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THE EFFECT OF EXTENDED USE OF BANMINTH IN SWINE DIETS

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Roundworms are a continuous problem for swine producers. Roundworms enter when the pig swallows eggs containing the second stage larvae. The eggs hatch in the small intestine, burrow into the wall of the intestine, enter the blood stream and move to the liver. Here the third stage larvae develop and continue migration to the lungs where they cause further tissue damage. The larvae in the lungs are eventually coughed up, swallowed and re-enter the intestinal tract and ultimately grow into egg-laying adults, which produce more eggs that are passed onto the ground so the cycle can begin again.

Banminth has been shown to kill the adult roundworms and also to stop the second stage larvae, thus preventing the damage caused by migration to the liver and lungs. The objective of this experiment was to determine the effect of feeding Banminth on performance of swine when fed to 75, 125 or 220 lb. and on comparative liver and lung damage.

Experimental Procedure

Ninety-six crossbred pigs were weaned at an average weight of about 19 lb. and allotted into four treatments, each replicated six times. Pigs were housed, four per pen, in a controlled environment room for 4 weeks. Pen floors were approximately two-thirds solid concrete and one-third expanded metal. After the 4-week period, the pigs were moved to an enclosed building with slatted floors.

The four treatments were:

1. Basal ration (corn-soybean meal fortified ration)
2. Basal ration plus 2 lb. per ton of Banminth to 75 lb.
3. Basal ration plus 2 lb. per ton of Banminth to 125 lb.
4. Basal ration plus 2 lb. per ton of Banminth to 220 lb.

Rations were formulated to contain 16% protein to 125 lb. and 13% protein from 125 to 220 pounds.

Pigs in treatment 1 were wormed with a 1-day wormer at the end of 28 days. Since there was very little infestation of control pigs at a weight of 75 lb., all lots were challenged with ascarid ova at that time. Fecal samples were collected and analyzed for ascarid ova after the first 4 weeks and again at weights of 75 and 125 lb. and when the pigs were slaughtered at approximately 220 pounds. Livers and lungs were examined and scored for tissue damage.

Results and Discussion

Growth performance data are presented in table 1. There were no significant differences in average daily gains to weights of 75, 125 or 225 pounds. Average daily feed and feed per gain did differ significantly among treatments. However, there was a problem with feed wastage in some pens that resulted in a greater than normal difference in feed consumption among pens.

Fecal ascarid counts and liver scores are shown in table 2. There were no noticeable differences in lung tissue damage and data are not included in the table. The liver damage was greatest when pigs were fed the control diet with little difference in the livers from pigs fed Banminth to 75, 125 or 220 pounds. Ascarid eggs in the feces ranged from an average of 13,000 per gram for the control pigs to 2,975, 1,775 and 100 for pigs fed diets containing Banminth to 75, 125 or 220 lb., respectively.

The data indicate that if Banminth is fed for extended periods the ascarid population will be decreased, although ascarids can become infested once Banminth is removed from the feed. Greater differences in performance might be expected under circumstances where the control pigs would have been exposed to ascarid infestation at an earlier age.

Summary

The anthelmintic Banminth was fed for different lengths of time in a study with 96 growing-finishing pigs. In this experiment, Banminth did not affect the growth performance of pigs. Liver damage was less when Banminth was included in the diet. Ascarid ova in the feces at slaughter weight decreased with the length of time Banminth was fed.

Table 1. Effect of Banminth on Performance of Growing-Finishing Pigs

| | Basal | Banminth in diet | | |
|--------------------------|-------|------------------|------------|------------|
| | | To 75 lb. | To 125 lb. | To 220 lb. |
| No. of pigs ^a | 24 | 24 | 24 | 24 |
| Avg. initial wt., lb. | 19.4 | 18.5 | 18.5 | 19.0 |
| Avg. final wt., lb. | 217.6 | 222.4 | 217.8 | 216.2 |
| Avg. daily gain, lb. | | | | |
| To 75 lb. | .84 | .79 | .76 | .76 |
| To 125 lb. | 1.03 | .95 | .96 | .99 |
| To 220 lb. | 1.29 | 1.23 | 1.24 | 1.20 |
| Avg. daily feed, lb. | | | | |
| To 75 lb. ^b | 1.50 | 1.85 | 1.73 | 2.12 |
| To 125 lb. ^b | 2.23 | 2.54 | 2.52 | 3.28 |
| To 220 lb. | 3.45 | 3.78 | 3.87 | 4.15 |
| Feed/gain | | | | |
| To 75 lb. ^b | 1.80 | 2.33 | 2.29 | 2.73 |
| To 125 lb. ^b | 2.18 | 2.65 | 2.60 | 3.31 |
| To 220 lb. ^b | 2.69 | 3.08 | 3.10 | 3.48 |

^a Six replicates of four pigs per pen.

^b Significant difference among treatments (P<.005).

Table 2. Liver Scores and Ascarid Ova Per Gram of Feces

| | Basal | Banminth in diet | | |
|---------------------------|--------|------------------|------------|------------|
| | | To 75 lb. | To 125 lb. | To 220 lb. |
| Liver scores ^a | 2.36 | 1.63 | 1.57 | 1.58 |
| Ascarid ova/gram | | | | |
| After 4 weeks | 0 | 0 | 0 | 0 |
| At 75 lb. | 350 | 0 | 0 | 0 |
| At 125 lb. | 175 | 1,925 | 175 | 0 |
| At 220 lb. | 13,000 | 2,975 | 1,775 | 100 |

^a 1 = clear, 2 = few, 3 = mild, 4 = moderate and 5 = severe (areas of ascarid damage).