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## Effect of feeding oats and oat hulls on performance of weanling pigs

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### Summary

Two hundred twenty-eight Yorkshire pigs, weaned at 5 weeks of age and averaging 8.4 kg. (18.46 lbs) were used to determine how feeding them various levels of oats, oat hulls, and oats plus fat would effect their performance. Adding oats or oat hulls to increase fiber content of the diets resulted in similar rates of gain, even though the diets contained up to 7.3% fiber. Pigs fed a diet containing 7.3% fiber, however had significantly poorer feed efficiency and daily feed intake than pigs fed the other diets tested. Pigs fed diets containing 10%, 20%, 30%, and 40% oats had slightly improved rates of gain and feed efficiency than pigs fed the control diet.

### Introduction

Recent research suggests that increasing fiber in young pig's diets possibly could prevent or reduce the incidence of diarrhea in pigs immediately after they are weaned. Oats, because of their high fiber content, have received renewed interest for this purpose. This experiment was conducted to evaluate the use of dietary oats and oat hulls on the performance of young pigs.

### Experimental Procedures

Two hundred twenty-eight Yorkshire pigs averaging 8.4 kg. (18.5 lbs.) were randomly assign-

ed to 36 pens representing three replications of twelve dietary treatments. In two of the three replications, pigs were housed, seven to a pen, in an environmentally controlled slatted-floor nursery. In the third replication, pigs, five to a pen, were fed in elevated decks in the same nursery. The basal diet contained 21.17% protein, 1.00% lysine, 0.79% calcium, and 0.69% phosphorus. Animal tallow was the fat source; ground oats and oat hulls were the fiber sources (substituted for the corn portion in the diet). The experiment, lasting 35 days, included these dietary treatments:

- A. Corn-soy fortified basal diet (CF 2.2%);
- B. 10% oat diet (CF 3.0%);
- C. 20% oat diet (CF 3.9%);
- D. 30% oat diet (CF 4.7%);
- E. 40% oat diet (CF 5.6%);
- F. 2.8% ground oat hulls (CF 3.0%);
- G. 5.5% ground oat hulls (CF 3.9%);
- H. 8.2% ground oat hulls (CF 4.7%);
- I. 10.9% ground oat hulls (CF 5.6%);
- J. 16.4% ground oat hulls (CF 7.3%);
- K. 20% oats with 5% fat (CF 3.8%);
- L. 40% oats with 5% fat (CF 5.5%);

### Results and Discussion

Influences of fiber source and fiber level on performance of young pigs are shown in table 9. Adding oats and oat hulls to increase the fiber

Table 9. Effect of fiber source and fiber level in diets on pig performance.

| Criteria                    | Oats               |                    |                    |                    |                   | Oat hulls          |                    |                    |                    |                   | Oats + 5% fat     |                    |
|-----------------------------|--------------------|--------------------|--------------------|--------------------|-------------------|--------------------|--------------------|--------------------|--------------------|-------------------|-------------------|--------------------|
|                             | A<br>0             | B<br>10%           | C<br>20%           | D<br>30%           | E<br>40%          | F<br>2.8%          | G<br>5.5%          | H<br>8.2%          | I<br>10.9%         | J<br>16.4%        | K<br>20%          | L<br>40%           |
| Number of pigs <sup>a</sup> | 18                 | 18                 | 19                 | 19                 | 19                | 19                 | 18                 | 19                 | 19                 | 19                | 19                | 19                 |
| Avg. daily gain, lbs        | 0.90               | 0.95               | 0.90               | 1.03               | 0.92              | 0.98               | 1.04               | 0.94               | 0.86               | 0.86              | 0.93              | 1.01               |
| Daily feed intake, lbs      | 1.40 <sup>ab</sup> | 1.39 <sup>ab</sup> | 1.33 <sup>ab</sup> | 1.53 <sup>ab</sup> | 1.30 <sup>b</sup> | 1.49 <sup>ab</sup> | 1.62 <sup>ab</sup> | 1.48 <sup>ab</sup> | 1.45 <sup>ab</sup> | 1.68 <sup>a</sup> | 1.29 <sup>b</sup> | 1.39 <sup>ab</sup> |
| Feed/gain                   | 1.55 <sup>bc</sup> | 1.49 <sup>c</sup>  | 1.49 <sup>c</sup>  | 1.51 <sup>c</sup>  | 1.46 <sup>c</sup> | 1.53 <sup>bc</sup> | 1.58 <sup>bc</sup> | 1.59 <sup>bc</sup> | 1.71 <sup>b</sup>  | 1.97 <sup>a</sup> | 1.39 <sup>c</sup> | 1.39 <sup>c</sup>  |

<sup>a</sup>Average initial weight of pigs 8.4 kg. (19.5 lbs.).

<sup>abc</sup>Means with different superscripts differ significantly ( $P < .05$ ).

content of the diet did not significantly affect average daily gain (ADG). The two diets that did show lower ADG than the control were two high-fiber diets I and J with fiber levels of 5.6% and 7.3% respectively. Pigs fed diets with crude fiber levels up to 5.6% did have slightly better rates of gain than did the controls. All diets in which the fiber source was oats showed better daily gains than the control. As one might expect, the feed efficiency of diets J and I, (with crude fiber levels of 7.3% and 5.6%, respectively) were significantly poorer than the other diets. Diets with 10%, 20%, 30%, and 40% oats, all had slightly better feed efficiency than did the control diet. That contradicted our hypothesis that because of the

increased fiber levels, the pigs on these diets would consume more feed and be less efficient. Also pigs fed diets K and L with added fat and increased energy levels showed the best feed efficiency of the trial. All pigs performed poorly immediately after weaning due to the stresses of weaning. That period lasted approximately 7 days. Diarrhea was not a problem in the trial and daily fecal scores were similar for all treatments.