



# Chick Master®



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# e-News

Issue Number 19

## The Trend Towards Investment in Hatchers as a Priority Continues

We've been in the setter and hatcher business for over 120 years now thru our La Nationale roots, about 100 with the Buckeye side of the family and roughly 70 years with the Chick Master tree. Admittedly we don't have many of the original employees still with us (though there is a persistent rumor that one of the original Buckeye folks is still working in the stock room of the original building in Ohio). The knowledge gained over those years tends to pass its way down thru the generations and the accumulated experience does tend to help you

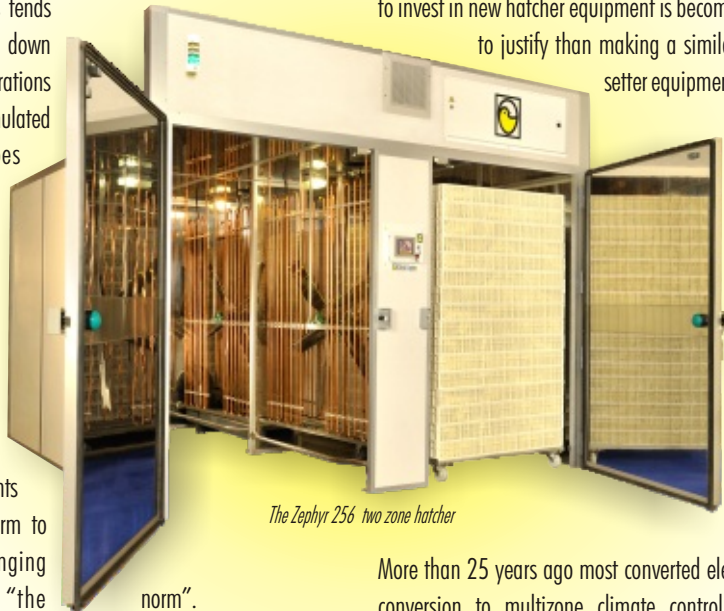
form "expectations" that help to plan and, far more importantly, provide an early insight into events that don't conform to that ever-changing thing called "the norm".

In the world of poultry production the days are long, the weeks are longer than they are for most working people and a year is truly at least 365 days long. In our world the events of day or even a month are rarely meaningful. When events start tracking into years however—then we all start to take notice. We've been watching such a trend for several years now and thought that it was probably time to share some thoughts with you about the way our mutual world is changing.

No, this is not another article about single stage. That chicken crossed the road many years ago now. There is no need to tell you again that significant investment in multistage setter equipment has now become something that is usually seen in emerging markets and capital starved areas but rarely considered in the most-developed markets of the world.

No, this article is about the rapidly changing trend towards upgrading hatchers. Many of our customers have seen that the impact of the hatcher room on both the hatch count and

bird quality is far more economically rewarding than investing in replacement setters. Clearly this remark should not be interpreted as suggesting that conversion from multistage to single stage doesn't have vast economic benefit. It does. However, in the refurbishment of existing buildings where conversion of the entire process from multistage to single stage may not be an option, the decision to invest in new hatcher equipment is becoming by far easier to justify than making a similar investment in setter equipment.



*The Zephyr 256 two zone hatcher*

Look at any multistage setter on the market, including all of our range. More than 30 years ago most manufacturers converted to water cooling.

More than 25 years ago most converted electronic controls; conversion to multizone climate control for most was accomplished 10 to 20 years ago. In the past decade we have introduced improved air flow, better zone control, conversion of thinking from temperature controlled dampers to humidity controlled dampers, more responsive controls, eliminated custom circuit boards in favor of readily available components and remade the cooling systems to allow almost 100% of the cooling requirement to be addressed by the water systems while enabling customers to eliminate the always-harmful effects of humidity spray.

All positive things, but also all things that can be accomplished as upgrades. Nothing but the oldest (dare I say "redwood"??) of setters is not able to be upgraded to incorporate any of those changes. Perhaps some of the other manufacturers have not been quite so proactive in doing these things, but most have done something and, if they haven't, most of the Chick Master supplied upgrades can be fit to those machines improving them as well.

*Continued on page 2 column 1*

### To Our Hatchery Friends: Your Chick Master e-News

**The Chick Master e-News is now entering its 5th year. Over that time we have sought to challenge the traditional way of thinking about incubation and hatchery ventilation. We have done our best to keep you informed of new ideas and trends and helped to provoke a healthy argument on the future direction of our industry.**

We have helped to change the way we incubate eggs with the advent of single stage incubation, but what about the hatcher? Has it been left behind? Larger eggs and better fertility has played havoc with older equipment that now struggles with increased heat loads. What can be done? We challenge the value of statistical sampling of one or more trays. Perhaps humidity levels within the whole setter can be a more accurate indicator of the condition of the entire egg pack? We have supported the concept of variable speed and reversing fans to ensure the elimination of pockets of heat within incubators.

