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**Peripartum calcium and phosphorus homeostasis in multiparous sows fed adequate or excess dietary calcium**

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**Supplementary Material S1.** Indwelling venous catheter placement

Sows were restrained during the procedure using a snout snare. The neck region was scrubbed and disinfected with iodine and a 70% alcohol solution. A 14-gauge access needle was inserted into a vein in the brachiocephalic region and a gas-sterilized catheter was introduced through the needle into the vein. The access needle was carefully removed after verifying the patency of the catheter by aspirating blood. The catheter was sutured to the skin adjacent to the insertion site and taped to the external skin surface. A catheter extension tube was attached to the catheter to allow sampling from the dorsal neck region. A three-way stopcock adapter was connected to the distal end of the catheter extension tube to allow blood sample collections and catheter flushing. An elastic band was placed around the neck of the sows to protect and secure the catheter tubing. Catheters were flushed daily with 2 mL of a heparin sodium solution (100 units/mL) to maintain patency.

**Supplementary Material S2.** Feed and plasma sample analysis

Feed samples were digested with a combination of a nitric-perchloric acid mixture. One gram of feed was weighed into a Teflon digest tube. Thirty milliliters of 70% nitric acid and 10 mL of 60% perchloric acid were added to each tube. The samples were digested at 100°C for 1.5 h and 200°C for 2.5 h. The concentration of P in the digested feed samples was determined by the spectrophotometric molybdovanadophosphate method (AOAC, 1980; method 2.022) and read on the spectrophotometer at 400 nm (Gilford Spectrophotometer 260, Gilford Instrument Laboratories, Inc., Oberlin, OH). Concentrations of P in plasma were measured by the colorimetric method described by Goldenberg and Fernandez (1966). Samples were mixed with an iron-trichloroacetic acid reagent and centrifuged (1 800 x g, 10 min). The supernatant was transferred into a clean tube and the ammonium molybdate reagent was added. The mixture was left at room temperature for 20 min, and the absorbance was read on the spectrophotometer at 660 nm. Calcium concentrations in the digested feed samples and plasma samples were analyzed by flame atomic absorption spectrometry (Perkin-Elmer AAnalyst 400, Perkin-Elmer Corporation, Norwalk, CT). Samples were diluted with a lanthanum chloride solution to prevent interference from other ions and to maximize Ca recovery (AOAC, 1980; methods 2.110b, 2.112, 2.113).

Validation of analytical procedures was determined by spike-and-recovery tests. The recovery amount of Ca and P was analyzed in feed samples spiked with a CaHPO4 solution and plasma samples spiked with KHPO4 or Ca reference standard (SC191-100; Fisher Scientific, Fair Lawn, NJ, USA) solutions.

**References**

Association of Official Analytical Chemists (AOAC) 1980. Official methods of analysis, 13th edition. AOAC, Arlington, VA, USA.

Goldenberg H and Fernandez A 1966. Simplified method for the estimation of inorganic phosphorus in body fluids. Clinical Chemistry 12, 871–882.