**PSVII-2 Effects of Oxidized Beta-Carotene on Sow Reproduction and Piglet Growth Performance.** Sarah Elefson¹, Jason W. Ross¹, Christopher Rademacher¹, Steve Pollmann², Laura L. Greiner¹, Iowa State University, DSP Consulting LLC

Abstract: As reproductive performance of sows in the commercial U.S. sow herd continues to improve, advancing the impact of gestation and lactation diet supplementation is critical. Beginning on d 60 of gestation through lactation, sows (blocked by parity) were assigned to a standard gestation diet (n = 88), or the standard diet supplemented with 80 ppm OxC-beta (n = 90) provided by Avivagen (Ottawa, ON, Canada) to determine if the supplementation of OxC-beta improves sow reproductive performance, litter growth performance, and alters the abundance of immune cells in sows and piglets. Blood samples were taken from a subset of sows (n = 54 per treatment) at the start of the study, at farrowing, and at weaning; and also, on a subset of piglets at birth and weaning. Also, at birth and weaning, 12 pigs (n = 6 per treatment) were euthanized, and livers were collected and subjected to flow cytometry to analyze phagocytic activity of the Kupfer cells. CD335, CD8, and CD4 populations within whole blood were assessed via flow cytometry. Colostrum at farrowing and milk at weaning were collected for analysis of IgG and IgA. Data were analyzed via SAS 9.4 using PROC GLIMMIX. No differences (P > 0.05) between dietary treatments were observed in sow reproductive performance, sow feed intake, wean to estrus interval, or piglet growth performance. No differences (P > 0.05) were observed for vitamin A in the plasma or liver. No immune differences (P > 0.05) were observed in the piglet’s liver and blood nor sow antibodies in colostrum and milk. Subsequent litter information was obtained from the sows, and no differences (P > 0.05) were observed in reproductive performance. Overall, there were no differences in sow reproductive performance, litter growth performance, and the immune system of sows and piglets of sows supplemented OxC-beta.

**Keywords:** immunology, oxidized beta-carotene, sow

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**PSVII-1 Sample Handling and Vitamin Analysis.** Sarah Elefson¹, Laura L. Greiner¹, Iowa State University

Abstract: Vitamins are crucial for day-to-day function in the body. They are often collected in studies to ensure that the body is functioning normally, but the ways in which these samples are collected are inconsistent. Therefore, the objective of this study was to evaluate differences in sampling collection methods. A total of 4 blood tubes (2 serum and 2 plasma) were collected from 8 finishing pigs (n = 4 gilts and barrows). One blood tube of each type was either exposed to light or wrapped in foil before processing for analysis took place. Livers were taken from 6 gilts, sectioned, and those sections were either frozen immediately or placed at 1 of 3 temperatures (room temperature, 4°C, or -20°C) for 3, 6, or 12 hours before freezing to assess degradation of vitamins within the tissue. Blood was assessed for vitamins A, D, and E while liver was assessed for vitamins A and E with data analyzed by PROC GLIMMIX. There was a significant difference (P < 0.05) for the interaction of blood tube type and light exposure for vitamin D in the blood and a tendency (P < 0.10) for the interaction of blood tube type and light exposure for vitamin A in the blood. Furthermore, there were sex effects (P < 0.05) for vitamin D and (P < 0.10) vitamin A with barrows having higher vitamin statuses than gilts. There were no differences (P > 0.10) for the interaction of blood tube type and light exposure for vitamin A in the blood, or the amount of degradation of vitamins A and E in the liver. In conclusion, factors such as sex, blood tube type, and light, can influence vitamin concentration in biological samples.

**Keywords:** sample handling, vitamin A, vitamin D