The increase in the cost of energy and the requirement to be more responsible to the environment has instigated a complete rethinking of how we ventilate a hatchery and how we remove toxic substances such as mercury. Higher energy bills and pressure to use renewable energy and recycled heat to reduce our carbon footprint is becoming a major catalyst for change in our industry. Today, Chick Master is the market leader in heat recovery and energy management systems that actually fulfill the promise that many offer yet so few are able to achieve. Finally, advances in technology are constantly presenting us with opportunities to develop new products or improve existing ones. The e-News is our vehicle to inform all of our customers about new opportunities in the form of upgrade kits and retrofits to help your hatchery to keep pace with the latest technology.

All of the important subjects mentioned above, and many more, have been discussed here in the e-News over the last five years. We have tried to provide an interesting balance of informative and provocative articles that cover many facets of our industry.

This is YOUR e-News so please give me your feedback on what you want from it in the future so that the next five years can be as exciting and profitable as the last.

**Please email [enews@chickmaster.com](mailto:enews@chickmaster.com) with your suggestions and requests.**

*The Trend Towards Investment in Hatchers as a Priority Continues*

So, why would you replace existing multistage machines with new ones? More capacity is only a replacement if the new unit is able to put more capacity into the same footprint. Certainly some of the old units are in danger of falling down but, other than that, what is the point?

Hatchers are a different story. Hatchers from 10+ years ago have inherent problems dealing with today's birds and those problems are not easily fixed with upgrades. The eggs are bigger, the fertility of the typical egg pack is higher, the setter controls are causing fewer early or late setter deaths, transfer procedures have become aware of the increasingly more fragile



*What we have learned from the single zone Zephyr (above) has allowed us to develop our first two zone hatchery.*

shells—all leading to more live embryos finding their way into the hatchers. And these live embryos are producing much more heat than their counterparts from 15-20- or 30 years ago. Estimates of 20% to 35% more heat-producing mass are probably very accurate.

Hatchers typically have very little physical space inside to work with in any attempt to mitigate the impact of the increased heat load. Even if the chilled water system has the capacity to provide more cooling in the hatchers, the delivery system (the copper cooling coil in most hatchers) is simply not able to transfer the heat effectively. Lowering the water temperature of the cooling fluid simply causes more buildup of chick fluff on the coils so there is less available surface area to transfer heat at the time of most critical need. Increasing water spray without negative impact on the new birds is not feasible. In some cases, the hatchers in use don't even have access to chilled water and are forced to rely on humidity spray and conditioned air in their attempt to hatch the birds and keep them comfortable. This expensive process is simply not an acceptable way to produce a quality product today.

Some time back the realization that tracking the hatch of viable embryos transferred into the hatchers became data of extreme importance. When examining that data from virtually every hatchery whose data we have seen the results are crystal clear—the hatch of viable from the current generation hatchers like our Zephyr series runs well in excess of 98% while the older hatchers run 2% to 3% lower. Some of the air cooled hatcher installations lose up to 5% of viable embryos today.

Hatch of viable is important and pretty easily measured while bird quality is not so easily quantified. There are a number of approaches that are generally accepted to be a reasonable and, regardless of the method you subscribe to, you should be able to identify deaths and downgrades that are due to hatcher conditions as opposed to those that

are inherited from poor setter performance and/or poor transfer practices. Failure to keep temperatures low enough in the hatchery and excessive humidity are the two most common failings that lay at the feet of the hatchery. Lengthy hatch windows causing dehydration and other downgrade conditions are more likely to be due to poor hatchery operating procedures or poor setter function.

The things we learned from the single zone Zephyr hatchers—concentrating airflow uniformly thru baskets, continuous reduction of temperature as hatches progress, controlling temperature inside the baskets by monitoring the relationship of the probe temperature to the true temperature in the baskets and so on—allowed us recently to introduce the first two zone hatchery we have ever offered. (If I could find one of the 130 year employees I might be able to confirm what I believe—that these hatchers are the first two zone hatchers ever offered commercially!) Examination of the results from the two zone hatchers confirms the theory we had going into the design process—“It is possible to have a hatchery where the hatch reaches 100% hatch of viable with no downgrades.” In fact, we accomplished that exact thing in two different hatcheries in June alone.

