

e-news

News & Events for
Poultry Producers from

ChickMaster

Introducing Avida Symphony

The Next Generation Avida Incubation System

ChickMaster unveiled the newest member of the Avida series, the Symphony, at the IPPE 2015 event in Atlanta. The Avida Symphony features a new look and over 20 improvements to the setter and hatcher to make the best single stage incubation system even better.

Our engineering team incorporated several years' worth of customer suggestions into the Symphony's design. The overall objective was to make a great system even easier to operate and maintain, with

improvements such as:

- New exterior design with central control panel and improved door hardware
- New corrugated cooling coils for greater cooling capacity
- New durable fan hub
- Recessed door handles to eliminate possibility of damage from moving trolleys
- Larger windows for easier viewing interior of setter
- Improved door gasket for better seal and simpler maintenance
 - Stronger, easier to assemble trolley
 - Improved trolley guides for easier loading and transfer
 - Insulated cooling pipes on the roof for improved efficiency
 - Energy efficient LED lights for better illumination

We are quite proud of the new Avida Trolley. First, we reduced the overall amount of parts required to build it. Second, we used cast aluminum corners to increase structural strength. Finally, we added bushings on the moving parts to allow for a smoother operation and better turning angles than any trolley available today. The lightweight frame is made of aluminum for corrosion resistance and

durability. The result is a light, strong and easy to maneuver trolley.

The Avida Symphony Hatcher will share the same central control panel, corrugated cooling coils and new fan hub to improve an already great hatcher with the most uniform



airflow. The hatchers are available in either one- or two-zone models and with capacity ranges from 20,000 to 60,000 eggs.

Additionally, the Avida Symphony internal improvements will be available on all standard models of the Avida T Setter, Avida S Setter, and Avida H Hatcher.

We hope to see you at the VIV Asia in Bangkok (Booth H106-E031) so we can help you get your *Hatchery in Harmony* with the next generation Avida, the Symphony. •



Eggshell-Embryo Relationships: Keys to Broiler Hatching Success



*E. David Peebles
Poultry Science Department
Mississippi State University*

While growth rates in broilers have increased through genetic selection, the hatchability of the broiler hatching egg has simultaneously declined. This may be due in part to excessive thinning or thickening of an eggshell. Although eggshell thickness alone is not an accurate means by which to judge the quality of eggshells of broiler hatching eggs, determination of eggshell weight per unit of egg surface area (SWUSA) is the most pragmatic and accurate means by which to determine eggshell thickness. The relationship between mean SWUSA and the hatchability of eggs from a specific breeder hen strain and age group should be determined.

The following procedure may be used by hatchery personnel for the determination of SWUSA:

- 1) Obtain a fresh weight (g) of the egg.
- 2) Total eggshell surface area (cm²) can be calculated using the following equation by Carter (1975, Brit. Poult. Sci. 16:541-543): $3.9782 \times [(fresh\ egg\ weight\ (g))^{0.7056}]$.
- 3) Crack, open, and isolate the entire eggshell after emptying the egg's contents, making sure to retain any shell fragments or pieces. Fragments belonging to a common shell should be kept together and/or labeled. All eggshell pieces should be rinsed free of external debris or internal egg contents. The external cuticle and internal shell membranes should be retained.
- 4) Eggshells should be dried at 80°C for 2 hours and cooled to room temperature prior to weighing. Be sure to allow all internal surfaces of the shell to be exposed during the drying process. Excess water may be blotted from eggshells with an absorbent cloth prior to drying. Obtain a weight (mg) for the eggshell.
- 5) SWUSA (mg / cm²) is then calculated by dividing shell weight (mg) by surface area (cm²). Example: $SWUSA\ (mg / cm^2) = \text{eggshell weight (mg)} / \text{total eggshell surface area (cm}^2\text{)}$.
- 6) If SWUSA is determined on a group of eggs together, then divide total egg weight (g) by egg number prior to surface area calculation, and divide total eggshell weight by number of

eggshells prior to SWUSA calculation. Eggshell weight per egg must be in mg prior to SWUSA calculation.

Attempts to improve the hatchability of broiler hatching eggs by simply increasing shell thickness or strength often have proven unsuccessful. Because various physical or structural properties of an eggshell, including its thickness, influence its function as an embryonic respiratory component, it is necessary to examine eggshell quality as it relates to hatchability through a measurement which describes the eggshell's dynamic respiratory quality. The ease at which gases, including water vapor, carbon dioxide, and oxygen, diffuse across the eggshell defines its respiratory quality. The rate at which an egg loses water can be estimated by its loss in weight, and serves as an indicator of its ability to allow for the exchange of vital gases.

