

Production Performance of Etawah Crossed Goats in Turi – Sleman, Yogyakarta

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ABSTRACT

A study is conducted to investigate production performance of Etawah Cross Bred goats, which are raised by farmers in Turi, Sleman, Yogyakarta. This region has the highest population of Etawah Cross Bred goats in Yogyakarta Province. The study was done through a survey and investigation, lasting from September 2006 to February 2007. 115 farmers were interviewed to collect the data pertaining to socio economic aspects of goat management and 234 goats were used, 34 of these were female goats, as random samples from the goat population in that region. The result showed that most of the goats are raised in the communal goat houses with the average numbers of 5.3 ± 3.7 goats per farmer. The goats do not satisfy the required standard of Etawah Cross Bred body weight and size. The average milk yield per goat is 774 ml per day. The age of female goat at first mating is 14.9 months with kidding interval of 10 months and the average number of kids born is 1.9/doe. The kids are weaned after 4 months and reach weaning weight of 26.2 kg. On the average, the goat produces 1.0 kg of manure per goat per day. It is concluded that the production performance of Etawah Cross Bred goats based on their body size and weight cannot reach the high standard of Etawah Crossed goat production performance. It is recommended that the goats are raised to produce milk. Since the average of milk yield is low (less than 1 liter per day), there is a need to improve the quality of breeding stock and management.

Key words: Etawah cross bred goats, production performance

INTRODUCTION

The majority of goat production in Indonesia is managed by small scale farmers under traditional methods. Sleman Regency is one of the regions where Etawah Cross Bred goats are concentrated. By the end of January 2007, the population of goats in Sleman reaches 31.431 heads. The number of goats increased as a result of 'Kambingisasi' program applied in 2005. Some of the goats are Etawah Cross Bred and most of which are concentrated in Turi numbering as many as 2,935 goats (Anonymous, 2007). In recent years, Etawah Cross Bred goats have become popular to be spread in new regions. The concentration areas for raising Etawah Cross Bred goats are upland regions, such as Kulon Progo and Sleman.

Etawah Cross Bred goats are the result of mating Etawah and Kacang goats. The characteristics of Etawah Cross Bred goat are combinations of those of Etawah and Kacang goats (Harjosubroto, 1994). For many years, the objective of raising Etawah Cross Bred goat

tends to be multipurpose. In this situation, the farmers raise goats for producing milk, fertilizer, replacement stocks or for savings. As a result of the different purposes of raising goat, Etawah Cross Bred goats in different regions vary in their characteristics, i.e. weight, body size and productivity. The recent situation also leads farmers to keep Etawah Cross Bred goats as pet animals. Therefore, the price of goats increased unreasonably and the motives of raising goats have changes. It is expected that the situation will change and farmers will raise the goats for the appropriate goals.

This study is conducted to identify the characteristics and productivity of Etawah Cross Bred goats raised by groups of farmers in Turi, Sleman. The objectives are to determine the purpose of Etawah Cross Bred raising, to analyze the potentials of Etawah Cross Bred goat production and to recommend some techniques of raising management in order to obtain the optimum results.

MATERIALS AND METHODS

In this study, questionnaires were used to interview farmers. Materials for investigating production performance consisted of 234 goats, of which 34 goats were lactating ones, feed, a scale, a measuring tape, a beaker glass, plastic bags and goat houses.

115 farmers were interviewed in Nganggring, Kemirikebo, Sukorejo, Nangsri and Babadan groups to collect data pertaining to socio economic aspects of goat management and the body size and body weight were measured from the 234 samples. Milk and manure production were recorded from 34 lactating goats for 3 consecutive days. The data were statistically analyzed by calculating mean values and deviation standard.

