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Aking Rice Flour Giving To Carcass Cracks Of Super Native Chickens Aged 10 Weeks

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Abstract

Super native chickens need quality feed for nutritional fulfillment in order to get optimal results. But the reality faced by farmers today is that the price of commercial feed on the market is very expensive. Feed ingredients that need to be used as alternative feed ingredients are aking rice. The purpose of this study was to determine the effect of giving aking rice flour in the ration on the carcass cracking of super native chickens aged 10 weeks Chickens are weighed per treatment unit, each treatment unit consists of 5 chickens selected 1 head whose weight is closest to the average weight in the treatment then marked by tying color threads to the legs of chickens to be used as samples for cutting.The experimental design used was a Complete Randomized Design (RAL) consisting of 5 treatments and 3 repeats. The treatment is N_0 (ration without the addition of aking rice flour), N_1 (ration containing 5% aking rice flour), N_2 (ration containing 10% aking rice flour), N_3 (ration containing 15% aking rice flour), N_4 (ration containing 20% aking rice flour). The results showed that the addition of aking rice flour in the ration had an intangible effect ($P>0.05$) on the variables of carcass weight, chest weight, thigh weight, and back weight. While the variable wing weight shows a noticeable influence ($P<0.05$). Giving aking rice flour with a level of 10% (N_2) in the super native chicken ration gave the highest results on the variables of carcass weight, breast weight, thigh weight, and back weight, while on the wing weight variable showed the highest value in treatment with a level of 15% (N_3). So it can be suggested that the provision of aking rice flour in the ration of super native chickens can still be tolerated up to the level of 15%.

Keywords: Aking Rice Flour, Carcass Crack, Super Native Chicken

1. Introduction

Indonesia has many local poultry livestock with high potential to be developed, one of which is super native chicken. Super native chicken is a local Indonesian chicken derived from the crossing of male native chickens with female laying hens [1]. Native chicken is very potential to be developed, especially in Bali, namely for culinary needs and traditional ceremonies because in Bali most traditional ceremonies use native chickens. In addition to having faster growth compared to ordinary native chickens, super native chickens have meat with a savory and delicious taste, meat texture is more distinctive and has a lower fat content when compared to broiler chickens [2].

Super native chickens in their maintenance need quality feed for nutritional fulfillment. Feed costs in a livestock business reach 60-70% of total production costs, so it is very important to find alternative feed such as aking rice [3]. Aking rice is a rice waste that is always available and abundant. The results of the Food Quality and Safety Testing Laboratory, Faculty of Agricultural Technology and Animal Feed Nutrition, Faculty of Animal Husbandry, Universitas Brawijaya show that aking rice contains ME 3465.51 Kcal/kg; CP 8.42%; Fat 0.06%; CF 0.37%, Carbohydrates 76.94%; Ash 0.49%; Water content 14.09% [4]. Based on the content of food substances, aking rice has the potential as feed for poultry. [5] stated that aking rice flour can be given to chickens up to the level of 10%. In addition, research from [4] states that giving aking flour with a level of 10% in feed can improve the appearance of broiler production.

Based on the above background, to increase productivity and suppress the use of feed ingredients that compete with human needs, Based on this, the researcher took the title "The Effect of Giving Aking Rice Flour on the Carcass Crack of Super Native Chickens at the Age of 10 Weeks"

2. Material and Methods

Location and Time of Research

This research is located on Jl. Sedap Malam Banjar Kebon Kori Klod, Gang Melati, no.15, Kelurahan Kesiman, East Denpasar District, Bali Province. This study lasted for 10 weeks, starting from September 13, 2022 to November 20, 2022.

Experiment Design

The design used in this study was a Complete Randomized Design (RAL) with 5 treatments and 3 repeats. The treatment is as follows: N_0 = Ration without aking rice flour as a control, N_1 = Ration containing 5% aking rice flour, N_2 = Ration containing 10% aking rice flour, N_3 = Ration containing 15% aking rice flour, and N_4 = Ration containing 20% aking rice flour. Each test (experimental unit) uses 5 super native chickens so that the number of super native chickens used is 75 chickens.

Research Materials

The chickens used in this study were super native chickens aged 3 weeks who had a homogeneous body weight, ranging from 15 198.7-219.6 g/head so that 75 chickens were obtained ready to be moved to the treatment cage. Super native chicken taken from PT. Big Joper which is located at Perum Subonto Indah block J13, Tulungagung Regency, East Java.

