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TITLE

NITRIC OXIDE PRECURSOR: SPORT NUTRITION LEVERAGED TO INCREASE PIGLET LIVABILITY

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CONTENT

Over the recent decades, piglet losses have increased as the pork industry selects for larger litter size. A key factor driving piglet losses is the increased farrowing duration which can lead to in utero asphyxia and stillbirth. In practice, most sows are nutritionally not prepared for (prolonged) farrowing, but recent literature indicates that optimizing nutrition around farrowing may improve piglet livability. In the current study, a technology used in sports nutrition is leveraged to enhance endurance of sows during farrowing. Proxymum™, a Nitric Oxide (NO) precursor in the maternal diet, is hypothesized to lead to a higher blood flow and thus oxygen and nutrient flow to the fetuses due to the vasodilation. The risk for asphyxiation and therefore stillbirth and pre-weaning mortality may be reduced. A total of 350 sows were allocated to six treatments including a control lactation diet without Proxymum and diets containing either 0.03, 0.06, 0.09, 0.12 and 0.15% of Proxymum from d108 of gestation until 4 days after farrowing.

Proxymum added to the maternal diet linearly increased piglet birth weights ($P=0.04$). A tendency for a quadratic effect ($P=0.10$) of dosage of Proxymum supplementation was found on pre-weaning mortality of piglets with the lowest level of mortality at a moderate dosage. From 190 sows, additional information on piglet vitality, placental quality, umbilical cord blood gasses and farrowing were collected. The probability of a higher vitality score of piglets linearly increased with increasing dosage of Proxymum ($P=0.03$). A tendency for a higher pO₂ ($P=0.10$) and an increased placenta width ($P=0.02$) was found with increasing dosage of Proxymum, but no effect on placenta length was found. Farrowing duration was not affected by maternal Proxymum supplementation. In summary, NO boosting technology is promising to enhance piglet livability.