

PRODUCTION PERFORMANCE OF KAMPUNG CHICKEN FILLED FEEDING CONTAINING CHICORY FLOUR

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ABSTRACT

Balitnak superior Kampung chicken is a type of kampung chicken resulting from research innovation from the Livestock Research Institute, Ciawi, Bogor which is popular with the community and can be cultivated by the community. This study aimed to analyze the performance of balitnak superior kampung chickens given chicory flour and to find out the best treatment for the addition of chicory flour in feeding the performance of balitnak superior kampung chickens. The design used was a completely randomized design (CRD) consisting of 4 treatments and 5 replications so that there were 20 experimental units and each replication consisted of 5 chickens. The parameters observed consisted of feed consumption, body weight gain, and feed conversion. The results of observations from the addition of chicory flour did not have a significant effect ($P>0.05$) on feed consumption, body weight gain, and feed conversion with a value of 58.47-58.47 g/head/day, the average weight gain body 17.72-18.29 g/head/day, and feed conversion 3.30-3.20.

Keywords: Chicory Flour; Kampung Chicken; Performance

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INTRODUCTION

Kampung chicken farms that used to be kept extensively can now be reared intensively with a short maintenance period. The types of broiler chickens that are generally raised and consumed by the people of Indonesia are kampung chickens and broiler chickens. Various types of kampung chickens are cultivated by some Indonesian people, one of which is the Balitnak Superior kampung Chicken (KUB). KUB chicken is a type of kampung chicken resulting from a research innovation from the Livestock Research Institute, Ciawi, Bogor (Oktaviandari et al., 2020).

KUB chickens have the advantages of faster growth, higher egg production 160-180 eggs/year, low mortality, very low brooding behavior of 10% of the population, low feed consumption, and higher egg hatchability than ordinary kampung chickens (Harnanik & Wiraswati, 2021). This KUB chicken is also a type of broiler, in males, it can reach a body weight of 1 kg in 2,5 months and is more resistant to disease (Silalahi et al., 2019). Another advantage possessed by kampung chicken is that the meat produced by kampung chicken also tends to be tastier when compared to purebred chicken. However, high livestock production results must also be supported by good feed. The problem that is often faced by breeders is the availability of animal feed.

Feed plays an important role both from a biological and an economic point of view, in a livestock business the cost of rations is the largest production cost, where the cost of this ration reaches 60-70% of all production costs (Tarigan & Manalu, 2019). The provision of adequate feed in quantity, quality, and continuity is expected to increase the productivity of kampung chickens. Good productivity requires feed with good nutritional value. The problem in supplying free-range chicken feed is that the price of feed is expensive and unstable because some of the main raw materials are still imported.

Chicory (*Brassica pekinensis* L) is a leaf vegetable that has economic value. The by-

product of chicory is one of the parts that are not used enough and is just thrown away, which has an impact on the environment. Physically, the by-product of chicory is easily spoiled because it contains 93% water, but chemically it contains protein, as well as relatively high vitamins and minerals. The by-products of chicory have nutritional content, namely dry matter 89,78%, protein 26,33%, fat 2,84%, ash 20,22%, crude fiber 16,79%, BETN 23,60%, gross energy 3247 Kcal/kg (Mangelep et al., 2017).

Martadinata et al., (2021), the nutritional content of chicory in 100 g of edible material contains 22,00 calories of energy, 2,30 g of protein, 0,30 g of fat, 4,00 g of carbohydrates, 1,20 g of fiber, 220,50 mg of calcium, 38 phosphorus 40 mg, iron 2,90 mg, vitamin A 969,00 SI, thiamine 0,09 mg, riboflavin 0,10 mg, niacin 0,70 mg, vitamin C 102,00 mg. There have been many efforts to improve the performance of Balitnak superior kampung chickens, such as Mayora et al., (2018) by giving different crude protein rations in the starter period, Sabrin et al., (2021) addition of turmeric flour, Anggraeni & Nur, (2022) fish flour, Hubulo et al., (2022) fermented palm sludge, and Radjulani et al., (2022) fermented tofu dregs. However, the use of chicory waste as an alternative feed has not yet received a comprehensive study. Seeing the potential possessed by chicory waste can be an alternative raw material for KUB chicken feed and at the same time can solve environmental pollution problems caused by the increasing amount of waste generated by community activities. Based on this description, it is necessary to research and evaluate the effect of chicory flour as an alternative feed ingredient on the performance of Balitnak superior kampung chickens.

RESEARCH METHODS

The research was conducted in November-December 2022, in the Baruga Nusantara housing complex, Watubangga Village, Baruga District, Kendari City.

The tools to be used are 20 units of square cage plots with a size of 80 cm x 80 cm for each unit, Places to feed and drink, stationery, scales,

rice husks, and thermometers, while the materials used, are Balitnak superior kampongchicken(KUB) 100 chickens aged 3 weeks, concentrate, milled corn, bran, chicory flour, vitamins, and medicines medicine. Chicory Waste Treatment (*Brassica pekinensia L.*). The mustard greens used in this study were obtained from Market Baruga. The results of the

chicory follow-up collected should still be fresh. After being collected, cleaned and then chopped, and then dried in the open air for 2-4 days. After drying, the by-products of chicory greens are ground using a grinding machine until they become flour. The finished chicory flour is weighed according to the level of each treatment.

