

# Comparison of impact on zootechnical performance of robenidine, lasalocid and monensin in meat turkeys during the first seven weeks of production

M. MARIEN<sup>1\*</sup>, M. DE GUSSEM<sup>1</sup>, D. VANCRAEYNEST<sup>1</sup> and G. HUYGHEBAERT<sup>2</sup>

<sup>1</sup>Alpharma Animal Health, Laarstraat 16, B-2610 Wilrijk, Belgium, <sup>2</sup>ILVO, Scheldeweg 68, B-9090 Melle-Gontrode, Belgium.

\*Corresponding author: [maja.marien@alpharma.com](mailto:maja.marien@alpharma.com)

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A floor pen trial with 300 turkeys was performed to assess the influence of different anticoccidials on zootechnical performance in meat turkeys during the first seven weeks of production under low coccidiosis pressure. Three groups were included, a Cycostat®-treated (robenidine 30 ppm), an Avatec®-treated (lasalocid 90 ppm), and an Elancoban®-treated (monensin 60 ppm) group. All anticoccidial treatments were administered from day 1 to 50. Mortality, body weight (BW), daily growth rate, feed conversion rate (FCR) and European production efficiency factor (EPEF) were assessed.

Avatec®- and Cycostat®-treated birds demonstrated significantly better zootechnical performance results (higher BW, daily growth and EPEF) compared with the birds from the Elancoban®-treated group. Overall, the Cycostat®-treated group showed the best zootechnical parameters (higher end weight and EPEF, slightly lower FCR). Since no large differences in FCR were noted, it was demonstrated that the lesser zootechnical results (lower end BW, lower daily growth) in the Elancoban®-treated group were mainly due to lower feed intake. Maintaining an optimal feed intake is often a challenge for turkey producers. Therefore, both Cycostat® and Avatec® might abide a benefit over Elancoban® for turkey producers, even in conditions of limited coccidial challenge.

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**Keywords:** turkey performance; anticoccidials; monensin; lasalocid; robenidine

## Introduction

Coccidiosis is a disease caused by protozoan parasites that develop within the intestine of most domestic and wild animals and birds. Coccidia were recognized as parasites of turkeys in the United States as early as 1895. For the control of coccidiosis in turkeys, a number of medications have been approved for use world-wide; the ionophores lasalocid (Avatec®), maduramicin (Cygro®) and monensin (Coxidin®, Elancoban®) and the chemical anticoccidials robenidine (Cycostat®) and diclazuril (Clinacox®) are registered in the EU for use in turkeys. Chemical anticoccidials are used in rotation with ionophores. The following floor pen trial was undertaken to assess possible differences in the influence of Cycostat®, Avatec® and Elancoban® on zootechnical performance in meat turkeys during the first seven weeks of production.

## Materials and Methods

The study included 300 male BUT big 6 male turkeys. All 300 turkeys were evenly and randomly distributed over 15 floor pens (20 turkeys per pen) and divided into 3 treatment groups (5 replicates for each treatment) (= 100 birds/ treatment group):

- Group 1: Cycostat® (robenidine 30 ppm) 0.450 kg/ton, 30 ppm

- Group 2: Avatec® (lasalocid 90 ppm) 0.600 kg/ton, 90 ppm
- Group 3: Elancoban® (monensin 60 ppm) 0.300 kg/ton, 60 ppm

All anticoccidial treatments were administered from day 1 to day 50. The birds received feed (under meal form) and water (1 hanging drinker per pen) ad libitum. The diet consisted of a starter (1-30 days) and a grower (31-50 days) feed.

A determination of the amount of oocysts per grams of faeces (OPG) revealed a low, equal coccidiosis infection pressure in all different experimental groups. No coccidial resistance to any of the used anticoccidials was expected as the floor pen facility was generally used for chicken trials.

Different zootechnical parameters were evaluated:

Average body weight (BW) was recorded at day 30 (age of infection), 37, 45 and at the end of the trial (day 50) and the daily growth rate was calculated for day 30-37, day 38-45, and from day 45 until end of trial (day 50). Feed intake was recorded from day 30-37, day 38-45, and from day 45 until end of trial (day 50). Based on bird-days, FCR was calculated. Also the number of dead and culled turkeys was recorded per pen. Finally, the European Production Efficiency Factor (EPEF), which is a widely accepted overall zootechnical parameter, was calculated.

$$\text{EPEF} = \frac{\text{liveability (\%)} \times \text{body weight at end trail (day 50)} \times 100}{\text{age end trial (50)} \times \text{feed conversion ratio}}$$

All parameters were subjected to a 2-factorial analysis of variance (“8\*5”) and the corresponding LSD-multiple range test (Snedecor and Cochran, 1989; Statgraphics version 5, 1991).

