



Growth, Fattening Performance, Slaughter And Carcass Characteristics of Rock Partridges (*A. gracea*) Obtained from Molting Partridge Hens

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ABSTRACT

*This study has been done to determine growth, feed consumption, feed conversion, slaughter and carcass characteristics of Rock Partridges (*A. gracea*) obtained from molting hens. The chicks used as a research material in this study obtained from a partridge hen introduced to re-entered lying egg period with applying 16 hours of lighting per day in October. Partridges were slaughtered at 12 weeks of age. At this age, values of feed consumption, feed conversion ratio and average live weight were found as 2076.51 g, 5.20, and 421.57 g respectively. Live weights and carcass yields of male and female partridges were 458.54 and 407.18 g, 74.59 and 76.07 %. Breast and thigh percentage were determined as 34.66-35.11 % and 28.14-26.20 % for male and female partridges respectively. At the end of the study, it was seen that fattening performance, slaughter and carcass characteristics of Rock Partridges obtained from molting were similar to the same values of Rock partridges for normal breeding conditions. Therefore, incomes of the enterprises can be increased because of increasing annual production per hen.*

Key Words: Partridge, molting, growth, slaughter and carcass characteristics

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INTRODUCTION

In recent years, partridge breeding has become widespread. To provide birds for restocking and to ensure hunting bags, the partridges (*Alectoris rufa*, *Alectoris graeca* and *Alectoris chukar*) is raised in several Mediterranean countries (mainly Spain, Portugal, Turkey, Greece and Italy), which has led to a well-developed subsector of game farms[1]. Its eggs are traditionally obtained once in a year from partridges.

Egg production of partridges begins in April and continues until the end of July, a total of 16 weeks of egg production periods [2]. Chicks obtained from these eggs are generally used for hunting and fattening and their meat is consumed with great pleasure by people [3].

Research on the breeding and fattening of partridges is limited compared to other species of birds, although the interest in their meat for human consumption rises [4]. Partridge meat has a high nutritional value (240 g crude protein/kg and 603 kJ/100 g meat[4].

The optimal fattening period in partridges has been reported as 10 to 12 wk of age by Kırıkçı *et al* [2]. In the same research, live weights of 10 to 12 wk were reported as 307.29 and 335.58 g, respectively and additive feed consumption at 12 wk of age was reported as 1640.37 g. In another research [6], after 12 wk of fattening, live weight, additive feed consumption and feed conversion ratios were reported as 408.57 to 425.50 g; 1249.45 to 1582.27 g, and 3.16 to 3.84 respectively for 12 weeks of fattening. Arslan *et al.* [7]. reported that the live weight and feed consumption values of the control and experimental groups fed diet containing enzymes for 12 wk of fattening periods were reported as 421.57 to 439.77 g and 1463.79 to 1483.57 g, respectively. Kırıkçı *et al.* [2]. determined feed conversion as 4.44 and 4.69 at 10 and 12 weeks of age in rock partridges but Khaksar *et al* [7]. determined feed conversion as 5.45 and 6.80 at same weeks. Khaksar *et al*[8]. weights of chukar partridges as 387 and 426 g at 10 and 12 weeks of age, feed consumption was found 2112 and 2898 g. Hermes *et al.* [9]. stated that live weights of rock partridges fed with different rations varied among the values of 556-583 and 595-630 g at 16, and 20

weeks of age respectively. Gertonson *et al.*[3]. determined live weights of male and female partridges as 407.6, 416.5; 436.0, 463.8 and 499.2, 525.3 g at 14, 16 and 20 weeks of age respectively.

Günlü *et al.* [10]. reported that live weight and additive feed consumption and feed conversion ratio in the different stocking density (576.9 in the 576.9 cm²/chick (group I), 384.6 cm²/chick (group II), 288.5 cm²/chick (group III), and 230.8 cm²/chick (group IV) group. The live weight of the groups reported as 376.46, 367.95, 371.07, and 358.80 g, respectively. Additive feed consumption (g) and feed conversion ratio of the groups reported as 1.781 and 4.93; 1,805 g and 5.13; 1,830 g and 5.15; 1,720 g and 5.02, respectively.

