

An experiment was conducted to test the hypothesis that an increased inclusion rate of fiber decreases the contribution of DE and ME from hindgut fermentation. Twenty ileal-cannulated pigs (BW: 30.64 ± 2.09 kg) were allotted to a replicated 10 × 4 incomplete Latin Square design with 10 diets and 4 26-d periods. A basal diet based on corn and soybean meal (SBM) and a corn-SBM diet with 30% corn starch were formulated. Six additional diets were formulated by replacing 15 or 30% corn starch by 15 or 30% corn germ meal (CGM), sugar beet pulp (SBP), or wheat middlings (WM), and 2 diets were formulated by including 15 or 30% canola meal (CM) in a diet containing corn, SBM, and 30% corn starch. Effects of adding 15 or 30% of each fiber source to the corn starch diet were analyzed using orthogonal polynomial contrasts. Two-independent-sample t-tests were used to compare inclusion rates within each ingredient. Results indicated that concentration of ME (kcal/kg) linearly decreased ($P < 0.001$) from 3,420 kcal/kg in the corn starch diet to 3,348 and 3,305, 3,290 and 3,221, 3,316 and 3,125 and 3,310 and 3,213 kcal/kg as 15 or 30% CM, CGM, SBP, or WM was added to the diet. However, inclusion rate did not affect DE and ME of the ingredients (Table 1). This indicates that DE and ME in ingredients were independent of inclusion rates and utilization of energy from test ingredients was equally efficient in diets with 30% inclusion compared with diets with 15% inclusion. In conclusion, fiber had a negative effect on DE and ME in the diet, but inclusion rate does not affect calculated values for DE and ME in feed ingredients with relatively high concentration of fiber indicating that the microbial capacity for fermentation of fiber in pigs is not overwhelmed by inclusion of 30% high-fiber ingredients in the diets.

Key Words: Energy, Inclusion rate, Pigs

296 Effects of Inclusion Rate of High Fiber Dietary Ingredients on Concentration of Digestible and Metabolizable Energy in Mixed Diets Fed to Growing Pigs. D. M. D. L. Navarro^{*1}, E. M. A. M. Bruininx², L. de Jong², H. H. Stein¹, ¹University of Illinois at Urbana-Champaign, Urbana, IL, ²Agrifirm Innovation Center, Royal Dutch Agrifirm, Apeldoorn, Netherlands

Table 1. Concentration of DE and ME in canola meal, corn germ meal, sugar beet pulp, and wheat middlings

Item, kcal/kg DM		Inclusion rate		SEM	P-value
		15%	30%		
Digestible Energy	Canola meal	3,257	3,517	198	0.218
	Corn germ meal	3,254	3,314	165	0.722
	Sugar beet pulp	3,027	2,839	197	0.357
	Wheat middlings	3,181	3,319	198	0.495
Metabolizable Energy	Canola meal	3,235	3,377	167	0.410
	Corn germ meal	3,024	3,290	182	0.165
	Sugar beet pulp	3,032	2,729	190	0.136
	Wheat middlings	3,197	3,244	198	0.817