RESULTS AND DISCUSSION

Goat Management

The total numbers of Etawah Cross Bred goats in Turi are 554. Those are raised by 115 farmers. The majorities of farmer in this region were organized in groups and manage their goats in the communal goat houses. There are 3 communal goat houses in Turi, located in Nganggring, Kemirikebo and Sukorejo. In other groups (Nangsri and Babadan), there are no available communal goat houses; therefore, farmers here raise their goats in pens which are situated at the backyard.

Table 1. Distribution of Farmers in Turi According to Main Purpose of Raising Goats

Main purpose of raising goat	Percentage of farmers to total population
For savings	75.2
For producing replacement stock	14.5
For producing manure	10.2

On the average, each farmer in Turi has 5.3 ± 3.7 goats. Generally, the farmers raise goats as multipurpose animals (Table 1). 75.2% of farmers explained that their main purpose of raising the number of goat is for saving, while 14.5% and 10.2% are to produce replacement stock and manure, respectively. Milk production is a secondary purpose which is only found in Nganggring and Kemirikebo groups. In these

groups, several farmers have milked their goats and sold either in fresh or processed milk.

The purpose of raising goats for savings has caused negative and positive effects. The negative effect is shown by a decrease in goat quality. This occurs when farmers need a large amount of money, and the high qualities of goats are offered at high prices. In this situation farmers tend to sell the goats without considering the quality. As a result of continual selling of high standard goats, only low quality goats remain in the area and finally this situation decreases the quality of breeding stock.

The positive effect can be found when the prices decrease. While waiting for a good price for selling, farmers have the opportunity to obtain additional products, such as kids, manure and milk. In this situation, high quality bucks are possibly mating many females and produce kids during uncertain periods. Those kids can be selected to obtain replacement stock. This raising system needs to be supported by providing a guideline of selection, in order to get high standard replacement stocks. This guideline must contain the description of high grade Etawah Cross Bred goat characteristics and is useful for standard selection. Through this method farmers are expected to be able to select the goats properly.

Table 2. The Distribution of Farmers According to Their Main Job and Agricultural Products

Variables	Percentage of farmers to total population
Farmers main job:	
Producing Crops	94.4
Raising livestock	1
Others	4.6
Type of agricultural products:	
<i>Salak Pondoh</i>	70.2
<i>Salak Pondoh</i> and vegetables	11.6
<i>Salak Pondoh</i> and feed	12.1
<i>Salak Pondoh</i> and rice	6

In the group where the main purpose of raising goats is to produce manure (in Sukorejo group), farmers had been processing the manure and selling the compost. However, the farmers only compost a small part of the manure, as it is needed to fertilize their own land. In this area, the utilization of goat manure is mainly to support fruit production, especially for *Salak Pondoh*.

Goat manure is important for Salak Pondoh production because these fruits are the main agriculture products which require goat manure as the fertilizer (Table 2).

In this study, adult goats produced 1 kg manure per day (Table 4). Based on the number of goat ownership, farmers in Turi can produce 150 kg manure per month. This data showed that raising Etawah Cross Bred goats had contributions to support the farmer main job. The amount of available manure for selling depended on how much manure was required for fertilizing their land.

Characteristics of Etawah Cross Bred Goats in Turi

The result of investigation on 34 lactating goats (2 to 6 years old) indicates that the goats in Turi can not reach the required physical standard of Etawah Cross Bred goats, especially for body length, height of wither and body weight (Table 3). According to Sumadi *et al.* (2003), the required standards of Etawah Cross Bred goats are 72 - 80 cm for body length, 76 - 85 cm for height of wither, 25 - 32 cm and 8 -10 cm, respectively, for the ear length and width; the standard body weight of adult female is 55 - 65 kg. In comparison to the size of strain of *Kaligesing* Etawah Cross Bred goats, these goats have 65 - 85 cm in length and 70 - 90 cm height of wither with the ear size is 25 - 41 cm long and 8 to 14 cm wide (Anonymus, 2005). These comparisons demonstrate that characteristics, i.e. body size, of goat in this study are smaller than the standard body size of Etawah Cross Bred goats, but similar to those of strain of *Kaligesing* Etawah Cross Bred goats. *Kaligesing* is a place of the origin of Etawah Cross Bred goats. The goat body weight of 43 kg is less than the average body weight standard, ranging from 50 to 65 kg. The small size of these goats indicates that the quality had decreased. This is probably affected by continual selling of high standard goats.