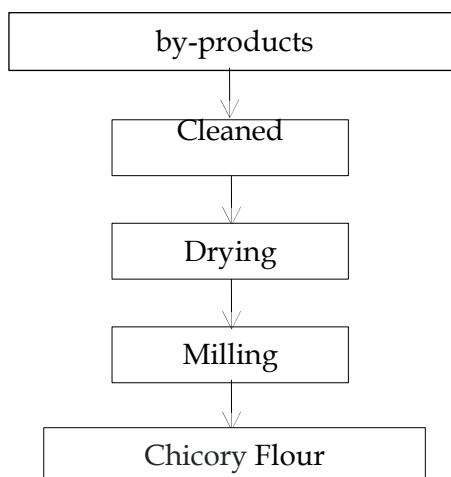


Fig 1. Procedure for making chicory flour

The cages used in this study were 20 units of cages. Each cage plot will be cleaned first, starting with sweeping away any remaining dirt that sticks to the cage. The cage was then washed using clean water. After drying, the cage is sterilized using a disinfectant by spraying it directly on the wall area, the floor of the cage plot, and the area around the cage. The cages that had been cleaned were then left for seven days before finally being filled with treated chickens.

Maintenance of KUB chickens starts from DOC until the age of 10 weeks. This study used 100 Balitnak superior kampong chicken (KUB) chickens with 20 units and each unit consisted of 5 chickens. Before being given treatment feed, KUB chickens first went through a brooding period by ad libitum feeding using concentrate feed for 14 days. Then KUB chickens will undergo a feed adaptation period from 15 days old to 21 days old. Giving mustard flour feed treatment, namely after KUB chickens are 22 days old to 10 weeks old by first weighing their weight and recording it before being put into the

plot cage, then labeling the plot cage according to the treatment.

Feeding was given twice a day, in the morning at 07.00 and 16.00, giving drinking water ad libitum, and giving vitamins and medicines. The additional feed of chicory flour was given to KUB chickens by mixing it with the main feed (ground corn, bran, and concentrate) according to the treatment for 7 weeks. The feed given in the first week is 30-33 grams/head, the second week is 34-42 grams/head, the third week is 44-55 grams/head, the fourth week is 61-66 grams/head, the fifth week is 70-76 grams/head, sixth week 76-86 grams/head and seventh week 86-96 grams/head.

The design used in this study was a completely randomized design (CRD) consisting of 4 treatments and 5 replications so there were 20 experimental units. Each experimental unit was filled with 5 chickens. The treatment applied is as follows:

P0 = 33% Corn + 49% Concentrate + 18% Bran

P1 = 32% Corn + 50% Concentrate + 15% Bran + 3% Chicory Flour
 P2 = 30% Corn + 51% Concentrate + 13% Bran + 6% Chicory Flour
 P3 = 29% Corn + 52% Concentrate + 10% Bran + 9% Chicory Flour

RESULTS AND DISCUSSION

The results of the study regarding feed consumption (grams/head/day), body weight gain (grams/head/day), and feed conversion

The data obtained were analyzed statistically using analysis of variance (ANOVA) with the help of SPSS software. If there is a significant effect ($P < 0.05$) from the treatment, it will be continued with the Duncan Multiple Range Test (DMRT).

with the addition of chicory flour in the feed had no significant effect ($P > 0.05$). Feed consumption, body weight gain, and feed conversion in the study are presented in Table 1.

Table 1. Feed consumption, body weight gain, and feed conversion of Balitnak superior kampong chickens with the addition of chicory flour.

Research variable	Treatment			
	P0	P1	P2	P3
Feed Consumption (g/head/day)	58.47 ± 2.20	59.35 ± 4.82	59.46 ± 3.72	58.47 ± 6.09
Body Weight Gain (g/head/day)	17.72 ± 0.67	18.62 ± 1.94	17.70 ± 0.83	18.29 ± 1.91
Feed Conversion	3.30 ± 0.09	3.20 ± 0.15	3.36 ± 0.15	3.20 ± 0.16

Note: Chicory flour in feed has no significant effect ($P > 0.05$)

Consumption ratio is the process of entering several nutritional elements in the ration which has been composed of various feed ingredients to meet the needs of chickens. Consumption ratio is calculated based on the amount of feed given in a day then reduced by weighing the remaining ration for one week and then divided by the number of chickens (Pakaya et al., 2019). The results of the analysis of variance showed that the addition of chicory flour in the ration had no significant effect ($P > 0.05$) on KUB chicken feed consumption. This can be interpreted that feed consumption in treatment P0 as a control feed is relatively the same as treatment P3, but not significantly different from treatment P1 and P2, whose values are slightly higher. This result is also the same as the statement by Mangelep et al., (2017) that the treatment of chicory waste gave the same response as the control feed treatment (without chicory waste).

