A total of 315 nursery pigs (BW = 15.2 kg) were used in a 21-d growth assay to determine the relative energy value of both NutriDense (ND) and NutriDense Low Phyate (NDLP) corn compared to normal yellow dent (ND) corn. ND is a high-protein, high-oil variety; and NDLP is a high-protein, high-oil, low-phytate variety. Pigs were weighed and allotted to one of nine treatments with five pigs per pen and seven pens per treatment. Dietary treatments were arranged in a 3 x 3 factorial design, with corn source representing one factor (YD, ND, and NDLP) and supplemental fat level representing the other factor (0, 3, or 6%). No corn source x fat level interactions (P > 0.10) were observed for any of the performance criteria. Performance values for YD, ND, and NDLP were 740, 748, and 748 g/d for ADG and 0.645, 0.661, and 0.656 for gain/feed (G/F), respectively. No differences (P > 0.11) in ADG were observed among corn sources. Feeding pigs diets containing either ND or NDLP corn, however, reduced ADG (P < 0.02) and improved G/F (P < 0.05) compared to those fed YD corn. Increasing dietary fat levels produced linear improvements in both ADG (726, 748, and 748 g/d; P < 0.04) and G/F (0.625, 0.656, and 0.681; P < 0.001), and reduced ADFI (P < 0.01). These data indicate the ME values for ND and NDLP corn are 5 and 3% higher, respectively, than for YD corn. These data are in agreement with the data of Peter et al. (2001; JAS 79: suppl. 2; abstract 256) wherein ND and NDLP corn were reported to contain 6.5 and 4% more ME, respectively, than YD corn, and the ME content of NDLP is 2% lower than that of ND corn. The lack of interaction between corn source and fat level also indicates that higher energy diets can be achieved through the use of ND or NDLP corn and fat to achieve further improvements in feed efficiency.

Key Words: Pigs, Corn Hybrids, Metabolizable Energy

Pellet hardness is closely associated with pellet durability, a desirable trait in nursery diets. Field observations, however, suggest weaned pigs exhibit an aversion to hard pellets by reducing consumption. We conducted two experiments to determine the effects of pellet hardness on growth performance during the postweaning period. In Exp. 1, 540 weaned pigs (5.4 kg; 18 d), 10 replicates, were used to determine the effects of soft vs hard pellets on growth performance during an 11-d period. Pellet hardness was manipulated by replacing raw starch (soft) with gelatinized starch (hard). Diets were conditioned for 30 seconds at 59°C before pelleting (2.4 mm). Starch processing did not affect dietary energy use, as evidenced by comparable feed efficiency between treatments. Feed intake (-13%) and weight gain (-11%), however, were markedly reduced (P < 0.02) by increased pellet hardness. In Exp. 2, 880 weaned pigs (4.9 kg; 18 d), 10 replicates, were used to determine the effects of increasing pellet hardness on growth performance during a 14-d period. Pellet hardness was progressively increased by replacing 0, 33, 66, and 100% of the raw starch (25%) in the basal diet with gelatinized starch. Pellet durability index was 67, 93, 92, and 97% for the four experimental diets. Feed manufacturing was as in Exp. 1. In agreement with Exp. 1, feed efficiency was not affected by pellet hardness, indicating that pellet quality and not starch processing was responsible for differences in growth performance. Indeed, feed intake (P < 0.09) decreased slightly (218, 214, 209, 197 g/d) in a linear pattern with increasing pellet hardness, whereas numerical differences in weight gain (203, 197, 192, and 181 g/d) were not significant. In conclusion, it appears increasing pellet hardness in diets for young pigs reduces feed intake during the first two weeks postweaning.

Key Words: Pigs, Pellet Hardness, Pellet Quality


In Exp. 1, 880 pigs (18 d old: 0.25 m<sup>2</sup>/pig) were weighed individually and allotted to one of 5 pre-determined weight classes: A (6.97 kg), B...