



# Calibrin<sup>™</sup>-A

## Enterosorbent for Mycotoxins

### In-Vivo Study

# Calibrin<sup>™</sup>A Therapy

enterosorbent for mycotoxins

## For Broiler Chickens

### Clinical Trial

A broiler chicken study was conducted to determine the efficacy of **Calibrin-A** enterosorbent therapy to reduce the toxic effects of aflatoxin. The chickens were fed a diet consisting of corn, soybean meal, and vitamin and mineral premixes for 21 days. Prior to the addition of aflatoxin, the basal diet tested negative for the presence of mycotoxins. Birds and feed were weighed weekly, and feed intake, body weight gain, and feed conversion were calculated.

### Reduced Negative Effects of Aflatoxin

The results showed that the addition of **Calibrin-A** significantly improved body weight gain and feed intake compared to birds fed 2 and 3 ppm aflatoxin only (Figures 1 & 2). These results were observed during the second week, third week, and overall for the 21 day study. Chicks fed 2 ppm aflatoxin and 5kg/MT **Calibrin-A** had equivalent overall body weight gain and feed intake as chicks fed **Calibrin-A** alone. During the final week of the study, chicks fed 2 ppm aflatoxin and **Calibrin-A** had similar body weight gain and feed intake as chicks fed the control diets (no toxin).

FIGURE 1

Overall Body Weight Gain of Chickens fed diets with and without Calibrin-A and Aflatoxin

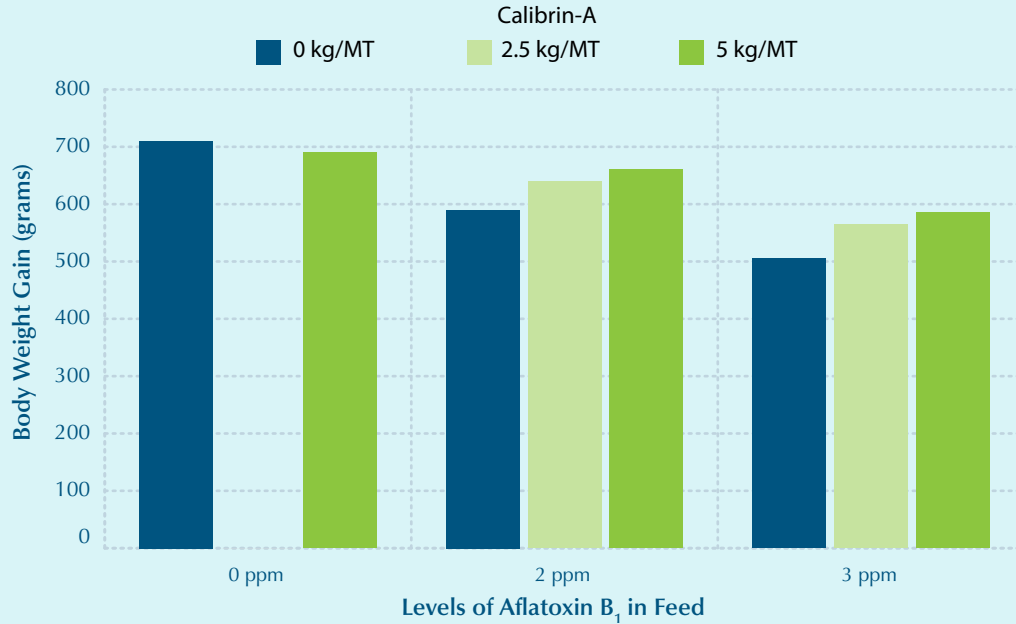
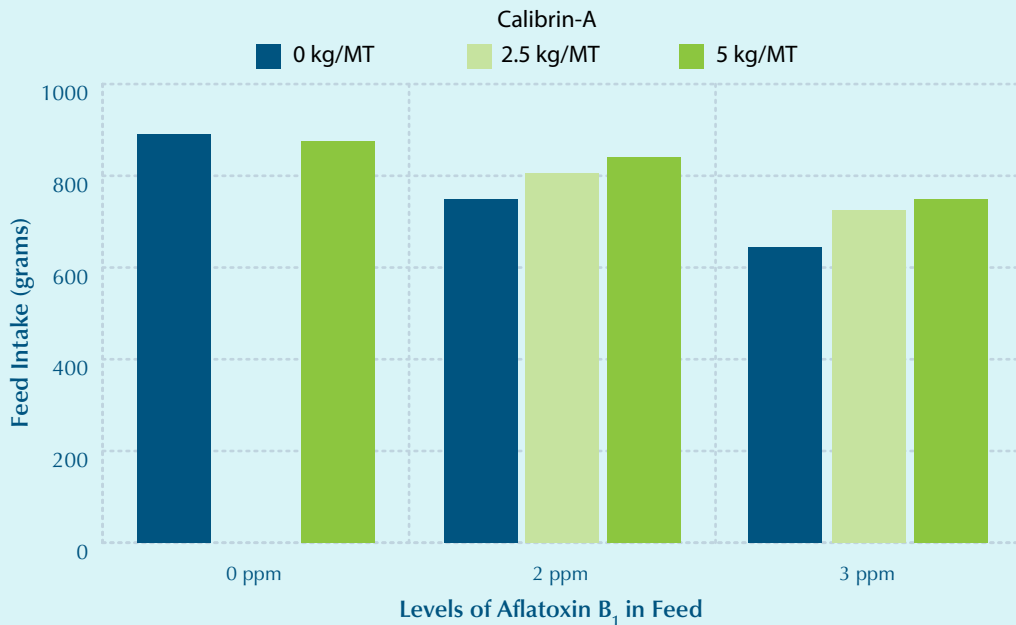