Feed consumption which did not have a significant effect on this study was due to the relatively of same metabolic energy content in each treatment ration, so that feed consumption would tend to be the same at P0: 3,096 kcal/kg; P1: 3,087 kcal/kg; P2: 3,072 kcal/kg and P3:

3,064 kcal/kg. Sari et al., (2014) the higher the energy the feed is consumed and vice versa if the low-energy feed will be consumed more and more to meet their needs. Fitria et al., (2016) also added that free-range chickens consume mostly rations to meet their protein and energy needs. The average consumption of feed for KUB chickens during this study can be seen in Table 1, ranging from 58.47 to 59.46 grams/head/day. These results are not much different from the research of Irawan et al., (2018) The performance of KUB unsex chickens in the finisher period (9-12 weeks) on rations with different protein levels was an average of 57,79-59,77 grams/head/day. Feed consumption in this study was also lower than research by Mahardika et al., (2013) in native kampong aged 10-20 weeks with an average of 50,34-61,43 grams/head/day. The content of crude fiber in the ration can also affect the consumption of the ration. Prawitasari et al., (2012) stated that high crude fiber in rations can cause chickens to consume small amounts of feed because chickens will feel full quickly.

Body Weight Gain

Body weight gain was obtained by comparing the difference between the final weight (harvest) and the initial weight with the

length of maintenance. The initial weight is obtained by weighing the DOC while the final weight (harvest) is obtained from the average body weight of the chicken at the time of harvest (Fahrudin et al., 2017). Factors that influence body weight gain are differences in sex, feed consumption, environment, seeds, and feed quality (Qurniawan, 2016).

The results of the analysis of variance showed that the addition of chicory flour in the ration had no significant effect ($P>0.05$) on the body weight gain of KUB chickens. Mangelep et al., (2017) also said that feeding without using chicory waste (control feed) and giving up to 20% chicory waste gave the same weight gain. The average body weight gain of KUB chickens in the study ranged from 17,70-18,62 grams/head/day with an average of 18,08 grams/head/day and the body weight gain in this study was higher than that reported by Wicaksono (2015) that the average weight gain of super kampong chickens aged 3-10 weeks given ad-libitum rations was 103,47 grams/head/week or 14,78 grams/head/day. Mayora et al., (2018) The superior performance of Balitnak kampong chickens in the starter period on rations with different crude proteins ranged from 15,79-18,03 grams/head/day.

Body weight gain which was not significantly different in this study was influenced by feed consumption which was also relatively the same in each treatment. Consumption of rations and consumption of the same protein in this study also caused body weight gain for each treatment. Mayora et al., (2018) that almost the same weight gain from the study was caused by the equal ability of chickens to metabolize rations in the body.

Body weight gain in P1 and P3 was slightly higher compared to P0 and P2, this was by the protein content in the rations where P1 and P3 had the same protein content of 18,7% and slightly higher than treatments P0 and P2. According to Sari et al., (2017), the main factors affecting weight gain are the amount of chicken ration consumed and the energy and protein content contained in the ration, because energy

and protein are very important in influencing the speed of weight gain.

Feed Conversion

Feed conversion is the ratio between the amounts of feed consumed and body weight gain. The relationship between feed consumption and body weight gain is determined by feed conversion. A low feed conversion value indicates better feed use efficiency. This means the more efficiently the chickens consume feed for meat production (Allama et al., 2012).

The results of the analysis of variance showed that the treatment of adding chicory flour to the feed had no significant effect ($P>0.05$) on KUB chicken feed conversion. This can be interpreted that the feed conversion in treatment P0 was not significantly different or the same relative as treatment of P1, P2, and P3. Feed conversion which had no significant effect was affected by feed consumption and body weight gain which also had no effect. Nova & Kurtini, (2002) ration conversion value is affected by body weight gain resulting from one unit of ration consumed.

The average value of feed conversion obtained in this study ranged from 3,20 to 3,36. Feed conversion in this study was lower than research by Wicaksono (2015) that super kampong chickens (aged 3-10 weeks) given ad-libitum rations had a ratio conversion value of 5,0-5,5 but higher than the previous study Sari et al., (2017) on the performance of KUB chickens (Balitnak Superior Kampong) grower period on rations with different levels of crude protein with an average value ranging from 2,60-2,95.

Although not significantly different, the feed conversion in treatment P1 (addition of 3% chicory flour) and P3 (addition of 9% chicory flour) was better 3,20 compared to treatment P0 as a control feed 3,30. Allama et al., (2012) that the factors affecting feed conversion are the energy content of the feed, the adequacy of nutrients in the feed, ambient temperature, and health conditions. The lower the feed conversion rate, the better the quality of the

feed. A low ration conversion value also indicates that the quality of the ration used in

CONCLUSION

The results of the study concluded that the performance of balitnak superior kampung chickens fed feed containing chicory flour (*Brassica pekinensia* L) had no significant effect ($P>0.05$) on feed consumption, body weight

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