Chalaza Journal of Animal Husbandry

Url: http://usnsj.com/index.php/CJAH
Email: editor.cjah@usnsj.com

The Effect of Fermentation Feed Combination with Commercial Feed on Growth of Super Native Chicken

AUTHORS INFO

Husnaeni
Universitas Sembilanbelas November, Kolaka
husnaeni.hasja@gmail.com
+6285299984299

Junaedi
Universitas Sembilanbelas November, Kolaka
junaedi.peternakan@gmail.com
+6282346380689

Wahyu Ningsi
Universitas Sembilanbelas November, Kolaka
ningsy1999@gmail.com
+6282349367420

ARTICLE INFO

e-ISSN: 2548-3803
p-ISSN: 2548-5504
Vol. 4, No. 2, Desember 2019
URL: https://dx.doi.org/10.31327/chalaza.v4i2.1009

Abstract

This study was aimed to determine the effect of providing a combination of tofu dregs fermentation with commercial feed on the growth of super native chickens. The research was being conducted in June-September 2019 at the Integrated Laboratory of the Faculty of Agriculture, Fisheries and Animal Husbandry, University of Sembilanbelas November Kolaka. The materials were used in this study were super native chicken, fermented feed, and commercial feed (Malindo). The fermented feed consists of tofu dregs, yellow corn, fine rice bran, starch, molasses. Tools that used were digital scales, pans, tarpaulins, cages, feed containers, drinking containers, cables, lamps, sacks, plastic polybags, sacks, feed grinding machines, gas, hoses, buckets, basins. This research was conducted using a Completely Randomized Design (CRD) 4 treatments three replications with each test consisting of 8 super native chickens. The parameters observed were Weekly Consumption, Weekly Body Weight Gain (WBWG), and Feed Conversion. The results showed that the influence of feed consumption was not significant (P> 0.05), while the WBWG and Feed Conversion were significantly different due to treatment. So it can be concluded that the use of a combination of fermented tofu pulp and commercial feed with a ratio of 60% and 40% can increase weekly body weight gain and decrease feed conversion so that the use of feed is more efficient.

Keywords: super native chickens, tofu dregs fermentation, feed consumption, feed conversion

A. Introduction

Super-native chickens are included in the category of non-race chicken, which is a cross between native roosters chickens with female race hens. This type of chicken is found in many areas, both rural and urban areas, besides super chicken can also be found in the highlands and lowlands. The widespread availability of super native chickens has made super native chickens a potential source to meet the needs of Indonesian animal protein.

Super native chicken has a flavor and appearance of the carcass that is almost the same as native chicken, and this is an added value from super-native chicken. The advantages of super-native chicken, when compared to native chicken, are higher body weight, lower feed conversion values , and lower mortality values (Gunawan & Sartika, 2001). For super-native chicken growth that needs to be considered is feed, because feed is one of the most significant components of all costs incurred. The supply of feed ingredients in Indonesia is still partly imported from other countries. This matter causes the price to be much higher due to intense competition and rising transportation costs. So, it needs to be the utilization of agricultural waste that can be used as an appropriate alternative feed to reduce the high cost of it. One of the industrial, agricultural waste that can be used as poultry feed material is tofu dregs.

Tofu dregs is a waste of tofu making, still contains protein with the amino acids lysine and methionine, and calcium which is quite high (Mahfudz, 2006). However, it provides high crude fiber, so it becomes a limiting factor for its use in poultry feed rations. Besides the high crude fiber, it also contains high arabinoxylan that causes its components in the formulation of poultry rations to be limited. Poultry incapable of digesting arabinoxylan, and this material generates the thick gel in the small intestine, which causes absorption of fat, and energy is inhibited (Adams, 2000), so that deposition of fat in the tissue is low. Therefore, to utilize the use of tofu waste needs to be treated and which one of it by fermentation biotechnology.

Fermentation biotechnology can improve the quality of feed ingredients, especially those that have high crude fiber and anti-nutrition. Fermentation can increase the digestibility of feed ingredients through the simplification of substances contained in feed ingredients by enzymes produced by microbes (Bidura, 2007). One of the inoculums that can be utilized in fermentation is Effective Microorganism-4 (EM-4). Because EM-4 will convert proteins into amino acids, and indirectly will reduce levels of crude fiber in tofu dregs. So, it is hypothesized that the utilization of a combination of fermented feed with commercial feed can affect the growth of super native chickens.

