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Effect of Test Weight of Hard Winter Wheat on Performance of Finishing Swine

R.H. Hines and D.S. Pollmann

Summary

Ninety crossbred pigs averaging 135 lbs. were used to evaluate the effect of reduced bushel weight of wheat on performance. Wheat (59 lb) fed to finishing pigs resulted in growth and feed efficiency similar to a milo base diet. Wheat of reduced bushel weight (51 lb and 45 lb) caused a linear effect upon feed efficiency because the pigs consumed more feed per day with equal average daily gain. The blending of equal parts of milo and 45 lb wheat resulted in similar growth rate and a slightly improved feed:gain ratio as compared to the pigs fed the 45 lb wheat diet.

Introduction

The Kansas growing season two years ago resulted in some hard red winter wheat with reduced bushel weight. The wheat with lower bushel weight was offered for sale at a slightly reduced price. Since wheat can be fed to growing-finishing swine, many producers were asking about the effect of reduced bushel weight on performance of the finishing pig.

Procedure

Ninety crossbred finishing pigs with an average initial weight of 135 lbs were allotted by weight and sex to six replications of five treatments. The five diets evaluated were (a) hard winter wheat - 59 lb bushel wt. (b) hard winter wheat - 51 lb bushel wt. (c) hard winter wheat - 45 lb bushel wt. (d) Milo-control (e) one half milo and one half 45 lb hard winter wheat. Each pen consisted of 3 pigs reared in a solid concrete floor pen with access to a one hole self-feeder and an automatic waterer. Each pen was 4 x 8 ft. Composition of diets fed in this feeding trial are shown in Table 1. The performance data were summarized after 64 days with the average final weight of the pigs being 266 lbs.

Results

Reduced bushel weight of hard winter wheat resulted in a linear increase in average daily feed intake. The increase in feed intake of the 51 lb wheat and 45 lb wheat permitted the finishing pigs to grow at the same rate as those pigs consuming 59 lb wheat. The reduced bushel weight did not impair growth rate since the pig could consume enough more feed to meet his energy needs. Because of increased feed intake and similar average daily gain, the feed to gain ratio was also linearly affected by bushel weight.

Blending milo with the 45 lb hard wheat on an equal basis resulted in similar average daily gain. Feed efficiency was improved slightly as compared with those pigs fed only the 45 lb wheat.

Pigs fed diets with either milo or 59 lb hard wheat as the energy source gained at a similar rate with equal feed efficiency. Thus, wheat can replace 100% of the milo in the swine diet without impairing performance.

Table 1. Composition of Diets

Grain	Milo	Hard Winter Wheat			Milo + 45# Wheat
		59#	51#	45#	
<u>Ingredient: %</u>					
Gr. milo	82.45	--.--	--.--	--.--	42.30
Wheat	--.--	85.40	85.40	85.40	42.25
Soybean meal (44%)	13.75	11.00	11.00	11.00	11.75
Dicalcium phosphate	1.50	1.15	1.15	1.15	1.35
Gr. limestone	1.00	1.15	1.15	1.15	1.05
Salt	.50	.50	.50	.50	.50
Trace mineral premix	.10	.10	.10	.10	.10
Vit. premix	.50	.50	.50	.50	.50
Antibiotic	.20	.20	.20	.20	.20
<u>Calculated analysis</u>					
Crude protein, %	13.56	15.77	--.--	--.--	14.58
Lysine, %	.60	.60	--.--	--.--	.59
Calcium, %	.75	.75	--.--	--.--	.78
Phosphorus, %	.64	.65	--.--	--.--	.65

Table 2. Effect of Test Weight of Hard Wheat on Performance of Finishing Swine^{a,b}

	Milo	Hard Winter Wheat			Milo + wheat (45 lb)
		59 lb	51 lb	45 lb	
Avg. daily gain, lb	1.84	1.78	1.79	1.81	1.76
Avg. daily _d feed intake, lb ^c	6.84	6.53	6.98	7.16	6.87
Feed/gain ^d	3.72	3.67	3.91	3.97	3.89

^aEach mean an average of 6 pens (3 pigs per pen).

^bAverage initial weight 135 lbs; final weight 266 lbs.

^cLinear effect on bushel weight ($P < .06$).

^dLinear effect on bushel weight ($P < .02$).