

Body Size of Sonok Type Madura Cattle

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Abstract— The study was conducted to determine the differences in body size of Sonok cattle in various ages used in the cultural activities of the Madurese community. The research was conducted in Pasean and Batumarmar sub-districts, Pamekasan district, East Java Province, Indonesia. The research was conducted on December 1, 2019 - January 30, 2020. The materials used in the study were 72 Sonok cattle consisting of 14 heads (PI₀), 14 heads (PI₂), 18 heads (PI₄), 14 heads (PI₆), and 12 heads (PI₈). The research method used was a survey in the field. Data were collected by purposive sampling. The results showed that the lightest body weight was 204 ± 19.06 kg (PI₀) and the heaviest was 325 ± 49.54 kg (PI₈). The shortest body length is 117 ± 6.23 cm (PI₀) and the longest is 136 ± 7.85 cm (PI₈). The smallest chest circumference is 143 ± 6.04 cm (PI₀) and the largest is 164 ± 10.19 cm (PI₈). The shortest gumba height is 116 ± 8.26 cm (PI₀) and the highest is 126 ± 4.10 cm (PI₆). The lowest hip height is 118 ± 7.13 cm (PI₀) and the highest is 127 ± 6.02 cm (PI₈). The results of the analysis showed that the body weight of sonok cattle was significantly different ($P < 0.01$) at the age of PI₀ with PI₂ and PI₆ with PI₈. The body length was significantly different ($P < 0.01$) in cattle aged PI₀ with PI₂, PI₂ with PI₄ and PI₆ with PI₈. The size of the chest circumference was significantly different ($P < 0.01$) in cattle aged PI₀ with PI₂. The gumba height was significantly different ($P < 0.01$) in cattle aged PI₀ with PI₂ and PI₂ with PI₄. The average height of gumba has decreased in cattle aged PI₆ to PI₈. Hip height was significantly different ($P < 0.01$) in cattle aged PI₀ and PI₂.

Keywords—Sonok Cattle, Age, Body Size.

I. INTRODUCTION

Madura cattle are native Indonesian cattle nuftah plasma originating from Madura Island. Madurese cattle have several characteristics such as brownish yellow to brick red, black nails and muzzle, small to medium posture and short legs. Madura cattle are more resistant to hot climates, can live with limited feed conditions, are resistant to parasites, and have good meat quality (Nurgartiningih, 2010).

Madurese cattle are kept by the Madurese community for cultural purposes as Sonok cattle. The Sonok Cattle Contest is a traditional art form of the Madurese community that emphasizes the beauty of body shape, harmony and skills of cattle which are the result of specific selection and maintenance (Kosim, 2007). Sonok cattle that have appeared in the contest will have a high selling value and their offspring will be hunted to become the next Sonok cattle.

The Sonok cattle contest was attended by various ages of cattle and divided into several classes according to the age of the PI (*Permanent Incicivi*). The body size of Sonok cattle varies according to their age level. The body size of a cattle is important to study as information on the growth characteristics of the cattle. The body sizes of Sonok cattle of various ages

can also be used as data to support the development of the Sonok cattle in contest cultural activities to attract tourists. Therefore, the aim of this study was to determine the difference in body size of Sonok cattle at various ages.

II. RESEARCH METHODS

The research was conducted in the Madura cattle breeding source area in Pasean and Batumarmar sub-districts, Pamekasan district, East Java Province, Indonesia. The research was conducted on December 1, 2019 - January 30, 2020. The materials used in the study were 72 Sonok cattle consisting of 14 heads (PI₀), 14 heads (PI₂), 18 heads (PI₄), 14 heads (PI₆), and 12 heads (PI₈). The research method used a survey in the field. Data were collected by purposive sampling, namely data collection by determining the sampling of cattle that have participated in the Sonok cattle contest. The research variables observed were:

- Body weight (BW) is measured using a digital scale by means of a cow placed on the scale as a whole and expressed in Kg.
- Body length (BL) is measured by measuring the distance from the shoulder blade (humeral tuberosity) to the end of the sitting bone (tuber ischii) and expressed in Cm.
- Chest circumference (CC) is measured by wrapping a measuring tape around the chest behind the shoulder and expressed in cm.
- Gumba height (GH) is measured by measuring the perpendicular distance from the ground to the top of the gumba / shoulder behind the hump and expressed in cm.
- Hip height (HH) is measured the perpendicular distance from the highest point on the first sacrum to the ground is measured using a measuring stick and expressed in Cm.

The data obtained were analyzed with one way ANOVA to compare the body size of Sonok cattle based on different ages, then the results of the analysis were described.

III. RESULTS AND DISCUSSIONS

Based on the research, the data on BW, BL, CC, GH and HH were analyzed and the results are shown in Table I.

