Effects of antimicrobials on broiler chicken performance

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Introduction

- There is a strong consumer push for poultry producers to use less antimicrobials in broiler diets
- Feed diets that increase digestibility without using antimicrobials are needed by producers
- Xylanase is a replacement for the antimicrobials, yet it is unknown if it will have the same effects

Objectives

- To evaluate the digestibility of several diets at different fiber levels, when xylanase is replaced by monensin sodium

Experimental Procedures

- 21-day experiment with 216 Cobb broiler chicks that were housed in battery cages with 6 birds per cage
- Treatments were randomly assigned and there were 6 different treatments
- The experimental unit was the cage and there were 36 cages total
- Feed intake, BW and FCR were measured by collecting pen weights and feed consumption weekly
- GLIMMIX procedure of SAS was used to evaluate this experiment

Experimental Diets

- The treatments included:

1) Corn-based with no monensin sodium or xylanase
2) wheat-based with no monensin sodium or xylanase
3) corn-based with monensin sodium but no xylanase
4) wheat-based with monensin sodium but no xylanase
5) corn-based with xylanase but no monensin sodium
6) wheat –based with xylanase but no monensin sodium

Experimental Diets Cont.

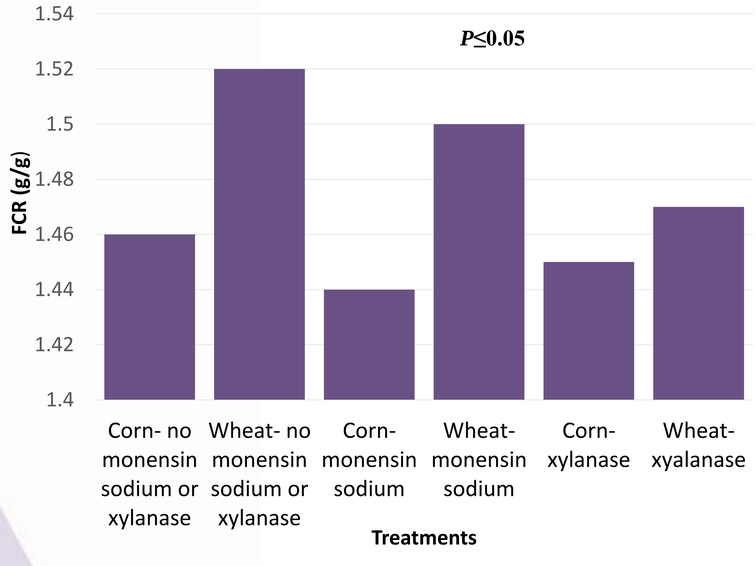
Table 1. Formulas of Dietary Treatment

Ingredient, lbs	Trt 1 – Corn Negative Control	Trt 2 – Wheat Negative Control	Trt 3 – Corn Positive Control	Trt 4 – Wheat Positive Control	Trt 5 – Corn + Xylanase	Trt 6 – Wheat + Xylanase
Wheat	0	165	0	165	0	165
Corn	147	0	147	0	147	0
Soybean meal	88	68.4	88	68.4	88	68.4
Soy oil	4.45	6.83	4.45	6.83	4.45	6.83
Dical	5.43	5.08	5.43	5.08	5.43	5.08
Limestone	1.95	0.85	1.95	0.85	1.95	0.85
Salt	0.58	0.35	0.58	0.35	0.58	0.35
L-Lys	0.45	0.85	0.45	0.85	0.45	0.85
DL-Met	0.63	0.60	0.63	0.60	0.63	0.60
L-Thr	0.075	0.30	0.075	0.30	0.075	0.30
Sodium bicarb	0.45	0.90	0.45	0.90	0.45	0.90
Poultry VTM	0.75	0.75	0.75	0.75	0.75	0.75
Econase XT	0	0	0	0	12.5 g	12.5 g
Coban 90	0	0	0.125	0.125	0	0
Total	250	250	250	250	250	250

Results

- Corn-based diets with monensin sodium or xylanase and the wheat-based diet with monensin sodium did not impact (*P*>0.05) FCR
- The corn-based diet improved (*P*>0.05) compared to the wheat-based diet in the control diets

Graph 1. Data Results of FCR



Conclusions

- Corn-based diet and wheat-based diet with xylanase are comparable when conclusions are drawn using FCR
- The conclusion is drawn that the added xylanase to the wheat-based diet increases carbohydrate digestibility
- Feed intake, BW and FCR were all impacted by the experimental diets
- More research will need to be done considering there was little to no need for the antimicrobial considering the use of battery cages

Support

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