Çetin[6] determined average carcass yields and dressing percentages of male, female partridges and mean value of the breed at 10 and 12 weeks as 295.96, 251.54, 280.41 and 347.92, 291.23, 305.78 g ; 69.16, 67.75, 68.67 and 73.39, 71.25, 71.79 % respectively. Gertonson *et al.* [3] reported that carcass dressing percentage of female and male partridges at 14, 16 and 20 weeks of age were 72.06, 75.08 and 69.33; 72.92, 72.90 and 74.38 % respectively. Juzl *et al* [11] reported that carcass yield at slaughter age of 90 days was 73.7 %, breast muscle yield was 18.1 % and thigh yield was 20.8 %. Çetin [6] determined that breast, thigh and wing percentage in carcass for partridges at 12 weeks of age 37.14, 26.23 and 10.88 % respectively.

This study was undertaken to determine growth and carcass characteristics of rock partridges obtained from molting partridge hens.

MATERIALS AND METHODS

The study has been carried out at the Veterinary Faculty Farm of University Selçuk. As research material, 77 partridges (*Alectoris graeca*) chicks obtained from molting partridge hens were used. The chicks used as material in this study, after 16 hours of light per day in October applied were obtained from re-entered the partridge egg production. After a 24 day incubation period, 100 one day old chicks were randomly selected for the experiment.

After incubation chicks were weighed and were put in a room (3.5x4.5 m) provided 33C° temperatures and the ground was covered by 8 cm layer of wood shavings used as litter. The temperature of the room was decreased to 30 C° one week later. After third-week eating was not applied to chicks. Heating was provided by infra-red heaters, and incandescent bulbs were used for lighting. A 24-h light regime was applied during the experiment. Partridges were fed a ratio containing 28 % crude protein during 0-5 weeks and fed a ratio containing 24 % crude protein during 6-12 weeks as *ad libitum*.

At 12 weeks of age, 20 partridges (10 males, 10 females) were slaughtered after an 8-h fasting period after recording their live weight. Carcass weights were recorded. Carcasses were cut into parts according to standard methods, and thighs, breast, wing, and total edible organs (heart, liver and gizzard) weights were recorded as percentages of cold-carcass weights. The weights of all carcass parts were measured with bone and skin. Carcass analysis was done with a method reported by Jones^[12].

Feed consumption, feed conversion and slaughter and carcass characteristics of rock partridges obtained from molting partridge hens were investigated in the study. Carcass characteristics of male and female partridges were analyzed with t test ^[13]. statistical analysis was performed using the software SPSS version 16.SPSS program.

RESULTS

Hatching weights, live weights, live weight gains, additive feed consumption and feed conversion ratio of the partridges are shown table 1.

Table 1. Live weights (LW), live weight gains (LWG), additive feed consumption (AFC) and feed conversion ratio (FC) of the partridges (n=77).

Weeks	LW $\bar{x} \pm S\bar{x}$	LWG (g)	AFC (g)	FC
Hatching	15.31±0.19	-	-	-
1	22.22±0.30	6.91	24.68	3.57
2	40.74±0.86	18.52	126.01	4.96
3	74.30±1.63	33.56	261.33	4.43
4	113.49±1.69	39.19	382.17	3.89
5	151.11±3.37	37.62	545.02	4.01
6	209.59±2.50	58.48	687.05	3.54
8	313.48±3.01	103.89	1060.74	3.56
10	388.50±3.86	75.02	1620.74	4.34
12	421.57±4.88	33.06	2076.51	5.20

As it was seen in table 1, the highest live weight gain of the chicks was 103.89 g between 6 and 8 weeks of age. Live weights of the partridges were found to be 388.50 and 421.57 g at 10 and 12 weeks of age. Feed conversion ratio of 12 weeks of age was 4.34.

Slaughter and carcass characteristics of rock partridges are seen in table 2.

Table 2. Slaughter and carcass characteristics of rock partridges (n=20)

Characteristics	Female $\bar{x} \pm S\bar{x}$	Male $\bar{x} \pm S\bar{x}$	Means $\bar{x} \pm S\bar{x}$
Live weight (g)	407.18±18.92	458.54±23.05***	435.43±33.43
Carcass weight (g)	309.73±14.93	342.00±17.99***	327.48±23.14
Carcass (%)	76.07±1.07	74.59±1.56	75.26±1.53
Head weight (g)	18.00±0.83	20.47±2.22**	19.36±2.12
Head (%)	4.43±0.25	4.46±0.32	4.44±0.28
Feet weight (g)	9.20±0.47	11.16±0.60***	10.28±1.13
Feet (%)	2.26±0.08	2.44±0.15**	2.36±0.15
Edible organs weight (g)	22.30±2.35	24.84±3.00	23.70±2.96
Edible organs (%)	7.20±0.68	7.28±1.02	7.25±0.86
Wings weight (g)	34.19±1.57	40.24±2.37***	37.51±3.68
Wings (%)	11.04±0.24	11.78±0.67**	11.45±0.63
Thighs weight (g)	81.22±6.04	96.23±5.47***	89.48±9.47
Thighs (%)	26.20±0.91	28.14±0.86***	27.27±1.31
Breast weight (g)	108.71±7.44	118.61±9.08*	114.15±9.60
Breast (%)	35.11±1.84	34.66±1.51	34.86±1.64

