

Beak Size and Asynchronous Hatch in Broiler Chicks

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Abstract : Beak plays a fundamental role in the hatching process of the chicks, since it is used for internal and external pipping. The present study examined whether the size of the beak influences the birth period of the broiler chicks in the hatching window. It was analyzed the beak size (length, height and width) of one-hundred twenty nine newly hatched chicks from light eggs (56.22-61.05g) and one-hundred twenty six chicks from heavy eggs (64.95-70.90g), produced by 38 and 45 weeks old broiler breeders (Cobb 500®), respectively. Egg incubation occurred at 37.5°C and 60% RH, with egg turning every hour. Length, height and width of the beaks were measured using a digital caliper (Zaas precision - digital caliper 6", 0.01mm) and the data expressed in millimeters. The beak length corresponded to distance between the tip of the beak and the rictus. The height of the beak was measured in the region of the culmen and its width in the region of the nostrils. Data were analyzed following a 3x2 factorial experimental design, being three birth periods within the hatching window (early: 471.78 to 485.42h, intermediate: 485.43 to 512.27h, and late: 512.28 to 528.72h) and two egg weights (light and heavy). There was a significant interaction between birth period and egg weight for beak height ($P < 0.05$), which was higher in the intermediate chicks from heavy eggs than in the other chicks from the same egg weight and chicks from light eggs ($P < 0.05$), that did not differ ($P > 0.05$). The beak length was influenced only for a birth period, and decreased through the hatch window (early < intermediate < late) ($P < 0.05$). The width of the beaks was influenced by both main factors, birth period and egg weight ($P < 0.05$). Early and intermediate chicks had similar beak width, but greater than late chicks, and chicks from heavy eggs presented greater beak width than chicks from light eggs ($P < 0.05$). In sum, the results show that chicks with longer beak hatch first and that beak length is an important variable for hatch period determination mainly for light eggs.

Keywords : beak dimensions, egg weight, hatching period, hatching window

Conference Title : ICASHMP 2018 : International Conference on Animal Science and Hatchery Management Practices

Conference Location : Paris, France

Conference Dates : September 20-21, 2018