



UNIVERSITI PUTRA MALAYSIA

***RELATIONSHIP OF SCROTAL CIRCUMFERENCE AND
TESTICULAR VOLUME TO AGE AND BODY WEIGHT IN DORPER
SHEEP***

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VOLUME TO AGE AND BODY WEIGHT IN DORPER SHEEP



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by

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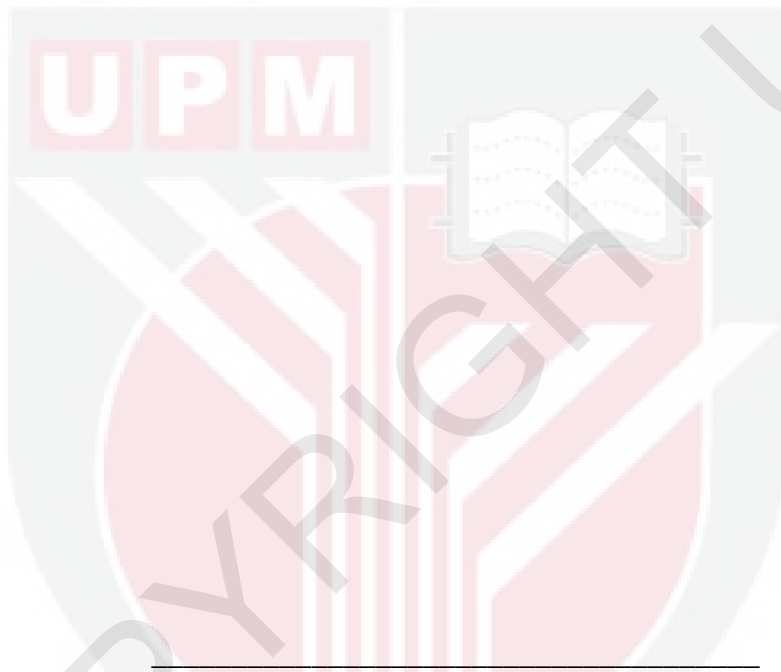
A project paper submitted to the
Faculty of Veterinary Medicine, Universiti Putra Malaysia

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It is hereby certified that I have read this project entitled “Relationship of Scrotal Circumference and Testicular Volume to Age and Body Weight in Dorper Sheep”, by Nur Ain SakinahBintiIshak and in my opinion it is satisfactory in terms of scope, quality, and presentation as partial fulfilment of the requirement for the course VPD 4999 – Final Year Project.



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DEDICATIONS

In the name of Allah SubhanahuWaTa'ala

I dedicate this thesis to:

My beloved Mummy, Ayah, and my siblings,
lecturers and friends.

Thank you for all the loves and support.



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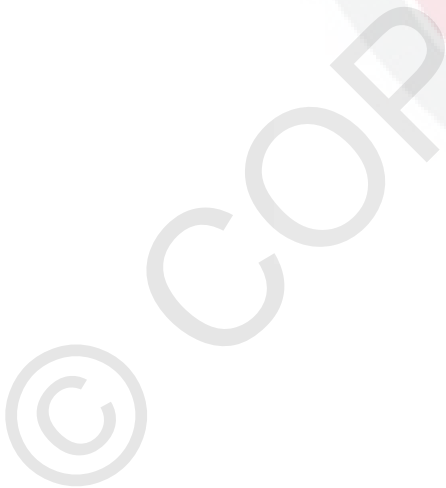
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LIST OF ABBREVIATION

Scrotal Circumference	: SC
Body Weight	: Bwt
Body Condition Score	: BCS
Testicular Volume	: TV

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ABSTRAK

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

**HUBUNGKAIT ANTARA LILITAN SKROTAL DAN ISI PADU TESTIS
DENGAN UMUR DAN BERAT BADAN KAMBING BEBIRI DORPER**

oleh

Nur Ain Sakinah Binti Ishak

2017

Penyelia: Prof. Madya Dr. Rosnina Hj. Yusoff

Kajian ini dijalankan untuk menilai parameter pembiakan yang boleh digunakan sebagai petunjuk untuk menganggar kesuburan kambing bebiri Dorper. Lilitan skrotal (SC) dan isipadu testis (TV) adalah parameter pembiakan yang diukur untuk dikolerasikan dengan umur dan berat badan. Sebanyak 32 kambing bebiri jantan Dorper dibahagikan kepada dua kumpulan: Kumpulan A (berusia <12 bulan) dan Kumpulan B (berusia >12 bulan). Terdapat enam ekor kambing bebiri jantan di dalam Kumpulan A dan 26 ekor kambing bebiri jantan di dalam Kumpulan B. SC

