

PIG FATTENING TRIAL IN PIGS WITH THE FEED ADDITIVE TIAMULIN
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An experiment was carried out with 52 pigs in individual pens to determine the effect of various doses of tiamulin (Dynamutillin Feed Premix (extrudate formulation), E.R. Squibb & Sons, Inc.) in comparison with a registered growth promoting agent and a negative control.

Materials and Methods. Piglets (German Landrace) were purchased at 15-20 kg and were randomly assigned by litter and sex to five experimental groups in accordance with their weight. The five treatment groups were I. no treatment, II. tylosin 20 ppm, III. tiamulin 10 ppm, IV. tiamulin 20 ppm, and V. tiamulin 30 ppm. The pigs were started on treatment when the weekly weighing showed it had reached at least 19 kg. The effect of treatment was examined in two stages, Stage I from 20 to 50 kg body weight and Stage II from 50 to 96 kg. The pigs were weighed individually once a week throughout the experimental period and on two consecutive days at the end of the experiment to determine the final weight. Feed consumption was likewise determined once a week. The slaughtered pigs were evaluated for carcass quality in accordance with the guidelines governing fattening trials in W. Germany. Statistical analysis was carried out using the analysis of variance model of two-way classification. Significant differences in mean values were determined with the aid of Duncan's test.

Results. In Stage I (20 to 50 kg BW) the experimental groups consumed equal quantities of feed (1.60 - 1.63 kg) per day. The negative control group reached a mean daily weight gain of 605 g with a feed efficiency of 2.66 (kg feed/kg gain). The positive control receiving tylosin and Group III receiving 10 ppm of tiamulin gave approximately the same results: both achieved a daily weight increase about 50 g greater than the negative control group and were also significantly superior ($p < 0.05$) as regards feed efficiency (-0.19 and -0.16 respectively).

At a concentration of 20 ppm of tiamulin, growth was increased by 74 g per day ($p < 0.01$) in comparison with the negative control group and feed efficiency was improved by 0.24 ($p < 0.01$). A further increase of the tiamulin content to 30 ppm caused no further apparent enhancement of its action in this first fattening stage.

Groups IV and V receiving 20 and 30 ppm of tiamulin had an average daily weight gain that was 26 and 30 g better, respectively, than the tylosin group, with feed efficiency 0.05 better. However, these differences were not significant.

In Stage II (50 to 96 kg BW), the daily feed consumption as in Stage I was practically the same in all the groups. The negative controls achieved daily weight gains of 789 g with a feed efficiency of 3.41. In the tylosin group the growth increased by 17 g per day and the feed efficiency improved by 0.09 but the differences were not statistically significant.

Similarly, in the groups receiving additions of 10 and 20 ppm of tiamulin no efficiency-enhancing action could be observed. At the dose of 30 ppm, however, the animals achieved a daily weight gain 56 g higher ($p < 0.05$) than the negative controls and required 0.21 kg of feed less for 1 kg of gain ($p < 0.05$). Moreover, with 30 ppm of tiamulin, markedly stronger effects occurred than those caused by the addition of 20 ppm of tylosin.

Overall, for the entire experimental period (20 to 96 kg BW), the mean daily increases in the five comparison groups are between 704 and 766 g and are thus high. In 106 days the negative control group attained a mean daily increase of 704 g with a feed efficiency of 3.12. In comparison with this group the animals given a growth promoting additive invariably did better.

Taking both fattening stages together, a dose dependent action was revealed for tiamulin in respect of the daily weight gain. With additions of 10, 20, and 30 ppm of tiamulin, the weight gain increased by 20, 31, and 62 g, i.e. by 3, 4, and 9% respectively, in comparison with the negative controls.

The feed efficiencies with 10 and 20 ppm tiamulin was improved by 3% for each dosage but with the addition of 30 ppm the improvement was 8%. The efficiency-enhancing action of 30 ppm of tiamulin was highly significant for both production criteria.

In comparison with the negative control group the tylosin group performed better for both production criteria by 4%, though only the difference in the feed efficiency was statistically significant ($p < 0.05$). In this experiment the action of 20 ppm tylosin was more or less equivalent to that of 10 and 20 ppm tiamulin. The effect of 30 ppm tiamulin in comparison with 20 ppm tylosin was markedly better.

The results of the evaluation of the slaughtered animals reveal that the addition of tiamulin and tylosin did not influence the parameters selected for assessment of carcass quality.

Summary. Tiamulin at 10, 20 and 30 ppm, given to pigs from approximately 20 to 96 kg body weight, improved weight gains by 3, 4, and 9% respectively. Feed efficiency was improved by 3, 3, and 8% respectively.