Analysis of fattening performance and carcass value indicators of the common pheasant (*Phasianus colchicus L.*)

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Abstract

This work provides insights into the growth performance of the common pheasant *(Phasianus colchicus L.)* from the time of hatching until the age of 118 days and of carcass characteristics and the characteristics of edible organs and tissues in pullets and cockerels at the end of the fattening period. Results have demonstrated that the highest weight gains (12 g/day) occur in pheasant chicks between their 40th and 80th days of age, where a high significant difference ($P \leq 0.01$) between genders was found in the final live weight, carcass weight, and weight of the neck, heart, liver, stomach, skinned and unskinned thighs, upper thighs, lower thighs, muscles of the lower and upper thighs. Statistically highly significant gender-based differences ($P \leq 0.01$) were found in the carcass yield and in the yields of neck, heart, skinned breast muscles, skinned thighs, lower thighs and lower thigh muscles.

Pheasant, fattening, live weight, carcass yield, edible tissues and organs

Introduction

Fattening pheasants for the production of quality meat is a relatively recent development (Zapletal et al. 2012). With its high protein and low fat content, pheasant is a highly nutritious food whose value exceeds that of broiler chickens (Straková et al. 2011). Despite the fact that the intensive rearing of pheasants has developed relatively quickly in recent years, information on the fattening capabilities and slaughter values of pheasants is often insufficient in the current literature.

The length of the fattening period also differs in the literature. Kokoszynski et al. (2011) report 16-20 weeks, and the carcass yield between 69.7 and 73.7%, and similar conclusions were also reached by Adamski and Kuzniacka (2006). However, Sarica et al. (1999) used a shorter fattening period of 13, 14 and 15 weeks with a slaughter yield of 74.19%, 73.13% and 74.30%, respectively. A fattening period of 13 weeks was also used in the work of Straková et al. (2005).

The aim of this work was to monitor the growth intensity of pheasant chicks from the time of hatching to 118 days of age and then provide indicators of a dressed carcass (DC) and the edible tissues and organs of pullets and cockerels.

Materials and Methods

The study was carried out in an accredited experimental animal-breeding unit of the departments of Animal Nutrition and of Animal Husbandry and Animal Hygiene at the University of Veterinary and Pharmaceutical Sciences in Brno with controlled lighting, temperature and animal hygiene, where the pheasants, 200 in number, were housed using the deep litter method. The pheasants were fed *ad libitum* on three types of diets. A first diet of BR 1 (NS – nitrogenous substances 208.9 $g.kg^{-1}$; GE - gross energy 16.8 $MJ.kg^{-1}$) was fed to them till the age of 15 days, a diet of BR 2 (NS 193.0 $g.kg^{-1}$, GE 17 $MJ.kg^{-1}$) from day 16 to 30 days of age and a diet of BR 3 (NS 229.3 $g.kg^{-1}$, GE 17.4 $MJ.kg^{-1}$) until the end of the fattening period.

The pheasant chicks were weighed regularly during the course of the experiment; at days 1, 10, 20, 31, 40, 49, 60, 70, 80, 90, 101, 110 and 118 of age. The average daily gain was calculated on the basis of weight findings. On day 118 of the study, after having been stunned and killed by bleeding, 60 pheasants (30 cockerels and 30 pullets) were plucked and had their heads, feet and internal organs removed. Thus dressed carcasses were weighed and

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the carcass yield determined. The bodies were subsequently portioned into individual parts (neck, heart, liver, stomach, abdominal fat, breast muscle, unskinned and skinned thighs, muscles of the upper and lower thighs), and their weight and their yield were also determined as a percentage of live weight.

The data obtained were statistically evaluated by the Unistat CZ program, version 5.6 for Excel (2005), which compared the established means at a level of significance ($P \leq 0.01$ and $P \leq 0.05$) using Tukey's HSD test.

