



The protein level fed to mink dams before implantation affects the fetal survival rate

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Effect of radiant heating at the births place of newborn piglet*H.M.-L. Andersen and L.J. Pedersen**Aarhus University, Dept. of Animal Science, Blichers Allé 20, Postboks 50, 8830 Tjele, Denmark; heidimai.andersen@agrsci.dk*

It has been documented that heat in the floor of the farrowing area in loose housed sows improves survival of piglets significantly. However, today the majority of farrowing pens are designed with crating of sows and slatted floor. We therefore investigated if radiant heating behind the sow reduced hypothermia in new born piglets and increased milk intake measured as growth during the first wk. Second parity LY sows ($n=36$) were randomly divided into two groups 'Control' and 'Heat' (radiant heat panels mounted above the slatted floor behind the sow). The heater was turned on at birth of first piglet and turned off 12 h after. Birth time, time to reach heated area, time to first contact with udder and time to first suckling was registered. The piglet's rectal temperature (RT) was measured 15, 30, 60, 120, 180, 240 min after birth and 12 and 14 h after birth of first piglet. Piglets were weighed 1, 24 and 48 h and 7 d after birth. Data was analysed in a mixed model in SAS. The preliminary results showed that RT was significantly higher in Heat compared to control piglets from 30 min to 4 h after birth ($P<0.05$). Heat piglets also stayed longer in the heated zone behind the sow than control piglets (H: 12.7 ± 0.02 min. vs C: 7.8 ± 0.02 min., $P=0.02$), whereas time to reach the udder (H: 19.2 ± 0.02 min. vs C: 16.8 ± 0.02 min., $P=0.39$) and to suckle (H: 43.7 ± 0.02 min. vs C: 47.8 ± 0.02 min., $P=0.42$) did not differ. Heat piglets compared to control piglets were 147 g smaller at birth ($P=0.05$) while they were heavier at 24 h (C: 1272 ± 30 g vs H: 1325 ± 31 g, $P=0.05$) and 48 h after birth (C: 1305 ± 53 g vs H: 1441 ± 54 g, $P=0.02$) while no difference was found at 7 d. ($P=0.31$). Low birth weight strongly reduced RT, increased time to first suckle and reduced weight at all time measured ($P<0.0001$). The results showed that radiant heating behind the sows reduced hypothermia in new born piglets and improved initial milk intake.

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However, piglets may
of this study was to
and increase number
=Sow Welfare And
randomly allocated
=369) or confined-
weaning, LC sows
and CC sows were
weaning. Live born
ere analysed using
0; $P=0.55$) did not
sation was greater
ets/litter (1.2-1.4);
1-8.7)) than in CC
er two treatments.
consequently there
was no difference
around farrowing

The protein level fed to mink dams before implantation affects fetal survival rate*C.F. Matthiesen and A.-H. Tauson**University of Copenhagen, Department of Veterinary Clinical and Animal Sciences. The faculty of Health and Medical Sciences, Grønnegårdsvej 3, 1st floor, 1870 Frederiksberg C, Denmark; cmt@sund.ku.dk*

The mink is a seasonal breeder with one annual breeding season. It has induced ovulation and delayed implantation. Once implantation has taken place the gestation is completed by the true gestation within 30 days. The mink is a strict carnivore and has high requirements for dietary protein which varies with life stage. The protein and amino acid requirements are however, still not completely known in all parts of the mink production cycle. According to Danish legislation there is a demand to reduce the overall nitrogen emission and it is therefore important to investigate whether the levels of protein commonly used today can be reduced. Our objective was to determine the protein requirement before implantation needed to support a good reproductive performance. Six levels of protein (20, 25, 30, 35, 40 and 45% of metabolisable energy – ME- from protein) were fed to 96 female mink from the 24 February until the 10 April. Three females from each treatment were euthanized the 16 April to investigate the implantation rate, fetal survival, fetus length and weight. The remaining dams were used to measure the reproductive performance, kit survival rate and pre-weaning kit growth. The number of implanted fetuses was not affected by the protein provision whereas the survival rate of implanted fetuses was significantly ($P=0.02$) lower in the group fed the 20% of ME from protein compared to the other groups. The protein requirement before implantation, estimated by a broken line linear regression approach from the fetus survival rate, indicate that the requirement was 30.5% of ME from protein. The reproductive performance was not inferior in the group fed 25% compared to the groups fed 30% and 35% of ME from protein. Inexplicably was however, an instance of a significantly higher number of barren dams and a tendency towards increased kit loss in the group fed 30% of ME from protein compared to the other groups.

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