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Correlation of Pregnancy Duration, Litter Size, Birth weight and Sex Ratio

Correlation of Pregnancy Duration, Litter Size, Birth weight and Sex Ratio of **Goat Saburai In Sumberejo** Subdistrict, **Tanggamus Regency**, Indonesia Kusuma Adhianto*, **Ria Ayu Lestari**,

Siswanto Siswanto, and Sulastri Sulastri Animal Science Department, Faculty of Agriculture, University of Lampung Jl Sumantri Brojonegoro no 1 Bandarlampung, Lampung, Indonesia 35145 Coresponding author: Email

kusuma.adhianto@fp.unila.ac.id

Phone : +62 812 2797 2696 ABSTRACT Research It

aims to determine **the** correlation **value of** the **pregnancy duration, litter size, birth weight, and sex ratio of Saburai Goat in Sumberejo** Subdistrict, **Tanggamus Regency** by observing the pregnant doe **50** head **and** give **birth**

72 head. This research was conducted in

2018. The research data used primary and secondary data taken from direct observations in the field and records from Sumberejo subdistrict. The method used is the survey method. The variables observed included pregnancy duration, litter size, birth weight, and sex ratio. The results of this study indicate that the average

pregnancy duration 145.93 ± 6.22 days, birth weight 3

.54 \pm 0.60 kg; litter size 1.64 \pm 0.56

head, and sex ratio of goat kid 40.27% male and 59.73% female of Saburai Goat in Sumberejo Subdistrict, Tanggamus Regency. The pregnancy duration of saburai goat has correlation with litter size 0.766, birth weight 0.398 and sex

0.202. The conclusions from this study indicate that the pregnancy duration of Saburai goat

significantly affected

birth weight, litter size, and sex. Keywords: Saburai Goat, Pregnancy Duration, Litter Size, Birth Weight, Sex Ratio

INTRODUCTION Saburai goat is a dual-purpose type that produces milk and meat. Saburai goats have advantages that are easy to maintain, have high reproductive ability, and adaptability high against various environmental conditions and high growth rates. Utilization of Saburai goats as meat producers is very low, cause the level of saburai goat productivity is still low and population is below 80% from total goat in Tanggamus, presumably due to the high percentage of other goat families (Sulastri and Adhianto, 2016). Another factor that can cause low Saburai goat population is lack of attention in maintenance management, especially feed problems. Improved feeding when pregnant and lactation is expected to increase the litter size and quality of goat kid. The low Saburai goat population is caused by uncontrolled good maintenance management such as feed management, cages, and breeding. To increase goat productivity can be done through breeding programs, improvement of reproductive efficiency, improvement of maintenance and attention to the body weight at the time of mating,

pregnancy duration, litter size, birth weight, and correlation of

these characteristics. pregnancy duration are determined by genetic factors although maternal, fetal, and environmental factors can be modified (Jainudeen and Hafez, 2000). The weight of doe has the possibility of having twinning higher than the lower (Johnston, 1983). Goats with a high birth weight have better daily body weight and weaning weight than goat with low birth weight. The problem in breeding saburai goat is the limited information on basic data for the production and reproduction of goats as a basis for increasing productivity and until now research on pregnancy duration that can affect the birth weight of livestock, litter size and sex ratio in Saburai goats has never been done. Based on this, a correlation between

pregnancy duration, litter size, birth weight and sex ratio Saburai goat was conducted **in Sumberejo District, Tanggamus Regency.**

MATERIALS AND METHODS Material Study material consisted of Saburai goats who were pregnant and gave birth in January – February 2018 as many as 72 in the Sumberejo District in breeder group. The tools used in this study are brand digital scales with a Portable capacity of 45 kg with accuracy of 0.01 kg, stationery, and cameras. Methods Research carried out by using survey method and sample determination was done by purposive sampling. The material was observed in the form of Saburai doe who was pregnant and gave birth to Saburai temple in January-February 2018. The changes observed consisted

of pregnancy duration, litter size, birth weight, and sex ratio.

Data Analysis Data

Pregnancy duration, litter size, birth weight, and sex ratio of

goats were analysis with correlation analysis using SPSS.16.0 (Santoso, 2002) **RESULTS AND DISCUSSION** Correlation of Pregnancy duration with birth weight

The average birth weight of Saburai goat in this study was **3.54 ± 0.60 kg** (Table 1).

