Effect of the Use of Quail Hatchery Waste on the Live Weight and Percentage of Male Quail Carcass (*Coturnix coturnix japonica*)

Ardian Ozzy Wianto[1], and Astari Ratna Duhita[1]
[1]Program Study of Animal Husbandry, Akademi Peternakan Karanganyar,
Jl. Lawu 115, Karanganyar, Telp. (0271) 495212
Coresponding author : ardianozzy1@gmail.com

Abstract

The study aims to find out the life weight and percentage of carcass of male quails due to the use of quail egg hatchery waste on rations. The material used in this study was 90 male quail (*Coturnix coturnix japonica*) aged 4 weeks with an average body weight of 60 ± 4.02 grams. Quails were kept in colony cages with walls made of ram wire lined with cardboard and on the bottom using ram wire. The size of the cage is 50 x 25 x 25 cm as many as 15 cage units, each cage unit is equipped with a feed and drinking place and a 25 watt lamp for lighting. The observed parameters are the live weight and carcass percentage. The treatment tried is T0 = basal ration without hatchery waste, T1 = Use of hatchery waste 9% in rations, T2 = Use of hatchery waste 12% in rations. The results showed that the use of hatchery waste of 0%-12% in rations had no real effect on carcass production. It could be conclude that the use of quail hatchery waste can be used up to 12% without adversely affecting life weights and carcass percentage.

Keywords: carcass percentage, hatchery waste, life weight

Introduction

The high protein content in quail meat causes quail meat to be used as a food ingredient to meet the needs of animal protein for the community. Quail is a poultry that is already popular in the community and has great potential to be developed, because meat and egg products are one of the food sources of protein that are preferred by the people of Indonesia. Male quail are usually kept as meat producers. According to Listyowati and Rospitasari (2003) quail meat contains nutrients such as protein and fat with a protein content of 21.1% and fat 7.7%.

There are several problems faced by male quail breeders, namely the unavailability of ready-made feed that is sold commercially, this makes the breeders have to arrange their own rations. The feed ingredients used are available at the poultry shop at high prices, so it is necessary to use alternative feed ingredients to reduce feed costs, because about 70% of the largest cost of quail farming comes from feed. One way to reduce feed costs is to utilize feed ingredients from hatchery waste.

Hatching waste has a high protein content. The high crude protein content in hatchery waste is expected to be used as an alternative feed ingredient in order to obtain optimal live weight and carcass percentage. Satishkumar and Prabakaran (2008) stated

that dried quail hatchery waste contains 36.24% crude protein, 0.92% crude fiber, 10.73% calcium, and 0.69% phosphorus.

The aim of the study was to determine the effect of using quail hatchery waste as an alternative feed ingredient for protein sources on the production of live weight and the percentage of male quail carcass.

Materials and Methods

The material used in this study was 90 male quail (*Coturnix coturnix japonica*) aged 4 weeks with an average body weight of 60 ± 4.02 grams. Quails were kept in colony cages with walls made of ram wire lined with cardboard and on the bottom using ram wire. The size of the cage is 50 x 25 x 25 cm as many as 15 cage units, each cage unit is equipped with a feed and drinking place and a 25 watt lamp for lighting.

The feed ingredients used in this study consisted of corn, pollard, soybean meal, poultry meat meal, topmix, $CaCO_3$ and quail hatchery waste flour. The composition of the rations and the nutrient content of the rations used in this study are presented in Table 1.

