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Addition of Fermented Cassava Leaf Flour in Rations to Percentages of Native Chicken Carcass and Non-Carcass 10 Weeks Olds

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Abstract

Super free-range chicken which is currently a very lucrative new business opportunity because the demand for free-range chicken meat has increased significantly due to high consumer demand. The type of agricultural waste that can be used as ration material is cassava leaves. The purpose of this study was to determine the effect of using fermented cassava leaf flour in the ration on the percentage of carcass and non-carcass chicken super aged 10 weeks, to find out what percentage level of use of fermented cassava leaf flour in the ration is able to give the best results on the percentage of carcass and non 10 weeks old free-range chicken carcass. The research design used was a completely randomized design (CRD) which consisted of 5 treatments namely: L0 (without the addition of cassava leaf flour), L1 (ration containing 2.5% fermented cassava leaf flour), L2 (ration containing 5% fermented cassava leaf flour), L3 (ration containing 7.5% fermented cassava leaf flour), L4 (ration containing 10% fermented cassava leaf flour). Each treatment was repeated 3 times. The use of cassava leaf meal in the ration had very significant effect (P>0.01) on carcass weight, non-carcass weight, carcass percentage and non-carcass percentage. The use of cassava leaf flour in the ration tends to be higher at the level of use of flour containing 5% fermented cassava leaf flour, but does not have a significant effect.

Keywords : Super Village Chicken, Cassava Leaves, Carcass Percentage

1. Introduction

The rapid increase in population is followed by an increase in the need for protein, especially animal protein. To fulfill animal protein, poultry provides a very large contribution as meat-producing livestock because the price is affordable compared to meat from other types of livestock. Super free-range chicken is the result of crossing local free-range chickens with large female laying hens. According to [1] that super free-range chicken has faster growth than local free-range chicken, so people call it super free-range chicken. Super native chickens reared up to 10 weeks of age have slaughter weights ranging from 837.5 to 903.8[2]. Based on data from the Central Statistics Agency, local chicken meat production What is the meaning of this word in Bali in 2020 was 3,313,24 tons [3]. Super native chickens have another advantage, namely their high adaptability to various environmental conditions [4]. The growth of meat is very fast in super native chickens, which are located on the chest and thighs, almost like the growth of meat in broiler chickens. although the process of growing super free-range chicken meat is not the same as broiler chickens, it is superior to ordinary local chickens whose growth can be said to be very long [5]. The harvest age for super native chickens is approximately two months [6]. [7] stated that the spread of super free-range chicken is quite wide, making it a potential source to meet the animal protein needs of the Indonesian people. This type of chicken can be found in many areas, both rural and urban areas, super free-range chickens can also be found in the highlands and lowlands [8].

Increasing the number of populations and the level of production of poultry meat needs to be balanced with an increase in the availability of feed. Feed is a collection of feed ingredients that are arranged together to create a nutrition in terms of meeting the needs of livestock, this rule includes nutritional needs and nutrient content used [9]. [10] in his research stated that feed is an important part of the success of free-range chicken breeders because in intensive free-range chicken farming the feed requirement reaches 71% of the total production cost, so the price of feed ingredients determines the profit that farmers will get.

In maintaining super free-range chicken, quality feed is needed to fulfill its nutrition in order to get optimal results by utilizing agricultural waste that can be used as ration material, namely cassava leaves. In addition, cassava leaves contain vitamins A, B1 and C which are quite high and contain calcium, phosphorus and iron [11]. Cassava leaves (Manihot utilisima Pohl) have the potential to be developed as feed ingredients because these leaves are reported to contain saponins and flavonoids which are useful for increasing appetite and increasing livestock digestibility.The results of the study [12] showed that fermented cassava leaf flour in the ration had a significant effect on slaughter weight but had no significant effect on carcass weight, carcass percentage, skin percentage, meat percentage and bone percentage.