The characteristics of Etawah Cross Bred goats are hereditarily received from Etawah goats. Therefore, to improve the quality, the selected goats should be compared to their ancestors, which are characterized by the height and size as well as other traits. The Etawah goats have Roman nose, long ears and neck. The ear length of adults is about 29 cm. The udder is capacious; the teats are long up to 12 - 14 cm in length. The weight of female Etawah at 6 months

is 30 pounds and at 12 months reaches 65 pounds (Rout *et al.*, 2000).

Table 3. Body Size of Lactating Etawah Cross Bred Goats in Turi

Variables	Average \pm S.D	Range
Age of goat (year)	4.2 \pm 1.7	2 - 6
Body length (cm)	66.5 \pm 7.4	49 - 90
Height of wither (cm)	73.0 \pm 4.9	62 - 86
Chest girth (cm)	80.5 \pm 4.9	68 - 90
Length of ear (cm)	27.2 \pm 2.7	22 - 31
Width of ear (cm)	9.2 \pm 0.9	7 - 11
Length of teat (cm)	12.9 \pm 3.7	7 - 20
Body weight (kg)	43.0 \pm 6.4	28 - 59

Table 4. Reproductive Performance and Milk Production of Goats

Variables	Average
Age of goat at first mating (months)	14.9 \pm 4.1
Kidding interval (months)	10.0 \pm 3.3
Litter size	1.9 \pm 0.6
Age of kids at weaning (months)	4.1 \pm 2.4
Weight of kids at weaning (kg)	14.1 \pm 5.8
Kid mortality (%)	10.7 \pm 9.0
Adult mortality (%)	11.0 \pm 2.0
Milk production (ml per day)	774 \pm 291
Manure production (kg per goat per day)	1.0 0.6

Reproductive Performance

According to Sarwono (1999), the age of goat at puberty is around 6 to 8 months. Farmers in Turi tend to delay the age of first mating to around 15 months because of the priority to attain the proper body weight prior to mating. The age of goat at first mating in this study is similar to that reported by Devendra and Burn (1994) who suggested that mating should be delayed until 12 months for small breed and 15 months for large breed. In comparison to Etawah goats, the age of first conception is around 18 months, first kidding at 23 months, and kidding interval about 11 months (Rout *et al.*, 2002). The objective of delaying the first mating is to reach the maximum body weight at mature age. Howe (1980) indicates that at puberty the goat only reaches 2/3 of mature body weight. Amoah *et al.* (1996) state that an increase in body weight of mother at mating has significantly improved the litter size and there is correlation between body weight of doe at mating and the number of litter size.

Data shown in Table 4, female goats which start mating at 15 months of age with 10 months

kidding interval, will reach the peak reproductive performance at 6.5 years old or at the 4th to 5th of parity. With an average litter size of 1.9, the goats can be expected to produce 9 to 10 kids during this period. The average litter size of goats in this study is higher than that of the Etawah breed, averaging 1.6 (Rout *et al.*, 2000). However, Rout *et al.* (2002) also reports that kidding twins had 52% probability; triplets or quadruplets are also common for Etawah goats. According to Amewu *et al.* (1999), litter size increases with parity, with the greatest occurs at the 5th parity. Therefore, farmers should select the kids from the 2nd to 4th kidding in order to find the best quality of replacement stock.