B. Methodology

1. The Materials

The research was conducted in June-September 2019 at the Integrated Laboratory of the Faculty of Agriculture, Fisheries and Animal Husbandry, University of Sembilan, November Kolaka. The materials used in this research are super native chicken, fermented feed, and commercial feed (Malindo). The fermented feed consists of tofu dregs, yellow corn, fine bran, starch, molasses. Tools used in digital scales, pans, tarpaulins, cages, feed containers, drinking containers, cables, lamps, sacks, plastic polybags, sacks, feed grinding machines, gas, hoses, buckets, basins

2. Research Design

This research was compiled based on a Completely Randomized Design (CRD). Consists of 4 treatments three replications for each treatment ration, each repetition consists of 8 super native chickens. The order of treatment is as follows :

PO: 100% fermented feed
P1: 40% fermented feed + 60% commercial feed
P2: 50% fermented feed + 50% commercial feed
P3: 60% fermented feed + 40% commercial feed

3. Research Procedures

Making fermented feed derived from a mixture of tofu dregs, milled corn, rice bran, starch, molasses, and EM-4. Before mixing, the tofu dregs are steamed for 30 minutes, then removed and cooled. After tofu dregs cooled, all the ingredients are mixed until homogeneous and then put in a polybag wrapped in a sack, then allowed to stand for 5-6 days. On the 6th day, the polybag was opened, and the results of fermentation were made pellets and dried to be given to super native chickens.

Rations and drinking water were given adlibitum according to treatment. Feed and drink measurements are carried out every day so that the availability of super chicken in the plot is not exhausted and well-controlled

4. Research Parameters

The parameters of this research were Feed Consumption), Weekly Body Weight Gain (WBWG), and Feed Conversion.

5. The technique of Data Analysis

Feed Consumption

Feed Consumption (Gram/Chicken/Week) = Total amount of feed (Gram/Week) - Total Amount of Leftover Feed (Gram/Week).

Weekly Body Weight Gain (WBWG)

$$\text{Weekly Body Weight Gain (WBWG)} = \frac{\text{Final body weight} - \text{Initial body weight}}{\text{Duration of raising chicken (Week)}}$$

Feed Conversion

$$\text{Feed Conversion} = \frac{\text{Total feed consumption (Gram/Chicken/Week)}}{\text{Weekly Body Weight Gain (WBWG)}}.$$

C. Results and Discussion

1. Results

Average feed consumption of super native chicken on the combination of fermented tofu waste with commercial feed can be seen in table 1. The results of the analysis of variance showed no significant effect (P>0.05) on every experimental unit.

Table 1. Average feed consumption of Super Native Chicken on Different Combination of Fermentation Feed and Commercial Feed.

Repetition	Repetition				Sig
	P0	P1	P2	P3	
1	245,81	329,26	275,20	257,73	
2	172,90	288,78	314,68	289,25	
3	307,02	300,43	319,70	338,95	
Average	241,91± 67,15	306,16 ± 20,84	303,19 ± 24,38	295,31 ± 40,95	0,284

Based on the results of the F test, the consumption had no significant effect (P> 0.05) due to treatment. The average range of super native chicken consumption per week is 241.91 - 306.16 grams. The results feed consumption of this study are lower than those of Munira et al. (2016) using substitution fermented rice bran with different fermentors in super-native chicken average consumption of feed obtained ranged from 297.41 - 310.16 grams /head/week.

It shows that differences in the percentage of commercial feed and fermented feed do not result in different tastes and preferences for super native chicken so that the amount of feed consumed is relatively the same. Also, the feed given has the same shape, texture, and smell, so that there is no difference in feed consumption. It was explained by Anggorodi (1994), who stated that the palatability of feed was qualitatively influenced by the physical properties of the feed, which included its shape, smell, taste, and texture.

Based on the results of the analysis of variance showed a real effect (P<0.05) due to treatment. Different concentrations of tofu dregs cause the influence of the treatments on WBWG. It is following the state of Masruha (2008) that the provision of tofu dregs by 20% in the ration can increase the weight gain of super native chicken. The average weekly body weight gain of super native chickens can be seen in table 2.

Table 2. Average weekly body weight gain of Super Native Chicken Entity on Combining Fermented Feed with Commercial Feed.

Repetition	Treatment				Sig
	P0	P1	P2	P3	
1	36,00	60,00	65,83	76,67	
2	50,50	63,83	63,50	69,00	
3	36,67	60,00	62,25	75,58	
Average	41,06±8,19[c]	61,28±2,21[b]	63,86±1,82[b]	73,75±4,15[a]	0,000

Based on the results of further tests showed that there were differences between P0 and P1, P2, and P3, but P1 and P2 were not different, but P0 and P3 were different (P <0.05). The highest average WBWM in P3 is a combination of 40% commercial feed and 60% fermented tofu dregs. Increased bodyweight of super native chicken is caused by fermented tofu dregs that are easily digested. According to Wahyu (1992), solid tofu waste is a source of vegetable protein, high quality, and easy to understand to produce an upper body weight gain.

