IMPROVING GOATS REPRODUCTION PERFORMANCE BY APPLIED OF A RECORDING SYSTEM IN SENTRA PETERNAKAN RAKYAT KEBON WULANGREH, JOGONALAN, KLATEN

Bayu Andri Atmoko[2]*, I Gede Suparta Budisatria[1], Nono Ngadiyono[1], Endang Baliarti[1], Panjono[1], Tri Satya Mastuti Widi[1], M Danang Yulianto[1], Regita Aisyah Nirmala[2]

Laboratory of Meat, Draught and Companion Animal, Faculty of Animal Science, Universitas Gadjah Mada
[2] Student of Faculty of Animal Science, Universitas Gadjah Mada

*brebayuandri@gmail.com

ABSTRACT

Goats were one type of livestock that had good development prospects in supplying meat. Goat livestock development in rural areas is one of the alternatives in increasing production, but the productivity of goats at the farmer level is not optimal, it is necessary to increase the ability to raise livestock in the livestock farmers and productivity of goats to obtain optimal results. This service program aimed to determine the goats breeding system applied by farmers at Sentra Peternak Rakyat (SPR) Kebon Wulangreh, Karangdukuh, Jogonalan and improve the reproduction performance of goats. Interviews were conducted on 10 respondents of smallholders farmers and measured of 17 goats in Sentra Peternak Rakyat Kebon Wulangreh, Karangdukuh, Jogonalan, Klaten. Descriptive quantitative and independent sample t-test analysis was applied for the information and the data. The results showed that average of kidding interval, litter size, mortality, postpartum mating was 309.94±55.31 days, 2.00±0.70, 17,65%, 160.11±55.54 days. After the assistance and improvement of maintenance management were carried out, the reproduction performance of the goats has a significant increase compared to the previous one in the kidding interval and PPM (246.72 ± 35.12 days and 91.45 ± 35.31 days). Assistance and learning about the importance of reproduction recording of livestock were required to improve the performance of the goats that are kept by smallholder farmers.

Keywords: *Goats, Reproduction performance, Recording system, Sentra Peternakan Rakyat*

INTRODUCTION

Goat has an important role in the agricultural business system in Indonesia. In socio-economic terms, goats are livestock which is mostly maintained by small farmers as producers of meat, milk, fertilizer, leather, as savings and insurance as well as government facilities in alleviating poverty in several regions. Socially, goat plays a role in religious celebrations and cultural celebrations that have become a tradition of Indonesian people (Budisatria and Santoso, 2009; Budisatria et al., 2010). Thus the goat is one type of livestock that has a fairly good development prospect in the meat supply.

One type of goat that is suitable to be developed is Etawah Crossbred (PE) goats. The Etawah Crossbred Goat is one of the local goats in Indonesia with a fairly high population and widespread in the territory of Indonesia. The PE Goat Productivity is quite good with the level of kids production and milk production, often used as a producer of goat milk and meat or in other words, PE goats have a dual role (Budisatria et al., 2018a). Moran-Fehr et AI. (2004) state that in Indonesia and also in developing countries, small ruminants provide a variety of socio-economic contributions and functions for their owners, but the development is quite slow because the majority of goat farms are at the level of small level farms with minimum inputs. Actually, if maintenance optimization is carried out, goats have great potential to be developed at the level of small farmers.

Goat farmers or breeders in Karangdukuh Village, Jogonalan District, Klaten Regency in Central Java raising goats only as side jobs, because most have main jobs as laborers in red bricks production. Goat maintenance is done traditionally in the yard or grazed on rice fields. In 2017, the Sentra Peternak Rakyat (SPR) or Community Livestock Center Kebon Wulangreh was formed in order to facilitate coordination in organizing the farmers with assistance from the Faculty of Animal Science, Universitas Gadjah Mada.

The assistance activity of breeding goats aims to build the community breeding center based on mentoring and learning through the concept of good breeding farming. The concept of a breeding center is a system of providing superior males and mating pen in one location (integrated farm). So that it is expected that matting will occur naturally and will be able to increase conception and finally increase the kids' crop or production from the farm. So far, the results of assistance activities through the breeding center concept have shown that maintenance effectiveness and efficiency can be improved and able to change the preferences of previously limited goat farmers kept in the yard and grazed in rice fields, and the right now turning into integrated farm (Budisatria et al., 2017 and Budisatria et al., 2018b).

