Effects of Monensin sodium and xylanase on broiler growth performance

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Introduction

- In looking at today's society, many poultry consumers want more birds that are all natural; without medications, antibiotics, antimicrobials and vaccines. This past year the medicated feed that was readily available to customers for their chicks has been pulled and only can be prescribed by a veterinarian.
- In this research project the alternatives are going from Coban 90, better known to most as monensin sodium, to xylanase, which both has an enzyme that will help to improve the nutrient digestibility in high fiber diets, only monensin sodium is medicated.

Objective

- The objective to this research is to evaluate if xylanase can replace monensin sodium and improve the digestibility in the different fiber diets without the ability of the microbial use to prevent coccidiosis, which will be looked at in this research.

Experimental Procedures

- There were 216 day old chicks that were put into different batteries. Six chicks per cage were divided up into six different study groups.
- For the controls corn based and wheat based feeds were used. The other variables were corn with monensin sodium, wheat with monensin sodium, corn with xylanase, and the last was wheat with xylanase.
- These chicks were fed for twenty one days. Once a week the chick's body weight and feed intake was recorded. Their weight was recorded to determine their body weight gain, their total feed intake, and their feed conversion ratio (FCR). The program that was used GLIMMIX procedure of SAS to analyze our data. In the program batteries were used as the experimental unit and treatment as the fixed effect.

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Experimental Results

Figure 1: Cobb broiler chicks

Figure 2: Research project showing our chicks and batteries, from day olds to 21days

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 ($P \leq 0.05$).

Conclusions and Future Work

- . The treatment affected the final body weight, feed intake, and FCR ($p<0.01$). The corn-based control diet had improved ($p<0.05$) FCR compared to the wheat-based control diet. In the corn-based diets, monensin sodium or xylanase didn't improve ($p>0.05$) FCR compared to the corn-based diets, as the wheat-based diets had a lot of fiber in them. In the wheat-based diets, xylanase ($p<0.05$) improved the FCR, but monensin sodium did not ($p>0.05$).
- In conclusion, this study leads future researchers to say that xylanase does improve the nutrient digestibility in wheat-based diets, being comparable to the corn-based diets. Looking at monensin sodium, there was little to show that feeding antimicrobials worked in this environment. Further research will need to be conducted in different environments to see if xylanase works as well, or if an antimicrobial would need to be used.