## 98 Digestibility of Energy, Dry Matter, Protein, and Fat and Concentration of Metabolizable Energy in Sunflower Meal and Sunflower Expellers Fed to Growing Pigs.

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Abstract: An experiment was conducted to test the hypothesis that there are no differences among sources in apparent total tract digestibility (ATTD) of GE, CP, and fat or in ME of sunflower co-products. Six sources of sunflower meal (SFM) were obtained from the U.S., Ukraine, Hungary, and Italy. A source of sunflower expellers (SFE) from the U.S. was also used. A corn-based control diet and seven diets containing corn and each source of sunflower co-products were formulated. Sixty-four barrows (initial weight = 31.5 kg) were allotted to 8 diets using 4 blocks. Pigs were housed individually in metabolism crates and feces and urine were collected for 4 d after 7 d of adaptation to diets. The statistical model included ingredient as fixed effect and block as random effect. Results indicated that ATTD of GE and CP in SFE was less ($P < 0.05$) than in SFM, but ATTD of fat in SFE was greater ($P < 0.05$) compared with SFM (Table 1). No difference in ME between SFM and SFE was observed. Digestibility of GE in SFM from Ukraine and Hungary was greater ($P < 0.05$) than in one of the sources from the U.S. and SFM from Italy. Digestibility of fat did not differ among SFM sources with the exception that ATTD of fat in one of the U.S. sources was greater ($P < 0.05$) than in the other sources. Metabolizable energy in one source from Ukraine and in SFM from Hungary was greater ($P < 0.05$) than in one of the U.S. sources and the SFM from Italy. In conclusion, ATTD of GE and nutrients differed between SFM and SFE, but ME did not differ between the 2 co-products. Among SFM sources, relatively small variations in ATTD of GE, fat, and CP were observed, but ME concentrations varied.

**Table 1.** Apparent total tract digestibility (ATTD) of GE, CP, and acid hydrolyzied ether extract (AEE) and concentration of ME in six sources of sunflower meal (SFM) and in one source of sunflower expellers (SFE) ($n = 8$)

| Item, % | ATTD of GE, % | ATTD of CP, % | ATTD of AEE, % | ME, kcal/kg |
|---|---|---|---|---|
| SFM | | | | |
| U.S. 1 | 56.0$^{b}$ | 79.2 | 31.0$^{b}$ | 2,370$^{b}$ |
| U.S. 2 | 62.0$^{ab}$ | 79.5 | 64.7$^{a}$ | 2,744$^{ab}$ |
| Ukraine 1 | 66.4$^{a}$ | 83.4 | 16.7$^{b}$ | 2,845$^{a}$ |
| Ukraine 2 | 65.6$^{a}$ | 82.7 | 16.1$^{b}$ | 2,779$^{ab}$ |
| Hungary | 66.0$^{a}$ | 83.6 | 12.8$^{b}$ | 2,862$^{a}$ |
| Italy | 56.6$^{b}$ | 79.4 | 5.8$^{b}$ | 2,368$^{b}$ |
| SFE | 54.9 | 76.1 | 74.9 | 2,660 |
| SEM | 2.5 | 2.3 | 6.6 | 146 |
| *P*-value | | | | |
| SFE vs. SFM | 0.002 | 0.001 | < 0.001 | 0.958 |
| SFM source | < 0.001 | 0.029 | < 0.001 | 0.001 |

[a-c]Within a column, means without a common superscript differ ($P < 0.05$).

**Keywords:** nutrient digestibility, pig, sunflower co-product.