Impaired broiler performance as a carry-over effect in broilers fed diets naturally contaminated wtih moderate levels of deoxynivalenol

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Introduction

- Mycotoxin exposure is common in the poultry industry. Deoxynivalenol (DON) is usually detected at levels below the maximum threshold (5,000 ppb), but depending on the diet and age, broiler performance can be affected.

Aim

- We evaluated the effects of 900 and 2,300 ppb DON on the performance of broiler chickens. Birds were fed contaminated diets up to day 28 and, from day 28 to day 35 they were fed a marginally contaminated diet.

Material and Methods

- One-day-old male Ross broilers (n=736)
- Four treatments, eight replicates (pen with 23 birds each)
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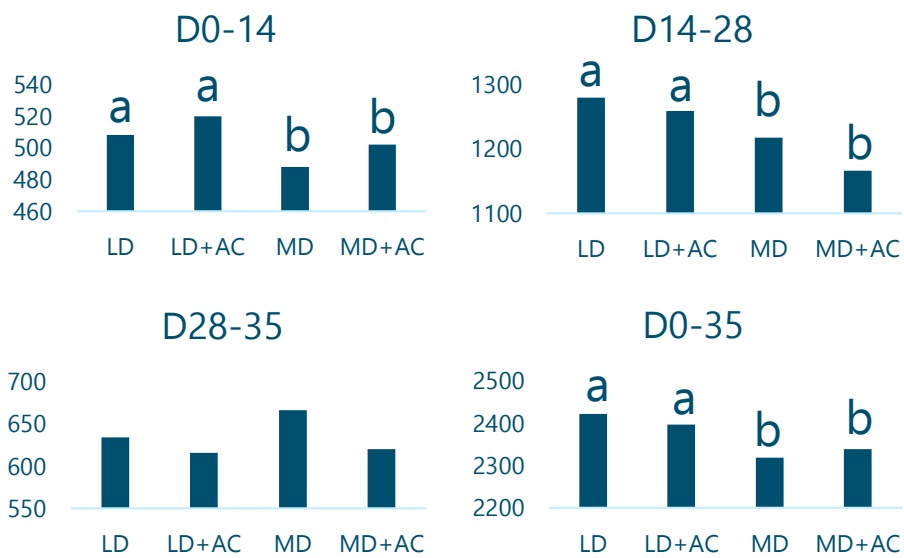
  - Days 1 - 28
    - Low DON (LD) = 900 ppb
    - LD with activated charcoal (LD+AC)
    - Moderate DON (MD) =2,300 ppb
    - MD with activated charcoal (MD+AC)
  - Days 28-35
    - DON = 57.3 ppb

- Experimental diets

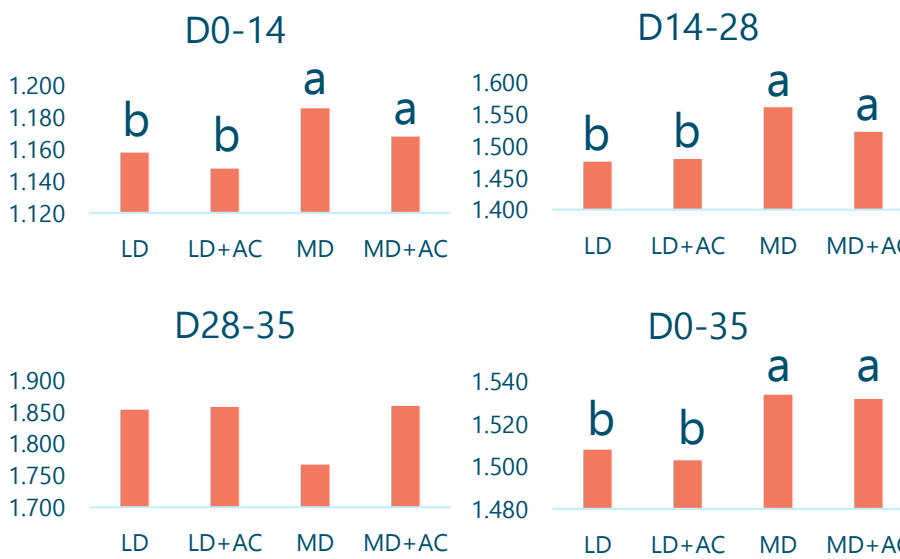
	MD	MD + activated charcoal	LD	LD + activated charcoal
Starter diet (D0-14)				
DON (ppb)	2060	2200	878	884
Grower diet (D14-28)				
DON (ppb)	2360	2220	941	811
Finisher diet (D14-28)				
DON (ppb)	57.3	57.3	57.3	57.3

Results

Body weight gain (BWG)



Feed conversion ratio (FCR)



Conclusion

Impaired performance was observed in broilers fed a diet containing 2,300 ppb DON for 28 days. Although the replacement of the contaminated diet by a diet marginally contaminated with DON mitigated the negative effect of DON after 1 week, the losses related to the complete production period were not recovered.