

IMPACT OF TEMPERATURE ON SOW PRODUCTIVITY

Report prepared for the
Co-operative Research Centre for High Integrity Australian
Pork

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1. Introduction

Sows are considered to experience heat stress when ambient temperatures exceed the upper critical temperature (UCT) of their thermoneutral zone. During pregnancy and lactation this zone lies between 12 and 22. However, the Australian climate results in sows being exposed to heat stress for a significant proportion of the year, with ambient temperatures frequently in excess of 30°C for protracted periods. The adverse effects of heat stress on reproductive function are well established. Specifically, heat stress during the pre and peri-conception period alters ovarian follicle growth, reduces oocyte developmental competence and decreases expression of oestrous behaviour. Equally, exposure to elevated temperatures during gestation can impair conceptus development and survival. Elevated temperatures in the farrowing shed can also increase the incidence of stillbirths. Despite the enormous impact of elevated temperature on sow reproductive performance, there is a paucity of data describing the impact of temperature at mating and during gestation on pregnancy outcomes, litter size and incidences of stillbirths under Australian conditions.

2. Methodology

The intention was to use data loggers to record and collate the fluctuations in temperature and humidity experience by breeding sows during the breeding cycle. Specifically, data loggers (i-buttons) were installed in four commercial facilities, two in Queensland and two in South Australia. The data loggers were set up to record at 4 hourly intervals each day and were installed in farrowing sheds, mating sheds and dry sows sheds in such a way as to record the actual temperature and humidity experienced by the sow. Temperature and humidity data was to be used in conjunction with farm records to evaluate the effect of temperature on the day of mating, and during key periods of gestation, on pregnancy outcomes, litter size data and incidences of still births.

3. Outcomes

Unfortunately, due to logistical and technical reasons the proposed study was not completed, and no data was recorded. This was for two main reasons, failure of the i-buttons to continue recording and the diversion of research capacity towards other projects. Although some labour costs were incurred whilst installing the data loggers, the remaining money was not invoiced from the CRC.