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# Evaluation of Antibacterial Agents to Improve Growth Rate and Efficiency of Weaned Pigs

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## Summary

Pigs medicated 5 weeks with TNA-290 and ASP-250 had statistically greater ($P<.05$) average daily gains and those medicated with ASP-250 had significantly ($P<.05$) lower feed conversion rations than non-medicated pigs. Feed efficiency, feed consumption, or average daily gain among pigs medicated with Furox, ASP-250, or TNA-290 did not differ significantly.

## Procedure

One hundred seventy-three weaned pigs averaging approximately 30 lbs. each were allotted to these treatment groups:

1 - Control - non-medicated
2 - Control ration plus 100 gms. furazolidone (Furox) per ton
3 - Control ration plus (100 gms.) chlortetracycline, 100 gms. sulfamethazine, and 50 gms. penicillin (ASP-250).
4 - Control ration plus 100 gms. oxytetracycline, 100 gms. furazolidone, and 90 gms. arsanilic acid (TNA-290).

Pigs were allotted by initial weight, litter, and sex. The study was replicated five times with 42 to 44 pigs in each treatment group.

The study was conducted in a controlled-environment building having four-inch concrete slats with one-inch slots. Pigs in each pen were provided with a two-hole feeder and an automatic watering cups.

The feeding trial lasted 5 weeks. The basal ration used is shown in table 6.

## Results and Discussion

Antibacterial feed additives have been used for about 20 years to improve performance of market hogs but the additives' mode of action remains unknown.

Disease was not a problem during this study. Gut edema in the herd before the trial started took 8 of 200 weaned pigs. Gut edema was controlled with nitrofurazine in the drinking water. After allotting the pigs to the various pens, tail biting was evident

the first day. The "tail biters" were removed.

Performance of the pigs is summarized in table 7. Average daily gain by the medicated groups was more than by control pigs. Medicated pigs also ate more feed than the control pigs. Feed efficiency data show that medicated pigs converted feed into gain more efficiently than controls did.

Pigs medicated 5 weeks with TNA-290 and ASP-250 made greater ($P<.05$) daily gains than controls did. The TNA-290 group consumed significantly ($P<.05$) more feed, while only the ASP-250 group had significantly lower feed conversion rations than control pigs. Feed efficiency, feed consumption, and average daily gain did not differ significantly among pigs medicated with Furox, ASP-250, or TNA-290.

Table 6. Basal ration

| Ingredient: | Lbs./ton of ration |
|---|---|
| Corn | 1116 |
| Soybean meal (44%) | 300 |
| Alfalfa meal (17%) | 50 |
| Meat and bone scraps (50%) | 80 |
| Steamed rolled oat groats | 200 |
| Milk nutrient concentrate | 10 |
| Limestone | 4 |
| Salt | 20 |
| Vitamin-trace mineral premix[1] | |

[1]Premix contains 500 gm. Vit. A (10,000 IU/gm); 40 gm Vit. D (15,000 IU/gm); 500 gm Vit. $B_{12}$ (20 mg/lb); 100 gm. Vit. E (20,000 IU/lb), 908 gm. of B-complex (Niacin 24 gms/lb, riboflavin 8 gms/lb., pantothenic acid 16 gms/lb); 908 gms trace mineral mix (Mn-10%, Fe-10%, Zn-10%, $I_2$-0.3%, Cobalt 0.1%, Cu-1%).

Table 7. Performance Data of Weaned Pigs Fed Various Antibacterial Agents (35 Day Trial)

| Treatments: | Control | Furox | ASP-250 | TNA-290 |
|---|---|---|---|---|
| No. Pigs | 42 | 44 | 43 | 44 |
| Initial wt., lbs. | 29.2 | 30.2 | 29.2 | 30.1 |
| Final wt., lbs. | 71.4 | 76.5 | 77.7 | 78.2 |
| Av. daily gain, lbs. | 1.21[a] | 1.32[ab] | 1.39[b] | 1.37[b] |
| Av. daily feed/lb. | 2.54[a] | 2.65[ab] | 2.69[ab] | 2.80[ab] |
| Feed/lb. gain | 2.10[a] | 2.00[ab] | 1.89[b] | 2.04 |

[a,b]Means on the same line with different superscript letters differ significantly ($P<.05$)