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Abstract

Twelve on-farm trials with a total of 1572 pigs were conducted to evaluate the effect of Flavomycin in growing-finishing swine diets. In three of the twelve trials, average daily gain was increased (P<.06) and in seven of the trials, feed efficiency was improved numerically with Flavomycin over nonmedicated control and other feed additives (Aureomycin, Tylan, Stafac, Pen-Strep, and Lincomix). The percent improvement varied greatly by location of the trial.; Swine Day, Manhattan, KS, November 11, 1982

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Evaluation of Flavomycin in On-Farm Trials

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Summary

Twelve on-farm trials with a total of 1572 pigs were conducted to evaluate the effect of Flavomycin in growing-finishing swine diets. In three of the twelve trials, average daily gain was increased ($P<.06$) and in seven of the trials, feed efficiency was improved numerically with Flavomycin over nonmedicated control and other feed additives (Aureomycin, Tylan, Stafac, Pen-Strep, and Lincomix). The percent improvement varied greatly by location of the trial.

Introduction

Many research studies have clearly demonstrated the effectiveness of antibiotics in improving growth rate, efficiency of feed utilization and survival in young pigs. However, the value of feed additives in the finishing phase is quite debatable. Flavomycin (bambermycins) is a growth-promoting antibiotic that has been studied for finishing pigs (greater than 80 lbs). Therefore, the objective of this series of on-farm trials was to evaluate the effectiveness of Flavomycin.

Experimental Procedure

A series of 12 on-farm trials were conducted to evaluate the effect of Flavomycin on feed efficiency and gain. Trials were conducted at several locations and with varying facility types (dirt lots, concrete lots, and environmentally regulated buildings). Flavomycin was added in all trials at the rate of 2 grams per ton. Flavomycin was compared with other feed additives added at recommended levels and/or compared to a nonmedicated control. Feed additives selected for comparison to Flavomycin were being used previously on the farm. Both purebred and crossbred pigs were utilized in the series of experiments. Feed samples were taken from each trial location for analyses of protein, calcium, phosphorus, and antibiotic level.

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A minimum of 2 pens per treatment was used in all trials and the number of pigs varied from 15 to 40 per pen. Pigs were randomized to the treatments by initial weight (average weight approximately 100 lbs with range of 70 to 140 lbs). The trials were terminated when pigs were approximately market weight (range of 195 to 225 lbs). The number of barrows and gilts were equalized among the treatment groups.

Results and Discussion

The results of the 12 on-farm trials are shown in Tables 1 to 12. In trial A (Table 1), Flavomycin was compared to Pen-strep added at 9 grams per ton. There was no improvement in average daily gain nor feed efficiency in this trial. In Trial B (Table 2), Flavomycin was compared with Aureomycin added at 40 grams per ton. Average daily gain and feed efficiency were improved ($P<.05$) with the Flavomycin addition. Trials C and D were conducted at the same location. In the first trial (Table 3), Flavomycin tended to improve average daily gain ($P<.15$) over Aureomycin (added at 40 grams/ton). In the second trial (trial D), Flavomycin was compared with Aureomycin and a nonmedicated control (Table 4). Average daily gain was the lowest for the Flavomycin treatment and pigs were less efficient on the Flavomycin treatment. Trials E and F compared Flavomycin to a nonmedicated control. In trial E (Table 5) average daily gain was lower for the Flavomycin treatment but feed efficiency was improved, which is inconsistent. Also, in trial F (Table 6), daily gain was lower and feed efficiency worse for the Flavomycin treatment. Trials G and H (Table 7) also compared Flavomycin to a nonmedicated control. In both trials, Flavomycin significantly ($P<.06$) improved average dialy gain and pigs were more efficient on the Flavomycin treatments. In trial I (Table 9), Flavomycin was compared with nonmedicated control, Aureomycin (added at 50 grams per ton) and Stafac (added 20 grams per ton). The pigs on the Stafac had the worst performance of the 4 treatment groups. The pigs consuming the Aureomycin treatment had the best average daily gains and the pigs on the nonmedicated control had the best feed efficiency. In trial J (Table 10), Flavomycin was compared with a nonmedicated control and Tylan (added at 40 grams per ton). Nonmedicated control had the best average daily gains and the Flavomycin group had the best feed efficiency. In trial K, Flavomycin was compared with Lincomix (40 grams/ton) and nonmedicated control (Table 11). Average daily gains were not different among the three treatments but pigs on Flavomycin and Lincomix tended to be more efficient. In Trial L, Flavomycin was compared with Aureomycin added at 40 grams per ton. Performance of pigs on the Aureomycin treatment with slightly better than those in Flavomycin (Table 12).

