

Effects of Feeding Blends of Grains Naturally Contaminated with *Fusarium* Mycotoxins on Growth and Immunological Parameters of Broiler Chickens¹

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ABSTRACT An experiment was conducted to investigate the effects of feeding grains naturally contaminated with *Fusarium* mycotoxins on growth and immunological parameters of broiler chickens. Three hundred sixty, 1-d-old male broiler chicks were fed 1 of 4 diets containing grains naturally contaminated with *Fusarium* mycotoxins for 56 d. The diets included (1) control; (2) low level of contaminated grains (5.9 mg/kg deoxynivalenol (DON), 19.1 mg/kg fusaric acid (FA), 0.4 mg/kg zearalenone, and 0.3 mg/kg 15-acetyldeoxynivalenol); (3) high level of contaminated grains (9.5 mg/kg DON, 21.4 mg/kg FA, 0.7 mg/kg zearalenone, and 0.5 mg/kg 15-acetyldeoxynivalenol); and (4) high level of contaminated grains + 0.2% polymeric glucomannan mycotoxin adsorbent (GM polymer). Body weight gains and feed consumption of chickens fed contaminated grains decreased linearly with the inclusion of contaminated grains during the grower phase (d 21 to 42). Efficiency of feed utilization, however, was not affected by diet. Production parameters were not significantly affected by the supplementation of GM polymer to the contaminated grains. Peripheral blood monocytes decreased linearly in birds fed contaminated grains. The feeding of contaminated diets linearly reduced the B-cell count at the end of the experiment, whereas the T-cell count on d 28 responded quadratically to the contaminated diets. The feeding of contaminated diets did not significantly alter serum or bile immunoglobulin concentrations, contact hypersensitivity to dinitrochlorobenzene, or antibody response to SRBC. Supplementation with GM polymer in the contaminated diet nonspecifically increased white blood cell count and lymphocyte count, while preventing mycotoxin-induced decreases in B-cell counts. It was concluded that broiler chickens are susceptible during extended feeding of grains naturally contaminated with *Fusarium* mycotoxins.

(*Key words:* chicken, deoxynivalenol, fusaric acid, *Fusarium* mycotoxin, immunotoxicity)
2004 Poultry Science 83:533–543

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Received for publication January 31, 2003.

Accepted for publication November 10, 2003.

¹This study was supported in part by the Ontario Ministry of Agriculture and Food and by Alltech Inc., Nicholasville, KY.

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