

**Project Number & Title:**

1A-103 - *Optimising the time of mating in easy-to-manage lactation systems to improve pregnancy outcomes and weaning, for first litter sows.*

**Project Leader:** Dr Pieter Langendijk

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**Aims and Objectives:**

This project was a collaborative approach involving resources from SARDI, Rivalea, Murdoch University, University of Sydney and University of Alberta. The overall objective of this Project was to stimulate ovulation and a fertile pregnancy in lactating, first litter sows, using a combination of limited nursing and boar contact stimuli, imposed at different times of lactation. These treatments also enabled a more gradual weaning process, so the effect of these treatments on the development of gut physiology and piglet performance was also monitored.

**Key Findings**

Removal of the litter from the sow for 8 hours per day for the last 7 days of lactation, combined with daily fenceline contact with a boar was sufficient to stimulate up to 70% first litter sows to ovulate and exhibit oestrus during lactation. In some cases, the proportion of sows that responded to this protocol was lower, possibly because of less effective boar stimulation. Other key observations from this Project were:

- The subsequent reproductive performance of those sows mated during lactation was often no less than those conventionally weaned and mated after weaning.
- Delaying the start of the stimulation protocol from day 21 to day 28 of lactation tended to provide a greater oestrus response and better piglet performance and gut development during the immediate periods prior to and after weaning.
- Limited nursing may temporarily reduce growth performance of piglets, but provided a more gradual transition to weaning and long term growth was unaffected.
- Delaying the mating of stimulated sows until the next oestrus (“skip-a-heat”) failed to improve subsequent reproductive performance of first litter sows.
- Those sows that responded to the oestrus stimulation protocols appeared to be heavier and less catabolic at the start of stimulation than “non-responders”.

The split suckling protocol, where the largest piglets were removed for 16 hrs each day for the last 7 days of lactation and were alternated with the remaining piglets for the remainder of the day, failed to improve the oestrus response of sows and furthermore had a negative impact on piglet growth rate, compared to the litter separation protocol.

**Application to Industry**

It appears that up to about 70% first litter sows may respond to a stimulation protocol of litter separation and boar exposure during the last week of lactation, by exhibiting a fertile oestrus during late lactation. The response rate in older sows is often in excess of 80-85%. However this lower and often less predictable response rate in first litter sows may be acceptable in most commercial piggeries where there are weekly matings, as those sows that don't respond to the stimulation protocol usually exhibit oestrus within 7 days of weaning and have acceptable subsequent reproductive performance.

The protocol of litter separation for 8 hours per day from at least day 21 of lactation accompanied by daily fenceline and nose to nose boar contact should be sufficient to stimulate an acceptable proportion of sows exhibiting oestrus during lactation, particularly in multiparous sows. Any short term reduction in piglet preweaning growth resulting from piglet separation in later lactation is more than likely to be compensated by lower post weaning growth check and more acceptable post weaning performance of piglets.

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