FIGURE 2

Overall Feed Intake of Chickens fed diets with and without Calibrin-A and Aflatoxin



Source:  
Efficacy of Calibrin-A to Ameliorate  
the Toxic Effects of Aflatoxin in Broiler  
Chicks – University of Missouri

## Identifying Aflatoxin Mycotoxicosis

Animal performance is the best tool a producer has to determine aflatoxin exposure in poultry. If animal feeding performance has decreased due to aflatoxin consumption, then it is already too late to get 100% performance from the flock. Prophylactic use of **Calibrin-A** reduces the chance of aflatoxicosis and loss of profits due to the reduction in animal performance.

Another visual symptom of aflatoxicosis is bleaching of the skin pigment, also known as pale bird syndrome. Aflatoxin reduces adsorption, transport, and deposition of dietary carotenoids (Vitamin A precursor), preventing the yellow coloration of the skin. Feeding **Calibrin-A** was shown to improve skin pigmentation in the shanks of chickens fed 2 ppm AFB<sub>1</sub>.

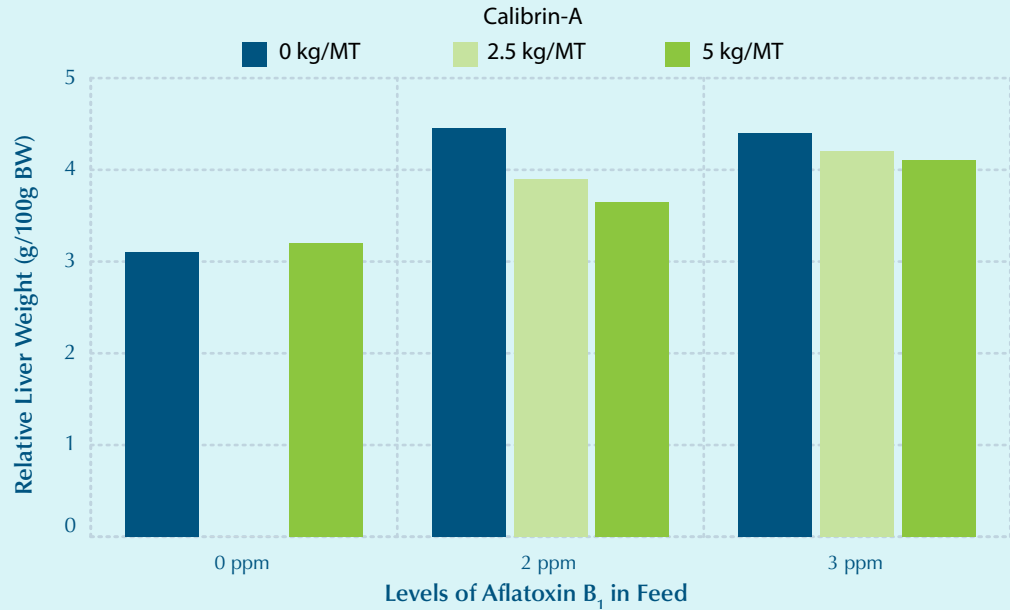
## Liver and Serum Parameters

**Calibrin-A** significantly reduced the negative effects of 2 ppm AFB<sub>1</sub> on liver size (Figure 3). The liver is the primary target organ, and is highly sensitive to aflatoxin. The increase in liver size resulting from aflatoxicosis is due to fat infiltration, also known as fatty liver syndrome.

**Calibrin-A** significantly reduced the negative effect on total proteins (Figure 4) in the serum of birds fed aflatoxin. The reduction in total serum proteins by aflatoxin may be related to the suppression of protein synthesis by the liver, a known mechanism of action of aflatoxin. Protein production is required because it is the major building block of meat.