kambing bebiri jantan tersebut diukur. Panjang, lebar dan ketinggian testis kiri dan kanan telah diukur untuk mengira TV. Semua data telah dianalisis secara statistik. Keputusan terkini menunjukkan bahawa semua parameter berkorelasi secara positif antara satu sama lain. SC dan TV lebih berhubung kait dengan berat badan berbanding dengan usia. SC berkorelasi positif dengan umur ($r=0.605$), berat badan ($r=0.824$) dan TV ($r=0.925$). TV berkorelasi positif dengan umur ($r=0.535$), berat badan ($r=0.873$) dan SC ($r=0.925$). Kajian ini menunjukkan bahawa kambing bebiri jantan berusia lebih daripada 12 bulan dengan berat badan sekurang-kurangnya 45 kg mempunyai SC dan TV yang lebih tinggi. Oleh itu, umur, berat badan, lilitan skrotal dan isipadu testis boleh digunakan sebagai salah satu kriteria dalam pemilihan baka induk.

Kata Kunci: *Kambing bebiri Dorper, lilitan skrotal, isipadu testis*

ABSTRACT

An abstract of the project paper presented to the Faculty of Veterinary Medicine in partial fulfilment of course VPD 4999 – Final Year Project.

RELATIONSHIP OF SCROTAL CIRCUMFERENCE AND TESTICULAR
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by

Nur Ain Sakinah Binti Ishak

February, 2017

Supervisor: Assoc. Prof. Dr. Rosnina Hj. Yusoff

This study was conducted to evaluate reproductive parameters that can be used as indicators to estimate fertility status of Dorper sheep. Scrotal circumference (SC) and testicular volume (TV) were the reproductive parameters that were measured to correlate with age and body weight. A total of 32 Dorper rams were divided into two groups: Group A (< 12 months old) and Group B (> 12 months old). There were six rams in Group A and 26 rams in Group B. The SC of the rams was measured. The length, width and height of left and right testes were measured to calculate TV. All the data were analysed statistically. The present results showed that all parameters are positively correlated to each other. The SC and TV are more correlated to body weight compared with age. The SC is positively correlated with age ($r=0.605$), body

weight ($r=0.824$) and TV ($r=0.925$). The TV is positively correlated with age ($r=0.535$), body weight ($r=0.873$) and SC ($r=0.925$). This study shows that the rams of more than 12 months with body weight of at least 45kg have higher SC and TV. Therefore, age, body weight, scrotal circumference and testicular volume can be used as criteria in selection of sires.

Keywords: *Dorper sheep, scrotal circumference, testicular volume.*



1.0 INTRODUCTION

The livestock industry is important in the agricultural sector of Malaysia. The contribution of livestock production to the Gross Domestic Product (GDP) is inconsistent. Even though there was a decreased in contribution of livestock industry to GDP in the 90's, but in 2005, livestock industry contribution to GDP was slightly increased (0.8%) (Government of Malaysia Economic Report 1990 – 2005, as cited in Mohamed, 2007). The livestock industry includes non-ruminant and ruminant industries. The non-ruminant industry comprises wine and poultry, while the ruminant industry are cattle, buffaloes, goats and sheep. However, goats and sheep play a minor role in livestock industry. The sheep population in Malaysia has increased from 116 387 in 2006 to 132 900 in 2011 (Ministry of Agriculture and Agro-Based Industry Malaysia, 2011). Furthermore, the number of sheep slaughtered from 2006 to 2011 has also increased from 3 554 to 4 171 heads.

Most rams reach puberty at age between 5 and 7 months old. Breeding soundness evaluation is done to predict the potential fertility of the males. It includes physical examination of the animals, assessment of the reproductive organs and semen evaluation. The scrotal circumference is an important measurement as it is related to the current semen production capacity of the rams (Hahn et al., 1969). Studies have shown that age can influence the scrotal circumference and semen characteristics (Toe et al., 1994). This shows that age is directly related to the testicular size and at the same time related to the sperm output. This study was done in hope to enable farmers to identify suitable sires to be used in breeding programme

based on parameters such as age, body weight, scrotal circumference and testicular volume.

Although there is information regarding the relationship of scrotal circumference to age and body weight in sheep, goats and bulls, reports about these in Dorper sheep is inadequate. Therefore, this study was performed to correlate the scrotal circumference and testicular volume to age and body weight in Dorper rams.



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