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Variation of Quantitative Traits of Kamang Duck as Local Genetic Resources in Kamang Regency West Sumatera

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Abstract

This aims of this research was to collect the information about the variation quantitative traits of Kamang duck as local animal genetic resources in West Sumatera as a data base. This research was held in Kamang regency Agam District West Sumatera. using 169 head of Kamang ducks consist of 50 male and 119 female mature sex. Survey method was used in this research. The variable as body weight and morphological oh body were measured in this study. Data were analyzed using statistic descriptive method. The result indicated the mean and standard deviation of quantitative traits of male and female Kamang Ducks were body weight $1,34 \pm 0,10$ kg, $1,32 \pm 0,10$ kg, beak length $5,41 \pm 0,36$ cm, $5,24 \pm 0,26$ cm, beak width $2,52 \pm 0,09$ cm, $2,46 \pm 0,13$ cm, neck length $19,38 \pm 1,03$ cm, $17,47 \pm 1,64$ cm, back length $23,53 \pm 0,96$ cm, $22,63 \pm 1,72$ cm, chest circum $28,06 \pm 1,16$ cm, $27,41 \pm 1,91$ cm, wing length $29,13 \pm 1,55$ cm, $28,58 \pm 2,32$ cm, femur length $9,05 \pm 0,81$ cm, $9,09 \pm 1,14$ cm, tibia length $10,91 \pm 0,84$ kg, $10,84 \pm 1,34$ kg and pubis width $2,78 \pm 0,40$ cm. The highest variation of quantiatave traits of male Kamang ducks were femur length 8,97 % whereas in female Kamang ducks were at pubis width 14,46 %. The good selection was conducted by Kamang duck farmer, therefore it as spesific genetic resources can be sustained.

Keywords: Kamang ducks, variation, Quantitative traits, Local genetic

Introduction

The local ducks represents a large pool of untapped genetic resource. There are many local breeds of ducks in Indonesia, and they can be found widely spread across the country. The local ducks as descendants of the Indian Runner have the potential of high egg production, but they have not shown their egg production optimally. There are many local breeds of ducks in Indonesia, and they can be found widely spread across the country. Ducks in Indonesia get name with the name of the place where the duck were bred for generations or domesticated as Tegal duck, Bayang duck, Pitalah duck. In west Sumatra Tilotang Kamang regency have ducks that are named with the name of the place where the Kamang ducks are bred. Kamang ducks maintained by farmers in small groups as a producer of egg. and the male breed as a ameat. the demand of male duck high enough. Itiak Balado is a famous food origin bukittinggi. Existence of different indigenous duck varieties name (Sabrina et al. 2015) with distinct phenotypic characters and better production potential. It is important to have knowledge of the variation of morphometric traits in local genetic resources as such measurements have been discovered to be very useful in comparing body size and by implication, shape of animals (Latshaw and Bishop, 2001). Such comparison could be used as basis for selection and improvement programmes.

Methodology

A total number of 50 male and 119 female of Kamang ducks were used in this research. These Kamang duck were raised by small holders in the Tilatang Kamang Regency, Agam District of West Sumatera Province. This research utilized the survey method and intensive direct examination. In sample selection, mature sex the purposive sampling method was utilized. The variation of quantitative traits on base data. The variable as body weight, beak lenght, beak width, the length of shank, back length, chest depth and chest width the wing lenhgt, femur lenght, tibia lenght, neck lenght, beak length, back length, chest depth and chest dan width of pubis, back length, chest depth and chest width were measured in this study. Data were analyzed using discriptive statistic analysis to compute means and their standard errors and coefficients of variation for quantitative traits.

Result and Discussion

The variation of quantitative traits such as, body weight, neck length, femur length and shank length were recorded for 119 female adult ducks. The means with standard deviation (SD) is of female Kamang duck presented in Table 1.

