161 Effects of fiber, a direct-fed microbial, and feeding duration on ileal and total tract digestibility of energy and nutrients by pigs. N. W. Jaworski[*1], M. C. Walsh[2], H. H. Stein[1], [1]*University of Illinois at Urbana-Champaign, Urbana,* [2]*Danisco Animal Nutrition, DuPont Industrial Biosciences, Marlborough, UK, United Kingdom.*

Effects of fiber, a *Bacillus*-based direct-fed microbial (DFM), and feeding duration on apparent ileal (AID) and total tract digestibility (ATTD) of nutrients and energy by pigs were determined. Twenty-four barrows (initial BW: 31.5 ± 1.0 kg) were surgically equipped with a T-cannula in the distal ileum and randomly allotted to 4 treatments with 6 pigs per treatment and six 2-wk periods. Treatments were arranged in a 2 × 2 factorial

arrangement with 2 diet types (low- or high-fiber) and 2 levels of DFM [0 or 60 g DFM (2.4×10^{12} CFU/kg feed)/MT feed]. Pigs were fed their respective treatment diets during periods 2, 3, and 4, but during periods 1, 5, and 6, all pigs were fed the low-fiber diet without DFM. Each period lasted 14 d and involved a 5 d adaptation period, total collection of feces and urine from d 6 to 11, and ileal digesta collection on d 13 and 14. Contrasts were used to compare periods within each treatment group and results for all treatment groups for periods 2, 3, and 4 were analyzed as repeated measures using PROC MIXED of SAS. Results indicated AID of starch and ATTD of DM, GE, ADF, and NDF increased ($P \leq 0.05$) as period increased, regardless of diet type. This corresponded with an increase ($P \leq 0.05$) in DE and ME from 3357 to 3383 and from 3132 to 3199 kcal/kg, respectively, from periods 2 to 4. Pigs fed high-fiber diets during periods 2, 3, and 4 had reduced ($P \leq 0.05$) AID of most AA, ATTD of GE and NDF, and DE and ME compared with low-fiber diets fed during periods 1, 5, and 6. Addition of DFM to the high-fiber diet did not ameliorate the negative effects of fiber on digestibility, but addition of DFM to the low-fiber diet increased ($P \leq 0.05$) the AID of ADF, NDF, Lys, Phe, and Glu by 18.1, 21.7, 1.9, 2.5, and 2.2%, respectively. When DFM were withdrawn from the low-fiber diet, digestibility values were not maintained, indicating that DFM must be fed continuously to exert beneficial effects and that no carry-over effects are expected. In conclusion, AID of starch and ATTD of fiber and energy increased as pig BW increased, but digestibility values of energy and nutrients were reduced by increased fiber in the diets, although the AID of some nutrients were improved by addition of DFM to the low-fiber diet.

Key Words: dietary fiber, direct-fed microbial, pigs