The aking rice used in this study was obtained from rice traders (collectors) in the North Denpasar region. After the aking rice is collected, the aking rice will be dried again under the hot sun so that it is completely dry, then after the aking rice is completely dry, it will continue grinding with a grinding machine so that the aking rice becomes flour, if the aking rice has become flour, the aking rice is ready to be mixed into the ration for super native chicken feed.

Table 1.

Nutritional Content of Aking Rice Flour

Nutrients	Unit	Aking Rice
Dry Matter	%	85,38
Water	%	14,62
Abu	%	0,58
Organic matter	%	99,42
Crude Protein	%	9,68
Crude Fiber	%	0,89
Crude Fat	%	2,68
Total Digestable Nutrient (TDN)	%	77,84
Nitrogenless Extract Ingredients (BETN)	%	71,55
Gross Energy (GE)	Kcal/gram	3,70

The tools used in this study are electric/digital scales with a capacity of 2000 grams and have a sensitivity of 0.1 grams used to weigh feed and chicken ingredients used in the study and used to weigh chicken carcass cracks. Buckets are used to mix rations. Label paper is used to mark each treatment feed that has been weighed. 1 kg of plastic is used to wrap the weighed treatment feed. Stationery used to record each amount of feed used every day in the study. Broom sticks are used to clean the cage. Hose used for drinking water. A knife used to cut chicken.

The cage used in this study used a battery system cage made of a series of 3-tiered banbu with a size of 50 cm long, 47 cm high and 50 cm wide, totaling 15 plots. The ration to be used in this study is a ration prepared in accordance with the recommendations of [6] consisting of concentrate, corn, fish meal, rice bran, coconut oil, minerals and aking rice flour. The composition of the ration for each treatment varies according to needs, consumption of rations.

Table 2.
The composition of the constituent materials of the research ration

Material Name	Treatment Ration				
	N_0 (%)	N_1 (%)	N_2 (%)	N_3 (%)	N_4 (%)
Concentrate	43	43	43	43	43
Corn	20	15	10	5	0
Aking Rice	0	5	10	15	20
Rice Bran	23	23	23	23.3	23.4
Fish Meal	12	12	12	11.7	11.6
Coconut oil	1	1	1	1	1
Meneral	1	1	1	1	1
Total	**100**	**100**	**100**	**100**	**100**

Information:
N_0 = (Control) The ration does not contain aking rice flour.
N_1 = Ration contains 5% aking rice.
N_2 = Ration contains 10% aking rice.
N_3 = Ration contains 15% aking rice.
N_4 = Ration contains 20% aking rice.

The nutritional content of the ration used in the study, based on the composition of ingredients inthe ration against crude protein, Me kcal / kg, crude fiber, fat, calcium.

Table 3.
Composition of Nutritional Content of Research Rations

Food Substances	Treatment Ration					
	N_0	N_1	N_2	N_3	N_4	Standard*
Crude Protein (%)	18,24	18,18	18,24	18,19	18,21	18
ME (kcal/kg	2821	2809	2797	2782	2769	2900
EN (%)	5,330	5,267	5,204	5,127	5,125	7
Lysine (%)	7,29	7,54	7,16	6,83	6,47	10
Calcium (%)	1,39	1,39	1,40	1,38	1,39	1-2,70
P %	0,78	0,78	0,79	0,17	0,17	0.40

Remarks : *Based on Calculations [7]
*Based on calculations according to [6]

Research Implementation
Chicken Randomization

Of the 300 chickens weighed by weight, an average of 198 – 219 g/head was taken as much as 75 heads were used for treatment, then the chickens were randomly distributed on each cage plot totaling 15 cage plots. Each cage plot is filled with 5 chickens, so that 75 chickens are used with homogeneous body weight.

Aking Rice Flour Making Process

The aking rice used in this study was obtained from rice traders (collectors) in the North Denpasar region. Preparation of making aking rice flour can be done as follows: After the aking rice is collected, dry it again under the hot sun so that it is completely dry. After it is completely dry, the aking rice is ground using a flour grinding machine. After the rice flour is finished, it is ready to be mixed into the ration. The stale rice flour in the ration cannot be guaranteed to be used up because some are spilled or wasted. So it can affect the accuracy of the data on intake and its impact.

