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Effect of spray-dried plasma fed during gestation on pig performance at weaning

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Introduction: Spray-dried plasma (SDP) in lactating sow diets increased litter and average pig weight at weaning (Crenshaw et al., 2007, 2008) and increased pigs weaned per sow served when fed to gestating and lactating sows in a PRRS-unstable herd (Campbell et al., 2006). Objectives for this study were to evaluate effects of SDP in gestation diets on gestation performance and subsequent sow and litter performance to weaning and to evaluate weight distribution of pigs individually weighed at birth and at d 18 of age.

Materials and Methods: The study was done at a mechanically ventilated enclosed breed to wean facility. The sow herd was PRRS negative, vaccinated, and stable for SIV, PCV2, and Mycoplasma. Multiparous PIC C22/29 sows (n = 640) were enrolled in the study at d 14 post-breeding while in gestation crates. Sows were blocked by day of breeding and parity and randomly assigned to a gestation diet with either 0 or 0.5% SDP. Gestation diets were formulated for equivalent ME (3069 kcal/kg) and tid lysine (0.55%). Sows confirmed pregnant at d 28 post-breeding (n = 604) were moved within diet groups to gestation pens (60 sows/pen) and individually fed in an electronic feeding station. Sows were moved at d 112 of gestation to individual farrowing crates (56/room) and fed their assigned gestation diet until d 1 after farrowing. Sows were fed a common lactation diet without SDP ad libitum from d 2 after farrowing to weaning. Although 585 sows farrowed, only 488 sows were used in lactation data due primarily to protocol requirement that cross-fostering only occur between litters born within previous gestation diet. Litter size and weight at birth, after cross-fostering and at d 18 of age were recorded for all litters. Individual pre-suckle pig weight at birth (n = 1,658) and at d 18 of age (n = 1,226) were recorded for litters attended while farrowing (n = 137).

Sow and Litter Results: Daily gestation feed intake (2.5 kg/d), farrowing rate (91.4%), pigs born alive per litter (12.1), and litter weight at birth (16.6 kg) did not differ by gestation diet. Lactating sow feed intake (6.2 kg/d), and pre-wean mortality (9.7%) did not differ by gestation diet. Gestation diet with SDP tended to increase total pigs weaned (10.44 vs 10.68; \( P = 0.13 \)), full-value pigs (>3.6 kg BW) weaned (10.03 vs 10.33; \( P = 0.07 \)), litter gain (45.4 vs 47.3 kg; \( P = 0.06 \)), and litter weight at d 18 of age (61.3 kg vs 63.2 kg; \( P = 0.08 \)).

Individual Pig Weight Results: Average birth weight did not differ by diet (1.34 kg vs 1.35 kg), but differed \(( P < 0.01 \)) for diet by parity interaction. Kurtosis and skewness of birth weight distribution suggested pigs born from sows fed SDP were more uniform. Diet, parity, and diet by parity interaction was significant \(( P < 0.01 \)) for pig gain and pig weight at 18 d of age. Pig weight at 18 d of age (5.53 kg vs 5.81 kg) and pig gain (230 g/d vs 246 g/d) was increased \(( P < 0.01 \)) for progeny from sows fed SDP in gestation.

Conclusions: Sows fed a gestation diet with SDP had more full-value pigs at weaning and increased pig gain during lactation. These improvements were not apparently affected by feed intake of sows during gestation or lactation.

References: