Effect of pre- and post-mating dietary restriction on embryo survival of group housed gilts

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Abstract

The aims of this study were to determine if pre- and post-mating feeding levels interact to affect embryo survival, and to determine whether feeding to maintenance requirements would impair embryo survival.

Gilts were allocated to a pre-mating treatment of 1 times (prehigh) or 0.8 times (prelow) maintenance from d 1 to 14 of the oestrous cycle prior to mating. From day 15 to mating all gilts were group housed and fed ad-lib. All gilts were artificially inseminated at the third oestrus. The day after mating gilts were group housed and allocated to the post-mating treatment of 1.5 times (posthigh) or 1 times (postlow) maintenance. Gilts were slaughtered on day 25.5 ± 0.22 post-insemination and reproductive tracts collected.

Prelow gilts lost significantly more weight than prehigh gilts over the pre-mating treatment (3.7 ± 0.71 versus 6.7 ± 0.84 kg). From mating to slaughter, gilts in postlow treatment lost 0.5 ± 1.02 kg liveweight, while those in the post-high group gained 5.7 ± 0.90 kg liveweight ($P > 0.05$). Pre-mating had no effect on any of the reproductive measures. Embryo survival was higher ($P < 0.05$) in the posthigh compared to postlow treatment groups (88.4 ± 2.52 versus 77.8 ± 3.98 %), resulting in more ($P < 0.05$) embryos being present (14.0 ± 0.63 versus 11.7 ± 0.68). There was no interaction between the pre-mating and post-mating feed intake on any reproductive measures.

These data demonstrated that reducing post-mating feed intakes to maintenance levels impaired embryo development and thus survival.