In Table 13 a summary of all trials is presented. In three of the trials, Flavomycin significantly ($P<.06$) improved average daily gain and in one trial Flavomycin reduced ($P<.05$) average daily gain. In five of the twelve trials, Flavomycin improved (positive response) average daily gain, although in seven of the 12 trials a negative response on gain was observed. In seven of the trials, improved feed efficiency was observed, whereas in five of the trials, pigs were less efficient. When data are pooled for all the trials, a 3 to 4% improvement in feed efficiency was observed. But the percent improvement varied greatly by location of the trial.

When the results of trials with Flavomycin were compared with the nonmedicated controls (Table 14), an increase in average daily gain was observed in three of the trials. In five of the trials, feed efficiency was improved.

In Table 15, Flavomycin is compared with other feed additives (Pen-Strep, Aureomycin, Stafac, Tylan and Lincomix). In four of nine trials an increase in average daily gain was observed and in five trials improvement in feed efficiency was evident.

An approximate 2% improvement in feed efficiency is necessary to pay for the Flavomycin over nonmedicated control when evaluating the economics of the feed additive during growing-finishing phase.

Table 1. Trial A

	Feed additive	
	Pen-strep[b]	Flavomycin
No. pigs[a]	88	88
No. pens	2	2
Avg daily gain, lbs	1.13	1.10
Feed/gain	5.00	5.22

[a]Avg. initial wt., 117 lbs; Avg. final wt., 220 lbs.
[b]Added 9 g/ton.

Table 2. Trial B

	Feed additive	
	Aureomycin[b]	Flavomycin
No. pigs[a]	100	100
No. pens	4	4
Avg daily gain, lbs[c]	1.28	1.58
Feed/gain[c]	3.78	3.50

[a]Avg. initial wt., 87 lbs; Avg. final wt., 195 lbs.
[b]Added 40 g/ton.
[c]P<.05

Table 3. Trial C

	Feed additive	
	Aureomycin[b]	Flavomycin
No. pigs[a]	32	32
No. pens	2	2
Avg daily gain, lbs[c]	1.33	1.42
Feed/gain	4.26	4.24

[a]Avg. initial wt., 88 lbs; Avg. final wt., 214 lbs.
[b]Added 40 g/ton.
[c]P<.15

Table 4. Trial D

	Feed additive		
	None	Aureomycin[b]	Flavomycin
No. pigs[a]	38	38	38
No. pens	2	2	2
Avg. daily gain, lbs	1.32	1.32	1.25
Feed/gain	3.89	3.92	4.25

[a]Avg. initial wt., 70 lbs; Avg. final wt., 180 lbs.
[b]Added 40 g/ton.

Table 5. Trial E

	Feed additive	
	None	Flavomycin
No. pigs[a]	38	38
No. pens	2	2
Avg daily gain	1.39	1.27
Feed/gain	4.75	4.17

[a]Avg. initial wt., 143 lbs; Avg. final wt., 219 lbs.

