basis) to contain the same nutrient content (e.g. 5.2 g lysine and 2.2 g methionine plus cystine) per Mcal of ME. Diets were fed in slurry form six times daily. Total fecal and urine collections were made from d 17 to 21. Pigs were paired within treatments and placed in pens from d 21 to 63, with L-carnitine lowered to 750 ppm. Diets were fed four times daily in meal form. Soybean meal replaced isolated soy protein from d 42 to 63. Soybean oil additions were 1.15 or 13.22% from d 21 to 42, and 2.17 or 14.74% from d 42 to 63. The basal diets fed from d 21 to 42 and d 42 to 63 contained 5.0 and 4.6 g of lysine per Mcal of ME, respectively. Analysis of covariance was used in which calculated ME intake/d was the covariate. There were no carnitine X soybean oil interactions (P>.05) for any criteria. L-carnitine and soybean oil did not (P>.05) affect ADG, g gain/Mcal ME, percent ME or percent N retained/N consumed. In conclusion, L-carnitine did not improve the utilization of ME in diets containing high additions of soybean oil, and soybean oil did not depress pig performance or nutrient utilization.

KEY WORDS: Pigs, L-carnitine, Energy, Performance

456 Influence of glucose infusion on LH secretion in the energy-restricted lactating sow. M. D. Tokach, J. E. Pettigrew*, G. D. Dial, B. A. Crooker, J. E. Wheaton and Y. Koketsu. University of Minnesota, St. Paul.

Previous experiments have demonstrated that glucose infusion into nutrient-restricted gilts results in an immediate increase in pulsatile LH secretion. The objective of this experiment was to determine if the same phenomenon occurs in the nutrient-restricted lactating sow. Ten primiparous Landrace X Yorkshire sows (150 kg postfarrowing) were fed a low energy (6.5 Mcal ME/d), high lysine (45 g/d), corn-soybean meal diet throughout lactation. On d 18 of lactation, sows received a continuous infusion (1 liter/d) of glucose (50% dextrose solution) or .9% saline from 1200 to 2400. Blood samples were drawn every 15 min for an 18-h period on d 18 to evaluate concentrations of plasma glucose, serum insulin and serum LH before (600 to 1200) and during (1215 to 2400) the infusions. The glucose infusion immediately increased (P < .001) plasma glucose and serum insulin as compared to pre-infusion levels. Sows receiving the glucose infusion maintained higher (P < .001) glucose and insulin levels throughout the infusion period as compared to sows receiving a saline infusion. However, glucose infusions had no influence on LH pulsatility during the 12-h infusion period. These results indicate that, unlike in the nutrient-restricted gilt, glucose infusions do not result in an immediate increase in pulsatile LH secretion in the nutrient-restricted lactating sow.

	Saline		Glucose	
Item	Before	During	Before	During
Glucose, mg/dl	73.1	73.7	80.1	117.6
Insulin, μIU/ml	12.1	11.9	12.8	32.4
LH mean, ng/ml	.18	.17	.17	.16
LH peaks/6 h	.20	.40	.40	.60

KEY WORDS: Lactating sow, Glucose infusion, LH

457 Effects of fat source and level on digestibility and body composition. D.A. Khalil, C.F. Hanson*, F.N. Owens, Oklahoma State University, Stillwater.

Some medical researchers have suggested that saturated fats are utilized more efficiently than polyunsaturated fat. To test this, we fed weanling male Sprague-Dawley rats (6 rats per treatment) 5 g of a fortified basal diet plus either 12 or 24 added kcal/d from corn oil, tallow or coconut oil for three weeks. Apparent digestibility of diet dry matter was similar with tallow, corn oil and coconut oil at the lower energy intake (83, 83 and 88%, respectively), but at the higher energy intake, digestibility was lower for the tallow diet (79, 92 and 88%, respectively). At the higher energy level, dry matter digestibility was lower with animal fat (tallow) than with the plant fats (corn and coconut oil) and lower with the more saturated fat (coconut oil) than with the polyunsaturated fat (corn oil). Body Retention of gross energy was lower from tallow than from the mean of the plant fats (P<.001) averaged across the low and high energy intakes. For rats consuming the higher energy intake, final weights were heavier (P<.06) for rats consuming tallow and coconut oil (136 and 135 g) than for animals consuming corn oil (127 g) or sucrose (114 g). At the lower fat intake, body fat percentage was similar for all energy sources (10, 12, 10 and 14% fat for sucrose, corn oil, tallow and coconut oil). But at the higher intake, body fat was greater for the more saturated fats and sucrose (17, 18 and 19% for