MYCOAD A-Z ®

DESCRIPTION

MYCOAD A-Z is an activated, broad spectrum, hydrated sodium/calcium aluminosilicate (HSCAS), specially formulated to adsorb and retain all major mycotoxins affecting poultry.

DOSAGE

1 kg. per metric ton of feed.

APPLICATION

MYCOAD A-Z is compatible with all feed ingredients.
MYCOAD A-Z **does not affect or adsorb** any of the feed components (amino acids, vitamins, minerals, antibiotics and cocciodiostats).

CHARACTERISTICS

Cream-colored, fine powder.

PACKAGING

25 kg bag. Four-ply bags (three paper plies and one inner plastic ply).

SPECIAL NUTRIENTS, INC.
The mycotoxins specialist

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MYCOAD A-Z ®

POULTRY

SPECIAL NUTRIENTS, INC.
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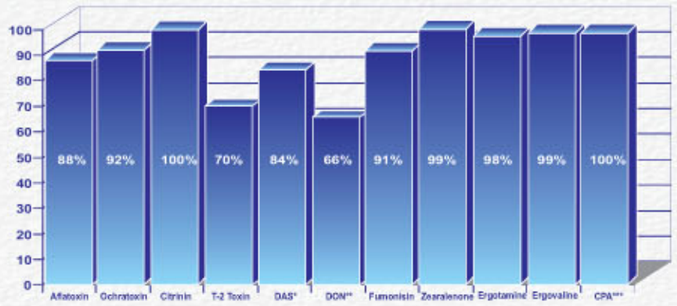
Mycotoxins cause a wide variety of adverse clinical signs, depending on the nature and concentration of toxins in the diets, animal species, age; and nutritional and health status at the time of exposure to contaminated feed. The presence of mycotoxins in poultry feeds is of concern because it has resulted in economic losses due to poor health and reduced performance. T-2 toxin is a naturally occurring mycotoxin from the group of the trichothecens, produced by *Fusarium* spp. mainly before harvesting. Trichothecenes toxins have been most often characterized by oral lesions and reduced growth in chickens, as well as the inhibition of protein synthesis, responsible for the negative effects on rapidly dividing cells such as those of the oral cavity, gastrointestinal tract, and lymphoid tissues. In addition, T-2 toxin produced a dose related feed refusal, suggesting that it may have been due to the irritating properties of trichothecens.

IN VITRO EVALUATION

It is important that the *in vitro* results represent the net adsorption capacity of the product, meaning that both the adsorption and desorption process has occurred through a pH change, mimicking what occurs in the intestinal tract of animals. Adsorption results from tests performed only at a low pH do not assure that the product can retain the mycotoxin when the pH rises.

Figure 1. Average net adsorption capacity of MYCOAD A-Z using HPLC test with 3000 ppb of all the mycotoxins tested and the equivalent of 1.0 kg of product per metric ton.



* DAS = Diacetoxyscirpenol
** DON = Deoxynivalenol. MYCOAD A-Z was tested at an inclusion rate of 2.5 kg/mt.
*** CPA = Cyclopiazonic acid.

IN VIVO EVALUATION

EFFECT OF MYCOAD A-Z ON EXPERIMENTAL CONTAMINATION WITH T-2 TOXIN

Facilities: Instituto Internacional de Investigación Animal (IIIA), Querétaro, México.
Type of Birds: Broiler chickens.
MYCOAD A-Z inclusión rate: 1.0 kg per MT of feed.
Concentration of T-2 toxin in the feed: 1.25 ppm of a synthetic mycotoxin was added to the feed. Under field conditions, lower levels of natural mycotoxins can cause damage more readily.

RESULTS

Figure 2. Effect of MYCOAD A-Z on body weight gain of 38 day-old broilers exposed to test diets for 33 days.

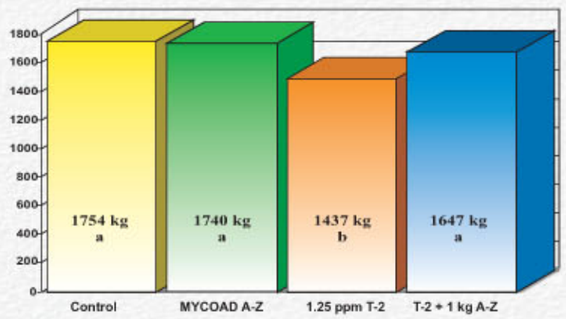


Figure 3. Effect of MYCOAD A-Z on feed intake of 38 day-old broilers exposed to test diets for 33 days.

