

168 (Invited) Digestibility of dietary fiber in distillers co-products fed to growing pigs. H. H. Stein*, *University of Illinois, Urbana.*

The concentration of fiber in distiller co-products is approximately 3 times greater than in corn. The average concentration of crude fiber, ADF, and NDF in corn distillers dried grains with solubles (DDGS) is

6.6, 11.1, and 41.2%, respectively, whereas sorghum DDGS contains 9.8, 25.0, and 47.9% of these components. The majority of the fiber in both corn DDGS and in sorghum DDGS is insoluble dietary fiber (IDF), whereas less than 20% is soluble dietary fiber (SDF). The apparent ileal digestibility (AID) of total dietary fiber (TDF), IDF, and SDF in corn DDGS is 28.9, 20.0, and 64.4%, respectively, and the apparent total tract digestibility (ATTD) of TDF, IDF, and SDF are 48.8, 41.3, and 90.9%. For sorghum DDGS, the AID and ATTD of TDF, IDF, and SDF are 15.9 and 39.2, 4.8 and 28.6, and 63.4 and 90.6%, respectively. For corn distillers dried grains (DDG), the AID and ATTD of TDF are 0.7 and 43.8%, respectively. The relatively high concentration of dietary fiber in DDGS will result in an increase in the concentration of dietary fiber in diets containing DDGS. As an example, the concentration of TDF in a typical corn-soybean meal diet is approximately 12%, but if 30% corn DDGS is added to this diet, the concentration of TDF will increase to approximately 17%. However, the AID of TDF in the diet is not influenced by the addition of DDGS, but the ATTD of TDF is slightly reduced (from 66 to 55%). The total amount of energy that the pigs obtain from dietary fiber will, therefore, increase when DDGS is used in the diet. The relatively high AID of TDF that is observed in corn-soybean meal diets as well as in corn-soybean meal-DDGS diets indicate that there is a substantial fermentation taking place in the small intestine. A large proportion of the SDF disappears before the end of the small intestine, but there is also some disappearance of IDF in the small intestine. This observation demonstrates that a substantial microbial population resides in the upper gut. It is possible that the size of this population will increase if pigs are fed high fiber diets for a long period of time, but this aspect of fiber digestibility is poorly understood.

Key Words: dietary fiber, distillers co-products, pigs