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Effect of Fiber Source on Performance of Weanling Pigs

A. J. Thulin and R. H. Hines

Summary

Ninety-six Yorkshire pigs, weaned at 5 to 6 weeks of age and averaging 9.5 kg (20.9 lbs.) were used to determine the effects of diets with increased fiber from oats, beet pulp, wheat bran, alfalfa meal or wheat shorts on performance and fecal consistency. Pigs fed the control, 20% oats, 10% beet pulp or 21.2% wheat bran diets had the best average daily gain; those fed the 48.5% wheat shorts, the poorest daily gain. Average daily feed intake was similar except that pigs fed the 20% oats diet consumed more feed ($P < .05$) than those fed the 48.5% wheat shorts. Feed efficiency was similar for all diets. Pigs fed the control, 20% oats, 10% beet pulp or 21.2% wheat bran diets had better average daily diarrhea scores than those fed the 7.6% alfalfa meal or 48.5% wheat shorts diets.

Introduction

Poor performance frequently accompanied by diarrhea in weaned pigs, is a major swine industry problem. Research suggests that after weaning, pigs should be provided with a diet containing feedstuffs higher in fiber, with a more concentrated ration gradually introduced. This experiment evaluated oats, beet pulp, wheat bran, alfalfa meal, and wheat shorts in post weaning diets on the performance of weaned pigs.

Experimental Procedures

Ninety-six Yorkshire pigs averaging 9.5 kg (20.9 lbs.) were randomly assigned to twelve pens, representing two replications of six diets. The pigs were housed, eight to a pen, in an environmentally controlled slatted-floor nursery. The basal diet contained 22.18% protein, 1.00% lysine, 0.79% calcium, and 0.69% phosphorus. The fiber sources were ground oats, beet pulp, wheat bran, alfalfa meal, and wheat shorts (substituted for the corn portion of the diet). The corn-soybean meal basal diet contained 2.2% crude fiber; the experimental diets, 3.9% crude fiber. The experiment lasted 35 days and included the following dietary treatments:

- A. Corn-soy fortified basal diet
- B. Corn-soy + 20% ground oats
- C. Corn-soy + 10% beet pulp
- D. Corn-soy + 21.2% wheat bran
- E. Corn-soy + 7.6% dehydrated alfalfa meal
- F. Corn-soy + 48.5% wheat shorts

Results and Discussion

Effects of fiber sources on pig performance are shown in table 18. Pigs fed the control, 20% oats, 10% beet pulp or 21.2% wheat bran diets gained significantly faster ($P<.05$) than pigs fed the 48.5% wheat shorts diet. Also, pigs fed the 20% oats diet had significantly better ($P<.05$) average daily gain (ADG) than pigs fed the 7.6% alfalfa meal diet. Average daily feed intake (ADFI) was similar for pigs fed all diets except that significantly more of the 20% oat diet than the 48.5% wheat shorts diet was consumed. Fiber source in the diet did not significantly affect feed efficiency (F/G). Diarrhea scores were significantly poorer ($P<.05$) for pigs fed diets containing 7.6% alfalfa meal and 48.5% wheat shorts than for pigs fed the control, 20% oats or 21.2% wheat bran diets. Pigs fed the 48.5% wheat shorts diet and those fed the 10% beet pulp diet had similar daily diarrhea scores.

Table 18. Effect of Fiber Source on Pig Performance

Diets	Criteria				
	No. Pigs ¹	ADG, lb.	ADFI, lb.	F/G	Diarrhea score ²
Control	16	1.02 ^{ab}	1.95 ^{ab}	1.91	1.55 ^a
20% oats	16	1.08 ^a	2.05 ^a	1.90	1.40 ^a
10% beet pulp	16	1.04 ^{ab}	1.95 ^{ab}	1.88	1.75 ^{ab}
21.2% wheat bran	16	1.03 ^{ab}	1.95 ^{ab}	1.88	1.15 ^a
7.6% alfalfa meal	16	.93 ^{bc}	1.72 ^{ab}	1.84	2.15 ^c
48.5% wheat shorts	16	.89 ^c	1.65 ^b	1.86	2.05 ^{bc}

¹ Average initial weight of pigs 9.5 kg (20.9 lbs.).

² Average daily pen diarrhea scores based on subjective scores of 1=firm feces, 2=soft feces, 3=loose feces, 4=watery feces, and 5=bloody feces.

a,b,c Means with different superscripts differ significantly ($P<.05$).