The body weights of Sonok cattle in various ages showed highly significant differences between the ages of PI₀ and PI₂, PI₄ with PI₆ and PI₆ with PI₈, while Sonok cattle aged PI₂ and PI₄ were not significantly different. This highly significant difference in body weight of Sonok cattle in various ages is due to the growth factor of the cattle where the older the cattle are, the heavier they are. PI₂ cattle with PI₄ are not significantly different because Sonok cattle that have established aesthetics and behavior will be maintained and

cows in that age are the ones that participate the most in the contest. Good Sonok cattle until the age of PI₄ are rarely bred and will begin to be bred at the age of PI₆. Sonok cattle are given special treatment including feeding, Sonok cattle are fed grass, concentrate and herbal feed. Kutsiyah, Kusmartono and Susilawati (2003) state that the types of feed given to Sonok cattle are grass, agricultural waste and leaves. Types of grass feed include field grass, agricultural waste in the form of corn leaves, cassava leaves, rice straw, banana leaves, waru leaves

and lamtoro leaves. Giving herbs to Sonok cattle in the morning, the herbs given consisting of herbal ingredients such as coconut milk, *Gastrochilus panduratum* ridl extract and ginger juice (*Curcuma xanthorrhizoxb*) as an appetite enhancer, brown sugar and molasses as an energy source, tamarind fruit (*Tamarindus indica L.*) to prevent hair loss, milk and eggs as a source of protein, coffee (*Coffea arabica L.*) as an energy booster. Routine herbal medicine is given twice a week.

TABLE I. Body Sizes of Sonok Cattle in Various Ages

Body Sizes	Ages				
	PI ₀ (14)	PI ₂ (14)	PI ₄ (18)	PI ₆ (14)	PI ₈ (12)
Body Weight (Kg)	204 ± 19,06 ^a	285 ± 42,91 ^b	295 ± 29,58 ^b	324 ± 39,11 ^c	325 ± 49,54 ^d
Body Length (Cm)	117 ± 6,23 ^a	127 ± 5,49 ^b	128 ± 5,09 ^b	131 ± 6,51 ^c	136 ± 7,85 ^d
Chest circumference (Cm)	143 ± 6,04 ^a	158 ± 9,26 ^b	160 ± 6,58 ^{bc}	164 ± 11,91 ^{cd}	164 ± 10,19 ^d
Gumba height (Cm)	116 ± 8,26 ^a	121 ± 3,43 ^b	123 ± 3,45 ^c	126 ± 4,10 ^{cd}	125 ± 7,22 ^d
Hip height (Cm)	118 ± 7,13 ^a	122 ± 4,94 ^b	124 ± 3,66 ^{bc}	126 ± 4,27 ^{cd}	127 ± 6,02 ^d

* Different letters on the same line indicate highly significant differences (P < 0.01).

The results of the chest circumference measurement showed highly significant differences in cattle aged PI₀ and PI₂. The size of the chest circumference is influenced by growth factors, especially in the development of the size of the cow's stomach. Gastric development begins when the cow is born and grows rapidly when the cow starts eating crude fiber. The development of stomach size will reach the peak point when the cow is an adult. The larger the stomach size, the more feed will be able to accommodate, this is the same as Soetanto's (2019) statement that the increasing age of cattle, the stomach size (rumen) would develop and increase in size.

In measuring the body length of Sonok cattle, the results were highly significant different for cattle aged PI₀ with PI₂, PI₄ with PI₆ and PI₆ with PI₈. The body length in cattle PI₂ with PI₄ was not significantly different. In the Sonok cattle contest, 2 cows are selected and made into one pair to go hand in hand during the contest. Sonok cattle are chosen that have the same body size as their partners to support harmony between their partners.

Cattle PI₂ and PI₄ were the cattle that participated the most in the Sonok cattle contest. This is in accordance with the opinion of Kosim (2007) that body shape (body length) was important in the selection of Sonok cattle to support harmony between their partners.

The results of the gumba height measurement were highly significant different in Sonok cattle aged PI₀ and PI₂. Gumba height decreased on average in cattle aged PI₆ to PI₈. This is presumed to have occurred due to the weight of the belly and the pelvis (the carved wood that flanks 2 Sonok cows). In training and contest, Sonok cattle will be aligned with their partners and flanked by using a *pangonong* so that they can walk together and have aesthetics, the pelonong has weight and is presumed to increase the effect of the decreasing in the height of the Sonok gumba. The Sonok cattle contest was followed by cows in pairs who were joined to the *pangonong*, the word Sonok came from "soro nyonok" in the meaning that a pair of cows was directed to enter the gate during the contest (Kutsiyah, 2015). The hip height resulted highly significant different at the age of PI₀ and PI₂ and on averagely each increasing in the age group experienced an increasing in hip

height. This is slightly different in the results of the gumba height measurement. The increasing in hip height is due to growth factors. Body size would increase with the age of the cattle and would be maximized when the cattle reached adulthood (Kuswati and Susilawati, 2016).

IV. CONCLUSION

Based on the results of the study, it can be concluded that the body weight of sonok cattle is highly significant different at the age of PI₀ with PI₂ and PI₆ with PI₈. The body length is highly significant different for cattle aged PI₀ with PI₂, PI₂ with PI₄ and PI₆ with PI₈. The size of the chest circumference is highly significant different in cattle aged PI₀ and PI₂. The height of the gumba is highly significant different in cattle aged PI₀ with PI₂ and PI₂ with PI₄. The average height of gumba has decreased in cattle aged PI₆ to PI₈. Hip height is highly significant different in size between cattle age PI₀ and PI₂.

V. SUGGESTION

Based on the research results, it is suggested that the body size data of Sonok cattle in this study can be used as additional criteria in the assessment of the Sonok cattle contest.

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