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Influence of Various Antibacterial Preparations on Rate and Efficiency of Gain by Young Pigs

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Summary

Two trials involving 128 pigs were conducted to study the effects of antibacterial preparations on rate and efficiency of gain by young pigs. In both trials, the antibacterial preparations increased rate of gain. In trial I, there were no differences in performance of pigs fed ASP-250, Mecadox, or TNA-290. In the second trial, pigs fed Mecadox gained faster than pigs fed ASP-250, Furox or Neo-Terramycin. Pigs fed diets supplemented with the various antibacterial preparations utilized feed more efficiently than those fed the nonmedicated basal diet.

Procedures

General. Pigs were allotted to treatments by weight, litter, and sex. Pigs were housed in a totally slatted floor controlled environment nursery with temperature maintained at 75°F. Each pen contained a self-feeder and an automatic watering cup. All diets were pelleted. The 18% protein, basal diet contained 69.4% corn, 26.6% soybean meal (44%), 1.6% dicalcium phosphate, 0.9% limestone, 0.5% salt, and 1.0% vitamin, trace mineral premix. Pigs were fed the experimental diets for 28 days.

Trial I. Forty-eight pigs averaging 41 pounds were allotted to one of these treatments:

1. Basal diet - nonmedicated
2. Basal diet + 100 grams chlortetracycline, 100 grams sulfamethazine, and 50 grams penicillin per ton (ASP-250).
3. Basal diet + 50 grams per ton of carbadox (Mecadox).
4. Basal diet + 100 grams oxytetracycline, 100 grams furazolidone, and 90 grams of arsanilic acid per ton (TNA-290).

Trial II. Eighty pigs averaging 19.5 pounds and 4-5 weeks old were allotted to one of these treatments:

1. Basal diet - nonmedicated
2. Basal diet + 100 grams of chlortetracycline, 100 grams sulfamethazine, and 50 grams penicillin per ton (ASP-250).

3. Basal diet + 50 grams per ton of carbadox (Mecadox).
4. Basal diet + 100 grams per ton of furazolidone (Furox).
5. Basal diet + 100 grams terramycin and 100 grams neomycin sulfate per ton (Neo-Terramycin).

Results and Discussion

The results of trial I are shown in table 6.1. Pigs fed the diets supplemented with the various antibacterial preparations gained significantly ($P < .05$) faster than pigs fed the nonmedicated basal diet. Feed efficiency was also improved by the addition of the antibacterial preparations. There were no significant differences in daily gain or feed efficiency among pigs fed the various antibacterial preparations.

Table 6.1. Performance of Pigs Fed Indicated Antibacterial Preparations (Trial 1)*

Indicated item	None	ASP-250	Mecadox	TNA-290
No. of pigs	12	12	12	12
Initial wt., lbs.	40.6	42.2	41.2	41.7
Daily gain, lbs.	1.37 ^a	1.70 ^b	1.76 ^b	1.66 ^b
Feed/gain	2.44 ^a	2.10 ^b	2.08 ^b	2.20 ^b

^{ab} Means on the same line with different superscripts differ significantly ($P < .05$).

*At the present time, Mecadox can not be fed to pigs weighing more than 75 pounds.

Performance of pigs in trial II is summarized in table 6.2. Pigs fed the antibacterial preparations gained significantly ($P < .05$) faster than those fed the nonmedicated basal diet. Pigs fed Mecadox gained significantly ($P < .05$) faster than pigs fed ASP-250, Furox or Neo-Terramycin. Pigs fed Mecadox were more efficient in feed utilization than pigs fed the nonmedicated basal diet. The addition of ASP-250, Furox and Neo-Terramycin to the basal diet resulted in only a small improvement in feed efficiency.

Table 6.2. Performance of Pigs Fed Indicated Antibacterial Preparations (Trial II)

Indicated item	Antibacterial Preparation				
	None	ASP-250	Mecadox	Furox	Neo-Terramycin
No. of pigs	16	16	16	15	16
Initial wt., lbs.	19.4	19.5	19.8	19.6	19.5
Final wt., lbs.	41.6	47.2	51.2	45.0	47.6
Daily gain lbs.	0.79 ^a	0.99 ^b	1.12 ^c	0.93 ^b	1.00 ^b
Feed/gain	1.70 ^a	1.67 ^{ab}	1.55 ^b	1.64 ^{ab}	1.65 ^{ab}

^{abc} Means on the same line with different superscripts differ significantly ($P < .05$).

Close attention was given to fecal consistency during trial II to evaluate effects of the antibacterial preparations on the incidence of diarrhea. Diarrhea was not serious, although there was some diarrhea in all pens, being more severe in pigs fed the nonmedicated basal diet. Differences in daily gain shown in table 6.2. tend to reflect differences in severity of diarrhea.