



Economic Loss from Nematodiasis in Local Goat Farmings around the Region of Animal Primary Health Care of Batee Roo, Aceh Jaya Regency

Murhaban¹, Teuku Reza Ferasyi², Muhammad Hambal³, Yudha Fahrimal³ and Razali²

¹ Master Program of Veterinary Public Health, Graduate School, Syiah Kuala University, Darussalam Banda Aceh. 23111. Indonesia

² The Laboratory of Veterinary Public Health, Veterinary Faculty, Syiah Kuala University, Darussalam Banda Aceh 23111. Indonesia.

³ The Laboratory of Parasitology, Veterinary Faculty, Syiah Kuala University Darussalam Banda Aceh 23111. Indonesia

Email for correspondence: murhabanteunom@gmail.com

Abstract

This study aims to discover the economic loss caused by nematodiasis in local goat farmings around the animal primary health care (Puskesmas) in Batee Roo, Aceh Jaya. In this study, as many as 84 goats positive of nematodiasis were used as samples for cross-sectional approach. Nematodiasis goats were confirmed from clinical symptoms and fecal examination using centrifugation method. Economic loss was determined by measuring body weight of all the goats. The results showed that the goats in the local farms had more than 70% prevalence rate of nematodiasis, which caused economic loss around Rp. 34.300,-/male goat, and Rp.9.310,-/ female goat. Based on the goats population in Batee Roo in 2014, total economic loss from nematodiasis for male goats reached Rp. 19.012.000,- per year, and for female it was Rp. 9.012.000,- per year. From this data, it can be concluded that the economic loss from nematodiasis in male and female goats around Puskesmas Batee Roo, Aceh Jaya per year could reach Rp. 20.000.000.

Kata Kunci : Economic loss, Nematodiasis, Batee Roo, male goats, female goats

Background

Parasites infestations can cause serious problems for husbandary and livestock, especially for goats and sheeps (Qamal *et al.* 2011). Helminthiasis is one of the diseases caused by parasites, including nematodes that live in gastrointestinal tract of animals (Hutasoit, 1997; Hanafiah *et al.* 2002).

Economic loss by nematodes infestation in gastrointestinal tract can cause decline in production, increase production cost for treating animals, and even death. The symptoms of this disease are abomasum bleeding, anemia, anorexia, depression, bad condition and severe infestation can cause death (Miller and Horohov, 2006).

In some European countries and in the United States, the loss of nematode infestation reached 3 million dollars per year (Gasbarre *et al.* 2001). Simon (1988) reported that in Indonesia, nematodiasis is

usually found in local farming goats that causes economic loss around 10.56 million rupiahs per year.

Based on the annual report from the animal primary health care (Puskesmas) in Batee Roo, Aceh Jaya district, that in 2013 Batee Roo had the highest number of nematodiasis cases in Aceh Jaya District (PUSKESWAN Batee Roo, 2013). However, no information is available on the prevalence rate and the economic loss caused by this disease in that area. This study is conducted to find out the economic loss of nematodiasis cases on local goats in Puskesmas Batee Roo area, Aceh Jaya District.

Materials and Methods

Eighty four goats consisted of 23 males and 61 females with 70% prevalence rate of nematodiasis were provided by the local farmers around Puskesmas area in

Batee Roo. Helminthiasis examination was conducted according to Kusumamihardja (1982), and the body weight measurement was carried out based on the method of Malewa (2009). This data was used to calculate the economic loss based on the formula developed by Mebrahtu and Beka (2013). The data was analyzed in descriptive.

Hasil dan Pembahasan

Total samples for this study were 84 goats consisted of 23 males and 61 females. The weight loss due to nematodiasis was obtained by subtracting the average of male and female normal body weight with average of body weight after infestation. The results showed that for male goats, the weight loss was 15.4 kg, and for females it was 11.5 kg. The total weight loss for males and females:

Males : $15.4 \div 23 = 0.7 \text{ kg (w/t)}$
 Females : $11.5 \div 61 = 0.19 \text{ kg (w/t)}$
 Prevalence rate : 70%
 Price of goat : Rp. 50.000,-/kg

The formula for counting the economic loss for each goat was:

$$Lyk = Ak \times Cyk \times Pyk \times P$$

Economic loss on male goat : $1 \times 0.7 \times 50.000,00 \times 0.7 = \text{Rp. } 24,500/\text{tail}$

Economic loss on females goat : $1 \times 0.19 \times 50.000,00 \times 0.7 = \text{Rp. } 6,650/\text{tail}$.

The formula for measuring economic loss on male and female goat population was as follows:

Male goat population was 1108 with 70% prevalence rate: $1108 \times 0.7 = 776 \text{ goats}$

Female goat population was 2017 with 70% prevalence rate: $2017 \times 0.7 = 1411 \text{ goats}$

Total loss for male goats: $\text{Rp. } 24,500 \times 776 = \text{Rp. } 19,012,000 \text{ per year}$

Total loss for female goats: $\text{Rp. } 6,650 \times 1411 = \text{Rp. } 9,383,150 \text{ per year}$

Gastrointestinal worm infestation will lead to low body weight, low production, and even death. Low body weight will cause low selling value. The weight loss of goat and sheep will reach 5 kg per tail, and for cattle and buffalo it is

around 10 kg per tail (Anonymous, 1991, in Hanafiah *et al.* 2002). In West Java, weight loss due to nematodiasis reached 38% with death rate around 17% (Beriajaya and Stevenson, 1986). Helminthiasis will not cause death immediately, but it will lead to big economic loss, so it is also called the economic disease (Imbang, 2007).

In Pakistan, the loss due to *Haemonchus contortus* was estimated around 27% weight loss which caused economic loss more than 40 millions rupee (Qamar *et al.* 2011). The loss in meat production was 23%, and in wool production was 40% (Hussain *et al.* 1967). In At Fasisalabad, the loss due to nematodiasis in goats and sheeps was estimated around 31 million rupiahs per year (Iqbal *et al.* 1993). In Ethiopia, worm infestation in sheeps caused economic loss around 81 million dollars per year (Demelash *et al.* 2006).

Nematodiasis in Australia was reported to cost more than 3 million dollars per year; it was about 8.7% of total production cost of a sheep farm (Sackett and Holmes, 2006). Nematodiasis will cause weight loss, low milk production, growth problem, and low immune system especially for young livestock (Beriajaya and Proyanto, 2004). Body weight is an important parameter to evaluate the livestock condition when infected by *H. contortus*, the weight loss is ranging from 20% - 60% (Kawano *et al.* 2001). Mild infection will affect the wool production which will decrease 10%-30% and more expence on the workers (Qamal *et al.* 2011). The farmers loose a lot because of nematodiasis, its worth about 20 billion rupiahs per year with 5 – 7.5 kg of meat loss (Suweta, 1989; Waller 1994). Worm infestation will hamper the growth and development of the body; obstructs the organs and damage the carcass. It also will decrease the fertility and increase the predisposition of metabolic diseases. Nematodiasis will interfere with the water distribution, electrolytes and also blood protein. Hawkins (1993) and Gasbarre *et al.* (2001) had stated that nematodiasis will cause weight loss around 6 – 12 kg per year, and Sudradjat (1991) has reported the

delayed weight gain would reach 40% compared to normal livestock, that is why it is called the economic disease (Imbang, 2007).

Conclusion

Nematodiasis prevalence rate in local goats near Puskesmas Batee Roo, Aceh Jaya District was 70% which caused economic loss around 20 million rupiahs per year.

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