In vivo and in vitro digestibility experiments were conducted to measure the apparent ileal digestibility (AID) and apparent total tract digestibility (ATTD) of dietary fiber by growing pigs fed fibrous feed ingredients. The objective of Exp. 1 was to measure the digestibility of AA, energy, and total dietary fiber (TDF) when 30% distillers dried grains with solubles (DDGS) was added to a corn-soybean meal diet. Results indicated that the AID of Lys (74.1%) was reduced ($P < 0.05$) in the diet with 30% DDGS compared with the control diet (78.6%), but the AID of most other AA was not affected. The AID and ATTD of energy and TDF were less ($P < 0.05$) in the diet with 30% DDGS (81.0 and 55.5%) than in the control diet (86.0 and 60.0%), but there were no differences in rate of passage or VFA concentration in digesta or fecal samples. The objective of Exp. 2 was to measure the AID and ATTD of TDF in 24 sources of DDGS. On average, the ATTD of TDF in DDGS was 47.3% and varied among sources of DDGS. The ATTD of TDF was correlated to the ATTD of NDF and insoluble dietary fiber ($r^2 = 0.90$ and 0.79, respectively; $P < 0.05$). In Exp. 3, 5 Light Yorkshire (LY) pigs, 5 Heavy Yorkshire (HY) pigs, and 5 Meishan pigs were fed 5 diets with increasing concentration of soluble dietary fiber. The ATTD of TDF was different ($P < 0.05$) among groups of pigs fed DDGS (Meishan: 75.3%; LY: 39.0%; HY: 55.7%), but the ATTD of TDF was not different when pigs were fed sugar beet pulp, soybean hulls, or pectin. In Exp. 4, a 3-step in vitro digestibility procedure was used to measure the in vitro ATTD of NDF in DDGS. Results indicated that in vitro AID (28.5%) and ATTD (37.5%) of NDF were lower than the in vivo AID (45.9%) and ATTD (59.3%) and it was not possible to predict in vivo ATTD of NDF from the in vitro values ($r^2 = 0.12$). In conclusion, dietary fibers from DDGS are poorly digested by pigs but do not affect the digestibility of other dietary nutrients. The ability of pigs to digest fiber varies with age and breed and there are interactions between breed of pig and the type of fiber. The in vitro procedure that was used in this experiment did not accurately predict in vivo digestibility of TDF.

**Key Words:** Dietary fiber, Digestibility, Distillers dried grains with solubles, Pigs

**254 The effects of feed-withdrawal time on finishing-pig characteristics in a commercial environment.** H. L. Frobose[1], N. W. Shelton*[1], S. S. Dritz[1], L. N. Edwards[1], K. J. Prusa[2], M. D. Tokach[1], J. M. DeRouchey[1], R. D. Goodband[1], and J. L. Nelssen[1], *[1]Kansas State University, Manhattan, KS, USA, [2]Iowa State University, Ames, IA, USA.*

Two studies were conducted to determine the effects of feed-withdrawal on finishing-pig carcass composition. In Exp. 1, a total of 728 pigs (BW = 129.9 kg, 10 to 19 pigs/pen) were marketed after being subjected to feed withdrawal times of 7, 24, 36, or 48 h before harvest. As expected, increased feed withdrawal time decreased (quadratic; $P < 0.001$) feed intake. Withholding feed also decreased (linear; $P < 0.02$) live weight, HCW and backfat depth. Percentage yield increased (quadratic; $P < 0.001$) with longer withdrawal periods, as did percentage lean (linear; $P < 0.02$). In Exp. 2, the prevalence of runny bung and leaking ingesta also were recorded to determine whether a relationship existed between feed withdrawal and the incidence of these processing concerns. 843 pigs (BW = 125.5 kg, 16 to 26 pigs/pen) were assigned to feed withdrawal times 7, 12, 24, or 36 h before harvest. Due to misidentification of pigs by plant personnel, data were analyzed from only 25 of 40 pens. Withholding feed tended to decrease (linear; $P < 0.09$) live weight and decreased (linear; $P < 0.001$) feed intake. There were no differences ($P > 0.22$) in HCW, percentage lean, or backfat depth. However, percentage yield (linear; $P < 0.001$) increased with increasing withdrawal time. Although withholding feed had no effect ($P > 0.31$) on the incidence of runny bung, it did increase (linear; $P < 0.001$) the incidence of leaking ingesta. Overall, withholding feed can be used to avoid weight discounts in heavyweight pigs without negatively impacting carcass composition. However, these advantages come with a potential reduction in carcass weight and increased prevalence of leaking ingesta, resulting in condemned heads at inspection.