Table 1. Mean and standard deviation of quantitative traits of female Kamang ducks in Tilatang Kamang Regency, Agam District of West Sumatra

No	Quantitative traits	Mean	SD	Max	Min	CV(%)
1	Body weight (kg)	1,32	0,10	1,552	1,126	7,60
2	Beak lenght (cm)	5,24	0,26	5,85	4,35	4,91
3	Beak width (cm)	2,46	0,13	2,65	2,12	5,43
4	Neck lenght (cm)	17,47	1,64	20,6	15,1	9,39
5	Back lenght (cm)	22,63	1,72	25,6	16,4	7,61
6	Chest circum (cm)	27,41	1,91	29,8	18,8	6,96
7	Wing lenght (cm)	28,58	2,32	34,5	24,5	8,13
8	Femur lenght (cm)	9,09	1,14	12,24	7,21	12,55
9	Tibia lenght (cm)	10,84	1,34	15,21	9,18	12,35
10	Pubis width (cm)	2,78	0,40	3,30	1,70	14,46

CV: coefficient of variance

⁴ Cinneke et al. (2002) reported that the relationship existing among body characteristics provides useful information on performance, productivity and carcass characteristics of animals and that these quantitative measures of size and shape may be used for estimating genetic parameters in animal breeding plans. Beak lenght, beak widht and chest circumference and wing length, in female duck generally having less variability. this is in line with the results of research in poultry (Liyanage et al. 2015)

The variation of quantitative traits such as, body weight, neck length, femur length and shank length were recorded for 50 male adult ducks The least square means with S.E. is presented in Table 2

Table 2. Mean and standard deviation of quantitative traits of male Kamang ducks in Tilatang Kamang Regency, Agam District of West Sumatera

No	Quantitative traits	Mean	SD	Max	Min	CV(%)
1	Body weight (kg)	1,34	0,10	1,532	1,119	7,54
2	Beak lenght (cm)	5,41	0,36	5,83	4,42	6,57
3	Beak width (cm)	2,52	0,09	2,62	2,09	3,44
4	Neck lenght (cm)	19,38	1,03	20,7	14,7	5,33
5	Back lenght (cm)	23,53	0,96	25,3	20,6	4,07

6	Chest circum (cm)	28,06	1,16	30,5	25,7	4,13
7	Wing lenght (cm)	29,13	1,55	34,8	25,8	5,34
8	Femur lenght (cm)	9,05	0,81	10,32	7,12	8,97
9	Tibia lenght (cm)	10,91	0,84	12,45	9,18	7,73

The morphometric information for a particular species or breed is important for breed or species identification and economic valuation in its utilization. The traits that show less variability within breeds/types indicate homogeneity and identity of those categories. However, traits showing wider variation could be used for prediction purposes such as live weight prediction (Assan, 2013). Because of its strong correlation with meat yield, body weight is used as a proxy indicator of production (FAO, 2012). Body weight and body measurements can be as a reference for evaluating the performance and productivity of livestock. Body measurements have utility for estimating the body weight and carcass percentage, so it can show the value on livestock (Cole, 1970). Based on table 1, 2 the mean of body weight of Kamang duck for male 1.32 ± 0.10 kg and female 1.34 ± 0.10 kg with coefficient of variance 7.60% and 7.54%. The present study showed males always have a larger values for body weight and morphometric than females. The higher body weight and morphometric measurements in male chickens compare to the females in this study is in line with the report of Sabrina et al. (2014).

Conclusion

The quantitative traits of Kamang duck have varied. Based on the research results the coefficient of variance of Kamang ducks is small to moderate. The highest variability on female duck were in femur, tibia length and pubis width with coefficient variance about 12.55, 12.35 and 14.5%. While the diversity of male Kamang ducks the lowest in half width was 3.44% and the highest for the length of the thigh 8.97%. Therefore, further investigation on the performance traits and the molecular analysis need to be done to identify the genetic variability and to complete a set of characterization of the Kamang duck.

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