

COMPARISON ON DOES PRODUCTIVITY INDEX BETWEEN BOERAWA AND ETTAWA GRADE GOAT AT CAMPANG VILLAGE, TANGGAMUS, LAMPUNG

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ABSTRACT

Data from 30 crossbred Boerawa does and 30 Ettawa Grade goat (EG) does that was kidding twice or more than twice were analysed to evaluate and compare does productivity index of them. This research has been conducted on 1st February up to 31st April, 2006 at Campang Village, Tanggamus, Lampung. Variables measured were weaning weight of kids, kidding intervals, and litter size. Birth weight, the age of does, the type of birth and keeping, the sex of kids were variables supporting the prime variables that had function to calculate the corrected weaning weight. Based on the variables, Doe Productivity Index was calculated and being analysed by t-student test. Litter size of Boerawa does (1.710 ± 0.370 kids) were different significantly ($P \leq 0.05$) with EG does (1.570 ± 0.279 kids). Kidding interval of Boerawa does (11.77 ± 0.41) were not different ($P > 0.05$) with EG does (11.20 ± 0.80 months). Weaning weight of Boerawa kids (14.277 ± 0.709 kg) were different ($P \leq 0.05$) with EG kids (12.929 ± 0.556 kg). Does productivity index of Boerawa ($30,17 \pm 7,30$ kg) were different ($P \leq 0.05$) with EG ($25,53 \pm 5,57$ kg). It could be concluded that does productivity index of Boerawa were higher and better than EG..

Keywords: Crossbred Boerawa, Ettawa Grade Goat, And Does Productivity Index

INTRODUCTION

The Region Government of Lampung Province got difficulty when the Central Eastern Countries that was prime market of goats requested goats with yearling weight about 40 kg. The average yearling weight of goats in Lampung not more than 30 kg that was measured on Ettawa Grade Goats (EGG = *Peranakan Etawah*). The EGG was biggest goat in Lampung with the average yearling weight about 25 kg.

An effort to get goats with yearling weight 40 kg were crossing program between female EGG with male Boer goats by artificial insemination. Three male Boer goats was arrived from South African. Sperms of the goats were taken and then were made frozen cement by Installation of Frozen Cement Production Terbanggi Besar, Lampung. The frozen cement was inseminated to female goats at many places, one of them at Campang Village, Tanggamus. The offspring produced by crossing between male Boer goats with female EGG was named Boerawa goats (Dinas Peternakan dan Kesehatan Hewan Provinsi Lampung, 2004).

Boer goats grow very fast with the average daily gain were 0,2--0,4 kg. Its body weight at 5--6 months old were 35--45 kg, at 2--3 years old were 120--150 kg on male goats and 80 kg on female goats. The average of dressing percentage were 40--50 % (Ted and Shipley, 2005). The average birth weight of Boer goats were $3,21 \pm 0,09$ kg, the average daily

gain from birth up to weaning were $140,4 \pm 4,6$ g, weaning weight $16,81 \pm 0,51$ kg. Birth weight of Boer goats kept in Germany were 4 kg with weaning weight about 24 kg (Barry and Godke, 2005).

Boer goats had ability to inherit its superior to offspring. That fact could be known from superiority of its offspring. An animal were stated have high breeding value on one or some characters if being able to inherit its superiority (Warwick, et al., 1990). Boer goats had good combining ability so the offspring produced by crossing between Boer goats with the other breed of goats certainly had superiority characters (Daly, 1977). The good combining ability and high breeding value could be showed on crossbred produced by crossing between male Boer goats with female Small Eastern African goats that had birth weight, body weight on 42 days old, 150 days old, 180 days old, 275 days old, and yearling weight respectively 2,6; 8,3; 19,7; 21,8; 28,2; 34,3 kg. The performance was higher than that of Small Eastern African goats, respectively 2,3; 6,9; 14,9; 16,2; 20,2; 22,0 kg (Barry and Godke, 2005).

Crossing program between male Boer goats with female EGG was lasting about three years in Lampung. However no activity to evaluate that program to study the effect of Boer goats on crossbred performance. Hardjosubroto (1994) said that performance of crossbred goats resulted by crossing between subtropic goats and tropic goats must be evaluated to study the change of performance crossbred goats principally on reproduction characters. The evaluation was conducted by calculating Does Productivity Index (DPI). Value of DPI showed the ability of does in producing kids with certain weaning weight every year. Local goats in Indonesia had not recognized breeding seasons and were very prolific. So the crossbred goats was potential recognizing breeding seasons and less prolific.

Based on that fact, this research was conducted to evaluate Boerawa goats by comparing the value of Does Productivity Index (DPI) between Boerawa with EGG.

