Reduction of antibiotic treatments in broilers by the use of a live coccidiosis vaccine in rotation with anticoccidial feed additives: results from the Belgian field

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Eimeria biologic cycle
Rotation: COMMUNITY REPLACEMENT

1 (Before)
2 6 flocks/year
3
4
5-6 (After)

Vaccination (HIPRACOX BROILERS®)
Coccidiostats
Anticoccidial Sensitivity Tests (ASTs)

ESPN, Strasbourg (France) 2007

Anticoccidial drug sensitivity of the coccidia vaccine
HIPRACOX BROILERS

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- Diclazuril (1 ppm)
- Lasalocid sodium (125 ppm)
- Maduramicin (5 ppm)
- Monensin sodium (125 ppm)
- Narasin (70 ppm)
- Nicarbazine (125 ppm)
- Robenidine (36 ppm)
- Salinomycin sodium (70 ppm)
2012-2014: Belgium

- 2,330,000 broilers vaccinated (2-6 vaccinated flocks/house, on average 4.3).
- **Design:** results from 6.9 cycles/house before vaccination and 3.6 cycles/house after.
- **History:** Overuse of monovalent ionophores and/or nicarbazin, clinical coccidiosis.
- **Prior vaccination:** in half of the houses clean-up with chemical coccidiostast
- **After vaccination:** return to original anticoccidial programme.
Results: Actual Average Daily Gain (ADG)

1.3 grams of improvement of ADG after vaccination
Results: Livability

About 23,7% less mortality during vaccination and after
Results: Body Weight

With correction at the same age (40 days), 36 grams more after vaccination.
Results: Feed Conversion Ratio (FCR$_{2000}$)

With the same weight (2000 grams), 5 points less after vaccination and 2 points less during vaccination.
During vaccination improvement of 2 points, after vaccination of 25 points
1. In general, there are never statistically significant differences between productive results before and during vaccination;

2. Flocks after vaccination show statistically significant improvements compared to before in all trials in ADG, FCR and EPEF; whereas numerically results always improve after vaccination.
Belgium: antibiotic use (2011-2014)

- 21 farms: 56 houses in total
- 5,404,000 animals vaccinated with Hipracoxx (on average 4.02 cycles/house)
- **Design:** results from 5.15 cycles/house before vaccination and 3.87 cycles/house after
Belgium: antibiotic use (2011-2014)

- Monitoring antibiotics for enteric disorders and anticoccidials treatments before, during and after vaccination for

  - **Amount of active substance/kg of weight (g)**
Coccidiosis treatments

Antibiotics:
- TMP/Sulfa
- Amprolium
- Toltrazuril

<table>
<thead>
<tr>
<th>Antibiotics</th>
<th>CBV</th>
<th>CDV</th>
<th>CAV</th>
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<tr>
<td>TMP/Sulfa</td>
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<td>0.00024758</td>
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<tr>
<td>Amprolium</td>
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<td>0.00025694</td>
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<tr>
<td>Toltrazuril</td>
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<tr>
<td>Total</td>
<td>0.0016419</td>
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Reduction before/after: 64.71%
Gastrointestinal treatments

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<tr>
<th>Antibiotics:</th>
<th>Tylvalosine</th>
<th>Linco-spectin</th>
<th>Tylosine</th>
<th>Penicillin</th>
<th>Amoxicillin</th>
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</table>

<table>
<thead>
<tr>
<th>gr/kg LW</th>
<th>CBV</th>
<th>CDV</th>
<th>CAV</th>
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<td>Amoxicillin</td>
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</tr>
</tbody>
</table>

Reduction before/after: 30.43%
CONCLUSIONS: coccidiosis & gastrointestinal treatments

• Popular belief in broiler production tells us that more necrotic enteritis and dysbacteriosis appear in vaccinated flocks due to the lack of the anticlostridial effect of ionophores. However, no cases of necrotic enteritis were shown during this trial.

• Nevertheless, there is a reduction of antibiotic treatments after vaccination for coccidiosis (64.71%) and intestinal treatments (30.43%). Furthermore, the quantity of amoxicillin and β-lactam used for enteritis is also significantly lower (24.45%).
GENERAL CONCLUSIONS

- All these data show that the implementation of a coccidiosis vaccination in a rotation programme for coccidiosis control could be one of the solutions to respond to the political expectations concerning antimicrobial resistance.