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## Effect of microclimate on the airborne dust and endotoxin concentration in a broiler house

M. Vučemilo, K. Matković, B. Vinković, J. Macan, V.M. Varnai, Lj. Prester, K. Granić, T. Orct

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Poultry farming is considered to be a notable source of bioaerosols. They can be a risk factor from the aspect of some diseases and for the environment. A study was conducted to assess the effect of microclimate on the level of airborne dust and endotoxins in an intensive broiler fattening facility. The content of airborne dust, endotoxins, air temperature, relative humidity, airflow velocity, ammonia and carbon dioxide were determined. The study was conducted in a poultry house accommodating 22 000 broilers of Ross-308 breed. The measured temperature in the broiler house ranged from 22.02°C to 31.05°C, relative humidity from 49.55% to 65.45%, and airflow velocity from 0.07 m/s to 0.09 m/s. The air concentration of dust ranged from 2.0 mg/m<sup>3</sup> at the end of fattening period to 4.9 mg/m<sup>3</sup> in the mid-fattening period, and endotoxins from 6.21 EU/m<sup>3</sup> in the second study week to 99.40 EU/m<sup>3</sup> at the end of fattening period. The air concentration of ammonia ranged from 5.17 ppm at the beginning to 25.49 ppm at the end of fattening period. Air concentrations of dust and endotoxins recorded in this poultry house varied during the fattening period and depended on relative humidity and temperature as demonstrated by multiple regression at the level of  $P \leq 0.05$ .

**Keywords:**

broilers; dust; endotoxins; ammonia; carbon dioxide

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