The process of developing livestock can be reflected in its productivity. One way to increase livestock productivity is by improving reproductive performance. The reproductive process that runs normally will be followed by good productivity (Hardjosubroto, 1994). The productivity of the female goat (does) in the SPR Kebon Wulangreh so far has not been optimal in accordance with what is expected, especially the kidding interval is long or more than 12 month. The main problem is that there is no recording system that is periodic and continuous towards the goat and the does in the breeding center. According to the Technical Guidelines for Livestock Breeding System (Ministry of Agriculture of Indonesia, 2008) recording is an activity that includes identification, productivity records, pedigree records, reproduction records, health records, and management records.

The absence of reproductive records from the does in the breeding center will complicate and close the information for farmers regarding the condition. This certainly will affect the farmers' decision to matting, if the matting is not accurate it will prolong the gestation and consequently the kids interval be long. Once the kids if not recorded, the farmer will not know the correct weaning time. The impact of the quality of the kids becomes declining and the equivalent is the delay in the postpartum estrous (PPE) so that the kids interval is getting longer. The condition is disadvantaged for the farmers, both in

terms of cost efficiency and maintenance time. This paper presents basic information on farmers profiles, goat breeding management, and the quality of goat based on the reproductive performance in the beginning period and after the assistance and introduction of recording systems at Community Livestock Center.

METHODOLOGY

The target group of community service activities is the Sentra Peternak Rakyat (SPR) Kebon Wulangreh located in Karangdukuh Village, Jogonalan District, Klaten Regency. Assistance activities begin in September 2017 until September 2018. The recording system was applied through socialization, counseling, demonstration, and continuous assistance by students until farmers can do it independently, recording is done on all goats by using recording card for the individual level, recording boards and books for the group level. Each goat is given an identity in the form of a necklace with a code of goat, gender, physiological status and the name of the owner/breeder. Recording on the does is focused on the time of estrous, mating, and birth, the weaning time and the postpartum matting (PPM).

The data of the reproductive performance of goat were obtained based on interviews at the beginning of the activity or before assistance, while for does performance after the activity is calculated based on records during the introduction and application of the recording system in the SPR. The data are the calving interval, litter size, mortality and postpartum mating (PPM). The data of differences in goat reproduction performance were analyzed by t-test (SPSS).

RESULT AND DISCUSSION

Reproduction performance observed in the service activities included the Kidding interval, litter size, Mortality, postpartum mating (PPM). The Reproduction performance of goats at the SPR Kebon Wulangreh is presented in Table 1.

Table 1. Goat reproduction performance before and after introducting the recording system at Sentra Peternak Rakyat Kebon Wulangreh

Parameter	before (n=17)	after (n=11)
Kidding interval (day)[s]	309.94±55.31	246.72±35.12
Littersize (head)	2.00±0.70	1.64±0.84
Mortality (%)	17.65	17.39
Post Partum Matting (day)[s]	160.11±55.54	91.45±35.31

[s]significant

KIDDING INTERVAL.

The kidding interval of the goat at the SPR Kebon Wulangreh, before the service activities, amounted to 309.94 ± 55.31 days. The kidding interval of the goat after the service activities 246.72 ± 35.12 days. These results have a significant difference based on statistical analysis. Devendra and Burns (1994) state that kidding interval is the period between two consecutive kidding time/birth consisting of the mating period (the period from kids birth to conception of does) and the gestation period is called the kidding interval. The kidding interval is generally influenced by service per conception (S/C), gestation period, weaning age and first matting after giving birth or postpartum matting (PPM). The results of the study by Budisatria et al. (2018) shows that the kidding interval range of PE goat is around 274 days at the level of small farmers and around 225 days at the intensive maintenance level. The average kidding interval of PE goats has been very good compared to the average results of this study.

Improvement of the kidding interval cannot be separated from the recording system of the does in the breeding center. Before the introduction of technology, farmers were only limited in their knowledge in terms of the time of weaning and postpartum matting (PPM). The weaning time is very long because the farmer feels and thinks that the kids growth will be very maximal if it is always maintained with a does, some even up to the age of 6 months are weaned. Farmers worry that if we are weaned earlier, the quality of the kids will be poor, due to lack of milk consumption from the does. When weaning time too long, will make the postpartum estrous of the does a very long time. This is what then makes the kidding interval very long.

