Digestible energy and metabolizable energy in distillers dried grains with solubles (DDGS) and enhanced DDGS.

J. A. Soares, H. H. Stein, V. Singh and J. E. Pettigrew, University of Illinois, Urbana, IL.

Distillers dried grains with solubles (DDGS) have a high fiber concentration. The "elusieve" process removes approximately 10% of the material, mostly fiber, yielding a product called enhanced DDGS (E-DDGS) that has a total dietary fiber concentration that is approximately 3.5 percentage units lower than DDGS. The objective of the experiment was to determine DE and ME in 2 sources of DDGS and in E-DDGS produced from each source of DDGS. Thirty growing pigs (average BW: 23kg) and 30 finishing pigs (average BW: 73kg) were used. Pigs were placed in metabolism cages and allotted to a randomized complete block design. Five diets were used at each stage of growth. The basal diet was based on corn and soybean meal and 4 additional diets were formulated by replacing 40% of the basal diet with 40% of each source of DDGS and E-DDGS. Pigs were fed their experimental diets for 14d, and urine and feces were collected during the final 5d. Overall, E-DDGS has greater DE ($P < 0.05$) and ME ($P < 0.05$) than DDGS. The DE and ME values were not different between growing and finishing pigs. In conclusion, removal of some of the fiber from DDGS by the elusieve process increases the energy concentration in the product. Overall, E-DDGS contains approximately 242 and 185 kcal/kg more DE and ME than DDGS.

Table 1. Daily energy balance for DDGS and E-DDGS

	Ingredient					
Item	DDGS-1	DDGS-2	E-DDGS-1	E-DDGS-2	SEM	*P*-value
Growing pigs						
DE, kcal/kg of DM	3,391[x]	3,483[xy]	3,703[y]	3,670[y]	147	0.001
ME, kcal/kg of DM	3,047	3,159	3,225	3,339	226	0.187
Finishing pigs						
DE, kcal/kg of DM	3,303 [x]	3,436 [x]	3,518 [xy]	3,691 [y]	209	0.027
ME, kcal/kg of DM	3,128 [x]	3,239 [xy]	3,293 [xy]	3,453 [y]	203	0.075

[x,y] Values within a row without a common superscript letter are different ($P < 0.05$).

Key Words: Pigs, Energy, Enhanced distillers dried grain with solubles