The average birth weight is higher than the results of the study (Sulastri et al., 2014) which is 3.302 ± 0.66 kg. The difference is due to breed or genetic influences in this case is the male factor used. The results of the analysis showed that the pregnancy duration correlation had a significant effect ($P < 0.05$) on the birth weight of the goat kid born (Saburai) which was equal to $r = 0.398$ (Table 2). This means that the longer of pregnancy duration, the birth weight of the goat kid that will be increases. (Prasojo et al., 2008) also found a strong relationship between pregnancy duration and birth weight, $r = 0.248$. Hunter (1995) added that the average birth weight depends on the age of the fetus. Factors that are thought to influence pregnancy duration and birth weight are feed nutrition, environment, fetus, the number of vegetables contained, the sex of the fetus. Saburai goat breeders in Sumberejo sub-district provide sufficient forage feed and routine fermentation, and concentrates such as tofu dregs, so that nutrition can be fulfilled during pregnancy. This is in line with Priyanto (1994) that good quality and quantity of feed at the end of pregnancy will result in a higher birth weight of goat kid and greater body weight of the doe will give higher birth weight of goat kid. Another factor that affects birth weight is parity of doe. Parity of doe in Sumberejo sub-district is more than one. According to Farid and Fahmi (1996) parity has a significant effect on birth weight. Parity is related to age of doe. The higher parity means the more complete the anatomical and physiological functions of the reproductive organs. The maximum anatomical and physiological functions of the reproductive organs will further support the growth of the fetus. The old correlation of pregnancy duration with Litter Size Litter size is an important role in determining the rate of increase in goat population, because the high number of goat kid after pregnancy will affect the increase in population (Doloksaribu et al., 2005). The litter size in this study was 1.64 ± 0.56 heads. This litter size has the results with (Adhianto et al., 2011) which states that litter size the Saburai goat 'sis 1.6 ± 0.6 tails. Factors that can affect litter size are parent age, parent body weight, male influence, season, and nutrient level. Mahmilia and Elieser (2008) add that the number of kid depends on the number of ovulated cells, the number of eggs that can be fertilized and embryonal mortality rate. The results showed that correlation of pregnancy duration had a significant effect ($P < 0.05$) on litter size (Table 2). This means that the age of pregnancy will be shorter with the increase in the number of kid in birth. The magnitude of the relationship is 0.766. The same situation was also reported by Mahmilia and Elieser (2008)

that the increasing number of litter size, pregnancy duration is getting faster. It is suspected that the number of more than one fetus in the uterus causes the development of the uterus to be faster, besides that the hormones needed for the birth process are more numerous than the single birth. The Correlation Pregnancy duration with sex Gender is determined at conception (Berry and Cromie, 2007). In mammals, the sex of goat kid depends on the maintenance of the ovum that carries the X chromosome by the sperm carrying X or Y chromosomes. If the zygote consists of pairs of X and Y chromosomes it will develop into male individuals, whereas the zygote consisting of the X chromosome pair female individuals (Reed, 1985). The probability of the combination of XY (male male) and XX combination (individual female) is equal or 50%: 50%. In fact, there is often a shift in the value of the balance both at the time of conception and its development. Based on the results of the study (Table 1), it was shown that the sex ratio of Saburai goats was 40.27% (male) and 59.73% (female) from the number of births as many as 72, with 29 male less than female goat kid (43 heads). The results are different from Ettawa crossbreed goat at 83.37% (male) and 16.67% (female) (Sariadi et al., 2014). This difference is thought to be due to the influence of goat, season, level of selection carried out by breeders, age and parity of female and male parents used (Demural et al., 2007); Vaginal pH (Cole and Cupps, 1997); feed and parent nutrition (Rosenfeld and Roberts, 2004; Green et al., 2008) and time of artificial insemination (Rorie, 1999). The results of the study showed that correlation of pregnancy duration had a significant effect ($P < 0.05$) on the sex, with the results of the correlation analysis were 0.202 which means that the gestational age is longer then the female born tends to be male, and vice versa (Table 2). This is supported by the statement (Prasojo et al., 2008) that gestational age in male Balinese cows shows a significant difference in gestational age in Balinese females, ie kid who are sexually challenged tend to have a longer gestational age. Other factors that affect the length of pregnancy with sex are the age of the parent, the season, genetic traits and geographical location.

CONCLUSIONS AND RECOMMENDATIONS Conclusions Based on the research that has been done, it can be concluded that pregnancy duration has a correlation with

litter size, birth weight, and sex ratio of Saburai goats in Sumberejo District, Tanggamus Regency.

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