



# Antibiotic or Management: Which one do broilers prefer?

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## What is going on?

Many broiler consumers prefer boiler chickens raised without antibiotic growth promoters (AGP). To improve the perception of consumers regarding the poultry industry, and also follow the current ecological political movement, researchers and chicken producers have attempted to use other alternatives that claim to enhance the performance of broilers (Banday et al., 2010). This poster will address the effects of AGP on chicks innate immunity and give an overview of current alternative methods.

## Our experiment

- ❖ Cobb 500 and Ross 308 chicks were reared, half of birds were challenged with lipopolysaccharide (LPS), outer membrane of gram negative bacteria
- ❖ Four antibiotic treatments: Control (no antibiotic), Bacitracin, Virginamycin, and Roxarsone
- ❖ Whole blood was collected at d11, and chick plasma was collected at d14 for immune assays
- ❖ Innate immunity was investigated by measuring nitric oxide concentration (NO conc.) in plasma, bacterial killing capacity and % phagocytosis



Bacterial killing capacity



Nitric oxide concentration

## What Happened?

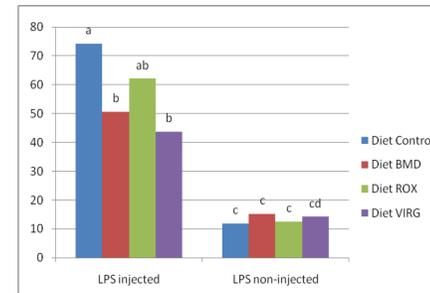


Fig 1. NO concentration in challenged and control birds

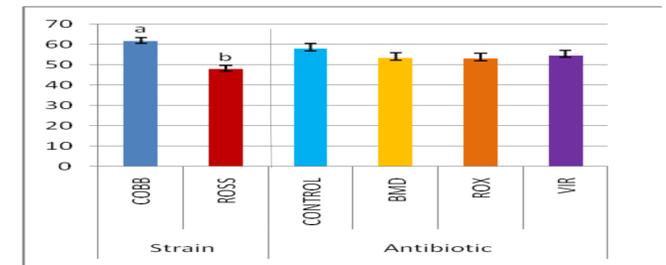


Fig 2. Percentage of cells that engulf and ingest bacteria in the different strains and antibiotics

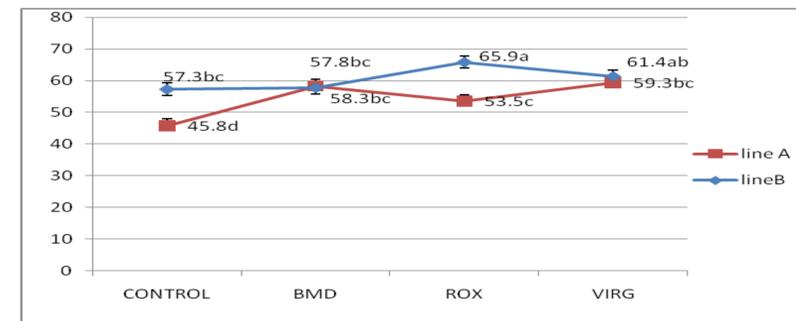


Fig 3. Strain and AGP affect bacterial killing capacity of chicks

## What does that mean?

- ❖ AGP enhances bacterial killing capacity, and increases feed utilization efficacy
- ❖ Less NO concentration found when chicks supplemented AGP in diet, stress ↓, more energy for growth
- ❖ Differences In strain suggest that selection could increase immune capacity of the birds
- ❖ AGP have no significant effect when birds are not challenged with LPS
- ➔ Potential alternatives such as the management of animals, feed composition and feed additive may replace AGP (Mateo et al., 2000)

## Acknowledgments

References: Banday, S. Adil, G. A. Bhat, M. S. Mir and M. Rehman. *Vet Med Int.* 2010;2010:479485. Epub 2010 Jun 14.

G. Mateos, R. Lazaro, and P. Medel, 2000..Feeding strategies for intensive livestock production without in feed antibiotic growth promoters. March, 22-24, Spain

