

EFFECT OF VIRGINIAMYCIN ON THE PERFORMANCE AND CARCASS CHARACTERISTICS OF SWINE
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Virginiamycin is an antibiotic produced from mutagenic fungi, *Streptomyces virginiae*, which was isolated from a sample of Belgian soil by DE SOMMER & VAN DIJCK in 1955. It was shown, initially, that the activity of this antibiotic is against gram-positive microorganisms (EYSSSEN & DE SOMMER, 1963).

Works developed by MILLER et al(1972), MILLER & MILLER (1975), PEST et al(1979) and YOUSSEF et al(1979) showed that virginiamycin inhibit the glucose fermentation determining a lower energy intake, decreases lactic acid, fat acids and ammonia production by the microorganisms, and increases the intestinal absorption by reducing the transit velocity on the contents in the gut.

Studies carried out with rats and other animal species demonstrated that virginiamycin is not absorbed in the gut, and when the treatment with this antibiotic before slaughter it was not found residues in the meat (MILLER & MILLER, 1975; PEST et al(1979)). According to KEMP & KISER(1970), VAN HOUWELING & GAINNER(1978) the growing factors used, as additive in the ration must show the following characteristic: economic responses in animal production, little or none application as therapeutic agent in human beings and animals, to stimulate the growth of the animals at different stages and do not induce the development of resistance.

Pacheco et al(1980) showed that, in growing and finishing pigs, the use of virginiamycin and bacitracine zinc resulted in an additive effect of weight gain, but without effect in the food efficiency. On the other hand, the castrated males showed a better performance than the females.

This experiment was carried out with the aim to assess the effects of virginiamycin on the performance and carcass characteristics of swine, during the pre-growing, growing and finishing stages.

Thirty crossbreed swines (Large White X Landrace X Wessex) 15 females and 15 castrated males kept in individual pens which was cleaned daily, with food and water ad libitum. The animals were divided in three groups and each group of 10 animals had 5 females and 5 barrows. During the experimental period each group received one of the following rations: Group I-basal ration, Group II-basal ration + virginiamycin at the levels of 5.0, 2.5 and 0.0 ppm for the pre-growing, growing and finishing stages, respectively, Group III-basal ration + virginiamycin at 20.0, 10.0 and 5.0 ppm as at the stages above related.

The stages were defined by the mean animal body weight, thus from 12.67 to 27.1 Kg. pre-growing; from 27.1 to 54.3 Kg. growing and from 54.3 to 90.0 Kg finishing stage. Food intake and weight gain were measured once a week. The experimental design was at random with three trials and 10 repetition with the factorial analysis 3x2(ration x sex).

The pre-growing stage, that had a period of 28 days, showed the following results for weight gain(Kg), food intake(kg) and feed conversion for the different groups respectively: I-14.8-31.51 and 2.18; II-14.76-32.58 and 2.21, and III-15.06-31.96 and 2.14. The statistical analysis did not show any significance among the experimental treatments.

The growing stage, with a period of 42 days, the weight gain(Kg), food intake(kg) and feed conversion were respectively: I-24.83-71.09 and 2.86; II-27.62-76.95 and 2.77, and III-27.68-76.61 and 2.79, with no statistical significance among the treatments. During the finishing stage the performance of the animals for the variables in study were, respectively: I-74.08-222.16 and 2.98; II-77.26-233.43 and 3.02, and III-80.67-237.02 and 2.93.

The different levels of virginiamycin during the total

experimental period did not show statistical significance for the variables assessed. Despite of the non-significant differences the virginiamycin gave some positive effect on the weight gain and feed conversion but it was due the increase in the food intake.

The results of the carcass analysis which were not statistically different among the trials for dressing percentage, carcass length(cm), back fat thickness(cm) loin eye area(cm²), ham percentage and meat/fat ratio were respectively: I-77.70-90.41-3.41-29.96 and 0.82; II-79.44-90.70-3.72-30.0-30.50 and 0.82, and III, 79.37-91.86-3.77-31.12-29.88 and 0.83.

Conclusions

Although the results of this experimental did not show statistical differences for all characteristic studied, virginiamycin gave some positive effect on weight gain at the different stages of the animals development. This effect was higher(12,04%) in the growing stage, with the lowest level of virginiamycin. Considering the total period of the experiment, the higher level of virginiamycin determined a better weight gain which was 6.89% bigger than the controls.

Virginiamycin always determined a high food intake irrespective of the developmental stages. During the growing stage food intake was 8,24% higher for the animals receiving the lowest level of virginiamycin. It was observed that in the total period food intake was 6,69% higher for the pigs which received the higher level of this antibiotic.

For the carcass characteristics virginiamycin at high level produced a better dressing percentage(2,15%) and loin-eye area(5,96%), however it produces a bigger back fat thickness(10,55%).

Regarding the performance as well as carcass characteristics, the addition of virginiamycin in the ration produced the same effect for both males and females, except for ham percentage, which the females showed, a better performance than the castrated males.

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