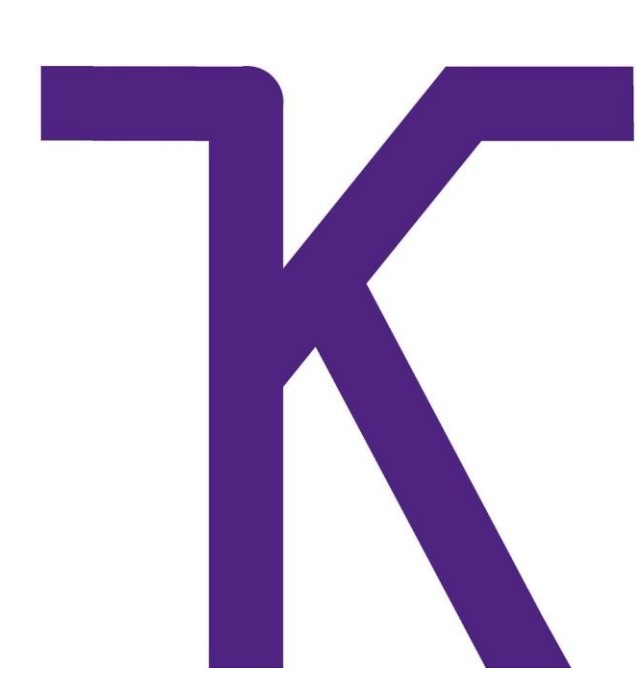




Effects of Monensin Sodium and Xylanase on Growth Performance of Broiler Chicks



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Introduction

- Increasing pressure to limit or eliminate antimicrobial usage in poultry feed
- Antimicrobials have been used to improve nutrient digestibility to achieve better FCR ratio
- One alternative is exogenous Xylanase
- Xylanase helps break down the cell wall of plants
- Xylanase will help improve digestibility in high fiber diets

Objective

This experiment was conducted to evaluate if xylanase can replace monensin sodium to improve nutrient digestibility, and if the amount of fiber impacts the amount of improvement in digestion.



Diets

- 1) Corn-based with no monensin sodium or xylanase
- 2) Wheat-based with no monensin sodium xylanase
- 3) Corn-based with monensin sodium and no xylanase
- 4) Wheat-based with monensin sodium and no xylanase
- 5) Corn-based with xylanase and no monensin sodium
- 6) Wheat-based with xylanase and no monensin sodium

Procedures

- 216 Cobb 1 day old chicks were fed 1 of 6 dietary treatments for 21 days
- There was 6 birds per cage and 6 different treatments
- Chicks were housed in battery cages
- Diets were corn or wheat based containing either 0.10 g/kg monensin sodium (Coban 90; Elanco Animal Health, Greenfield, IN) or 16,000 betaxylanase units/kg beta 1-4, endo-xylanase enzyme (Econase XT; AB Vista, Marlborough, UK)
- Birds and feed were weighted weekly to calculate the FCR and ADG for 21 days
- Mortalities were accounted for
- Data was analyzed with GLIMMIX procedure of SAS with the cage as the experimental unit and treatment as the fixed effect

Results

Table 1. Effect of grain type, monensin sodium, or xylanase inclusion level on broiler growth performance.¹

Grain Type	Monensin Sodium	Xylanase	n	1-d BW, g	21-d BW, g	Feed intake, g	FCR, g/g
Corn	No	No	6	43.8	848.5 ^a	54.0 ^a	1.46 ^{ab}
Wheat	No	No	6	44.0	879.0 ^{ab}	57.5 ^{bc}	1.52 ^c
Corn	Yes	No	6	43.9	940.4 ^c	58.6 ^{bc}	1.44 ^a
Wheat	Yes	No	6	44.2	932.1 ^c	57.4 ^{bc}	1.50 ^{bc}
Corn	No	Yes	6	44.0	868.6 ^a	56.3 ^{ab}	1.45 ^a
Wheat	No	Yes	6	44.2	926.0 ^{bc}	59.6 ^c	1.47 ^b
SEM				0.64	14.91	1.15	0.014
P-value				0.90	< 0.0001	< 0.0001	0.006

^{abc}Values in columns not sharing the same superscript letter are significantly different ($P \leq 0.05$).

¹Treatments consisted of mash diets manufactured from either corn or wheat with or without 0.10 g/kg monensin sodium (Coban 90; Elanco Animal Health, Greenfield, IN) or with or without 16,000 BXU/kg beta 1-4, endo-xylanase enzyme (Econase XT; AB Vista, Marlborough, UK) supplementation. Treatments were fed to 216 Cobb chicks (6 birds/cage).

Conclusions

- Xylanase helps improve the digestibility of carbohydrates in wheat-based diets
- Restoring the digestibility in the wheat-based diet to the same as the corn-based diet
- There was a limited effect of the antimicrobial in this environment
- Due to minimal exposure to fecal matter

Support

Appreciation to Koch Industries for financial support of this experiment.

