

Growth rate and age at first estrus: Impact on managing the gilt pool

J. Patterson¹, M. Pettitt¹, G.R. Foxcroft² and E. Beltranena¹

¹Prairie Swine Centre Inc., P.O. Box 21057, 2105 8th St. E. Saskatoon, SK S7H 5N9; ²Swine Research and Technology Centre, AFNS, University of Alberta, Edmonton AB; **Email:** pattersonj@usask.sask.ca or george.foxcroft@ualberta.ca

Identifying cyclic (select) gilts below market weight and achieving appropriate weights at breeding are two essential features of efficient gilt management systems. The objectives of this study were firstly to characterize the relationships between prepubertal growth rate and age at puberty in response to early boar stimulation, and fertility of "select" gilts over three parties. Secondly, to use this information to develop gilt pool management strategies that 1) minimize non-productive days and financial loss to the producer, and 2) maximize sow lifetime productivity.

Prepubertal Camborough 22 and L42 gilts (N = 509; PIC Canada Ltd) were allocated to the study at 101.3 ± 5.7 d of age and 60.3 ± 8.8 kg (mean \pm SD) body weight. The gilts had ad libitum access to feed and water, were housed in groups of twenty and received 20 min direct exposure to an epididiectomized boar daily, starting at 140.0 ± 4.7 d of age. Gilts were deemed to be non-select if pubertal estrus had not been recorded by 180 d of age. Select gilts were bred at third estrus, regardless of age or weight.

Results and Implications:

- Approximately 20% of gilts had not cycled by 180 d. Therefore, if early pubertal stimulation is used as a "selection" technique, 120% of breeding requirements should enter the stimulation phase.
- With growth rates exceeding 0.7kg/d from birth to puberty, gilts would need to cycle by 171 days (31 days after start of stimulation at 140d) to be "selected" below market weight. Over 80% of non-select gilts were over market weight at 180 d; culling these gilts would create a financial cost to the breeding unit.
- Weights and ages at puberty ranged from 75.8 - 151.4 kg and 132 - 190 d, respectively. Management strategies must be developed to minimize the effect of this variability on breeding weight, entry-to-service non-productive days, and lifetime performance.