However, the content of toxic compounds in the form of cyanide in cassava skin and leaves is a separate problem that limits the use of this raw material as a substitute for poultry feed.. The fermentation method is one of the recommended methods for removing cyanide compounds from cassava leaves [13]. Through the fermentation process, the cyanide acid in cassava leaves which are in the form of hydrolyzed glycoside bonds will break down into glucose, acetone and HCN. As reported by [14] that the cyanide content in bitter cassava decreased 100 percent by fermentation using Rhizopus oryzae. Fermentation is a process to increase the digestibility of materials because fermented materials can convert plant material substrates that are difficult to digest into single cell proteins from starter organisms such as Rhyzopus sp and Sacchromises sp by increasing the protein content of the substrate material [15].

2. Material and Methods

The research was conducted in Denpasar City, precisely at Jalan Sedap Malam, Gang Melati No. 15, Kesiman Village, Denpasar City, Bali Province. The study was conducted for 10 weeks starting on August 27 2021 until October 27 2021. The livestock used were native chickens aged 3 weeks totaling 75 heads without separation of males and females with a homogeneous average weight (208-220 g).

This study used battery cages in the form of plots with a total of 15 plots, with the cage material consisting of bamboo slats. This cage is located in one cage building. The size of the cage for each plot is 50 x 50 x 47 cm (L x W x H) which is equipped with a place to feed and drink. The feed bin is made of paralon pipes which are halved which is given a partition in each cage so that the feed ingredients for one treatment do not mix with the other treatments. Place the drinking water using a tray (Nipel) which has been connected directly by using a pipe. The equipment used in this study included scales, basins, thermometers, knives, 25 watt lamps, pens, notebooks, rulers and cleaning equipment, brooms, buckets and hoses. The ration ingredients consist of corn, rice bran, fish meal, concentrate, fermented cassava leaf flour, coconut oil and minerals, as can be seen in tables 1 and .2.

Table 1
Composition of Research Ration Ingredients

MaterialName	Treatment Ratio 1)				
	L0	L1	L2	L3	L4
Concentrate 511	30	30	30	30	30
Corn	42	35.5	34	30.5	11.5
Cassava Leaf Flour	0	2.5	5	7,5	10
Rice Bran	11	15	14	15.5	14
Fish flour	15	15	15	14.5	14.5
Coconut oil	1	1	1	1	1
Neutralize	1	1	1	1	1
Total	**100**	**100**	**100**	**100**	**100**

Description:
L0 = control ration without the addition of fermented cassava leaf flour.
L1 = ration containing 2.5% fermented cassava leaf flour.
L2 = ration containing 5% fermented cassava leaf flour.
L3 = ration containing 7.5% fermented cassava leaf flour.
L4 = ration containing 10% fermented cassava leaf flour

Table 2
Nutritional Content of Treatment Ration

Nutrients	Treatment					
	L0	L1	L2	L3	L4	Standard
Crude protein %	18,197	18.2652	18.1384	18.2408	18,159	18
EM (Metabolic Energy) kg kal/kg	3071.45	3042,43	33054,16	3091.54	3092.32	2900
Crude Fiber %	3.88	4.5043	5.2286	5.6604	6.4672	7
Fat %	4,995	5.5883	5.8286	6.0594	6.1782	3-5
Ca %	1.2107	1.2877	1.4904	1.6855	1.5844	1
P %	0.5935	0.6038	0.6612	0.72065	0.636	0.4

Source: Based on calculations by Scott et al, (1982) [16]
Based on SNI Recommendations

The design used in this study was a completely randomized design (CRD) with 5 treatments and 3 replications. The treatments used were rations without the addition of sorghum (L0), rations without the addition of cassava leaf flour as a control (L1), rations containing 2.5% cassava leaf flour (L2), rations containing 5% cassava leaf flour (L3). contains 7.5% cassava leaf flour (L4) contains 10% cassava leaf flour. The variables observed in this study were carcass weight, non-carcass weight, carcass percentage, proportion of non-carcass.

