

Reduced incidence of *Clostridium perfringens*-associated lesions and improved bird performance in broiler chickens with the *competitive exclusion* product Broilact®

C. Schneitz¹, M. Kaldhusdal² and M. Hofshagen²

¹Orion Corporation, Supply Chain, P.O.Box 425, FI-20101 Turku, Finland

²National Veterinary Institute, P.O.Box 8156 Dep., N-0033-Oslo, Norway

Introduction

Necrotic enteritis (NE) is a poultry disease occurring predominantly in broiler chickens when they are from 2 to 4 weeks of age. *Clostridium perfringens* (CP) is known to play a significant etiologic role in NE. The ability of normal intestinal microflora (*competitive exclusion*) to reduce the counts of CP was shown by Barnes *et al.* already in 1980. Elwinger *et al.* (1992) showed in a pilot-scale study that the commercial CE product Broilact® reduced both the counts of CP and the incidence of NE in broiler chickens.



Aim

The aim of this study was to examine the effect of Broilact® under field conditions.

Materials and Methods

Altogether eight flocks were included in the study. Two flocks from each of four houses at a farm having problems with high condemnation rates at slaughter because of NE-related liver lesions were selected for the trial. One flock from each house was treated on the day-of-hatch with Broilact®, and one flock was left as untreated control. A total of 135 800 day-old birds were included in the study, 50.6% were treated with Broilact® and 49.4% were left as untreated controls. In both treatment groups one flock was started in August, two flocks in October and one flock in December. All birds were given regular commercial feed without growth promoting antibiotics but with 70 ppm of narasin as anticoccidial. The average rearing period was 35.5 days. From each flock 10 birds were sampled at an age of approx. 2, 3, 4 and 5 weeks. A total of 320 birds were sampled. Each bird was scored (0 to 3) for intestinal lesions. From each bird, 0.5 g of caecal contents was sampled and pooled with the corresponding specimens from the other birds sampled on the same day. Pooled samples were examined quantitatively for CP. Condemnation rates due to NE-associated liver changes were recorded at slaughter. The results of the study are shown below (Kaldhusdal *et al.*, 2001).

Results

DATA COLLECTED DURING AND AT THE END OF THE STUDY	Broilact®	CONTROL
Mean mortality rate	4.3 %	5.8 %
Condemnations due to <i>C.perfringens</i> - associated hepatic change	1.3 %	2.8 %
Mean condemnation rate	1.90 %	3.6 %
Mean log <i>C.perfringens</i> count during weeks 3 and 4	4.9	7.9
Carcass weight at 35 days of age	980 g	1001 g
Feed conversion ratio (kg feed/kg live weight at 35 days of age)	1.71	1.73
Contribution margin ³	2.45	1.90

³Mean settlement in Norwegian crowns from the slaughterhouse (value-added tax excluded) minus costs of day-old chicks, feed, and Broilact®, calculated as an average per housed bird.



Conclusion

In the present field study Broilact® reduced the overall mortality, induced a reduction in CP numbers and reduced the incidence of intestinal NE lesions and CP-associated liver condemnations. The effect was exerted primarily during weeks 3 and 4 of the rearing period.

References

- Barnes, E.M., Impey, C.S. and Cooper, D.M. (1980) Manipulation of the crop and intestinal flora of the newly hatched chick. *American Journal of Clinical Nutrition* 33, 2426-2433.
- Elwinger, K., Schneitz, C., Berndtson, E., Fossum, O. and Engström, B. (1992) Factors affecting the incidence of necrotic enteritis, caecal carriage of *Clostridium perfringens* and bird performance in broiler chicks. *Acta Veterinaria Scandinavica* 33, 369-378.
- Kaldhusdal, M., Schneitz, C., Hofshagen, M. and Skjerve, E. (2001) Reduced incidence of *Clostridium perfringens*-associated lesions and improved performance in broiler chickens treated with normal intestinal bacteria from adult fowl. *Avian Diseases* 45, 149-156.