It is in line with Rasyaf (2006) which states that body weight is influenced by the quality and quantity of feed consumed; thus differences in the content of substances in the feed will have impact on the resulting weight gain because the balanced content of elements and sufficiently according to the requirements needed for optimal growth to get a low feed conversion value.

Feed conversion is one of the production standards used to find out the efficiency of feed in livestock or the effectiveness of feed conversion into the final product, namely meat. Feed conversion during the study was measured based on the comparison of total feed consumption with full body weight gain during the study. Average conversions are presented in table 3.

Table 3. Average of Feed Conversion of Super Native Chicken from Fermentation Feed Combination and Commercial Feed Combination.

Repetition	Treatment				Sig
	P0	P1	P2	P3	
1	5,83	5,49	4,18	3,36	
2	5,42	4,52	4,96	4,19	
3	6,37	5,01	5,14	4,48	
Average	5,87± 0,48[a]	5,01 ± 0,49[ab]	4,76 ± 0,51[b]	4,01 ± 0,58[b]	0,014

Statistical analysis showed that there was a significant influence (P <0.05) on feed conversion. Further test results showed that P0 was not significantly different from P1 but substantially different from P2, and P3. P1 is not considerably different from P0, P2, and P3. This difference is due to the differentiation between treatments on weekly body weight. The high and low feed conversion rates due to the differences that are getting greater or lower in the ratio of feed consumption and body weight gain.

The higher the feed conversion rate, the lower the level of feed efficiency. It is supported by Mulyono (2004), which states that high feed conversion rates indicate the use of inefficient feed. However, a number close to 1 means more efficient. In this study, the results showed that the higher the concentration of the use of tofu dregs in the combination of tofu dregs fermentation with commercial feed, the lower the feed conversion. However, utilization of 100% tofu dregs fermentation has higher feed conversion, which means the use of tofu dregs fermentation is less efficient because it is not balanced between protein and energy.

D. Conclusion

Based on the results of the study, it can be concluded that the utilization of a combination of tofu dregs fermentation and commercial feed with a ratio of 60% and 40% can increase weekly body weight gain and decrease feed conversion so that the use of feed is more efficient.

A. References

Adams, C. A. (2000). The role of nutrients in health and total nutrition. *Proc. Aust. Poult. Sci. Sym. 12*, pp. 17-24.

Anggorodi. (1994). *Ilmu Makanan Ternak Umum*. Jakarta, Indonesia: PT. Gramedia.

Bidura, I. G. N. G. (2007). A*plikasi Produk Bioteknologi Pakan Ternak*. Denpasar, Indonesia: Udayana University Press, Universitas Udayana.

Gunawan, B. & Sartika T. (2001). Persilangan ayam pelung jantan x kampung betina hasil seleksi generasi kedua (G2). *Jitv . Vol. 6(1)*, pp. 21-27.

Mahfudz, L. D. (2006). Hidrogen pe- roksida sebagai desinfektan pengganti gas formaldehyde pa- da penetasan telur ayam. *Jurnal Protein. Vol. 13 (2)*, pp. 6-12.

Mulyono, S. (2004). *Beternak Ayam Buras Berorientasi Agribisnis*. Jakarta, Indonesia: Penebar Swadaya.

Munira, S., La Ode N., & Andi, M. T. (2016). Performans ayam kampung super pada pakan yang disubttusi dedak padi fermentasi dengan fermentor berbeda**.** *JITRO. Vol. 3(2)*, pp. 21-29

Masruha, L. (2008). *Pengaruh Penggunaan Limbah Padat Tahu Dalam Ransum Terhadap Konsumsi Pakan, Pertambahan Bobot Badan, Dan Konversi Pakan Pada Ayam Kampung (Gallus Domesticus) Periode Grower.* Malang, Indonesia: Jurusn Biologi Fakultas Sains dan Teknologi Universitas Islam Neger Malang.

Rasyaf, M. (2006). *Beternak Ayam Kampung.* Jakarta, Indonesia: Penebar Swadaya.

Wahyu, J. (1992). *Ilmu Nutrisi Unggas.* Yogyakarta, Indonesia: Gajah Mada University Press.