Results and Discussion

The live weight of the pheasant chicks was tracked during the experimental period (Table 1). The initial weight on day 1 of life was recorded at the amount of 21.2 g. The following inspection days saw the pheasants with the following values: 33.2 g (day 10), 100.2 g (day 20), 200.7 g (day 31), 310.4 g (day 40), 416.9 g (day 49), 555.1 g (day 60), 661.1 g (day 70), 780.2 g (day 80), 880.4 g (day 90), 969.9 g (day 101), 1018.6 g (day 110) and 1048.4 g (day 118). The differences between the mean values were tested as highly

Table 1. Progress of the live weight (g) of the pheasants during the fattening period

Day	No. of pheasants	Mean weight	SD
1	100	21.2	0.001
10	96	33.2	0.004
20	96	100.2	0.011
31	93	200.7	0.023
40	93	310.4	0.033
49	75	416.9	0.049
60	74	555.1	0.059
70	73	661.1	0.072
80	72	780.2	0.087
90	72	880.4	0.115
101	72	969.9	0.128
110	72	1018.6	0.136
118	72	1048.4	0.143

SD – standard deviation

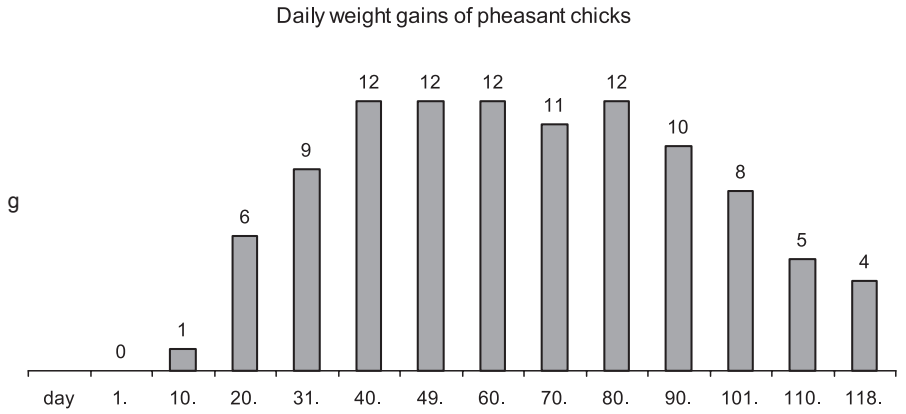

Fig. 1. Average daily weight gains (g) of pheasant chicks in different periods of fattening

statistically significant ($P \leq 0.01$). Similar live weights – 832 g for pullets and 1061 g for cockerels at the age of 90 days – were also found by Vitula et al. (2003). Adamski and Kuzniacka (2006) reported the weight of pullets and cockerels at day 84 as 710 g and 937 g, and as 874 g and 1198 g at day 112 of age.

The carcass weight and edible tissues and organs of pheasant pullets and cockerels at age 118 days are indicated in Table 2. From the results it is clear that there is a statistically highly significant ($P \leq 0.01$) higher live weight, carcass weight, and weights of neck, heart,

Table 2. Weight of dressed carcass and edible tissues and organs of pheasant pullets and cockerels at day 118 of age

Weight (g)	Pullets			Cockerels			M-F	
	n	x	SD	n	x	SD	difference	P
Live	30	991.50	71.064	30	1189.41	77.527	197.91	0.01
DC	30	736.70	55.610	30	883.45	60.558	146.75	0.01
Neck	30	29.27	3.686	30	39.94	3.671	10.67	0.01
Heart	30	5.78	0.766	29	8.54	1.274	2.76	0.01
Liver	30	15.25	2.684	30	17.89	2.948	2.64	0.01
Stomach	30	19.65	3.414	30	23.36	4.729	3.71	0.01
Abdominal fat	30	6.23	7.116	30	3.68	4.966	2.56	NS
Skinned breast meat	30	169.44	20.686	30	182.36	26.879	12.92	0.05
Unskinned thigh	30	216.13	22.610	30	268.30	27.437	52.17	0.01
Skinned thigh	30	192.68	16.570	30	246.58	24.191	53.90	0.01
Upper thigh	30	106.90	13.732	30	134.23	20.756	27.33	0.01
Lower thigh	30	84.94	8.420	30	114.35	10.661	29.41	0.01
Upper thigh meat	30	93.91	12.274	30	113.68	16.717	19.77	0.01
Lower thigh meat	30	61.16	6.852	30	84.34	8.790	23.18	0.01