Our customers are well aware (we hope) of the differences between the old hatchers and the technology of today as seen in the Zephyr series. They have been taking advantage of this process-improving technology in numbers adequate enough for us to say for certain—“The hatcheries today are more likely to invest in replacement hatchers than they are in replacement setters.” And with good reason ☺

## The Caution Flag is Still Waving!!

**We want to caution you again that earlier this year one of our customers lost a full hatchery full of birds because someone put the Genesis IV control into the “Out Of Service” mode and walked off. In the Genesis IV controls prior to 2007 the Out of Service setting was provided to allow maintenance people to work on the equipment without risk of injury. Since it disables all alarms it was not intended to provide a short cut for disabling alarms when hatchery personnel were opening doors. Unfortunately, we have found that several of our customers have been routinely using the setting for exactly that purpose.**

**We have released several upgrades that can be purchased for simple retrofit installation that will allow you to keep your overtemp alarm active even if you put the equipment out of service. We have also warned repeatedly that the use of the control in that fashion is poor practice that you should not allow.**

**If you have Genesis IV controls on Avida setters or Zephyr hatchers that were delivered prior to 2007 please either install these upgrades, train your personnel not to use the out of service setting incorrectly, or both. If you have questions please contact your Chick Master sales representative.**

See us at  
**SPACE**  
Rennes, France  
Sept 14 to 18

Please call in for a little hospitality and see the Corto, the latest in our line of smaller incubators.

# HATCHERY VENTILATION

## IT'S MORE THAN FRESH AIR

Most of you would agree if I said that our industry finds it much easier to invest in setters and hatchers than it does to invest in the equipment that makes/controls the environment that these units work in. The possible "whys?" are plentiful but the two I subscribe to most are:

1) There is no easy way to quantify the payback period on investment in ventilation equipment since it is not in the direct line process of producing a chick. Management of companies typically likes to see a payback explanation so they understand how the money invested is going to be recovered. Hard to do with most ventilation systems. And,

2) The suppliers of ventilation products have not done a very good job of helping users to understand the impact that the ventilation system has on the process of incubation. Everybody understands the need to provide air at a reasonable temperature and reasonable humidity content, but in practice the conditions in most hatcheries vary widely from day to night and season to season. The quality of the controls, the capacity of the equipment asked to do the job, the condition of equipment too old to approach its original performance—all added to the general lack of

understanding regarding the importance of maintaining correct conditions result in mostly inefficient and ineffective systems.

No matter who you are, you can't afford to do this any longer.

- You are probably wasting eggs by hatching poor numbers due to egg holding conditions that are wrong, rooms that can't hold steady and consistent temperatures from end-to-end and so on;

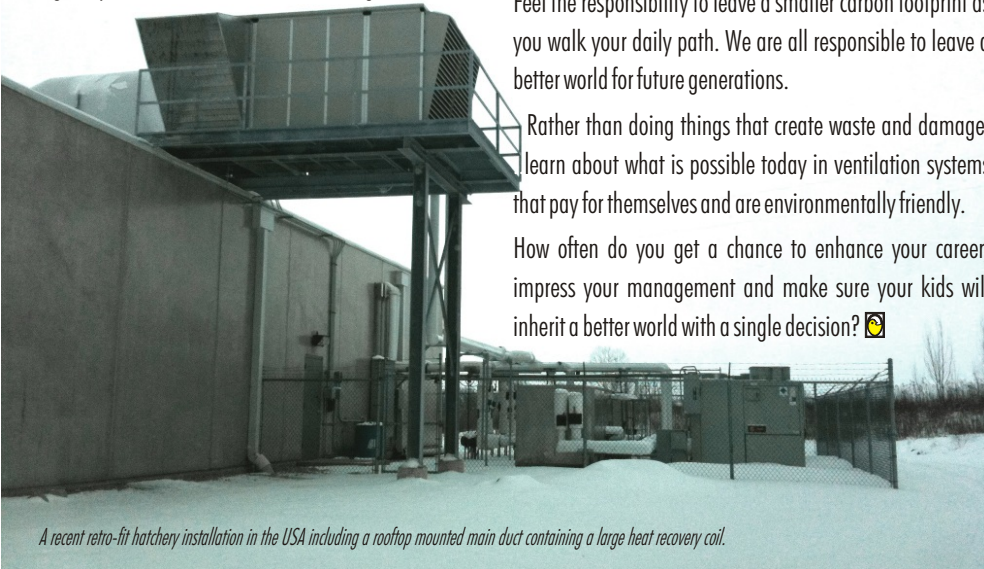
- You are most-likely producing poorer quality birds that you should be because your setters and hatchers are not able to maintain correct temperature and humidity conditions without activating damaging systems of their own (read here "humidity sprayers");

- You are consuming vastly more energy than you should be by wasting the conditioned air you produce, circulating chilled water you do not need, failing to harvest embryo heat that could be reused and using chillers to remove heat that could easily have been done by the incoming air itself.

