

Effects of Monensin Sodium and Xylanase in Broiler Diets

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Introduction

- Consumer pressure has led to a decrease in the amount of microbial feed additives in broiler diets.
- Microbes have a history of being added to broiler diets to improve feed efficiency and digestibility.
- The microbe we examined and used in our negative hypothesis was the microbe known as monensin sodium, (Coban 90; Elanco Animal Health, Greenfield, IN)
- A possible replacement for microbial additions in diets in an enzyme known as exogeneous xylanase (Econase XT; AB Vista, Marlborough, UK). Xylanase is known for improving the break down fiber in broilers.
- Although it is known that xylanase will improve the breakdown of fibers, it is unknown if it is capable of replacing monensin sodium in the feed digestibility for broilers across wheat and corn diets.

Objective

The objective of this experiment was to examine if exogeneous xylanase could replace monensin sodium in the feed digestibility of boiler chicks across both corn and wheat based diets.

Procedures

- 216 Cobb broiler chicks were split into 36 cages with 6 birds per cage over the course of a 21 day period. The treatments were assigned to cage numbers randomly to account for effects location or battery may have on the experiment.
- The chicks were fed one of 6 treatments arranged in a 2x2x2 factorial (wheat with no additive, wheat with monensin sodium, wheat with xylanase, corn with no additive, corn with monensin sodium, or corn with xylanase).
- The experimental unit was a cage, and the response criteria was ADG, ADFI, and FCR; with each being measured weekly.
- Birds were fed and watered daily. As such, birds were observed for behavior that feed or location may have. Mortalities were checked for daily.
- Mortalities were measured by recording weight, then subtracting days on feed from the cage to account for loss of bird.
- Feed disappearance and cage weight were measured on days 0, 7,14, and 21 to determine the ADG, ADFI, and FCR.
- Data was analyzed using the GLIMMIX procedure of the SAS system. Fixed effect being the dietary treatment, and Random effect being the battery.

Conclusions

- Research suggests that cord diet FCR remains unchanged regardless if the diets had monensin sodium or xylanase.
- In wheat diets, the FCR was improved to the same statistical level of the corn when xylanase was added
- The monensin sodium appeared to not have an effect on either of the diets to any statistical value.
- There is a limited impact of the antimicrobial in this setting, which could have an effect on broilers in other settings

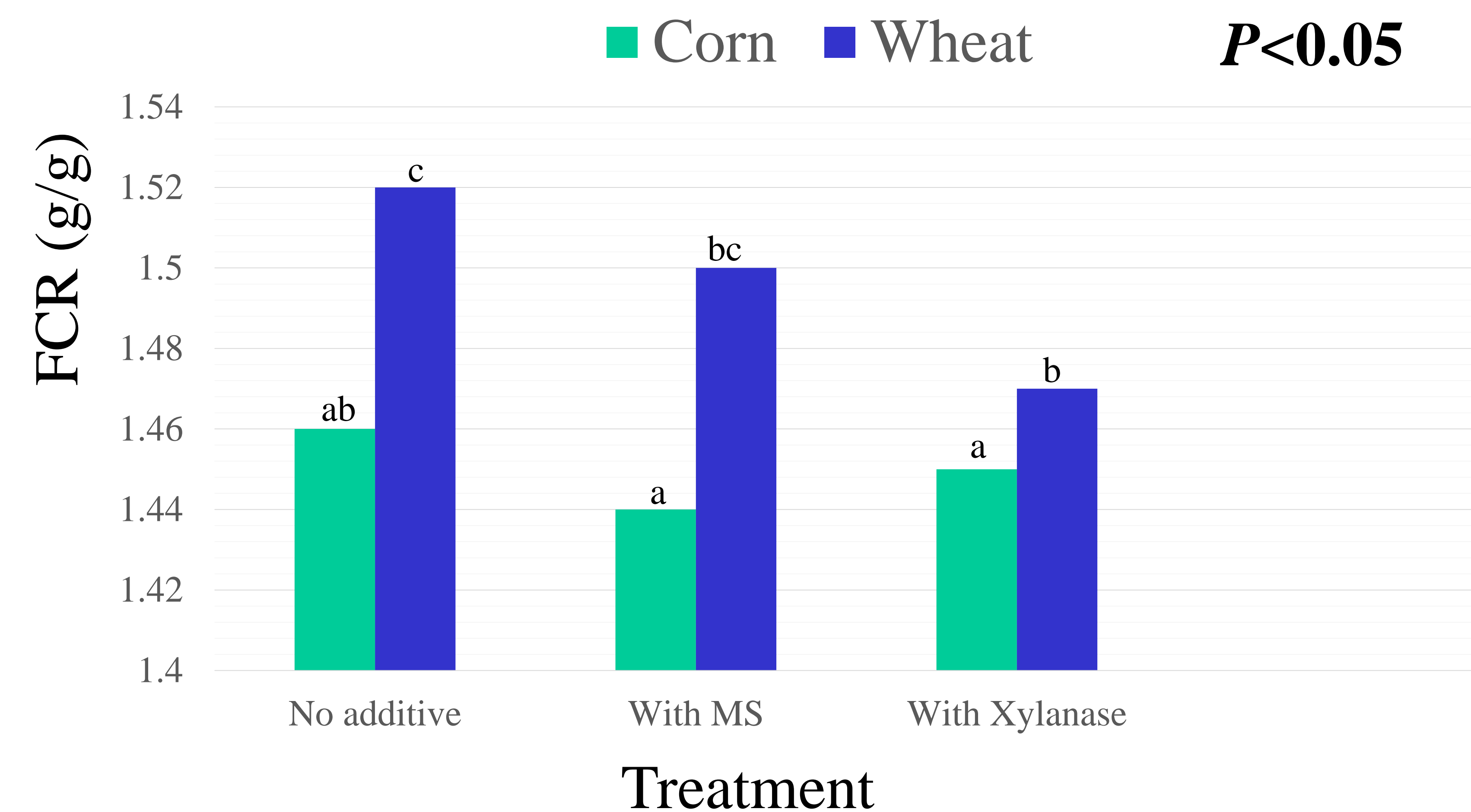
Diets

Ingredients (Ibs)	Treatment 1	Treatment 2	Treatment 3	Treatment 4	Treatment 5	Treatment 6
	Corn Negative Control	Wheat Negative Control	Corn Positive Control	Wheat Positive Control	Corn Xylanase	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	0.6	0.63	0.6	0.63	0.6
L-Thr	0.075	0.3	0.075	0.3	0.075	0.3
Sodium Bicarb	0.45	0.9	0.45	0.9	0.45	0.9
Poultry VTM	0.75	0.75	0.75	0.75	0.75	0.75
Econase XT	0	0	0	0	12.5g	12.5g
Coban 90	0	0	0.125	0.125	0	0
Total	250	250	250	250	250	250



Results

Feed Conversion Ratio per Treatment



- A lower FCR means less feed per gram of body weight
- Values sharing the same letter are statistically equal

Support

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