Mixing Rations

Mixing rations is carried out once every 1 week. Before mixing the rations, the materials are weighed. Aking rice flour is weighed as much as 5%, 10%, 15%, 20% then followed by weighing concentrate, rice bran, fish meal, corn, minerals and oil according to the amount calculated in one week multiplied by the number of chickens in each treatment and the number of days in 1 week.

Mixing is done in a clean plastic bucket container. The more ration material is spread evenly in a plastic bucket container and followed by a small amount, then the ration material is divided into 7 parts, each part is stirred evenly and repeated several times, then mixed and stirred until completely even. The mixed rations are weighed as much as the chickens need per day for one week and the weighed rations are put into plastic, then coded/labeled according to the treatment.

Ration and Drinking Water

Rations and drinking water are given ad – libitum, given 2 times a day, namely morning and evening. The drinking water provided came from a borewell near the research cage. The drinking water station is cleaned daily to prevent the onset of disease, then filled again with new water, the rest of the ration is weighed once a week.

Disease Prevention

Before chickens are put into the cage, the cage and equipment are cleaned and sprayed with disinfectants (destan) to eradicate pests, viruses, bacteria, fungi. Every day where drinking water is cleaned, chickens are given vita chick through drinking water when chickens arrive in the cage to avoid stress, maintain endurance and increase appetite. As well as vaccinating gumboro through eye drops at the age of 4 days, and Newcastle Disease (ND) at the age of 21 days through eye and nose drops.

Data Collection

Data collection is carried out once a week, namely on weekends. Each super native chicken is weighed to determine the increase in body weight.

Sampling

Chicken sampling was carried out at the end of the study, namely when chickens were 10 weeks old. Chickens are weighed per treatment unit, each treatment unit consists of 5 chickens selected 1 head whose weight is closest to the average weight in the treatment then marked by tying color threads to the legs of chickens to be used as samples for cutting.

Cutting

Slaughter for native chicken samples is carried out at week 10 by weighing chickens at each treatment, then taking 1 head that is close to the average weight. Before slaughter is carried out, chickens are satisfied for 12 hours. Chicken blood is accommodated, then put into plastic and weighed, then feather removal is carried out by dipping in cold water then into hot water with a temperature of 70 0C – 80 0C for 0.5 – 1.0 minutes.

Furthermore, to obtain part of the carcass, it is done by ejecting the digestive tract and internal organs, cutting off the legs and head. Removal of the gastrointestinal tract and internal organs is carried out by splitting part of the stomach. To separate the head and neck is done by cutting the Altlanta occipitalis joint, which is the link between the atlas bone (Vertebrae zervikalis) with the skull bone while to separate the legs is done by cutting the Tibio tarsometatarsus joint.

The separation of the carcass parts begins by separating the chest from the back by cutting along the meeting between the ribs attached to the back (vertebral cassete) with the ribs attached to the sternum (Costae sternalis) to the shoulder joint. To separate the back and thigh, a cut is made at the Articularis coxal joint between the femur Os femur and Os coxol femur. The wings are separated by cutting the supply between Os humerus and Os scapula and Os coracoid. The lower thigh (drum stick) and upper thigh are separated by cutting the joint between the femoral os and the tibia os, namely at the femurtibial articulation joint. The wings can be separated by cutting the joint between the os humerus and the os scapula and os coracoid. A cut in the joints of the last cervical bone (vervebrae cervikalis- 1) with the backbone (thoracalis vertebrae -1) is made to separate the neck from the back.

Research Variables

The variables observed in this study are as follows.

1. **Carcass weight:** The weight gained after subtracting blood, head, neck, feathers, both legs on the bottom, and internal organs.
2. **Chest weight:** The weight of the result of separating the chest from the back by cutting the meeting of the ribs attached to the back and ribs attached to the sternum.
3. **Thigh weight:** The weight of the result of separation of the back and thigh by cutting the coxal articularis joint between the femur and Os coxol femur.

4. **Back weight:** The weight resulting from the separation of the chest and femur of the Os femur with the Os ischium.
5. **Wing weight:** The weight of the separation of the wing from the chest is done by cutting the link between Os humerus and Os scapula and O s coracoids.

Data Analysis

The data obtained from the results of this study were analyzed by fingerprint analysis, if there were real different results (P<0.05) between treatments, a multiple distance test was carried out from Duncan [8].

