



Established and supported under the Australian Government's Cooperative Research Centres Program



Pork CRC Research Summary

5A-102: Reducing stillbirth & pre-weaning mortality rates through better gestation feeding

Project Leader: Professor Paul Hughes

Background: It is clear that stillbirth & pre-weaning mortality rates are too high in Australian herds at a total value of approximately 18% (Australian Pig Annual, Target 25). For an individual piglet its two major risk factors for being stillborn are its birthweight & the duration of the farrowing of the litter in which it's born (Knol et al, 2008). Similarly, while much has been written about how to maximise pre-weaning piglet survival rates (e.g. see Hughes, 1993; Varley, 1995) the facts remain that the drivers of early piglet death are facility design (overlays & chilling), undernutrition (low birthweight/ vigour, poor milk supply) & disease. More recently it has been recognised that piglet activity/vigour in the hours immediately following birth is fuelled by liver glycogen stores. This is critical as most neonates possess limited energy reserves (Seerley et al, 1974) & this may well explain the observation of Knol et al (2008) that piglets with the best survival expectations had the heavier livers. One likely way to reduce stillbirth rates is to increase the sow's energy status at farrowing to permit greater exertion & thus reduce total farrowing time. Equally, now that it is recognised that a strong positive relationship exists between pre-weaning survival rate & piglet liver glycogen stores at birth, the latter may be modified by maternal nutrition during gestation. Since the foetus develops the ability to deposit glycogen in the liver from approximately day 80 of pregnancy it may prove optimal to increase nutrient supply from 5-6 weeks pre-partum onwards. Such a move should also increase average piglet birthweight (see Pluske et al, 1995).

Methodology:

Three studies were conducted to evaluate effects of gestation feeding & hygiene on stillbirth rate, piglet birth weight & pre-weaning piglet mortality.

Experiment 1 used 240 sows at a commercial piggery. The four treatments used were:

1. Sows fed 2.3kg/d of a Dry Sow Diet throughout gestation
2. Sows fed 2.3kg/d of a Dry Sow Diet for days 1-93 of gestation then 3kg/d of the same diet for the remaining 21 days of gestation
3. Sows fed 2.3kg/d of a Dry Sow Diet for days 1-72 of gestation then 3kg/d of the same diet for the remaining 42 days of gestation
4. Sows fed 2.3kg/d of a Dry Sow Diet throughout gestation with an additional 0.7kg of a dietary supplement fed on top of the standard diet for the last 21 days of gestation.

Experiment 2 used 123 sows at the Roseworthy piggery. These were allocated to high (3.3 kg/d) or low (2.3 kg/d) feeding and standard v. high accommodation hygiene regimen for the last 4 weeks of gestation.

Experiment 3 used 658 sows at a commercial piggery & fed either 2.3 kg/d or 3.0 kg/d over the last 4 weeks of gestation.

Key Findings/Conclusions:

All three studies found there was no benefit to be gained by increasing nutrient supply to sows over the final weeks of gestation. Additionally, study 2 indicated that the sow's nutrient requirements in late gestation were not significantly altered by the hygiene status of the accommodation provided.

Potential Users of Information (including value assessment):

These data indicate that increased feeding for sows in late gestation is not necessary.