HatchTech
INCUBATION TECHNOLOGY

Abstract

Effect of pre-warming profile on hatchability and chick quality

Presented On IPE Atlanta, January 2009, by Inge Reijrink

I.A.M. Reijrink*, D. Berghmans‡, R. Meijerhof*, B. Kemp‡ and H. van den Brand‡

* HatchTech Incubation Technology B.V., PO Box 256, 3900 AG Veenendaal, The Netherlands
‡ Adaptation Physiology Group, Wageningen Institute of Animal Sciences, Wageningen university, PO Box 338, 6700 AH Wageningen, The Netherlands

Pre-warming of hatching eggs prior to incubation is to prevent condensation and to reduce variation in egg temperatures. The pre-warming profile might affect embryo viability, as it might affect cell death especially when cell viability is reduced after prolonged storage. The aim of this research was to investigate the effect of storage time and pre-warming profile on hatchability and chick quality.

Eggs from a Ross broiler breeder flock with an age of 41 to 50 weeks were used. The experiment was a 2*3 factorial design: 2 storage times (4 and 14 d), and 3 prewarming profiles (in 30 minutes, 4 h, or 24 h from 17°C to 37.8°C). All eggs were stored at 17°C. Eggs pre-warmed in 30 min were warmed in a water bath with water of 37.8°C. The other eggs were pre-warmed during 4 and 24 h in air. During incubation egg shell temperature was maintained at 37.8°C in all treatment groups. Infertility and embryonic mortality was determined macroscopically. Chick quality was evaluated 12 h after hatch by measuring chick length and yolk free body mass. No interaction was found between storage time and pre-warming profile for hatchability and chick quality. Although no significant interaction was found, there was a numerical difference in first week embryonic mortality between 24 h of pre-warming and 30 min and 4 h of pre-warming in eggs stored for 14 d (3.4%, 11.1%, and 9.4%, respectively, P=0.34). Storage time and pre-warming profile did not affect hatchability. Prewarming profile did not affect chick quality. Fourteen days storage resulted in 0.1 cm shorter chick length (P=0.003) and 0.4 g lower yolk free body mass (P=0.006) compared with 4 d storage. In this experiment no effect of pre-warming profile on hatchability or chick quality was found.

19_314_HAT112