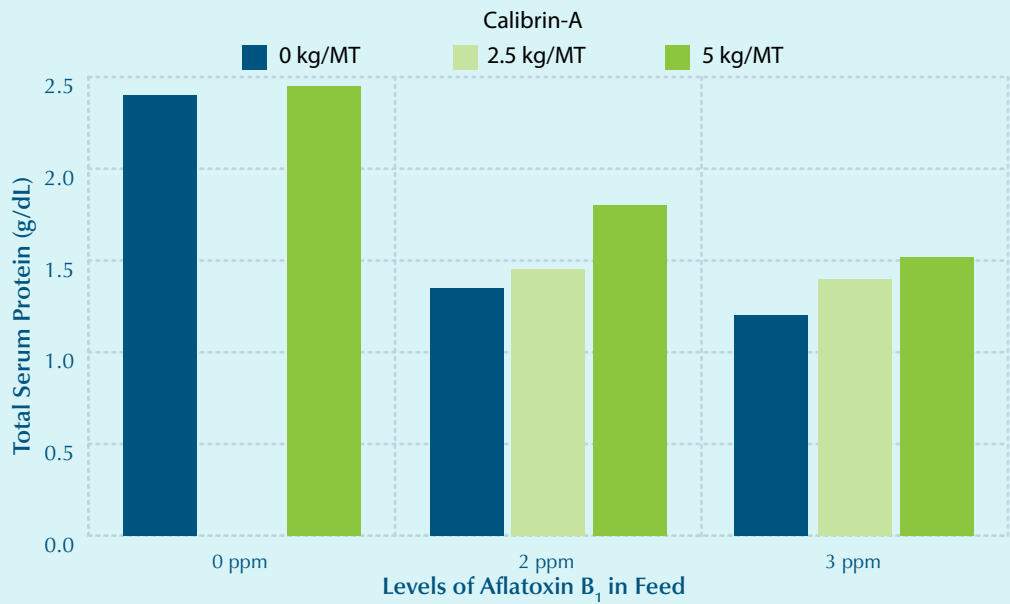
**FIGURE 3**

**Relative Liver Weight of Chickens fed diets with and without Calibrin-A and Aflatoxin**



**FIGURE 4**

**Serum Proteins of Chickens fed diets with and without Calibrin-A and Aflatoxin**



Source:  
Efficacy of Calibrin-A to Ameliorate  
the Toxic Effects of Aflatoxin in Broiler  
Chicks – University of Missouri



## No Interference with Nutrients and Vitamins

A common perception of mineral-based mycotoxin binders is that they non-selectively bind vitamins and other nutrients in the diet, thereby reducing animal performance. Many differences exist among sorbent minerals even of the same type. How they are processed is critical to affecting their binding characteristics. **Calibrin-A** was tested in-vivo to assure it does not interfere with nutrients.

The data to the left represents feed intake (FI), body weight gain (BWG), feed conversion ratio (FCR), and serum nutrients recorded for the control and **Calibrin-A** treatments in the in-vivo study. No statistical difference in FI,

BWG, FCR, or serum nutrients was observed between chickens after 21 days of feeding 5kg/MT **Calibrin-A** in the ration. The dietary level of **Calibrin-A** was higher than the suggested inclusion rate and still did not affect animal performance or serum nutrients.

**TABLE 1** **Chicken Performance with Feeding Calibrin-A**

	Feed Intake (grams)	Body Weight Gain (grams)	Feed Conversion (grams : grams)
Control	890 <sup>a</sup>	705 <sup>a</sup>	1.26 <sup>a</sup>
0.5% Calibrin-A	867 <sup>a</sup>	692 <sup>a</sup>	1.25 <sup>a</sup>

<sup>a</sup>Values in columns with similar superscripts are not significantly different (P > 0.05)

**TABLE 2** **Serum Nutrients Not Affected by Feeding Calibrin-A**

	Albumin (g/dL)	Globulin (g/dL)	Total Protein (g/dL)	Calcium (mg/dL)	Glucose (mg/dL)
Control	1.071 <sup>a</sup>	1.367 <sup>a</sup>	2.438 <sup>a</sup>	10.196 <sup>a</sup>	289 <sup>a</sup>
0.5% Calibrin-A	1.071 <sup>a</sup>	1.388 <sup>a</sup>	2.458 <sup>a</sup>	10.096 <sup>a</sup>	295 <sup>a</sup>

<sup>a</sup>Values in columns with similar superscripts are not significantly different (P > 0.05)

Source:  
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