77±0.54 ans | 12.63±0.04 bb | 12.39±0.33 c |

Note : a-Control lot vs experimental lot significance difference at 42 days of age (ans – insignificant, a – significant, aa-distinct significant, aaa-very significant); b-Control lot vs experimental lot significance difference at 49 days of age (bns-insignificant, b-significant, bb-distinct significant, bbb-very significant); c-Control lot vs experimental lot significance difference at 56 days of age (cns-insignificant, c-significant, cc-distinct significant, ccc-very significant)

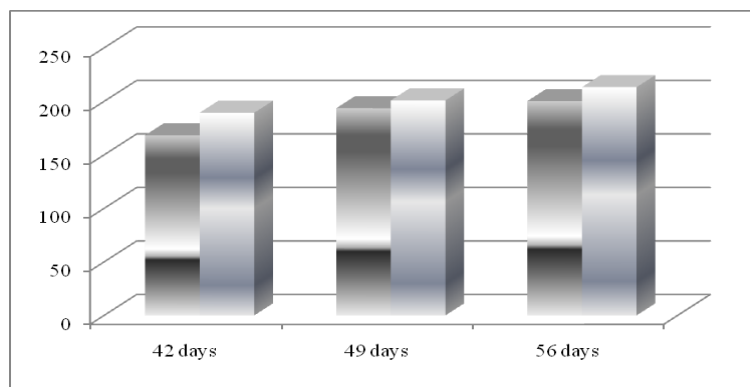


Figure 2. Average carcass weight of chickens in the two groups at the age of 42 days, 49 days and 56 days

At the age of 42 days (Table. 5, Figure 3), the mean chest weight was higher in the experimental group (99.60±3.77 g and 52.54±1.69% of the average carcass weight, respectively) compared to the control group (84.80±3.84 g, respectively 50.30±1.00% of the carcass weight), the

difference being very significant. At the ages of 49 and 56 days, the average chest weight registered insignificant differences between the two groups.

The mean weight of the thighs at the age of 42 days was very significantly higher in the

experimental group (45.20±1.23 g respectively 23.8±0.45% of the average carcass weight) compared to the control group (39.60 g±1.56, respectively 23.54%±0.62 of the carcass weight).

Table 5. Cutting results obtained on quails from the two groups studied at 42, 49 and 56 days

| Specification | Control lot | | | Experimental lot | | |
|-----------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| | 42 days | 49 days | 56 days | 42 days | 49 days | 56 days |
| Carcass weight (g) | 168.30±4.27 aaa | 193.60±3.89 bns | 200.30±5.73 cns | 189.40±4.57 aaa | 200.90±4.11 bns | 213.30±3.22 bbb |
| Breast weight (g) | 84.80±3.84 aaa | 95.40±4.20 bns | 104.6±2.11 cns | 99.60±3.77 aaa | 104.90±3.37 bns | 109.20±1.72 cns |
| Thighs weight (g) | 39.60±1.56 aaa | 46.20±1.45 bns | 44.90±1.44 ccc | 45.20±1.23 aaa | 45.40±1.90 bns | 50.00±0.74 ccc |
| Back weight (g) | 29.00±1.35 aaa | 31.70±0.90 bbb | 37.20±1.17 cc | 35.30±0.73 aaa | 37.40±0.58 bbb | 33.80±0.94 cc |
| Wings weight (g) | 11.20±0.46 ans | 12.70±0.51 bns | 12.10±0.37 cns | 12.10±0.37 ans | 12.00±0.32 bns | 11.80±0.37 cns |
| Breast proportion (%) | 50.30±1.0 aaa | 49.10±1.36 b | 52.10±0.41 cns | 52.24±1.69 aaa | 52.10±0.62 b | 51.54±0.33 cns |
| Thighs proportion (%) | 23.54±0.62 aaa | 23.86±0.40 bns | 22.43±0.34 ccc | 23.88±0.45 aaa | 22.58±0.63 bns | 23.78±0.30 ccc |
| Back proportion (%) | 17.30±0.88 aaa | 16.35±0.36 bbb | 18.81±0.43 cc | 18.51±0.27 aaa | 18.65±0.61 bbb | 15.88±0.42 cc |
| Wings proportion (%) | 6.68±0.27 ans | 6.58±0.25 bns | 6.11±0.27 cns | 6.44±0.16 ans | 6.00±0.12 bns | 5.61±0.17 cns |

Note : a-Control lot vs experimental lot significance differences at 42 days of age (ans-insignificant, a-significant, aa-distinct significant, aaa-very significant); b-Control lot vs experimental lot significance differences at 49 days of age (bns- insignificant, b-significant, bb-distinct significant, bbb-very significant); c-Control lot vs experimental lot significance differences at 56 days of age (cns-insignificant, c-significant, cc-distinct significant, ccc-very significant).