3. Results and Discussion

Based on the results of this study, the administration of fermented cassava leaf flour to super free-range chickens aged 10 weeks had a very significant ($P<0.01$) effect on carcass weight. Carcass is the part of the poultry body without blood, feathers, neck, head, shank and internal organs except for the lungs and kidneys, the carcass is composed of fat, skin tissue, bones, meat and fat [17]. This means that the addition of fermented cassava leaf flour can increase carcass weight, because the addition of fermented cassava leaf flour contains high protein. Cassava leaves have high protein ranging from 23.42%, 15.80% crude fiber, 6.31% fat, anti-nutrients HCN 550 ± 620 ppm in young cassava leaves and 400 ± 530 in old cassava leaves. 18]. In addition, carcass weight is also affected by slaughter weight. which in the L2 treatment had the highest slaughter weight of 855.37 g/head.

[19] which stated that carcass production is closely related to live weight, the more live weight carcass production increases, so the carcass weight in the L2 treatment is also high, this is the same as the opinion[20] stated that the carcass weight produced was influenced by several factors, namely age, sex, slaughter weight, body size and conformation, fattening, quality and quantity of rations and strains reared.. Carcass weight is affected by the final weight of the chicken, the higher the final weight, the higher the carcass weight of the chicken [21].

Table 3.
Average carcass weight, non-carcass weight, carcass percentage and non-carcass percentage of super free-

Variable	Treatment[(2)]					SEM[(3)]
	L0	L1	L2	L3	L4	
Carcass weight (g)	417.37c	437.73bc	552.83 a	540.80 a	479.17b	9,82
Non-carcass weight (g)	267.00 a	307.67 a	302.53 a	30,20a	312.23 a(1)	13.57
Carcass percentage %	61.05 a	58.75 a	64.82 a	64,27 a	60.59 a	1.16
Percentage non carcass %	38.95a	41.25 a	35,18 a	35.73 a	39.41 a	1.16

range chickens aged 10 weeks

Information:

1. Values with the same letter in the same row show no significant difference (P>0.05)
2. L0 = Control ration without the addition of fermented cassava leaf flour
   L1 = Rations containing 2.5% fermented cassava leaf flour
   L2 = Rations containing 5% fermented cassava leaf flour
   L3 = Rations containing 7.5% fermented cassava leaf flour
   L4 = Rations containing 10% fermented cassava leaf flour
3. SEM (Standard Error Of The Treatment Means)

The use of fermented cassava leaf flour was statistically not significantly different (P>0.05) in all treatments on non-carcass weight. Based on Table 4.1, treatment L4 (10% administration of fermented cassava leaf flour in the ration) on the non-carcass weight variable, showed the highest yield of 312.23 g/head, and the lowest result was seen in treatment L0 (ration without additional fermented cassava leaves). Factors that affect growth are chicken lines, sex, and environmental factors [22].

Giving fermented cassava leaf flour in the ration obtained a significant percentage of carcass results, this can be seen in Table 4.1. The results of the analysis of variance showed that the treatment with the addition of fermented cassava leaf flour in the rations showed no significant difference (P>0.05) on broiler carcass percentage. The L2 treatment obtained the highest carcass percentage or the best result, namely 64.82 g/head, although statistically it showed no significant difference, the part of the ration that was very influential for carcass formation was the protein content of the ration [23]. Carcass percentage is obtained from the comparison between carcass weight and slaughter weight multiplied by 100%. According to [24] the factors that affect carcass percentage are nation, sex, age, feed, physical condition and abdominal fat.Carcass quality is influenced by the type of livestock, sex, feed and feed technology, as well as the handling of livestock before slaughter [25].

Based on the results of statistical analysis, the provision of fermented cassava leaf flour in the ration showed no significant effect (P> 0.05) on the average percentage of non-carcass. In the treatment of 2.5% fermented cassava leaf flour, the L1 treatment gave the highest yield of 41.25% but was not significantly different (P>0.05) with the other treatments. This shows that the addition of fermented cassava leaf flour did not significantly affect the percentage of non-carcass chicken super. The percentage of non-carcass is the ratio of non-carcass weight to the slaughter weight multiplied by 100%.

4. Conclusion

Based on the results of the analysis in this study, it was concluded that the administration of fermented cassava leaf flour in the ration had a very significant effect ($P<0.01$) on carcass weight but not significantly different ($P>0.05$) on non-carcass weight, carcass percentage and percentage non carcass. Provision of fermented cassava leaf flour in the ration showed the best results in the L2 treatment.

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