Milk Production

In this study, milking is started one month after kidding. Milk production was measured from goats in 3 consecutive days. The average milk production is 774 ml per day. This result is comparable to the report of Utama and Budiarsana (1997), showing that Etawah Cross Bred goat produce 158 kg of milk in 127 to 287 days of lactation. Baba *et al.* (2000) reports that the average milk production of Etawah Cross goats in Malaysia is 317 to 490 ml per day. In comparison to the ancestor, milk production of Etawah Cross Bred goats in this study is lower; the Etawah goat produces 2.5 pounds of milk per day. Milk yields increase up to the end of two months and then started to decline. The average lactation period is 260 days. Does with multiple kids usually produce more milk than those with single kids (Rout *et al.*, 2002).

Etawah Cross Bred goats are dual purpose goats; therefore, the capability of producing milk is lower than those of pure dairy goats. Recently consuming goat milk has become more popular. In Turi, farmers in Nganggring and Kemirikebo have initiated to produce and process goat milk. This has motivated other farmers from the other groups to follow their activities. However, since the average milk yield is low (less than 1 liter per day), there is a need to improve the quality of breeding stock and management for milk production.

CONCLUSIONS

It is concluded that Etawah Cross Bred goat body size and weight do not meet the high standard. However, the goats show high reproductive performance indicated by the short

kidding intervals and a tendency to produce twins. The goats have contributions to support agriculture production by producing manure for fertilizer. The average milk yield is low, i.e. less than 1 liter per day; therefore, there is a need to improve the quality of breeding stock and management.

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REFERENCES

- Anonymous. 2007. Data populasi ternak kecil sampai Januari 2007. Dinas pertanian Bidang Peternakan. Pemerintah Kabupaten Sleman, Daerah Istimewa Yogyakarta.
- Amewu, E.M., L. N. Nwakalor, and B. Y. Abubakar. 1999. Environmental influences on pre-weaning mortality and reproductive performance of Red Sokoto does. *Small Ruminant Research* 34 : 161-165.
- Amoah, E. A., S. Geyale, P. Guthrie, and C. E. Rexroad Jr. 1996. Breeding season and aspects of reproduction of female goats. *Journal of Animal Science*. 74 : 723-728.
- Baba, A. S. H., M. Sembiring and I.Noraida. 2000. The effect of supplementation with selected browse plant on feed intake, production and composition of milk in lactating Kacang-cross goats. *Animal Production in Australia* 23 : 369-371.
- Devendra, C., dan M. Burn. 1994. *Produksi Kambing di Daerah Tropis*. Terjemahan. Institut Teknologi Bandung. Bandung.
- Hardjosubroto, W. 1994. *Aplikasi Pemuliabiakan Ternak di Lapangan*. PT Gramedia Widiasarana Indonesia. Jakarta.
- Howe, P. A. 1980. Goat Reproduction, Oestrus, Synchronisation. In: *Proceedings The J. D. Stewart Memorial Refresher Course in Goats*, 26-30 May, 1980. The University of Sydney. Sydney.
- Rout, P. K., V. K. Saxena, B. U. Khan, R. Roy, A. Mandal, S. K. Singh and L. B. Singh. 2000. Characterisation of Jamunapari goats in their home tract. *Small Ruminant Research* 43 : 185-188.

- Rout, P. K., A. Mandal, M. K. Singh, R. Roy, N. Sharma and G.F.W. Haenlein. 2002. Jamunapari a Dairy Goat Breed in India, accessed 16 January 2002.
- Sarwono, B. 1999. Beternak Kambing Unggul. Penebar Swadaya. Jakarta.
- Sutama, I. K., and I. G. M. Budiarsana. 1997. Etawah Grade goats as the source of income of farmers in Indonesia. Livestock Research Center. Ciawi.
- Sumadi, S. Prihadi dan T. Hartatik. 2003. Petunjuk Pelaksanaan Standarisasi dan Klasifikasi Kambing Peranakan Etawah (PE) di Daerah Istimewa Yogyakarta. Fakultas Peternakan. Universitas Gajah Mada. Yogyakarta.