Table 1. Ingredients for ration and nutrient content

Feed Ingredients	T0	T1	T2
Corn	49.75	44.75	44.5
Pollard	17.75	15.75	14.5
Soybean meal	12.75	26.25	24
Poultry meat meal	18.75	3	3
Hatching waste	0	9	12
Topmix	0.75	1	1
$CaCO_3$	0.25	0.25	1
Total Nutrient content	100	100	100
Metabolic Energy (kcal/kg)*	3203.12	3161.25	3137.73
Crude protein (%)**	23.90	24.07	23.96
Crude fiber (%)**	5.06	5.02	5.03
Crude fat (%)**	1.92	3.36	3.57
Feed price (Rp/kg)	6.214	4899.5	4678.5

Note :*) The calculation results are based on the Bolton formula according to Siswohardjono (1982). EM = 40.81 (0.87(Coarse Protein + 2.25 Crude Fat + BETN) + 2.5)

**) Based on the calculation of the results of the analysis of feed ingredients.

Results and Discussion

The results of the analysis of variance showed that the use of hatchery waste in the ration on live weight production and carcass percentage had no significant effect ($P>0.05$). The production of male quail carcass (coturnix coturnix japonica) in the use of hatchery waste flour 0%, 9%, and 12% can be seen in Table 2.

Table 2. Production of live weight and carcass percentage of male quail (Coturnix coturnix japonica) aged 4 weeks with the addition of 0%, 9%, and 12% hatching waste flour in the ration

Parameter	Use of hatching waste flour			
	T0 (0%)	T1 (9%)	T2 (12%)	Average
Live weight (g)	119.40	114.40	119.40	117.73
Carcass Percentage (%)	60.44	59.55	58.45	59.48

Note: The average value does not show any difference (P>0.05)

Live Weight

Based on Table 2, the live weight of quail was not significantly different, this was due to the same protein content of the diet (isoprotein). This is in accordance with the research of Mahfudz et al. (2009), in their research explaining that rations with the same protein content obtained quail live weights that were not significantly different even though the feed ingredients used were different. According to Wahju (1997) stated that the protein content in the ration determines the quality of the ration for the process of synthesis of body tissues, hair growth and production. Research by Abiola et al. (2012) stated that the use of hatchery waste flour as a substitute for fish meal had no significant effect on live weight in broiler chickens.

Feed protein is digested and absorbed by the animal's body to meet the basic needs of life and production. The protein contained in the feed will be absorbed by the body to compose body tissues, including the formation of meat. Zuprizal (2006) stated that protein in feed is absorbed in the form of amino acids. (Setiyawan et al., 2007) Amino acids play a role as a constituent of body tissues and growth. Lesson and Summers (2001) stated that more lysine is needed for growth and meat production. Fillawati (2008) stated that the content of energy, protein and crude fiber contained in the ration is one of the factors that can affect the consumption of the ration so that it will also affect the live weight and slaughter weight produced by livestock.

The energy content in the ration also affects the live weight of livestock and production. This is in accordance with research (Julendra et al., 2010) which states that the same number of calories makes the growth of broiler chickens tend to be the same (P>0.05), because energy is utilized optimally by the body for basic life and growth. Added by Colin et al. (2004) which states that energy is needed for the cell enlargement process.

Carcass Percentage

Based on the analysis of variance, it was shown that the use of hatching waste flour in the ration had no significant effect (P>0.05) on the percentage of carcass. The percentage of carcass which was not significantly different was also influenced by the live weight which was not different. Carcass percentage is the result obtained from carcass weight divided by live weight multiplied by 100%, because the body weight difference is not significant, the carcass percentage is also not significantly different. The average carcass percentage in this study was 59.48%. The average percentage is

lower when compared to research by Dewi and Setiohadi (2010) with the use of silkworm pupae flour, which is 69.16%. According to Dewanti et al. (2013) the percentage of carcass is influenced by the slaughter weight because the percentage of carcass starts from the growth rate which is indicated by the increase in body weight so that it will affect the resulting slaughter weight. Ahdanisa et al. (2015) fixed body proportions due to the increase in body weight in line with the increase in carcass, genetics and sex of quail and the same age of slaughter weight, so that the ability of quail to digest the ration was almost the same.

Conclusion

Based on the results of the study, it can be concluded that the use of quail hatchery waste flour can be used up to a level of 12% without adversely affecting live weight and carcass percentage.

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