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The effects of sprout-damaged milo on finishing pig performance

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THE EFFECTS OF SPROUT-DAMAGED MILO ON FINISHING PIG PERFORMANCE

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Summary

One hundred and sixty-five, crossbred, growing-finishing pigs were utilized in two growth trials to determine the effects of sprout-damaged milo on pig performance. Sprout-damaged milo was officially graded as having 39% sprout damage and 10% broken kernels. In addition, the grain was badly weathered and discolored. In Trial 1, sprout-damaged milo was substituted for normal milo at levels of 0, 50, and 100% of the grain portion in the diet. Increasing levels of sprout-damaged milo had no effect ($P>.20$) on average daily gain (ADG) or average daily feed intake (ADFI) of growing pigs (91 to 145 lbs). However, pigs fed the 50 and 100% sprout-damaged milo had numerically poorer feed efficiency (8 and 11%, $P>.20$) than those fed the normal milo diet. In Trial 2, sprout-damaged milo replaced 0, 25, 50, 75 or 100% of the normal milo in the diet. Increasing levels of sprout-damaged milo had no effect on ADG, ADFI, or feed efficiency (F/G; $P>.30$) of growing-finishing pigs. These results indicate that milo with up to 40% sprout damage may be utilized in growing-finishing pig diets without adversely affecting pig performance.

Introduction

Heavy rains during the fall harvest season caused severe sprout damage to the 1986 Kansas milo crop. As a result, a large quantity of this weather-damaged milo became available to livestock producers. Therefore, two growth trials were conducted to determine the feeding value of sprout-damaged milo for growing-finishing pigs.

Experimental Procedures

Weather-damaged milo was obtained from a single source for use in both trials. Visual inspection of the milo suggested approximately 80% sprout damage; however, Kansas Grain Inspection Department grading indicated 39% sprout damage, 10% broken kernels and foreign material, 11.8% moisture, and 55.5 lbs test weight. The grain was also badly weathered and discolored.

Trial 1

Sixty growing pigs averaging 91.7 lbs were allotted to one of three dietary treatments with five pigs per pen and four pens per treatment. Dietary treatments included a milo-soybean meal (15% crude protein, .7% lysine) diet or equal substitution of normal milo by sprout-damaged milo at levels of 0, 50 or 100% (table 1). Feed and water were available ad libitum. The trial duration was 28

days, with an average final weight of 145.4 lbs.

Trial 2

One hundred five growing-finishing pigs averaging 74.0 lbs were allotted to one of five dietary treatments. Sprouted milo replaced normal milo at levels of 0, 25, 50, 75, or 100% of the grain portion of the diet (table 1). There were three pigs per pen and seven pens per treatment. Feed and water were available ad libitum. Pigs and feeders were weighed at 3-week intervals during the 84-day trial. Average final weight was 238.5 lbs.

Results and Discussion

The effects of sprout-damaged milo on growing pig performance (Trial 1) are presented in table 2. Increasing levels of sprout-damaged milo had no effect ($P>.10$) on average daily gain (ADG), average daily feed intake (ADFI), or feed efficiency (F/G) of growing pigs. In Trial 2, similar results were observed, i.e., increasing levels of sprouted milo had no effect ($P>.30$) on ADG, ADFI, or F/G of growing-finishing pigs (table 3). Previous research evaluating sprout-damaged milo in swine diets had suggested that sprouted milo contains slightly less digestible energy than normal milo and, thus, results in slightly poorer F/G of growing-finishing pigs. This is consistent with results of Trial 1, since those pigs fed the 50 and 100% sprout-damaged milo diets consumed numerically more feed and, thus, were less efficient (8 and 11%, respectively) than control pigs. However, in Trial 2, there were no differences in F/G from sprouted milo addition to the diet during the first 21 days on trial (data not reported) or for the overall trial. Gross energy values of the complete diets used in Trial 2 were analyzed by bomb calorimetry. Values obtained were 1760.7, 1797.2, 1816.3, 1789.4, and 1791.1 Kcal/lb for the milo, 25, 50, 75, and 100% sprouted-milo diets, respectively. Therefore, the numerical differences in F/G observed only in Trial 1 may have been a result of differences in the age or weight of the pigs used in each trial and/or trial duration.

These results indicate that milo with levels of up to 40% sprout-damage may be efficiently utilized by growing-finishing pigs without adversely affecting their performance.

Table 1. Composition of Growing-Finishing Diets, Trials 1 and 2

Ingredients, %	Normal Milo	75% Normal 25% Sprouted	50% Normal 50% Sprouted	25% Normal 75% Sprouted	Sprouted Milo
Milo	79.35	59.50	39.65	19.85	---
Sprouted milo	---	19.85	39.65	59.50	79.35
Soybean meal	18.25	18.25	18.25	18.25	18.25
Monocalcium phosphate	1.00	1.00	1.00	1.00	1.00
Limestone	.80	.80	.80	.80	.80
Salt	.40	.40	.40	.40	.40
Trace mineral premix	.05	.05	.05	.05	.05
Vitamin premix	.15	.15	.15	.15	.15

Table 2. Effects of Sprout-Damaged Milo on Growing Pig Performance, Trial 1^a

Item	Normal Milo	50% Sprouted 50% Normal	Sprouted Milo
Average daily gain, lbs	1.92	1.96	1.87
Average daily feed intake, lbs.	6.24	6.98	6.92
Feed efficiency	3.29	3.58	3.70

^aA total of 60 pigs, 5 pigs/pen and 4 pens/treatment, average initial wt 91.7 lbs, average final wt. 145.4 lbs. Trial duration 28 days.

Table 3. Effects of Sprout-Damaged Milo on Growing-Finishing Pig Performance, Trial 2^a

Ingredients, %	Normal Milo	75% Normal 25% Sprouted	50% Normal 50% Sprouted	25% Normal 75% Sprouted	Sprouted Milo
Average daily gain, lbs	1.96	1.94	1.95	1.96	1.98
Average daily feed intake, lbs	6.68	6.60	6.66	6.61	6.85
Feed efficiency	3.36	3.40	3.41	3.47	3.46

^aA total of 105 pigs, 3 pigs/pen, 7 pens/treatment, average initial wt. 74.0 lbs, average final wt 238.5 lbs. Trial duration 84 days.