Improve your product while saving your company money. Feel the responsibility to leave a smaller carbon footprint as you walk your daily path. We are all responsible to leave a better world for future generations.

Rather than doing things that create waste and damage, learn about what is possible today in ventilation systems that pay for themselves and are environmentally friendly.

How often do you get a chance to enhance your career, impress your management and make sure your kids will inherit a better world with a single decision?



*A recent retro-fit hatchery installation in the USA including a rooftop mounted main duct containing a large heat recovery coil.*

If Spare Parts are a puzzle to you...



visit our on-line shop at  
[www.chickmaster.com](http://www.chickmaster.com)  
 and start earning points today.



# Chicks produce

## HEAT



## Don't waste it!

Did you know that a typical hatchery producing one million chicks a week will produce almost two million kWh of heat energy in one year. **This energy is usually exhausted to atmosphere.**

Chick Master can show you how to reuse most of this energy to heat your fresh hatchery air while reducing the energy load on your chillers. Not only will you pay back your investment quickly but you will also reduce your carbon footprint.



Chick Master Energy Management Systems  
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# Transfer Cracks

We are gathering statistics about transfer cracks in an attempt to quantify a hypothesis: The importance of sound equipment and technique for the transfer process in a single stage hatchery is far more important than the same procedure in a multistage hatchery.

Speaking mostly from observation and with little in the way of statistics to support those observations, we see clear evidence that the single stage process (when properly employed) results in greater transfer of shell solids to the developing



Smooth floors and well maintained trolleys are the key to reducing egg cracks at transfer

embryo. Tests on the solids residue from birds (same flock, different setter types) easily confirms that the skeletal and heavy organ weights from the single stage birds are statistically relevant higher for the single stage bird. The differences are so striking that we cannot see any possibility other than that those solids are coming from the shell material.

That "measured" conclusion is easily borne out—simply crush a typical shell from a multistage hatch and then crush a shell from a single stage hatch. The multistage shell will tend to hold together in large pieces and stay

connected to each other for long periods of time; the single stage shell will turn to dust almost immediately and fall from your hand as dust and small pieces. The fragile nature of that single stage shell is obvious.

These conclusions lead us to examine the transfer process. Rough handling, poorly maintained trolleys, bad floors, poorly maintained transfer equipment, inoculation equipment that is too violent in its approach to the egg—all of these

and many more subtle events—all contribute to what we believe is a rising incidence of shell cracks between the removal from the setter and the final resting in the hatcher.

If you have some data or would like to express your thoughts on this topic, please email [enews@chickmaster.com](mailto:enews@chickmaster.com), we would love to hear from you. Meanwhile, we will do our best to expand this information base and share the findings with you as well as any comments or thoughts we get from your peers and colleagues in the industry ☺



Chip Campbell

## Ask the Eggspert

Your chance to ask our hatchery and embryology expert the questions.

**Q** My chicks are hatching later with many pipped and live and with one or two wet chicks per tray. We are in late summer here in Ohio. What do you think is happening?

*Mr. A. Fellows - USA*

**A** Your egg core temperatures are probably dropping below the optimum of 17-19°C (62-66°F) during storage.

It can be surprising how low night time temperatures can get even in the warmer times of the year. It is always a good idea to monitor your egg temperatures daily when they arrive from the farms. Also ensure that your eggs are pre-warmed correctly and evenly and set on a timely basis. It is also essential that you check what time your eggs are arriving at set point to ensure that they have had the optimum incubation time for your breed, age of flocks and age of egg.

It is also very important that you check all of your setter and hatcher temperature calibrations on a regular basis and any other environmental temperatures in your hatchery. You should also use a mercury check thermometer to calibrate your calibration box before use.

Please send your 'Ask The Eggsperts' questions to: [enews@chickmaster.com](mailto:enews@chickmaster.com)

*We invite you to our*

## Technical Seminar

**on The Cost Efficient Process and Science of Incubation**

This is a special Chick Master US seminar to be held on October 20th and 21st at the Glenstone Lodge in Gatlinburg, Tennessee. Along with our own team of experts we will also have guest presenters from Poultry Industry Companies and Universities.

For an application form please visit [www.chickmaster.com](http://www.chickmaster.com) and click on Technical Seminars or call Sandra Gurerra at (+1) 201-871-8810 x113



Please contact us for any product or support information you may require



## FUN TIME

The wind blew so hard here the other day that one of our hens laid the same egg three times...

**Q.** Why couldn't the chicken find her eggs?  
**A.** Because she mislaid them.

**Q.** What do you get if you cross a ghost with a chick  
**A.** A Poultry-Geist.