Raising Broiler without Antibiotics: Performance and Economics
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**Background**
- Antibiotics are used to treat illness in humans and animals.
- Bacterial resistance to antibiotics globally led to a ban in some EU countries as feed growth promoters in livestock (Dermot and Helen, 2003).
- Food animals are major reservoir of bacteria responsible for infection in humans while in Canada, Salmonella enteritidis, Campylobacter jejuni and verotoxin-producing Eschericia coli and Multi-resistant Staphylococcus aureus (MRSA) are the prominent ones (Health Canada, 2002) and are transmitted through contaminated food (e.g. Meat, poultry)

**Objectives**
- To evaluate effect of broiler diet supplementation with and without antibiotics, HyD and two prestarter nutrient densities on growth, efficiency and yield.

**Design/Materials and Methods**
- 3200 Ross 308 broiler chickens were used.
- Birds were allocated to 32 pens of 100 per pen and fed 8 different dietary treatments from day-old to 40 d
- A 2 x 2 x 2 factorial experiment (completely randomised design) was conducted, with 4 replicates of each treatment:
  - 2 prestarter nutrient densities (0-14 d):
    - High [3,025 Kcal/kg, 23.9% CP]
    - Low [2,858 kcal/kg, 22.3% CP]
  - 2 HyD treatments (no HyD and 69 IU HyD/kg)
  - 2 antibiotic treatments (no antibiotic or 0.05% BMD)
- Data collected: Individual BW (weekly), group BW (fortnight), feed intake, mortality. Dissections were done at 42 d of age

**Results**
- BW (g)
  - No BMD, BMD, HyD, High PS, Low PS
  - 0, 1000, 2000, 3000
- FCR (corrected)
  - No BMD, BMD, HyD, High PS, Low PS
  - 0.0, 0.2, 0.4, 0.6, 0.8, 1.0, 1.2, 1.4, 1.6, 1.8
- Live cost (per kg)
  - No BMD, BMD, HyD, High PS, Low PS
  - $0.00, $0.50, $1.00, $1.50

**Fig. 1:** Broiler chicken feeding from hanging feeder.

**Fig. 2:** Effect of BMD, HyD and Prestarter nutrient density on live body weight for broiler chicken at 28 d (left panel) and 40d (right panel).

**Fig. 3:** Effect of BMD, HyD and Prestarter nutrient density on cumulative feed conversion ratio corrected for mortality at 28 d (left panel) and 40d (right panel).

**Fig. 4:** Effect of BMD, HyD and Prestarter nutrient density on live cost of production for broiler chicken at 28 d (left panel) and 40d (right panel).

**Fig. 5:** Effect of BMD, HyD and Prestarter nutrient density on carcass and breast yield of broiler chicken at 42 d.

**Take Home Message**
- Antibiotic and HyD had no significant effect on the live weight of the broiler, but high energy density increased BW.
- Antibiotics and HyD had no significant effect on cumulative feed conversion ratio or cost of production, but high prestarter nutrient density reduced FCR and cost of production.
- HyD inclusion reduced breast yield.
- Antibiotic usage did not significantly improve production efficiency or reduce cost. With good on-farm management, these results should be achievable commercially.

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**References**

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