Determination of the incubational weight loss of an egg as a percentage of its initial set egg weight (percentage egg weight loss; PEWL) over a specified period of time may be used as a relative comparison of the respiratory quality of eggshells for eggs set within a particular incubational environment. Because PEWL is the most accurate measure of an eggshell's physiological quality, its measurement is recommended as a means to monitor and to subsequently adjust incubation conditions so as to maximize hatchability and post-hatch broiler performance. Accounting for temperature and barometric effects, PEWL can be further converted to a value termed water vapor conductance, which allows for an accurate comparison of the porosities of eggshells in different geographical locations and under different environmental conditions.

The PEWL of an egg may be determined easily by hatchery personnel by following the procedure below:

- 1) Determine pre-set egg weight (g). Then subtract final egg weight (g) from initial egg weight (g) for a specific time period during incubation. It is recommended that incubational egg weight loss be determined during the first, second, and third weeks of incubation, as well as over the entire incubation period prior to pipping. Incubational egg weight loss can be determined for individual eggs or groups of eggs.
- 2) Divide the change in egg weight over the specified time period by pre-set egg weight, and then multiply that value by 100. This equals PEWL for the period. Normal total PEWL for individual eggs from set up until pipping should approximate 12-15%.

3) Average daily PEWL can further be determined by dividing PEWL by the number of days in the incubational period examined.

Because the incubational period spans over almost a third of the entire growth period of the modern strain broiler, the incubational environment and the respiratory quality of the eggshell may not only impact hatchability, but can significantly affect post-hatch performance and even processing yield. Recent studies have shown that PEWL has a significant relationship with broiler hatching body weight at 0 and 12 hours post-hatch as well as yolk sac absorption rate through 3 days post-hatch. Furthermore, other studies have shown that PEWL during the first half of incubation can influence processing yield. More specifically, tenders weight as a percentage of broiler body weight on day 49 post-hatch has been related to PEWL during the first half of incubation.

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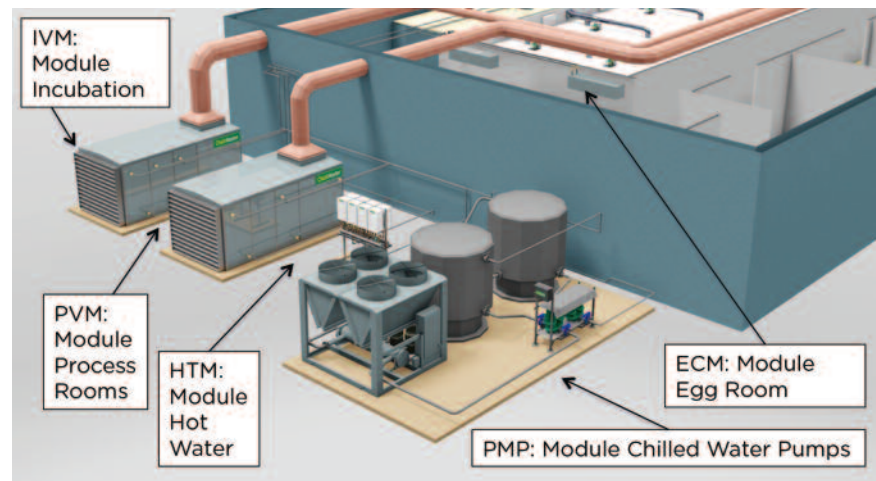
Embryo temperature determinations have been used to reflect the amount of heat generated by an embryo, and consequently its rate of metabolism. Eggshell temperature has been utilized as a pragmatic and non-invasive means by which to monitor embryo temperature. Air cell temperature by telemetry has also been used as means by which to more precisely and accurately determine embryo temperature, as the effects air flow across the shell and the influence of the eggshell as a temperature barrier are eliminated. However, the semi-invasiveness of this approach and the limitation of its use only during the last half of incubation make it less pragmatic. Nevertheless, embryo temperature, as determined by air cell telemetry, has been found to be significantly related to broiler body weight as a percentage of set egg weight, and breast muscle weight as a percentage of body weight, on day 48 post-hatch. •

INTRODUCING

Aria Modular Ventilation System

A total solution to hatchery environmental management

ChickMaster is pleased to introduce the Aria Modular Ventilation System, our latest innovation for complete hatchery ventilation, designed for facilities with capacities of up to 380,000 eggs set per week. The Aria is the perfect solution over individual roof top units that recirculate air and are more complicated to install and maintain. Aria's unique modular design is easy to install and maintain and it is designed for ground level outdoor installation, saving your hatchery from expensive roof systems, construction or wiring.



Aria provides 100% fresh air and includes ChickMaster's heat recovery technology to maintain the perfect room environment in any climate without additional energy costs. In colder climates, it warms the outside air entering the hatchery, and it dehumidifies the air in hot and humid climates.

