High-moisture, Acid-treated Grain for Finishing Swine

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Summary

The feeding value of high-moisture milo treated with orgainic acids for finishing swine was studied in two trials involving 56 pigs. There were no significant differences in daily gain, feed intake, feed efficiency, or carcass measurements between pigs fed the dry grain and those fed the high-moisture grain treated with organic acids. Preserving milo with organic acids apparently has no detrimental effect on performance or carcass merit when fed to finishing pigs.

Procedures

Two trials involving 56 pigs were conducted to determine the effects of feeding high-moisture milo treated with organic acids for finishing swine. Pigs were alloted to treatments from outcome groups formed on the basis of breed, weight, and sex. Both trials were conducted during the summer in an open-front, totally-slatted finishing unit. Each pen (6' x 15') contained an automatic waterer and self-feeder.

Trial I. Twenty pigs averaging 101 pounds were randomly assigned one of these treatments:

1. Dry milo (ground, complete ration containing 15.0% crude protein).
2. Reconstituted milo containing 28% moisture treated with an organic acid mixture.[1,2]

The same source of elevator-run milo was used for both treatments. The organic acid mixture was applied at 30 pounds per ton of wet grain (2.11% on a dry grain basis). The reconstituted, acid-treated grain was rolled, mixed with a protein supplement to supply a 15% protein diet on a 90% dry matter basis. Pigs were individually removed for slaughter at approximately 200 pounds.

Trial II. Thirty-six pigs averaging 104 pounds were randomly assigned to one of these treatments:

1. Dry control (ground, mixed and pelleted complete ration containing 15% protein on a 90% dry matter basis.

2. Acid-treated[3] milo containing 19.6% moisture when removed from storage. The grain was ground and mixed into a complete pelleted ration. It was calculated to contain 15% protein on a 90% dry matter basis.

Results and Discussion

Pig performances in Trial I are shown in Table 3. There were no significant differences in daily gain, feed intake, or feed efficiency between pigs fed the dry milo and those fed high-moisture, acid-treated milo. Carcass analysis revealed no significant differences in length, backfat thickness, loin eye area, or percentage of lean cuts due to treatment.

The results of Trial II are shown in Table 4. Pigs fed milo treated with organic acids gained at the same rate and were just as efficient in feed utilization as pigs fed dry milo.

Table 3. Effect of Reconstituted Organic Acid Treated Milo on Performance and Carcass Measurements of Finishing Pigs

	Dry-control	Reconstituted-treated with organic acids
Number of pigs	10	10
Initial weight, lbs.	96	107
Slaughter weight, lbs.	206	214
Average daily gain, lbs.	1.43	1.47
Feed intake, lbs.[a]	4.79	4.84
Feed/gain[a]	3.31	3.27
Length, in.	29.5	29.8
Backfat thickness, in.	1.21	1.18
Loin-eye area, in.^{2}	4.24	4.16
% four lean cuts	60.74	60.24

[a] Adjusted to a 90% dry matter basis

[1] Provided by Celanese Chemical Company, Corpus Christi, Texas.

[2] Organic acid mixture (trade name - Chemstor) contained 60% acetic and 40% propionic acids.

[3] Organic acid mixture (trade name - Grain Treet) provided by Kemin Industries, Des Moines, Iowa, contains propionic acid, acetic acid, propyl p-hydroxybenzoate, benzoic acid and ascorbic acid.

Table 4. Performance of Pigs Fed High-moisture Milo Treated with Organic Acids (Trial II).

	Dry (control)	Organic-acid treated
Number of pigs	18	18
Initial weight, lbs.	106	103
Final weight, lbs.	201	197
Average daily gain, lbs.	1.69	1.68
Average daily feed, lbs.[a]	5.74	5.66
Feed/gain	3.39	3.35

[a] Adjusted to a 90% dry matter basis.