After assistance is related to the maintenance of the kids-does by the team from Faculty of Animal Science UGM and supported by the recording card and the recording board, the farmer can immediately make a decision to matting the does who has given birth without weaning first and then the weaning time or separating the kids from their does within 5 months. The ideal time for weaning was 4 to 5 months if the quality of the does was good based on body conditioning score (BCS), but to PPM the ideal time was 3 months, so before weaning time, the does must be pregnant. Finally, the farmers understand and immediately marry the does who are still milking their kids. To make it easier for farmers, estrous synchronization was done with the pgf2@ hormone protocol, to increase the estrous quality and for optimizing the matting time simultaneously.

LITTER SIZE.

Litter size is the number of kids born and is influenced by the environment and microclimates where the animals are located (Hardjosubroto, 1994). The number of birth kids plays a very important role in determining livestock productivity. Based on some research results, it is seen that there is considerable variation in the number of birth kids in the goat. The average of litter size of kids at the SPR Kebon Wulangreh, Karangdukuh, Jogonalan before the service activities are 2.00 ± 0.70 heads. The average of litter size after the service activities had a significant increase to 2.50 ± 0.84 heads. The results showed that the average of litter size of PE goats raised by small farmers receiving livelihood rehabilitation programs in Bantul Regency, Yogyakarta Special Region and Klaten Regency, Central Java was 1.7 (Budisatria and Udo, 2013).

The average of litter size is quite high at the goat at the breeding center because there is one does kidding 5 heads, one does kidding 4 heads and one does kidding 3 heads and the rest of does was kidding twin. It is very rare for a single kid. The nutritional adequacy factor for the goats fed with high quality legumes and the availability of superiors males capable of producing optimal spermatozoa in each natural matting in the breeding center is a factor that can increase the average of litter size, because according to Budisatria et al. (2018), that the factors that affect the height of the litter size, mainly the feed factor. The level of feed consumption has an effect on the litter size, feeding with a higher level of nutrition at the time of ovulation will increase the amount of ovulated ovum.

MORTALITY.

Mortality is the percentage of kids who die from the total kids born. Factors that influence mortality are feed, difficulty in birth, climate, age, and maternal temperament, the number of kids born (litter size) and birth weight, and maintenance system. Mortality rates are a major factor in determining goat productivity (Devendra and Burns, 1994). Goat mortality at the SPR Kebon Wulangreh, Karangdukuh, Jogonalan before the service activities and after service activities are 17.65% and 17.39% respectively. Assistance related to the maintenance of post-birth kids is expected to reduce mortality in the breeding center. Some of the efforts that have been made are by giving mineral blocks to the does to avoid

mineral deficiencies while lactation and giving colostrum immediately at the time of birth until the age of 3 days. Goats are ensured to immediately get colostrum both naturally and on a given basis through pacifiers. The old pregnant mothers are moved to the lower pen so that the kids birth process runs smoothly, not kids are trapped in the pen floor or fall from the stage pen that can cause mortality.

POST PARTUM MATING (PPM).

Post Partum Mating (PPM) or mating after giving birth is the day of matting after the goats give birth. In general, PPM is strongly influenced by the quality of feed given during lactation period and the time of weaning kids. The goat after giving birth takes time to restore the status and process of reproduction before the reproduction function can be normal, this process is often referred to as uterine involution. This process usually lasts about one to two months. At the first appearance of estrous after giving birth or postpartum estrous (PPE), the goats should not be mated directly, but wait for the coming of estrous in the next period. Mating after giving birth to a goat raised at a small farmers level is generally done after the kids are weaned, although it does not rule out the possibility that mating after kids birth can also be done even though the weaning period of the kids has not been done. In addition, the farmers usually do not directly matting the goats at the time of estrous emergence after giving birth, on the grounds that they feel sorry if the goats are directly mated because the child is not yet weaned, so the mating occurs after the kids are weaned (Budisatria et al. 2010). This is the same as the farmers' problem in the SPR Kebon Wulangreh.

The PPM of goats at SPR Kebon Wulangreh Karangdukuh, Jogonalan before the service activities are 160.11 ± 55.54 days. After the activities of introducing and applying the recording system, the PPM of goats significantly increased to 91.45 ± 35.31 days. Assistance related to kids-does maintenance management and utilization of records on the recording card and recording board can reduce the PPM of the goats owned by the farmers in SPR Kebon Wulangreh.

CONCLUSION

The farmers in the Sentra Peternak Rakyat Kebon Wulangreh have a background that makes it possible to develop livestock, especially goats. Goat raising activities have been carried out in groups farm and integrated farm. Assistance and learning about the importance of reproduction recording were required to improve the performance of the goats. The recording system of livestock has a positive effect on reproductive performance. There needs to be assistance and further learning to improve the performance of farmers and their livestock.

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