3. Results and Discussion

Result

Based on statistical analysis of the results of the study (table 4.1) shows that the provision of aking rice flour in the ration statistically shows a different effect is not real (P>0.05) on carcass weight, chest weight, thigh weight, and back weight. While the wing weight showed a noticeable effect (P<0.05) on super native chickens aged 10 weeks.

Table 4.
The Effect Of Giving Rice Flour In The Ration On The Carcass Crack Of Super Native Chickens Aged 10 Weeks

	Treatment					SEM[3)]
Observation Variables	N_0	N_1	N_2	N_3 [2)]	N_4	
Carcass Weight (g)	503.03 a	507.03 a[1)]	543.30 a	535.47 a	523.53 a	10.33
Chest Weight (g)	144.40 a	145.17 a	157.37 a	154.70 a	150.13 a	3.15
Thigh Weight (g)	167.20 a	167.93 a	180.07 a	175.63 a	170.60 a	5.68
Back Weight (g)	116.73 a	118.60 a	123.53 a	121.83 a	120.70 a	2.99
Wing Weight (g)	74.70 b	75.33 b	82.33 a	83.30 a	82.10 a	0.96

Information:

1. The mean followed by the same letter on the line indicating the effect is not apparent (P>0.05)
2. N_0 = (Control) The ration does not contain aking rice flour.
   N_1 = Ration contains 5% aking rice.
   N_2 = Ration contains 10% aking rice.
   N_3 = Ration contains 15% aking rice.
   N_4 = Ration contains 20% aking rice.
3. SEM (Standard Error of The Treatment Means).

A. Carcass Weight

Based on statistical analysis in table 4.1, the provision of aking rice flour in the ration has an intangible effect (P>0.05) on the weight of the carcass of super native chickens aged 10 weeks. Rations containing 10% aking rice flour in the N_2 treatment gave the highest yield of

543.30 g/head followed by N_3 (535.47 g/head), N_4 (523.53 g/head), N_1 (507.03 g/head), and N_0 (503.03 g/head).

B. Chest Weight

The results of the study in statistical analysis in table 4.1 showed that the provision of aking rice flour in the ration had an intangible effect (P>0.05) on the weight of super native chicken breast aged 10 weeks. Rations containing 10% aking rice flour in the N_2 treatment gave the highest yield of 157.37 g/head. In the treatment N_3 obtained (154.70 g/head) smaller than N_2 but, still larger than N_4 (150.34 g/head), N_1 (145.17 g/head), and N_0 (144.40 g/head).

C. Thigh Weight

Super native chickens aged 10 weeks treated with aking rice flour in the ration had an intangible effect (P>0.05) on thigh weight as shown in table 4.1. Rations containing 10% aking rice flour in the N_2 treatment gave the highest yield of 180.07 g/head followed by N_3 (175.63 g/head), N_4 (170.60 g/head), N_1 (167.93 g/head), and N_0 (167.20 g/head).

D. Back Weight

The back weight of super native chickens aged 10 weeks in table 4.1 shows that the provision of aking rice flour in the ration has an intangible effect (P>0.05). At the 10% level, N_2 treatment gave the highest result, namely 123.53 g/head then followed by N_3 (121.83 g/head), N_4 (120.70 g/head), N_1 (118.60 g/head), and N_0 (116.73 g/head).

E. Wing Weight

The variable weight of super native chicken wings aged 10 weeks according to table 4.1, which was treated with aking rice flour showed a noticeable effect (P<0.05). After further tests, it was found that between the treatment of N_0 to N_4 showed different results (P>0.05) between each treatment. The highest results were obtained in the N_3 treatment containing 15% aking rice flour (83.30 g/head) then followed by N_2 (82.33 g/head), N_4 (82.10 g/head), N_1 (75.33 g/head), and N_0 (74.70 g/head).

Discussion

Aking rice flour has the potential as an alternative feed ingredient as an energy source to replace corn because it has almost the same nutritional content, considering the price of corn feed ingredients is relatively expensive on the market. Based on the results of an analysis conducted at the Laboratory of Nutrition and Animal Feed, Faculty of Animal Husbandry, Universitas Brawijaya 2014, aking rice contains 8.42% crude protein, 3465.51 Kcal/kg metabolic energy, 0.22% crude fat, and 0.37% crude fiber while corn contains 8.6% crude protein, 3370 Kcal/kg metabolic energy, 3.9% crude fat and 2% crude fiber. Based on the results of statistical analysis, it was found that the provision of aking rice flour in the ration showed the results of an intangible influence (P>0.05) on all observed variables (carcass weight, chest weight, thigh weight, and back weight) except for the wing weight variable. This means that almost the same protein and energy content in all treatments tends to show no real effect (P>0.05) on the variables carcass weight, chest weight, thigh weight, and back weight but contrary to the variable wing weight. This is because the protein and energy content

in each treatment is almost the same. According to [6] the standard metabolic energy requirement of super native chicken is 2900 kcal/kg and 18% protein.

