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THE EFFECT OF ENERGY INTAKE PRIOR TO  
OESTRUS AND SUBSEQUENT TO MATING  
ON OVULATION RATE AND LITTER  
SIZE AT BIRTH IN GILTS

A thesis presented in partial fulfilment of the requirements  
for the degree of Master in Animal Science at  
Massey University

LE-NGOC CHI.-MINH

1973

## A B S T R A C T



The objective of this investigation was to examine the effect of flushing for about eleven days prior to service and plane of nutrition during the first month of pregnancy on the reproductive performance of gilts. Additional observations were also made on plasma progesterone levels during early and late pregnancy and body temperature changes during the oestrous cycle and late pregnancy in gilts.

A flushing ration of 3.6 kg per day representing 10.80 Mcal of digestible energy, given to gilts at about 5th oestrus (270 days old and 115 kg body weight) did not make any significant difference in ovulation rate or litter size at birth from the control gilts under similar physiological conditions, receiving 1.8 kg of the same feed per day. It was thought that the gilts were mated late in their reproductive life and their body conditions might partly explain the discrepancy between the present study and others.

In contrast, high plane of nutrition during the first month of pregnancy significantly increased litter size and weight at birth. Average birth weight of pigs, however, was unaffected. No interaction between pre- and post-mating feeding levels could be found on any of these three characteristics.

Plasma progesterone levels increased significantly from Day 3 to Day 15 and declined gradually from Day 100 through Day 110 to 112 of pregnancy. The effect of feeding treatments (pre- and post-mating) was not significant except at stage 5 (Day 110 of pregnancy). Mummified foetuses were significantly correlated with progesterone levels at the last two stages (Day 110 and 112 of pregnancy).

Rectal temperatures of gilts increased significantly from Day 2 to Day 6 then tailed off until Day 10 of the oestrous cycle. (Day 0: day of oestrus). During late pregnancy, rectal temperatures dropped significantly from Day 6 to Day 3 prior to farrowing day. However, due to big daily variations and the unreliability of the measurement, temperature changes were not suggested as a diagnosis method of ovulation and parturition.

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