

# SEASONAL CHANGES IN BREEDING ACTIVITY, TESTICULAR SIZE, TESTOSTERONE CONCENTRATION AND SEMINAL CHARACTERISTICS IN RAMS WITH LONG OR SHORT BREEDING SEASON<sup>1</sup>

J. J. Dufour<sup>2</sup>, M. H. Fahmy<sup>2</sup> and F. Minvielle<sup>3</sup>

Agriculture Canada<sup>2</sup>, Lennoxville Research Station  
and  
Laval University<sup>3</sup>, Ste-Foy,  
Quebec, Canada G1K 7P4

## Summary

Breeding activity (libido), testicular size, testosterone levels and seminal characteristics of 10 DLS adult rams (a population of ½ Dorset, ¼ Leicester and ¼ Suffolk selected for extended breeding season) were compared with those of 10 adult Suffolk rams. The study lasted 18 mo during which the data were recorded over 30 collection periods. All characteristics varied significantly with the season of the year, being lowest during the summer and highest during the fall. Suffolk rams had higher libido but lower testosterone levels than the DLS rams throughout the study. Testosterone increased earlier and decreased later in the breeding season in DLS compared with Suffolk rams, the interaction breed × period being significant. Testosterone concentration was highly associated with testicular size and libido, accounting for 65 and 28% of the variation in the Suffolk and 37 and 18% in the DLS rams, respectively. Seminal output and quality (motility and percentage of live spermatozoa) were highest in October and November and lowest in April and May. Rams within breeds differed significantly in the seminal character-

istics studied. Results of the study showed that selecting the DLS ewes for extended breeding season may have altered the reproductive performance of the rams of that breed.

(Key Words: Libido, Testicular Size, Seminal Characteristics, Testosterone, Rams.)

## Introduction

Seasonality in the ewe can be measured by the change in weight of her ovaries throughout the year as a result of the presence or absence of corpora lutea and the variation in the number of follicles (Malampati and Casida, 1970) that modify the types and levels of steroid hormones secreted (Scaramuzzi and Baird, 1977; Baird, 1978; Karsch et al., 1979).

Similarly, in the ram there are indications of seasonality in sexual activity as evidenced by the changes in the diameter of testes and the level of hormone secretion (Land, 1973). Thibault et al. (1966) showed that these seasonal changes correspond roughly to the breeding activity of the females of the same breed. Therefore, selection pressure applied on the female to gradually extend the seasonal activity may also be reflected by seasonal changes in the characteristics and functions of the testes of their male progeny.

The objective of the present study was to compare the sexual and hormonal activities, seminal characteristics and testicular size in rams from a standard breed with relatively short breeding season (Suffolk) with rams from DLS (a cross of ½ Dorset, ¼ Leicester, ¼ Suffolk), a breed being developed by cross-breeding and selection for long breeding season (Fahmy, 1976).

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<sup>2</sup>P.O. Box 90, Lennoxville, Quebec J1M 1Z3. Contribution no. 145.

<sup>3</sup>Dept. of Anim. Sci.

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