Carcass weight is the weight obtained by weighing chickens after being cut to blood, feathers, legs, and internal organs. The use of aking rice flour showed an intangible effect (P>0.05) on all observed variables. However, it can be seen in table 4.1 that the treatment of N_2 with the addition of aking rice flour with a level of 10% in the ration tends to show the highest result of 543.30 g / head but differs not significantly from the variable weight of carcasses of super native chickens aged 10 weeks. This is related to the variable carcass weight in the N_2 treatment which has the highest weight compared to super native chickens that are not given aking rice flour rations.

High weight gain will also affect the weight of the carcass. This is in accordance with research by [9] which states that chicken weight gain is influenced by consumption and nutrient content in rations, especially energy and protein. The protein content in the ration to be given to native chickens can also affect the high and low production of carcasses [10]. The balance of energy and protein in the ration is expressed in kilo calories obtained from the metabolic energy per kilogram of the ration divided by the percent amount of protein. The balance of energy and protein in rations has a significant effect on ration consumption, growth speed, body composition, and efficiency of ration use [11].

The use of aking rice flour showed an intangible effect (P>0.05) on the variable chest weight. The chest is one part that has thick flesh [12]. The highest chest weight was obtained in treatment N_2 (10% aking rice flour) which was 157.37 g/head. This is thought to be because the chest cut is affected by the weight of the carcass which will indirectly affect the weight of the carcass and parts of the carcass. The results of this study are supported by [13] which states that the highest variable percentage of carcass will be followed by the highest percentage of chest fractures.

Based on the results of statistical analysis, the provision of aking rice flour in the ration showed an intangible effect (P>0.05) on the thigh weight of super native chickens aged 10 weeks. In the treatment of giving 10% aking rice flour, (N_2) gave the highest result of 180.07 g/head but gave an intangible effect result (P>0.05) with other treatments. This shows that giving aking rice flour does not have much effect on the weight of super native chicken thighs. According to [14], the thighs are not entirely composed of flesh or muscle tissue, but there are other constituents that are formed first in the thighs. In addition, rations are not only used to increase the carcass but are used to form other parts of the body.

While the use of aking rice flour showed an intangible effect (P>0.05) on the variable weight of the back. The highest back weight was obtained in the N_2 treatment (10% aking rice flour) which was 123.53 g/head. In accordance with research [15] that body parts that have many bones are wings, back, neck and legs. According to [16], the weight of the wings and the weight of the back are almost the same in each treatment because the wings and back are not the main place of meat deposition so that during growth, nutrients for meat formation are found at the place of meat deposition. The wing is a part of the carcass that contains more bone tissue than the muscle part [17]. The variable weight of super native chicken wings aged 10 weeks according to table 4.1, which was treated with aking rice flour showed a noticeable effect (P<0.05). After further tests, it was found that between the treatment of N_0 to N_4 showed different results (P>0.05) between each treatment. The highest results were obtained in the N_3 treatment containing 15% aking rice flour (83.30 g/head) then followed by N_2 (82.33 g/head), N_4 (82.10 g/head), N_1 (75.33 g/head), and N_0 (74.70 g/head). The percentage of

wing weight is calculated by means, the wing weight divided by the carcass weight then multiplied one hundred percent [18].

4. Conclusion

Based on the results of research and discussion, it can be concluded that: The provision of aking rice flour in the ration had an intangible effect (P>0.05) on the research variables of carcass weight, chest weight, thigh weight, and back weight. While the variable wing weight shows a real influence (P<0.05).The addition of aking rice flour which tends to give optimal results on carcass weight, chest weight, thigh weight, and back weight is in the N2 treatment with a level (10%) on the ration. Quantitatively gives the best results on carcass weight, chest weight, thigh weight, and back weight. While the weight of the N3 wing with a level (15%) gives the highest result of 83.30 g/head.

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