**Table 1.**

| | Withdrawal, h | | | | | P < | |
|---|---|---|---|---|---|---|---|
| Exp. 1 | 7 | 24 | 36 | 48 | SEM | Lin | Quad |
| Wt change, kg | 1.2 | –1.0 | –4.6 | –5.4 | 0.2 | 0.01 | 0.01 |
| Feed/pig, kg | 6.2 | 3.7 | 1.9 | 1.2 | 0.2 | 0.01 | 0.01 |
| HCW, kg | 95.8 | 95.5 | 93.8 | 93.1 | 0.9 | 0.02 | 0.73 |
| Yield, % | 74.4 | 76.1 | 76.3 | 76.4 | 0.23 | 0.01 | 0.01 |
| Lean, % | 50.7 | 50.9 | 51.0 | 51.0 | 0.1 | 0.02 | 0.31 |
| | | | | | | | |
| Exp. 2 | 7 | 12 | 24 | 36 | | | |
| Wt change, kg | 0.2 | –0.1 | –2.0 | –4.0 | 0.2 | 0.01 | 0.15 |
| Feed/pig, kg | 3.5 | 3.1 | 1.8 | 0.6 | 0.1 | 0.01 | 0.93 |
| HCW, kg | 91.6 | 92.9 | 92.4 | 91.1 | 1.3 | 0.65 | 0.44 |
| Yield, % | 75.3 | 75.5 | 76.1 | 77.0 | 0.30 | 0.01 | 0.77 |
| Runny bung, % | 3.3 | 1.2 | 6.1 | 5.1 | 2.2 | 0.31 | 0.78 |
| Leaking ingesta, % | 3.3 | 4.6 | 9.5 | 19.5 | 2.7 | 0.01 | 0.36 |

**Key Words:** carcass, fasting, feed withdrawal

**255 The effects of feeder design and feeder adjustment on the growth performance and carcass characteristics of growing-finishing pigs.** J. R. Bergstrom, M. D. Asmus,* M. D. Tokach, S. S. Dritz, J. L. Nelssen, J. M. DeRouchey, and R. D. Goodband, *Kansas State University, Manhattan.*

Two experiments were performed to evaluate the effects of feeder (conventional dry, 5.8 cm trough/pig, CD vs. wet-dry, 2.9 cm trough/pig, WD) and adjustment on grow-finish pig performance. In both experiments, pigs (PIC 337 × 1050) were fed the same corn-soybean meal diets with 15% DDGS. In Exp. 1, 1,296 pigs (initially 20 kg) were used to evaluate 3 feeder settings for each feeder in a 27-d study. The numbered settings (located in each feeder) were 6, 8, and 10 (~1.8, ~2.4, and ~3.1 cm opening) for the CD feeder and 6, 10, and 14 (1.3, 1.9, and 2.5 cm opening) for the WD feeder. From d 0 to 27, pigs using a WD feeder had similar ADG (0.68 vs. 0.68 kg/d), but lower ($P < 0.02$) ADFI (1.23 vs. 1.26 kg/d) and better G:F (0.55 vs. 0.54) than pigs using a CD feeder. Increased feeder setting improved (linear, $P < 0.01$) ADG (0.59, 0.71, and 0.75 kg/d), ADFI (1.07, 1.28, and 1.34 kg/d), and d-27 BW (35.2, 38.5, and 39.7 kg) of pigs using a WD feeder and increased (linear, $P < 0.01$) ADFI (1.22, 1.26, and 1.30 kg/d) of pigs using a CD feeder. In Exp. 2, 1,248 pigs (initially 33 kg) were used to evaluate 3 feeder settings for each feeder in a 93-d study. The feeder setting treatments were the same for the CD feeder (6, 8, and 10) as in Exp. 1; and 10, 14, and 18 (1.9, 2.5, and 3.2 cm opening) for the WD feeder. Overall, pigs using WD feeder had greater ($P < 0.05$) ADG (0.97 vs. 0.91 kg/d), ADFI (2.64 vs. 2.42 kg/d), final BW (122.4 vs. 116.7 kg), HCW (89.9 vs. 86.9 kg), backfat depth (17.4 vs. 16.3 mm), and feed cost/pig ($76.28 vs. $69.87) but reduced ($P < 0.04$) fat-free lean index (FFLI, 49.9 vs. 50.5) compared with pigs using CD feeder. An increased setting of a WD feeder resulted in greater (linear, $P < 0.05$) ADG (0.94 to 1.01 kg/d), ADFI (2.51 to 2.77 kg/d), final BW