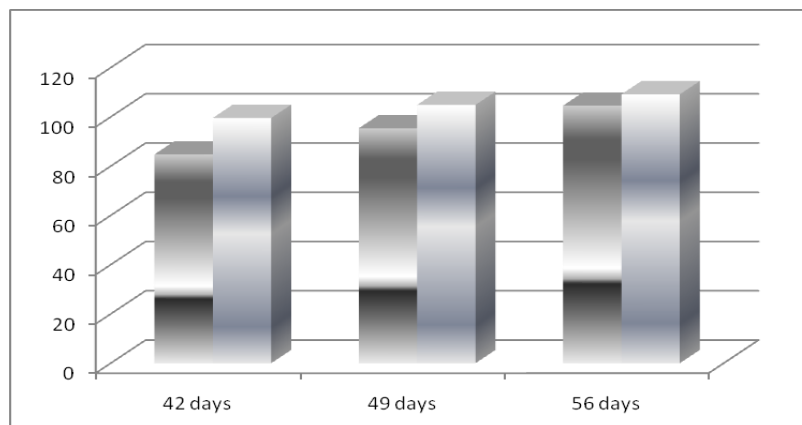


Figure 3. Chest weight in quails from the groups studied at the ages of 42, 49 and 56 days

At the age of 49 days the difference between the two groups was insignificant, and at the age of 56 days the difference was again very significant, in favor of the experimental group.

The average weight of the back at the ages of 42 and 49 days was very significantly higher in the experimental group compared to the control group, while at the age of 56 days it was lower in the experimental group compared to the control group, the difference being distinctly significant.

The average weight of the wings registered a statistically insignificant difference between the groups both at the age of 42 days and at the ages of 49 and 56 days.

A study conducted in Turkey [8] on quails selected in the direction of meat production mentions a live weight at the age of 42 days of 211.8 g/head , a carcass weight of 146 g, a chest weight of 53 g and a wing weight of 33.7 g. At the age of 49 days the average live weight was 220.5

g/head, the average carcass weight was 149.7 g/head, the average weight of the chest was 53.8 g, and the weight of the thighs was 34.3 g. At the age of 56 days the average live weight was 225.6 g/head, the carcass weight of 152.5 g/head, the average weight of the chest of 55.7 g, and the weight of the thighs was 34.8 g.

In the same study from Brazil [7], the authors mention an average carcass weight of 131 g at 19% PB, 171 g at 21%, 180 g at 23%, 182 g at 25% and 176 g at 27% CP. The weight of the breast varied between 70 and 76 g, depending on the protein level of the recipe from 28 to 42 days.

4. Conclusions

The mean body weight in 42-day-old Jumbo meat quails was 243.60±4.80 g in the control group and very significantly higher, 267.44±9.33 g in the experimental group; at the age of 49 days it was 271.10±9.20 g in the control group and significantly higher, 294.40±13.06 g in the experimental group, while at the age of 56 days it was 294.80±12.80 g in the control group and resembling, statistically insignificant higher, of 301.00±11.50 g, in the experimental group.

The total weight gain in the period 1-56 days was 285.70 g/head in the control group and similar, of 291.51 g/head in the experimental group. The average daily weight gain in the period 1-42 days in the control group was 5.58 g/head, while in the experimental group it was 6.14 g/head, by 9.12% higher.

The consumption of compound feeds in the period 1-56 days was 1769.95 g c.f./head in the control group and closed, of 1776.88 g c.f. / head in the experimental group, while the specific consumption was 7.35 g c.f./g gain in the control group and 9.28 g c.f./g gain, by 20.8% higher, in the experimental group.

The mean weight of the eviscerated carcass at the age of 42 days was 168.30±4.27 g in the control group and very significantly higher, 189.40±4.57 g in the experimental group. At the age of 49 days it was 193.60±3.89 g in the control group and significantly higher, of 200.91±4.11 g in the experimental group, and at the age of 56 days of 200.30±5.73 g in the control group and significantly higher, of 213.30±3.22 g in the experimental group. The mean chest weight at 42 days of age was 84.80±3.84 g in the control group

and very significantly higher, of 99.60±3.77 g in the experimental group. At 49 days, it was 95.40±4.20 g in the control group and 104.90±3.37 g in the experimental group, and at 56 days it was 104.60±2.11 in the control group and 109.20±1.72 in the experimental group. At 49 days, as at 56 days, the weight of the chest did not differ significantly in the two groups.

In the period I-VI weeks, the specific consumption in the control group was 5.63 g c.f./g gain, and in the experimental group it was 14.39% lower, of 4.82 g c.f./g gain.

During the period I-VIII weeks, in the chickens from the two groups, the specific consumption of compound feeds in the control group was 7.35 g c.f./g gain, and in the experimental group was significantly reduced, the specific consumption being by 20.8% higher.

Given the results obtained, it can be stated that the combined feed recipes administered to the experimental group can be recommended and used, but the quails should be slaughtered at the age of 42 days, and if a larger carcass is desired, the quails can be sacrificed at the age of 49 days. The very low weight gain and the high specific consumption of compound feeds recorded between 49 and 56 days in the experimental group show that the slaughter age of 56 days becomes economically unprofitable.

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