

## **1A-104: Use of natural stimuli to induce ovulation and maximise fertility in lactating sows.**

**Project Leader: Dr Will van Wettere. University of Adelaide**

**Project Participants: Alice Weaver, David Lines, Roy Kirkwood**

### **Aims and Objectives :**

A total of four experiments were conducted as part of this project. The overall aim of these experiments was to optimize lactation oestrus expression and reproductive output of sows induced to ovulate using natural stimuli. These natural stimuli that were investigated in these experiments included various forms of boar contact, manipulations of suckling load by temporary separation of litters and split weaning as well as shifting to group housing of sows in late lactation.

### **Key Findings**

The main findings from these four experiments were:

The oestrus response to stimulation strategies in lactation in first litter sows is often 20-30% lower than in older sows. Daily full physical boar exposure in a DMA area from about day 18 of lactation can result in at least 70% response. Further stimulation by weaning up to half the litter at day 18 may lift the response to almost 90% in multiparous sows. However the litter size of those sows that were mated during lactation was about 0.7 piglets less than those mated after weaning. In addition, the farrowing rate of stimulated sows mated during lactation was about 10 percentage units lower than sows mated after weaning.

Ten minutes of physical nose-to-nose contact with a mature boar at the front of the farrowing crate each day wasn't sufficient to stimulate oestrus in more than 20% lactating sows. However, combining litter separation for either 7 or 16 hours per day, in addition to this boar contact, increased oestrus response in lactation to 50% and 81%, respectively. Litter separation for 16 hrs for 3 days had little effect on the welfare of the piglet (as measured by cortisol levels), but piglet weaning weight was reduced by about 0.8 kg.

In the third experiment, 15 minutes of daily physical contact with a boar in the DMA resulted in at least 80% response. There was less opportunity for the additional stimuli of split weaning to improve this already good response. However the split weaning treatments improved pregnancy rates and subsequent embryo number.

In the final study, grouping 3 sows and their litters together from day 18 of lactation wasn't sufficient to stimulate a reliable oestrus in lactating sows. Providing further stimulation of these group housed sows with 20 minutes of fenceline contact with a mature boar resulted in a lactation oestrus response rate in excess of 80%. However, the weaning weight of piglets in litters from group housed sows was reduced by about 0.6 kg.

### **Application to Industry**

Conducting daily physical boar exposure in a DMA from day 18 of lactation is an effective method of stimulating lactating sows to exhibit oestrus and ovulate during lactation. Less stringent boar exposure protocols, such as physical nose-to-nose contact for about 10 minutes in the farrowing crate will require further stimulation, such as some type of piglet separation (split weaning or litter separation) to achieve an acceptable proportion of multiparous sows exhibiting oestrus during lactation. Piglet separation protocols may not necessarily affect piglet weaning weights, but may also assist in restoring subsequent farrowing rates and litter sizes to levels comparable to conventionally weaned sows. Group housing of sows from day 18 in combination with fenceline boar exposure may be an alternative and effective method of stimulating oestrus during lactation. However, piglet weaning weights may be adversely affected with these changes to the sow housing systems during lactation.