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Higher Relative Humidity from Pipping Increases Physical Problems in the Broiler Chicks

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Abstract : Increasing in the relative humidity during the last incubation day is a usual practice in the commercial hatchery to facilitate hatching. This study analyzed whether higher relative humidity improves eclodibility as well as chick quality, and alters the hatch window. Fertile eggs (65- 67g) produced by 53 weeks old broiler breeders (Cobb 500®) were incubated at 37.5°C and 31°C in the wet bulb in incubators with automatic control of temperature and egg turning (1 each hour). Two-hundred ten were distributed randomly in three treatments: 31°C in the wet bulb from internal pipping (BI-31), 33°C from internal pipping (BI-33), and 33°C from external pipping (BE-33), all three hatchers maintained at 37.5°C and without egg turning. For this, eggs were checked for internal pipping by ovoscopy and external pipping by visual observation through the transparent cover of the incubators each hour from day 18 of incubation. No significant differences in the hatchability (BI-31:79.61%, BI-33:77.63%, BE-33:80.77%; by Q-square test, $P > 0.05$). Absence of significant effects of the treatments were also observed for incubation duration (BI-31:488.58 h, BI-33:488.30 h, BE-33:489.04 h), and chick body weight (BI-31: 49.40g, BI-33: 49.74g, BE-33: 49.34g) and quality scores (BI-31: 90.02, BI-33: 87.56, BE-33: 92.28 points), by variance analysis ($P > 0.05$). However, BI-33 increased the incidence of feathering and leg problems and remaining of alantoic membrane, and BE-33 increased the incidence of problems with feathering, navel and yolk sac and reduced the leg problems, compared to BI-31. In sum, the results show higher relative humidity from internal or external pipping did not influence hatchability and incubation duration, but reduced chick quality, affecting the incubation efficiency.

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