

# **UNIVERSITI PUTRA MALAYSIA**

## COMPARATIVE BLOOD PARASITES IN BOER GOATS REARED UNDER INTENSIVE AND SEMI-INTENSIVE SYSTEMS

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# COMPARATIVE BLOOD PARASITES IN BOER GOATS REARED UNDER INTENSIVE AND SEMI-INTENSIVE SYSTEMS



A project paper submitted to the

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# DEGREE OF DOCTOR OF VETERINARY MEDICINE

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It is hereby certified that we have read the project paper entitled "Comparative blood parasites in Boer goats reared under intensive and semi-intensive systems" by Cik Nasriah binti Said and in our opinion it is satisfactory in terms of scope, quality, and presentation as partial fulfillment of the requirement for the course VPD 4999.

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#### ABSTRAK

Abstrak daripada kertas projek yang dikemukakan kepada Fakulti Perubatan Veterinar untuk memenuhi sebahagian daripada keperluan kursus VPD 4999 - Projek

# PERBANDINGAN PARASIT DARAH PADA KAMBING BOER YANG DITERNAK SECARA SISTEM INTENSIF DAN SEPARA - INTENSIF

Oleh

Cik Nasriah binti Said 2015

## Penyelia: Prof. Madya Dr. Rosnina Hj Yusoff

Satu kajian telah dijalankan untuk membandingkan prevalens parasit darah daripada 38 ekor kambing Boer yang diternak di dua ladang yang mengamalkan dua sistem pengurusan: intensif dan separa - intensif di Selangor. Kumpulan umur dan jantina bagi setiap kambing telah ditentukan semasa pensampelan. Sampel darah diambil dari vena jugular setiap kambing, dibuat calitan dan diperiksa di bawah mikroskop cahaya (100X) di bawah rendaman minyak. Hasil kajian menunjukkan tidak

terdapat perbezaan yang signifikan terhadap prevalens parasit darah antara sistem pengurusan (p = 0.232), jantina kambing (p = 0.363), dan kumpulan umur yang berbeza (p = 0.106). Kadar prevalens keseluruhan parasit darah di kedua-dua ladang adalah 21.1 % dengan 5.3 % dari ladang intensif dan 15.8 % dari ladang separa-intensif. Kadar prevalens didapati lebih tinggi pada kambing muda dan betina dewasa berbanding dengan kambing jantan dewasa. Oleh itu, boleh disimpulkan bahawa parasit darah boleh menjangkiti kambing Boer secara sama rata pada mana-mana kumpulan umur, jantina dan sistem pengurusan.

Kata kunci: Kambing Boer, parasit darah, kadar prevalens

#### ABSTRACT

An abstract of the project paper presented to the Faculty of Veterinary Medicine in partial fulfillment of course, VPD4999 – Project

## COMPARATIVE BLOOD PARASITES IN BOER GOATS REARED UNDER INTENSIVE AND SEMI-INTENSIVE SYSTEMS

By

Cik Nasriah binti Said

2015

Supervisor: Assoc. Prof Dr. Rosnina Hj Yusoff

A study was conducted to compare the prevalence of blood parasites in 38 Boer goats raised in two farms in Selangor practicing two management systems: intensive and semi-intensive. Age group and sex of each goat were determined during blood sampling. Blood samples were obtained from the jugular vein of the goats, smeared and examined under light microscope (100X) in oil immersion. Results showed there were no significant difference on the prevalence of blood parasites between the two management systems (p=0.232), sex of goats (p=0.363), and age groups (p=0.106). The overall prevalence rate of blood parasites in the two farms was 21.1% with 5.3% in intensive management system and 15.8% in the semi-intensive management system. The prevalence rate was found to be higher in the young and adult female goats compared with adult male goats. Therefore, it could be concluded that blood parasites can infect equally the Boer goats at any age group, sex and management system.

Keywords: Boer goats, blood parasite, prevalence rate

#### **1.0 INTRODUCTION**

Goats are considered as an important livestock in the world economy because they are used for meat, milk and hide production. They are among the earliest species domesticated (Galal, 2005). In developing countries like Indonesia and Malaysia, this species is very important for its meat and milk to small holders and part-time farmers (Abdelrahman, 2009; Kioumarsi et al, 2011). For their meat and milk (Memon, 2012) there is a significant turnaround of livestock industries in Asia. In recent years, there have been a number of livestock showing considerable population increase. This change in growth is believed to be due to increase human population, increase per capita income, and change in reproductive technology (Tisdell, 1998). In Malaysia, the Federation of Livestock Farmer's Association (FLFAM) in 2010 had reported that goat population was estimated at 545 thousand. A report by the Department of Veterinary Services (2008) on mutton production, from 2008 to 2015, has been extrapolated to increase from 8.99% to 35% if the goat population is increased to 1.5 million (Fazly, 2011). Even though mutton production increased from 666 metric tonnes in 1990 to 1,958 metric tonnes in 2008, self-sufficiency in meat was not attained in Malaysia. Then on, Malaysia has been dependent on imports to meet the shortfall in domestic production. By 2007, the import had increased to 16,303 metric tonnes from 10,707 metric tonnes in 2003 (Kaur, 2010). To meet local demand, the Malaysian government encourages farmers and small holders to raise goats.

Boer goats are considered to be one of the most desirable goat breeds for meat production. In Sibu, Sarawak, more than 200 Boer goats were reared under intensive system on a private farm in 2013. Intensive goat farming involves confinement of goats in a shed. They are exclusively stall-fed (zero grazed) and mating is controlled. On the other hand, semi-intensive farming combines intensive and extensive systems where goats are allowed to browse for a stipulated period and concentrates and mineral salts are also provided to them (NAFIS, 2000).

Boer goats evolved in South Africa from indigenous African goats (Duricic et al., 2012). They are easily recognized by their large, muscular white body and distinctive brown head (Linda, 2002). They have the ability to quickly acclimatize and adapt to a new environment, can tolerate high temperature, have low parasitic infestation (Duricic et al, 2012) and are highly resistant to diseases (Lu, 1989). Boer goats are considered less susceptible to endoparasitism (Barry and Godke, 1997).

Endoparasites include helminths and blood parasites. The following are some blood parasites that can infest goats: *Theileria lestoquardi, T. ovis, T. separata, Babesia ovis, B. motasi, T.uilenbergi, T. lewenshuni* (Ahmed *et al.*, 2006; Altay *et al.*, 2008; Heidarpour *et al.*, 2009; Inci *et al.*, 2010; Li *et al.*, 2011; Nagoreet *et al.*, 2004; Yin *et al.*, 2007; Gebrekidan *et al.*, 2014). Blood parasites caused by different tick-borne hemoprotozoa of the genera *Theileria* and *Babesia* are among the most economically important haemoparasites of domestic ruminants in sub-Saharan Africa. They caused

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economic loss due to decreased production, high cost of treatment and prevention (Gebrekidan *et al.*, 2014).

In Malaysia, there is a lack of publication on blood parasites in Boer goats that are managed under intensive and semi-intensive systems. The last publication about blood parasites in goats was reported by Fazley *et al.* in 2011 in Perak, Malaysia. Therefore, this study aims to compare the prevalence of blood parasites in Boer goats raised under intensive and semi-intensive systems and to compare the prevalence of blood parasites in Boer goats between age groups and sexes.

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