## Results and discussion

The OPGs suggested that every treatment had an equal anticoccidial efficacy. The mortality was below 2% and uniformly distributed over all treatments. The average body weight at 30 days of age was similar for all pens without any significant differences among treatments. At day 50, however, the total average BW of the birds in the Cycostat® (2787 g) and Avatec® (2761 g) treated groups was significantly higher, 5% and 4% respectively, compared to the BW gain of the birds the Elancoban® treated group (2654 g). At any time, the Elancoban® treated turkeys had a lower BW compared with the Cycostat® and Avatec® treated birds. There was no significant difference between the average BW of the birds in the Cycostat® and Avatec® treated groups (*Figure 1*). During the period from 30 to 50 days, the average daily growth per bird was 86 g for Cycostat® and Avatec® compared with 81.6 g in the Elancoban® treated group.

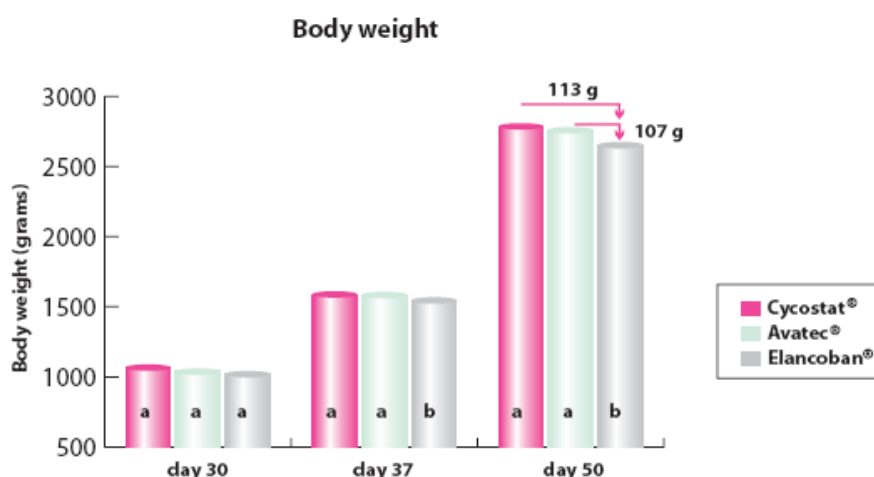
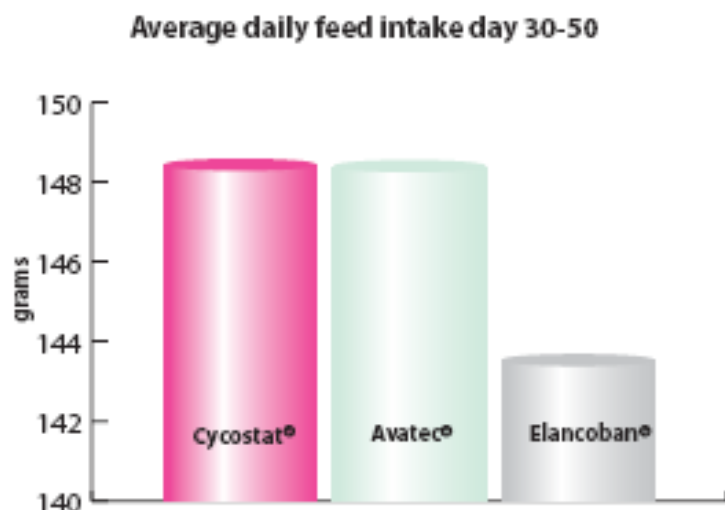


Figure 1. Bodyweight in g at different time points in Cycostat®, Avatec® and Elancoban® treated groups.



**Figure 2.** Average daily feed intake in g from day 30 to day 50 at different time points in Cycostat®, Avatec® and Elancoban® treated groups.

Although not statistically significant, there was a slight trend towards a lower FCR in the Avatec® treated group (1.661), followed by the Cycostat® treated group (FCR: 1.662) and finally the Elancoban® treated group (1.668). Throughout the experimental period (day 30-50), average daily feed intake was the lowest in the Elancoban® treated group (143,5 g/day) compared with the Avatec® (148,4 g/day) and Cycostat® (148,4 g/day) treated groups. The following EPEFs were calculated for the different experimental groups: Cycostat®: 328.7; Avatec®: 325.8; Elancoban®: 308.7. Avatec® and Cycostat® treated birds demonstrated better zootechnical performance results (BW, daily growth, EPEF) compared with the birds from the Elancoban® treatment group. Overall, the Cycostat® treated group showed the best zootechnical parameters (higher end weight and EPEF). In conclusion, these results indicate that Cycostat® and Avatec®, compared with Elancoban®, have a more positive effect on the zootechnical performance of the flock resulting in higher economical benefits for the farmer. Since no large differences in FCR were noted, it is demonstrated in this trial that the lesser zootechnical results (lower end BW, lower daily growth) in the Elancoban® treated group are mainly due to the lower feed intake. Maintaining an optimal feed intake is often a challenge for turkey producers. Therefore, both Cycostat® and Avatec® might abide a benefit over Elancoban® (even at the lower dose of 60 ppm monensin) for turkey producers, even in conditions with a limited coccidial challenge. Zootechnical performances in turkeys are very comparable after treatment with Cycostat® and Avatec®.

## References

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