Aria is composed of pre-configured modules to cover all hatchery requirements. These include egg room coolers, air-handling units for the incubation and process rooms, boilers, pumps and controls. As mentioned above, the air-handling units are located at ground level for ease of installation and maintenance. Outside installation avoids costly roof reinforcement or the construction of expensive metal towers to house the air-handling units. The pump and boiler modules arrive at the hatchery as ready-to-use skids. This saves time, installation costs and construction of a dedicated mechanical room. Finally, the Zeus Aria Ventilation Controller manages the entire system to optimize delivery of the correct amount of air on demand, at the precise temperature and humidity, while saving energy.

Learn more about how the Aria system can improve your hatchery and reduce your operating costs. Visit our website, chickmaster.com, or contact your local sales representative. •

Seminar for Perdue Farms in Medina

We were pleased to host a seminar for Perdue Farms hatchery managers at our Medina, Ohio facility. Presentations were made by several ChickMaster team members as well as Dr. Mike Wineland from North Carolina State University, Dr. David Peebles from Mississippi State University and Ben Green of Cobb-Vantress. It was a fantastic exchange of ideas and new concepts. We thank Perdue Farms for allowing us to organize the event and we hope to repeat events like this in the future. •



ChickMaster Appoints Farmavet S.A. as Sales Representative for Ecuador

ChickMaster has appointed Farmavet as its sales representative in Ecuador. Farmavet has more than 25 years of experience in the poultry industry. With the growth of poultry farming in Ecuador, ChickMaster and Farmavet will be able to offer better service to current and future customers. “We have seen many new businesses growing and opening in the Ecuadorian market. With Farmavet, we can improve our attention to these companies including service,” said Robert Holzer, President of ChickMaster. The main contacts for sales in Farmavet are Carlos Andres Zambrano and Dr. Arturo Arias Andres Mendoza. ChickMaster has hatchery customers using Classic multi-stage setters, Avida single stage setters, and CC3 ventilation systems. •



Visit our New Website

www.ChickMaster.com

We are pleased to announce that our new website is live and ready for the world to view.

We have completely redesigned our layout with simplicity, ease of use, and accessibility in mind. It will be a tool for both fulfilling our mission and helping us provide better resources to our clients.

We hope you enjoy the new website. Please feel free to send us comments or feedback. On behalf of the team at ChickMaster, thanks for visiting.

Congratulations to Repropacific for the successful startup of its new hatchery with ChickMaster incubation and ventilation equipment.

The hatchery includes Classic incubation systems and the new CC3-5400 Climate Control System with an on-board water chiller for ventilation cooling. The ventilation system is designed to supply 100% fresh air while reducing energy costs. This is achieved by capturing free heat available from the hot water leaving the setters and hatchers from the incubation cooling system. This technology, proven to bring *Hatcheries in Harmony* around the world, is now in operation in Latin America.



Upcoming Events

Join us to learn how you can optimize your hatchability and chick quality with integrated equipment, management systems and environmental control at the following events:

VIV Asia 2015

Bangkok, Thailand
BITEC Bangkok Trade & Exhibition Center
Booth: H106.E031 | 11 - 13 March 2015

Midwest Poultry Federation Convention

St. Paul, Minnesota, USA
St Paul River Centre
Booth: 318 | 17 - 19 March 2015

VIV Russia 2015

Moscow, Russia
Crocus Expo International Exhibition Center
Booth: 08.06H1 40M2 | 19 - 21 May 2015

Avi Africa 2015

Johannesburg, South Africa | 23 - 25 June 2015

VIV Turkey 2015

Istanbul, Turkey | 11 - 13 June 2015

Hatchery in Harmony Seminar Series

Guayaquil, Ecuador
Plaza del Sol, Joaquín José Orrantía González
Sheraton Guayaquil | 8 September 2015

XXIV Congreso de Latinoamericano de Avicultura

Guayaquil, Ecuador
Centro de Convenciones Guayaquil
Booth 4B | 9 - 11 September 2015

SPACE France

Rennes, France | 15 - 18 September 2015

IPEX Pakistan

Lahore, Pakistan
Lahore Expo Center
24 - 26 September 2015

Visit our website for more information:
www.chickmaster.com/resources/events



Keep your Maestro or Advisor System Up to Date

Many of you who receive this e-news are current users of either the Maestro or Advisor.

Maestro is a key component of a *Hatchery in Harmony*.

To receive the latest updates of either software package, please send us an email at maestro@chickmaster.com, and we will be happy to assist you.



ChickMaster International
25 Rockwood Place, Suite 335
Englewood, NJ 07631, USA
Tel: +1 (201) 871-8810

ChickMaster Incubator Co.
945 Lafayette Road, P.O. Box 704
Medina, OH 44258 USA
Tel: +1 (330) 722-5591

ChickMaster UK Limited
1 The Leggar
Bridgwater Somerset
TA6 4AF, UK
Tel: +44 (0)1278 411000

For Worldwide Customer Service Emergency Support: +44(0)1278 555111