

1984

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Recommended Citation

Libal, G. W.; Wahlstrom, R. C.; and Hanson, R., "Response of Slow-Growing Pigs to Antibiotic Supplementation" (1984). *South Dakota Swine Field Day Proceedings and Research Reports, 1984*. Paper 12.
http://openprairie.sdstate.edu/sd_swine_1984/12

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RESPONSE OF SLOW-GROWING PIGS TO ANTIBIOTIC SUPPLEMENTATION

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SWINE 84-11

As pigs approach market weight, the range in weight within a pen often increases with the slow grower lagging further and further behind. These slow growers represent a management problem for producers because they occupy expensive pen space and continue to consume feed for body maintenance needs even though they may not be growing. The objective of the study reported herein was to determine if pigs identified as slow growers during the growing period would respond to high levels of dietary antibiotics during the finishing period.

Experimental Procedures

Pigs were selected as slow growers if they were in the lowest 25% of their contemporary group as determined by gain from approximately 50 to 130 lb. The lowest 5% were discarded and the next 20% were allotted to two experimental treatments. At Beresford, 42 pigs were selected out of 200 pigs and at Brookings 24 pigs were selected out of 112 pigs.

The pigs were allotted to three replications of seven pigs/pen at Beresford, and two replications of six pigs/pen at Brookings. Average starting weight was 125 lb at Beresford and 114 lb at Brookings. Pens were balanced for sex of pig. Pen space was in excess of 8 sq ft/pig at both locations. The eight week trial was conducted during the summer months and the pigs were housed in environment-modified buildings with slatted floors.

The composition of the diets fed which were calculated to contain .7% lysine is shown in Table 1. The two treatments were:

Treatment 1. No dietary antibiotic supplementation

Treatment 2. 100 gm tylan-100 gm sulfamethazine/ton for 4-weeks followed by 40 gm tylan/ton for 4 weeks

In treatment 2, the combination of Tylan and sulfamethazine was at a therapeutic level and Tylan, alone, was at a growth promoting level.

Table 1. Composition of Experimental Ration

Ingredient	%
Ground yellow corn	78.4
Soybean meal (44%)	18.8
Dicalcium phosphate	1.2
Limestone	.9
Salt, white	.3
Premix	.4

a

Provided the following in ppm: zinc, 100; iron, 75; copper, 7.5; manganese, 25; iodine, .175; and selenium, .1. Provided the following per lb of diet: vitamin A, 2000 IU; vitamin D, 200 IU; riboflavin, 2.25 mg; pantothenic acid, 9 mg; niacin, 12 mg; vitamin B₁₂, 9 mcg; vitamin E, 7.5 IU and vitamin K, 1.5 mg.

Results

A summary of the pig performance is shown in Table 2. During the first four weeks pigs which had received the therapeutic level of tylan-sulfa consumed more feed and gained faster than those receiving no antibiotic. These differences were significant at the 10% level. A numerical, but not-significant improvement in feed conversion was also observed. During the second four week period when a growth promoting level of tylan was fed, no significant response was observed in pig performance.

Combining the two periods revealed a response ($P < .10$) in daily gain due to antibiotic supplementation to the diets of slow growing pigs. This response resulted in approximately 8.4 lb heavier pigs at the end of the experiment. Differences in feed consumption and feed/gain were not significant. It should also be noted that the controls performed at a desirable level during the 56 day experimental period. It is possible that sorting the pigs into more uniform groups without competition from larger and possibly more aggressive pigs may have allowed the pigs to compensate for their earlier slow growth.

This study was a part of a regional study and the data generated will be combined with other data to evaluate the response of slow growing pigs to antibiotics. Additionally, plans have been made to study the compensatory response to sorting pigs into more uniform outcome groups during the middle of the growing-finishing period.

Table 2. Response of Slow-Growing Finishing Pigs to Antibiotic Supplementation^a

First 28 days	Control	Tylan-Sulfa ^b
Avg daily gain, lb ^d	1.78	2.01
Avg daily feed, lb ^d	5.02	5.36
Feed/gain	2.85	2.69
Second 28 days	Control	Tylan ^c
Avg daily gain, lb	1.66	1.72
Avg daily feed, lb	5.77	5.89
Feed/gain	3.47	3.44
Overall 56 days	Control	Antibiotic
Avg daily gain, lb ^d	1.71	1.86
Avg daily feed, lb	5.36	5.58
Feed/gain	3.14	3.02

a

Three replications of 7 pigs/pen (42 pigs selected out of 200 pigs) averaging 125 lb and 2 replications of 6 pigs/pen (24 pigs selected out of 112 pigs) averaging 114 lb.

b

100 gm tylan-100 gm sulfamethazine/ton.

c

40 gm tylan/ton.

d

Means significantly different at the 10% probability level.

Summary

Slow growing pigs (50 to 130 lb) were selected from contemporary groups to evaluate the response of these pigs to antibiotic supplementation during the finishing period. Sixty-six pigs were selected from 312 pigs at Beresford and at Brookings. They were allotted to two treatments: no antibiotic or 100 gm tylan - 100 gm sulfamethazine/ton for 28 days followed by 40 gm Tylan for 28 days. Pigs ate more feed and gained faster ($P < .10$) during the initial 28 day period when they received antibiotics. No response was seen during the second 28 day period.