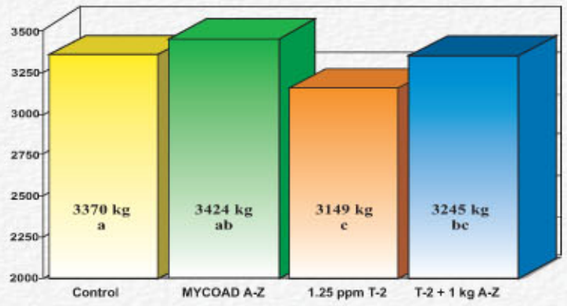
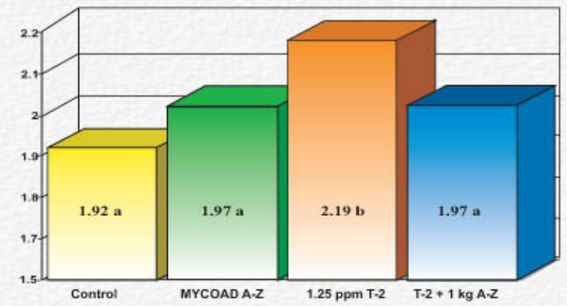


Figure 4. Effect of MYCOAD A-Z on feed conversion of 38 day-old broilers exposed to test diets for 33 days.



Reference: Casarin, A., M. Forat, E. Soto, and D. Zaviezo. Evaluation of the efficacy of a commercial purified phylosilicate to reduce the toxicity of T-2 toxin in broiler chicks. International Poultry Forum. Atlanta, Georgia, USA. 2006.

Oral Lesions

Figure 5. Effect of MYCOAD A-Z on oral lesion score of 38 day-old broilers exposed to test diets for 33 days.

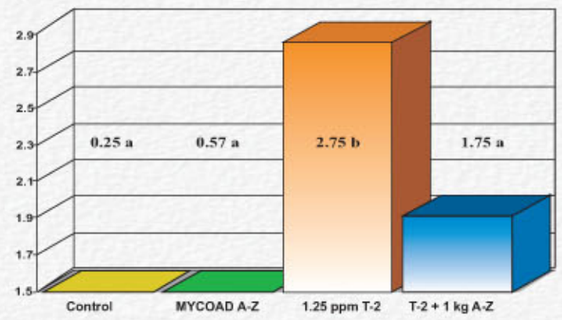
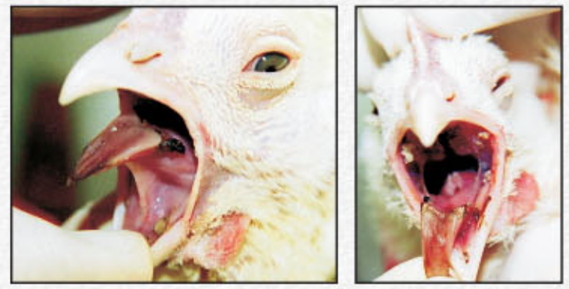


Figure 6. Severe oral lesions (score 3) of broilers fed 1.25 ppm T-2 toxin contaminated diet.



Oral lesion score consisted of a four point scoring system ranging from 0 to 3, including lesions detected at several sites within the mouth, mainly on the upper and lower mandibles, the corners of the mouth, and on the tongue. A lesion score 0 indicates no visible lesions; score 1 was seen as one mild mouth lesion; score 2 was seen as up to two moderate lesions; and a lesion scored as 3 indicated more than two severe lesions.

Microscopic Organ Lesions

The report from the histopathological analyses indicated that at 38 days 80% of the birds showed moderate microscopic damage of the bursa and gizzard; and about 50% of them presented severe lesions in thymus and tongue when fed a diet with 1.25 ppm T-2. Addition i kg of MYCOAD A-Z to the T-2 contaminated diet markedly reduced the degree and number of lesions in those organs, to a level comparable to the one reported in the control diet.

Table 1. Microscopic organ lesions of 38 day-old broilers exposed to test diets for 33 days.

TREATMENT	Tongue [1]	Gizzard [2]	Thymus [3]	Bursa [4]
Control	25% mild	40% mild	40% mild	40% mild
1 kg. MYCOAD A-Z	none	40% mild	40% mild	none
1.25 ppm T-2	25% mild 25% moderate 50% severe	20% mild 80% moderate	25% mild 30% moderate 45% severe	80% moderate
1.25 ppm T-2 + 1 kg. MYCOAD A-Z	25% mild	40% mild	40% mild	40% mild

1 Tongue: ulcerative glositis
2 Gizzard: erosive ventriculitis
3 Thymus: focal hemorrhage
4 Bursa : follicular atrophy

Table 2. Effect of MYCOAD A-Z on bone mineralization of 38 day-old broilers exposed to test diets for 33 days.

TREATMENT	Bone Ash %	Bone Calcium %	Bone Phosphorus %
Control	45.95 a	23.87 a	8.71 a
1 kg. MYCOAD A-Z	44.20 a	25.11 a	8.66 a

a Means within columns with different letters are significantly different ($P < 0.05$)

CONCLUSION

Effect on T-2 toxin. MYCOAD A-Z controlled in a statistically significant manner the deleterious effects caused by T-2 toxin on broiler performance. In the presence of the mycotoxin, MYCOAD A-Z prevented the bursal atrophy, gizzard erosion, thymus damage and significantly decreased the quantity and severity of oral lesions in birds.

Nutrient absorption. No negative effects were seen on the productive parameters of MYCOAD A-Z treated birds. Results were statistically similar to those of the control. Similarly, no statistically significant differences were observed on bone mineralization at the end of the trial; indicating that MYCOAD A-Z did not interfere with the absorption and metabolism of calcium, phosphorus and vitamin D_3