*, P<0.05 **; P<0.01, ***; P<0.001

When the table 2 was reviewed, it was seen that values of male and female partridges with respect to live weight and slaughter weight were statistically significant (P<0.001). However, the dressing percentage of male and female partridges was not statistical significant. Breast weight, an important piece of the carcass, was found to be 108.71 and 118.61 g for male and female partridges. Differences between the males and females were statistically considerable (P<0.05). There were no statistically differences between breast percentages of male and female partridges. Thighs weight, percentage of thighs, wings weight and percentage of wings were found statistically different (P<0.001) in the study.

DISCUSSION

According to the results of the study, live weights of the partridges at 12 weeks of age as 421.57 g. This value was higher than the same values reported by Kirikçi *et al.* [2]. and also higher than the value reported as between 358.8 and 376.46 g by Gunlu *et al.* [10]. However, live weights determined in this study were consistent with the body weight of partridges at 12 weeks of by Çetin[6], Khaksar *et al.* [8].and Hermes *et al.* [9]. Differences obtained in this research can be attributed to various feed contains and uncontrolled environment conditions. Because the experiment in this study conducted during the winter months and thus increased the partridge said that increased feed consumption.

Additive feed consumption and feed conversion values in the study, 2076.51g and 5.20. These values were higher than the same values reported by Kirikçi *et al* [2] , Çetin[6]., Arslan *et al.* [7].and .Gunlu *et al*[10]. This difference can be resulted of molting hen's chicks, and it can also be result of growing season came across winter. Thus, feed was consumed more. The low feed conversion in the study can be attributed to the same reasons. The values in the study for feed consumption and feed conversion were similar compared with the same values at 18 weeks of age reported by Khaksar *et al* [11].

Partridges in the study were slaughtered at 12 weeks of age. Slaughter and carcass characteristics of rock partridges are shown in table 2. The differences between male and females for live weight, carcass weight, wings and thighs weight were statistically significant (P<0.001); differences for head weight and breast weight were also considerable (P<0.01) and (P<0.05). Values for edible organs were not different between males and females. Differences between male and female for percentages of foot, wings and thighs were statistically significant (P<0.01) and (P<0.001) respectively. There were no differences in the other characteristics of male and female partridges. Therefore, head, foot and thighs can be used for sexing.

The mean dressing percentage for partridges was reported to be around 72% (Gülşen *et al.* [4], Khaksar *et al.* [8]. In the present study, the mean dressing percentage of partridges 76.07, 74.59 and 75.26 % in male, female and mean as respectively (77.4%). The dressing percentage for this study was higher than the percentages reported by Gertonson *et al* [3]. at 14, 16 and 20 weeks of age. In this study, live weights

and dressing percentages of rock partridges were found to be higher than the same characters reported by Çetin [6]. Superiority for dressing percentage in this study can be related to high live weight. Çetin [6], concluded that the higher age was related to the higher dressing percentage. The dressing percentage for partridges in this study was found to be lower than the same trait in Yamak *et al.* [14]. Yamak *et al.* [14] were reported that dressing percentage for reared 14 weeks old partridges in a barn and free-range system 78.5 to 80.5 % and 78.6-80.3 % respectively. The differences may be due to differences in slaughter age and different breeding and rearing condition of partridges. As a matter of fact that, Yamak *et al.* [14] reported that in the free range rearing systems to determine if they have access to higher body weight partridge.

The mean breast, thigh and wing percentage of partridges were found as 34.86, 27.27 and 11.45 % respectively in this study. These values were found as similar to Yamak *et al* [14]'s and Çetin [6]'s values. Same characters were reported that 36.9 and 37.3 %, 24.2 and 24.3 % and 10.3 and 10.6 % for reared partridges in a barn and free-range system respectively by Yamak *et al.* [14].

In the study, it was seen that fattening performance, slaughter and carcass characteristics of Rock Partridges obtained from molting hens were similar to the same values of Rock partridges obtained from first egg period in the same year. Therefore, incomes of the enterprises can be increased and can be more annual economical increasing yields.

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