

## Reproductive Characteristics of Peranakan Etawa and Kacang Goats in Different Maintenance Systems in the Toari District, Kolaka Regency

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### ABSTRACT

Toari sub-district has a population of 4,434 head or 18.47% of the total 24,003 head of the goat population in Kolaka Regency. This study aims to determine the reproductive characteristics of Etawa crossbreed goats and bean goats in different maintenance systems in the Toari District. The population in this study were all breeders of goat etawa (PE) and bean goats in the Toari Subdistrict with the research sample of Ranomentaa, Rano Jaya, Lakito and Toari villages. The sampling method is determined by purposive sampling, as well as the data used are primary and secondary. Primary data were obtained through interviews of 100 respondents while secondary data were obtained from the District, village and related government offices. The results showed that the reproductive characteristics (the distance of calving, first mating, and kidding rate) of Etawa (PE) goats were generally higher than those of goat nuts in intensive, semi-intensive and extensive system maintenance.

**Keywords :** Reproduction, Maintenance, Toari

### I. INTRODUCTION

Reproductive success will greatly support livestock productivity in addition to feed and management factors. The high reproductive power of livestock groups accompanied by good livestock management will result in high reproductive efficiency followed by high livestock productivity. The ideal high reproductive nature and continuity of livestock every year can have a good impact on the course of business. In some cases of livestock culling, mostly due to the low production reasons of a goat, mostly due to the reproductive failure of the goat concerned (Sutama, 2009). Sutyono et. al, (2006), a mother goat that has twins shows that a goat is a big man. Growth in single children is usually faster, but in large cases, it grows

after adulthood of a large brooded parent is greater than in a single-breed goat parent.

The genotype of the parent and the good condition of the parent's body affect the early growth of the child-related to the "mothering ability" and the ability to produce milk (Sutyono et.al, 2006). Kurnianto et. al, (2007) said that the smaller birth weight in multiple birth types may be related to the capacity of the mother's uterus during pregnancy which is denser than a single fetus. The growth rate of children with a single birth type is higher than in twin births (Ginting and Mahmilia, 2008). Spacing is one of the reproductive traits that affect increasing the population and production of goat livestock. There are several ways, including by crossing (Nainggolan, 2011). The spacing of children can also be influenced

by the type of single birth spacing that will be shorter when compared with types of twin births (Susilowati, 2008).

Post-delivery goats and then 1 or 2 months later show symptoms of heat again. The mother goat should be left in advance for 2 or 3 months to breastfeed her child (Mulyono, 2008) because the reproductive tissue still needs a recovery period so that it can function optimally again. (Doloksaribu, 2005). Kidding Rete is the number of children born every birth in one birth period through the insemination system. Goats can give birth to up to 1-4 births or an average of 2 animals (Sarwono, 2002). Peanut goat is more prolific compared to Boer Goat. This proliferation besides being influenced by the nation and genetic factors is also influenced by the age of the parent when giving birth (Subandriyo, 2004). Susilowati (2008) explains that goat nuts weighing 20-30 kg have high fertility ranging from 1-4 individuals per birth.

Sodiq and Sumaryadi (2002) said that the average number of children per birth for peanut goats and Peranakan etawa (PE) was 2.06 and 1.56 children per birth, respectively. Reinforced by Subandriyo (2004) that the average number of children born to goats and etawa (PE) are 1.65 and 1.50 children per birth. Livestock raising system according to Rianto and Purbowati (2009) is divided into three, namely intensive, extensive and semi-intensive maintenance. The intensive maintenance system is carried out by placing cattle in cages and not grazing and the semi-intensive system is a combination of extensive and intensive systems that is by grazing livestock during the day and being kept at night (Wodzicka et. Al, 1993).

## II. MATERIALS AND METHODS

The material used in this study is the parent of Etawa Peranakan goat and peanuts that are maintained by the community, both intensively / semi-intensively and extensively. Then etawa (PE) breeders and pea

goats in Toari District and questionnaires and recording and measurement tools prepared during the interview and field observation process. The sampling method is determined by purposive sampling, ie the sample is determined intentionally. The consideration taken is the selection of research sites that have the most goat population, consisting of two villages representing intensive / semi-intensive maintenance systems and two villages representing extensive maintenance systems. Samples of goat mothers taken are all mothers who have complete reproduction records of two successive lambing events which are then observed from the appearance of the reproductive nature of goats in the form of Kidding Intervals, First Mating, First Kidding, Kidding Rate. After that, it is analyzed using descriptive data analysis which is used referring to (Robert and Rohlf, 1992; Sudjana, 1996; Rasyad, 2003).

## III. RESULTS AND DISCUSSION

The reproductive aspects of goats can be known based on the performance of the mother and child. Parameters or measurements that can be used to determine the reproductive performance of goats based on the performance of the parent (female goat) include the distance of breeding, first mating, and Kidding rate.

