

NUTRIENT UTILISATION DURING AFLATOXICOSIS

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Aflatoxicosis can be a problem in Australia (Bryden et al. 1980) and although the detrimental effects of aflatoxin on poultry production are well known, the mechanisms responsible are not completely understood. Numerous studies have shown that the detrimental effects of aflatoxin can be affected by diet (Hamilton 1977). However, the effect of aflatoxin on nutrient utilisation is not clear.

A paired-feeding trial was undertaken to examine the effects of aflatoxicosis on food intake, body composition and nutrient utilisation of broiler chickens. Chickens were fed a conventional diet containing 2 mg aflatoxin B₁/kg from 3 to 9 weeks of age. The ad libitum-fed control group gained weight at a constant rate throughout the experiment. There was a significant difference ($P < 0.001$) in liveweight between the aflatoxin and pair-fed groups, indicating that the pair-fed chickens were able to realise more gain while consuming the same amount of food. As the experiment progressed, the portion of the difference in growth related to difference in food intake became less. Aflatoxin ingestion was without effect on dietary ME, and confirms a previous report (Rajion and Farrell 1976). Aflatoxicosis significantly reduced energetic efficiency of body-weight gain ($P < 0.05$) and utilisation of ME for tissue energy gain ($P < 0.01$) and increased heat production when expressed as a function of metabolic body size ($P < 0.05$). Nitrogen balance data were not significantly different, although carcasses of aflatoxin-fed birds contained significantly less ($P < 0.05$) protein and fat.

The results indicate that reduced broiler performance during chronic aflatoxicosis is a function of reduced food intake and associated changes in nutrient utilisation.

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