Benefits of Zonal Incubation in Multi-Stage and Single-Stage Incubation

Chad Daniels
Chick Master Hatchery Specialist

In the last few decades, technologies in the poultry industry along with labor and construction costs have dictated efficient designs with large weekly egg set capacities for new modern hatcheries. Multiple flock sources are utilized to achieve these larger egg sets and complete the entire set for one machine. The flock variations create differences in egg size and fertility rates, respectively affecting warm-up time and levels of embryonic heat load in late-stage development.

To create and maintain a suitable environment throughout the development of the embryos, setter machines use heating elements, cooling water and fresh air to achieve predetermined setpoints. The better control of the setter and hatcher environment throughout the different stages of embryo growth, the better hatcheries can optimize embryo development. Zonal incubation, which allows independent control of temperature in a zoned or section approach to maintain a uniform environment for a group of eggs, can help with this optimization.

Zonal incubation technology is available in both multi-stage and single-stage setters. It improves incubation temperature throughout the development of the embryos and subsequently increases hatch yield and uniformity of hatch, while also reducing energy consumption.

Multi-stage machines have two zones. Under normal operating conditions, multi-stage machines are accessed at least four times a week to set cool eggs and remove the 18-day old embryos. Each time the setter is opened, cool room air enters the machine, which can cause big variation in temperature between the front and back of the machine. With zonal incubation, the independent functionality of the heating and cooling allows the front of the machine (zone 1) to recover without influencing the back of the machine (zone 2). This independent functionality allows each zone to

independently provide temperature recovery without influencing the other zone, resulting in consistent temperature and the best environment from front to rear.

Zonal incubation in single-stage setters have between one and four zones and provide the flexibility to incubate varying egg packs. Zonal incubation in single-stage provides all the eggs in a set the varying amount of required heat in the beginning and independently controlling the amount of cooling needed during late stage development, managing the requirements of the embryo throughout the incubation process. The result is uniformity of hatch with improved chick readiness and chick quality.

Zonal incubation offers great benefits to both multi-stage and single-stage incubation, providing independent control of temperature in a section approach to allow for the flexibility to incubate varying egg packs. The bottom line to hatcheries who adopt zonal incubation can be increased uniformity of hatch, larger yields and better operating efficiencies.

CHICK MASTER INCUBATOR CO.
945 Lafayette Rd.
Medina, OH 44256, USA

Tel: +1 (330) 722-5591
Fax: +1 (330) 723-0233

www.chickmaster.com
sales@chickmaster.com