

Conference Paper

Growth Performance on Sapudi Ewe's Birth Type in Sapudi Island, Madura, East Java, Indonesia

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Abstract

This study aimed to compare the growth performance of Sapudi ewe based on birth type. A total of 60 ewes consisting of 35 single-birth type ewes and 25 prolific-birth type ewes were observed for data collection. The data for growth performance comprised of body length (BL), chest circumference (CC), wither height (WH) and udder circumference (UC). The results indicated that birth type significantly affected BL, CC, and WH ($P < 0.05$). The single-birth type showed greater BL, CC and WH values compared to prolific-birth type. However, no evidence suggested that UC ($P = 0.262$) are affected by birth type. The results can be useful for selecting Sapudi ewe based on the birth type and growth traits to improve the genetic performance in Sapudi Island, Indonesia.

Keywords: birth type, BL, CC, growth performance, sapudi ewe, UC, WH

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Received: 10 November 2018

Accepted: 6 January 2019

Published: 10 March 2019

Publishing services provided by
Knowledge E

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Selection and Peer-review under the responsibility of the UASC Life Sciences 2016 Conference Committee.

1. Introduction

The fat-tailed Sapudi sheep is a native of East Java, Indonesia [1]. Decree No. Menteri 2839/ KPTS/LB.430/8/2012 designated Sumenep (Madura) as the center of Sapudi sheep with a population of more than 15 000 [2]. The advantages of fat-tailed sheep are low maintenance, good grazing behavior, broad grass diet, relatively low cost (cheaper than goats), and it does not require large pens. The breed is inherently prolific, able to produce more than one offspring in one breeding period. Adopting property selection criteria will enable simultaneous improvement in population growth and genetic quality.

Improvements in the genetic potential of this breed are required as a basis for meeting the demands of lamb and for consumption. Therefore, it is imperative for conservation efforts to stabilize (and increase) the population. One such effort that can be implemented is through selecting superior stocks from Sapudi sheep with superior genetic potential. Selecting these sheep can be done by observing growth performance by way of body size. Body size is a benchmark to assess the quality of livestock, i.e., the larger

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the body size, the higher the breeding value, and vice versa [3]. This research needs to be done to obtain information about the growth performance of Sapudi Madura sheep.

2. Materials and Methods

2.1. Data collection

The research was conducted on the island of Sapudi, Madura, Indonesia. The materials used in this study were 60 Sapudi ewes (35 single-birth type ewes and 25 prolific-birth type ewes). Four growth performance recorded included body length, chest circumference, wither height and udder circumference. Body length (cm) was measured using a measuring stick from the front edge of the shoulder joint (shoulder protrusions) to the rear edge hump sitting bones (bone spurs seated). Chest circumference (CC; cm) was measured using a measuring tape behind the shoulder and through the wither. Wither height (WH; cm) was measured using a measuring stick starting from the highest point of the shoulder and directly perpendicular to the ground. Udder circumference (UC; cm) was measured by circumscribing the udder using a measuring tape.

2.2. Statistical analysis

The data were analyzed using the t-test with program statistic product and solution service (SPSS) version 17, to test the effect of each independent variable (birth type) on the dependent variable (growth traits).

3. Results and Discussion

The research showed that the birth of type single had the highest mean BL while the smallest mean the birth of type prolific resulting (54.20 ± 4.29) cm and (49.40 ± 3.08) cm, respectively (Table 1). The body length in the birth of type single and prolific was significantly different ($P < 0.05$). The highest mean of CC was in birth of type single (83.83 ± 8.03) cm while birth of type prolific (71.20 ± 5.41) cm, ewes that were born from single born ancestor characteristic, this is in accordance with Afolayan [4] who stated that chest circumference in single born lambs was 31 % heavier, 10 % higher, and 11 % larger than those that were born prolific. The chest circumference in the birth of type single and prolific was significantly different ($P < 0.05$) — the mean of WH in single and prolific birth type were (61.46 ± 3.56) cm and (58.96 ± 2.52) cm, respectively. The wither

height in the birth of type single and prolific was significantly different ($P < 0.05$). The highest mean of UC was in the birth of type prolific (25.24 ± 5.81) cm during the birth of type single (23.57 ± 5.48) cm. The udder circumference in the birth of type single and prolific was not different ($P > 0.05$).

TABLE 1: Mean data growth performance of Sapudi Ewe.

Growth performance	Birth of type	
	Single	Prolific
Body length (BL)	(54.20 \pm 4.29) cm	(49.40 \pm 3.08) cm
Chest circumference (CC)	(83.83 \pm 8.03) cm	(71.20 \pm 5.41) cm
Wither height (WH)	(61.46 \pm 3.56) cm	(58.96 \pm 2.52) cm
Udder circumference (UC) *	(23.57 \pm 5.48) cm	(25.24 \pm 5.81) cm

*non significantly different ($P > 0.05$)

The research showed that the body length, chest circumference, and wither height of single birth ewes have greater values than that of prolific-births, except udder circumference which shows greater values in prolific-births. Body length was widely used by farmers as a basis for determining the production of sheep meat. Large livestock will grow faster and have large size after reaching maturity compared with livestock with smaller body size [5]. Livestock's growth face in young age has a strong correlation with its size in its mature age [6]. Chest circumference correlated with high body weight [4, 7]. The chest circumference of singular birth lambs had 10 % higher value than the chest circumference of prolific-birth lambs [4]. Wither height in single birth ewes was higher than that of prolific-births. It was due to the bones making up the front leg of single birth ewes experience a faster growth rate. According to Sutiyono [8], wither height only bolsters activities and supports body gestures. The udder circumference values in prolific-birth ewes are greater than single birth ewes. This result of this research same with Banhero [9] showed that prolific-birth ewes have larger udder circumference values than that of single birth ewes. Ewes that gave birth to many fetuses have a higher placental weight and higher progesterone serum in addition to an excess of lactogenic hormone during pregnancy. It can be attributed to the fact that lambs from prolific-birth ewes often breastfeed more than ewes of single-birth [10].

4. Conclusion

Single birth Sapudi ewes have greater values than prolific-births. Growth performance including BL, CC, and WH can be used as traits selection to improve the genetic performance Sapudi ewes in Sapudi Island, Indonesia.

Acknowledgments

This research was supported by The Indonesian Directorate General of Higher Education (DIKTI) with contract No. 015/SP2H/LT/DRPM/II/2016.

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