DC – dressed carcass, n – number of pheasants, x – arithmetic mean, SD – standard deviation, M – males, F – females

Table 3. Weight of dressed carcass and edible tissues and organs of pheasant pullets and cockerels at 118 days of age

Yield (%)	Pullets			Cockerels			M-F	
	n	x	SD	n	x	SD	difference	P
DC	30	74.29	1.274	30	74.29	2.014	0.006	NS
Neck	30	2.97	0.407	30	3.36	0.324	0.39	0.01
Heart	30	0.59	0.089	30	0.72	0.103	0.13	0.01
Liver	30	1.54	0.266	30	1.51	0.262	0.03	NS
Stomach	30	1.98	0.291	30	1.97	0.393	0.01	NS
Abdominal fat	30	0.61	0.658	30	0.30	0.394	0.31	0.05
Skinned breast meat	30	17.09	2.160	30	15.33	20.034	1.76	0.01
Unskinned thigh	30	21.79	1.492	30	22.54	1.695	0.76	NS
Skinned thigh	30	19.45	1.192	30	20.72	1.438	1.28	0.01
Upper thigh	30	10.78	1.177	30	11.26	1.387	0.48	NS
Lower thigh	30	8.58	0.788	30	9.63	0.791	1.04	0.01
Upper thigh meat	30	9.47	1.021	30	9.53	1.040	0.06	NS
Lower thigh meat	30	6.17	0.601	30	7.10	0.631	0.92	0.01

DC – dressed carcass, n – number of pheasants, x – arithmetic mean, SD – standard deviation, M – males, F – females

liver, stomach, thighs with and without skin, upper thighs, lower thighs and muscle tissue of the upper and lower thighs among cockerels over pullets. A statistically significant difference ($P \leq 0.05$) was also observed in the weight of skinned breast meat.

The carcass yield and the yield of edible tissues and organs of pheasant pullets and cockerels at the age of 118 days are indicated in Table 3. From the results in Table 3 it is clear that there is a statistically significantly ($P \leq 0.01$) higher yield of neck, heart, skinned breast meat, skinned thighs, lower thighs and lower thigh meat among cockerels. A statistically significant difference ($P \leq 0.05$) was also observed in the yield of abdominal fat. Conversely, there was a statistically insignificant difference between the sexes in the yield of dressed carcasses, liver, stomach, unskinned thighs, upper thighs and upper thigh meat.

Conclusions

Intensive fattening of pheasants up to the age of 118 days allows us to obtain good carcass yields of pullets and cockerels (74.3%). However, there are statistically significant gender differences in weights and yields of the individual organs and parts of the body.

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References

Adamski M, Kuzniacka J. 2006: The effect of age and sex on slaughter traits of pheasants *(Phasianus colchicus L.)*. Anim Sci Papers and Reports **24**: 11-18

Kokoszynski D, Bernacki Z, Cisowska A 2011: Growth and development of young game pheasants *(Phasianus colchicus)*. Archiv Fur Tierzucht-Archives of Animal Breeding **54**: 83-92

Sarica M, Karacay N, Camci O 1999: Slaughter age and carcass traits of pheasants. Archiv fur Geflugelkunde **63**: 182-184

Straková E, Suchý P, Karásková K, Jámbor M, Navrátil P 2011: Comparison of nutritional values of pheasant and broiler chicken meats. Acta Vet Brno **80**: 373-377

Straková E, Vitula F, Suchý P, Večerek V 2005: Growth intensity and carcass characteristics of fattened pheasant poults. Krmiva **47**: 73-82

Vitula F, Suchý P, Straková E, Pažout V, Slezáčková I 2003: Testace výkrmové schopnosti bažantích kuřat na krmných směsích pro brojlerová kuřata. In: V. Kábrtovy dietetické dny. Brno: VFU Brno, 166-170

Zapletal D, Suchý P, Straková E 2012: Technologie výkrmu bažantích kuřat pro produkci masa. Brno: VFU Brno, 39