### a. Spacing of Children

The spacing of livestock depends on the interaction of genetic and environmental factors, but environmental factors are more influential than genetic factors. In very low environmental conditions the carrying capacity of food sources, drinking water, the temperature that is too hot tends to affect the distance of breeding and low fertility. (Devendra and Burns, 1994). The condition of the distance of breeding goats at the study location can be seen in Table 1.

Table 1. Average Spacing of Sheep Goats and Etawa Breeds (PE)

Maintenance System	Goat Nation	The spacing of children (months)	
		The range	Average
Intensive	Kacang	8-10	9
	PE	10-12	11
Semi Intensive	Kacang	8-10	9
	PE	10-12	11
Extensive	Kacang	8-10	9
	PE	10-12	11

Source: Primary data, 2019

The distance of breeding goat bean goats that are kept intensively, semi-intensively and extensively is shorter than that of Etawa crossbred goats. Peanut goats that have an average spacing of 9 months while etawa (PE) goats have an average spacing of 11 months. The difference in breeding distance between the two types of goats is due to environmental factors and inadequate feed availability, which has an impact on livestock reproduction rates. The shorter the breeding distance, the higher the production, while the faster the emergence of estrus after breeding indicates that the goat has good reproductive properties.

**b. First Marriage**

The period of marriage can be calculated by reducing the interval of childbirth to the length of pregnancy so that the period of the first marriage is the difference between the age of the first child with the first marriage and the duration of pregnancy. The mating process that occurs in goats should be mated when an adult body is reached. The non-uniformity of the age of the first mating goats is due to differences in the rate of growth of livestock that can be seen from the livestock raising system and the experience of breeders. The first mating of peanut and etawa (PE) goats can be seen in Table 2.

Table 2. Average First Mating of Beans and Peranakan Etawa (PE)

Maintenance System	Goat Nation	First Marriage (month)	
		The range	Average
Intensive	Kacang	7-9	8
	PE	10-12	11
Semi Intensive	Kacang	7-9	8
	PE	10-12	11
Extensive	Kacang	7-9	8
	PE	10-12	11

Source: Primary data, 2019

The first mating goat bean cattle are maintained intensively, semi-intensive and extensive on average 8 months. This number is smaller than that of etawa (PE) breeds that are kept intensively, semi-intensively and extensively, with an average first mating time of 11 months. The short time of first mating is because the type of goat is known to have high adaptability to the surrounding natural conditions, and has a high reproductive rate. Besides, goats also have features compared to other subtropical animals that can produce children throughout the year or their reproductive ability is not dependent on the season.

**c. Kidding Rate**

The kidding rate is the number of children born compared to the number of mothers mated. The kidding rate in this study looked at the number of children in etawa (PE) peanut and goat goats and compared with each parent. The Kidding rate can be seen in Table 3.

Table 3. Average *Kidding rate* for Beans and Peranakan Etawa (PE)

Maintenance System	Goat Nation	Kidding rate			
		Child born	Parent mated	The range	Total
Intensive	Kacang	31	7	1-3	1,7
	PE	289	13	1-3	2,3
Semi Intensive	Kacang	54	7	1-3	1,8
	PE	665	13	1-3	2,3
Extensive	Kacang	81	43	1-3	1,8
	PE	80	67	1-3	2,6

Source: Primary data, 2019

The kidding rate for extensively raised bean goats (1.8) is smaller than that for etawa (PE) goats that are extensively raised ((2.6). and (1.8) whereas intensive etawa (PE) goat has a kidding rate of 1.3 and semi-intensive is 2.3. This number indicates that the cattle goat and etawa (PE) goats have a good calving rate because it has a value of 1 -3: It means that the goat and Etawa (PE) cattle have one child at a time between 1 and 3 animals.

The low Kidding rate of goats that are intensively raised from both goat nations, both peanut goats and etawa (PE) breeds, respectively (1.7 and 2.3). The low value is due to limited feeding or only given in the morning and evening. It is different from goats that are extensively raised, respectively (1.8 and 2.6) with abundant feed supplies or free to look for their feed.

#### IV. CONCLUSION

Reproductive characteristics (the distance of calving, first mating, and kidding rate) of general etawa (PE)

goat are higher than that of pea goats in both intensive, semi-intensive and extensive system maintenance. With an extensive maintenance system, the characteristics of etawa (PE) and peanut goat production are higher, and the semi-intensive maintenance system is the lowest in the intensive system. Based on the results of the study, the business of goat nuts and Peranakan breeds (PE) in the Toari Subdistrict, Kolaka Regency has the potential to be developed, so it is expected for farmers and investors to invest their capital in the business because they can provide benefits. At the same time recommending that for the business of goat nuts and breeders etawa (PE) breeders need to pay attention to technical aspects, and management aspects because this aspect is a determining factor in the success of the goat livestock business.

#### V. IMPORTANT STATEMENT

This research has never been carried out and its novelty lies in the research location and is a district with a population of Etawa crossbred goats and peanut goats in Kolaka Regency.

#### VI. THANK YOU NOTE

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