MATERIALS AND METHODS

This research was conducted on 1st February up to 31st April, 2006 at Campang Village, Tanggamus, Lampung Province. The materials of research were recording of 30 Boerawa and 30 EGG does that had kidding twice or more than twice. Variables measured were weaning weight of kids, kidding intervals, and litter size. Birth weight, the age of does, the type of birth and keeping, the sex of kids were variables supporting the prime variables that had function to calculate the corrected weaning weight. The corrected weaning weight was calculated with a formula recommended by Hardjosubroto (1994) as follows:

$$CWW = (BW + \frac{AWW - ABW}{Age} \times 120) \text{CFAD} \times \text{CFTB}$$

Explanations:

- CWW = Corrected weaning weight
- ABW = Actual birth weight
- AWW = Actual weaning weight
- Age = The age of kids on days
- CFAD = Correction factor for age of does
- CFTB = Correction factor for type of birth

Does Productivity Index was calculated with a formula recommended by Hardjosubroto (1994) as follows:

$$DPI = \frac{12}{KI} \times LS \times CWW$$

Explanations:

- DPI = Does Productivity Index
 KI = Kidding interval on month
 LS = Litter size
 CWW = Corrected weaning weight

Does Productivity Index of 30 Boerawa and 30 EG goats were analysed by t-student test as recommended by Nazir (1988).

RESULTS AND DISCUSSION

Result of this research showed that DPI of Boerawa does were different ($P < 0.05$) and higher than that of EG does (Table 1) because Boerawa does had kids with weaning weight that was higher than EG goats. Boerawa kids had weaning weight that was higher because the kids were inherited high body weight, included birth weight and weaning weight from Boer goats. The results proved that Boer goats had good breeding value for growth characters that were be able to be seen on offspring or crossbred characters.

Lu (2005) stated that Boer goats was recognized as goat breeds for meat production because its body conformation was excellent, its growing rate was faster, and its carcass quality was good. Among all superior traits for goat meat production, heavier body weight and faster growing rate were the most notable.

Birth weight of Boerawa kids in this research (2.87 ± 0.15 kg) were higher than that of EG goats (2.20 ± 0.45 kg) although differ not significantly ($P > 0.05$), however lower than that of Boer goats. Birth weight of Boerawa kids in this research were lower than Boer kids that ranges from 3 to 4 kg with male kids weighing about 0.5 kg heavier than female (Lu, 2005) because Boerawa had partially genetic of Boer goats and that of EG goats so its birth weight not as high as Boer kids. That case was similar with weaning weight.

Table 1. The average of body weight, litter size, kidding interval, and DPI Boerawa and EG does

No	Characters	Boerawa	Ettawa Grade Goats	Result of t-test
1	Birth weight (kg)	2.87 ± 0.15	2.20 ± 0.45	$P > 0.05$
2	Average daily gain of preweaning (kg)	0.099 ± 0.075	0.085 ± 0.057	$P > 0.05$
3	Actual weaning weight (kg)	14.277 ± 0.709	12.929 ± 0.556	$P \leq 0.05$
4	Corrected weaning weight (kg)	17.884 ± 0.757	16.298 ± 1.210	$P \leq 0.05$
4	Litter size (kids)	1.710 ± 0.370	1.570 ± 0.279	$P > 0.05$
5	Kidding intervals (months)	11.77 ± 0.41	11.20 ± 0.80	$P > 0.05$
6	DPI (kg)	30.36 ± 7.1	25.50 ± 5.50	$P \leq 0.05$

Boer kids at weaning can weigh from 20 to 25 kg depending on weaning methods and age (Lu, 2005), however weaning weight of Boerawa in this research (14.277 ± 0.709 kg) were lower than that of Boer kids because Boerawa had genetic of Boer goats and EG goats partially. The result showed that half of Boerawa breeding value came from Boer goat and about half of them came from EG goats as stated by Warwick, et al. (1990) that half of individual breeding value was inherited from male parent and half of them from female parent.

The other caution of DPI on Boerawa were higher than that of EG were litter size of Boerawa (1.710 ± 0.370 kids) that was higher than that of EG (1.570 ± 0.279 kids) although differ not significantly ($P > 0.05$). Litter size of Boerawa that was higher showed that crossing between Boer goats as male goats imported didn't affect prolific traits of EG goats as local goats.

Hardjosubroto (1994) said that crossing between goats imported with local goats sometimes reduced prolific traits of local goats. Litter size of Boerawa in this research was lower than litter size of Boer in Namibia and Germany that reached 1,9 kids (Barry and Godke, 2005) but higher than that of Boer ($1,58 \pm 0,09$ kids) in subtropical south-eastern United States of America (Browning, et al., 2006). The fact proved that crossing between Boer goats with EG goats were not necessary guarded against because didn't reduce prolificacy of offsprings.

CONCLUSION

Based on result and discussion, it could be concluded as follows:

1. Does Productivity Index of Boerawa were different ($P \leq 0.05$) and higher than that of EG doe;
2. The weaning weight of Boerawa were different ($P \leq 0.05$) and higher than that of EG doe;
3. The birth weight and litter size of Boerawa were not different ($P > 0.05$) than that of EG doe.

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