Table 6. Trial F

	Feed additive	
	None	Flavomycin
No. pigs[a]	40	40
No. pens	2	2
Avg daily gain, lbs [b]	1.62	1.38
Feed/gain	4.59	4.76

[a]Avg. initial wt., 106 lbs; Avg. final wt., 203 lbs.
[b]$P<.05$

Table 7. Trial G

	Feed additive	
	None	Flavomycin
No. pigs[a]	36	36
No. pens	2	2
Avg daily gain, lbs[b]	1.55	1.70
Feed/gain	3.58	3.30

[a]Avg. initial wt., 70 lbs; Avg. final wt., 204 lbs.
[b]$P<.05$

Table 8. Trial H

	Feed additive	
	None	Flavomycin
No. pigs[a]	40	40
No. pens	2	2
Avg daily gain, lbs[b]	1.88	2.01
Feed/gain	3.52	3.12

[a]Avg. initial wt., 96 lbs; Avg. final wt., 206 lbs.
[b]P<.06

Table 9. Trial I

	Treatment			
	None	Flavomycin	Aureomycin[b]	Stafac[c]
No. pigs[a]	50	50	50	50
No. pigs dead	2	2	0	1
ADG, lbs	1.41	1.37	1.50	1.22
Feed/gain	3.89	3.99	3.93	4.38

[a]Avg. initial wt., 112 lbs; Avg. final wt., 196 lbs.
[b]Added 50 g/ton.
[c]Added 20 g/ton.

Table 10. Trial J

	Feed additive		
	None	Tylan[b]	Flavomycin
No. pigs[a]	50	50	50
No. pens	2	2	2
Avg. daily gain	1.31	1.23	1.30
Feed/gain	4.34	3.99	3.90

[a]Avg. initial wt., 70 lbs; Avg. final wt., 190 lbs.
[b]Added at 40 g/ton.

Table 11. Trial K

	Feed additive		
	None	Flavomycin	Lincomix[b]
No. pigs[a]	100	100	100
No. pens	2	2	2
Avg. daily gain, lbs	1.60	1.61	1.61
Feed/gain	4.34	3.99	3.90

[a]Avg. initial wt., 135 lbs; Avg. final wt., 220 lbs.
[b]Added at 40 g/ton.

Table 12. Trial L

	Feed additive	
	Aureomycin[b]	Flavomycin
No. pigs	30	30
No. pens	2	2
Avg daily gain, lbs	1.48	1.44
Feed/gain	3.54	3.68

[a]Avg. initial wt., 90 lbs; Avg. final wt., 220 lbs.
[b]Added 40 g/ton.

Table 13. Summary of All Trials Evaluating Flavomycin

Trial	% improvement		
	ADG	F/G	Significance[a]
A	-2.7	-4.4	NS
B	23.4	4.4	P<.05
C	6.8	.5	P<.15
D	-5.3	-9.3	NS
E	-8.6	12.2	NS
F	-14.8	-3.7	P<.05
G	9.7	7.8	P<.05
H	6.9	11.3	P<.06
I	-2.8	2.6	NS
J	-.8	10.1	NS
K	.6	2.9	NS
L	-2.7	-4.0	NS
No. positive responses	5	7	
No. negative responses	7	5	

[a]NS - nonsignificant

Table 14. Summary of Trials Comparing Flavomycin with Nonmedication Control

Trial	% improvement ADG	% improvement F/G	Significance[a]
D	-5.3	-9.3	NS
E	-8.6	12.2	NS
F	-14.8	-3.7	P<.05
G	9.7	7.8	P<.05
H	6.9	11.3	P<.06
I	-2.8	2.6	NS
J	-.8	10.1	NS
K	.6	2.9	NS
No. positive responses	3	5	
No. negative responses	5	3	

[a]NS - nonsignificant

Table 15. Summary of Trials Comparing Flavomycin with Other Feed Additives

Trial	Additive Compare	% improvement ADG	% improvement F/G	Significance[a]
A	Pen-strep	-2.7	-4.4	NS
B	Aureomycin	23.4	7.4	P<.05
C	Aureomycin	6.8	.5	P<.15
D	Aureomycin	-5.3	-8.4	NS
I	Aureomycin	-9.5	-1.5	NS
	Stafac	12.3	8.9	NS
J	Tylan	5.7	2.3	NS
K	Lincomix	0	-.8	NS
L	Aureomycin	-2.7	-4.0	NS
No. positive responses		4	5	
No. negative responses		4	4	

[a]NS - nonsignificant