

Supplementing inorganic or organic Se to diets using grains grown in various regions of the United States.

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Grains grown in various regions of the US vary in their indigenous Se contents that could affect pig tissue Se concentrations and performance responses. A regional study was conducted to evaluate the effects of adding inorganic Se (Na selenite) or organic Se (Se enriched yeast) at 0.15 or 0.30 ppm to grower-finisher pig diets on subsequent tissue Se and performance responses. A basal diet without supplemental Se served as a negative control. The study was a 2 x 2 + 1 factorial conducted in a randomized complete block design in 16 total replicates using a total of 240 pigs. Similar diet formulas were used but incorporated locally grown corn and soybean meal into the diets and were fed from 25 to 115 kg BW. The study was conducted at 9 stations (IL, KY, NE, NC, OH, TX, SD, WI, and GA) with each station completing 2 replicates. Serum Se and glutathione peroxidase (GSH-Px) activity were determined. Samples of liver, loin, and hair were collected at harvest and analyzed for Se. The corn fed and the loin Se at harvest for each station (expressed as mg/kg) were: IL, 0.028, 0.126; KY, 0.017, 0.096; NE, 0.283, 0.345; NC, 0.074, 0.082; OH, 0.044, 0.119; TX, 0.132, 0.289; SD, 0.234, 0.527; WI, 0.075, 0.264; and GA, 0.026, 0.130, respectively and differed ($P < 0.01$) by station. There were increases ($P < 0.01$) in loin, liver, and hair Se concentrations as dietary Se increased within each station, but a greater increase occurred when organic Se was fed. This resulted in a Se source x level interaction ($P < 0.01$). Serum Se and GSH-Px activity increased ($P < 0.01$) when both Se sources were fed. These results indicate a large difference in grain Se concentrations among the states, that organic Se was incorporated at greater concentrations in the loin, liver, and hair tissues of grower-finisher pigs than inorganic Se, and that this increase occurred in the pigs from each state.

Key words: pigs, selenium