The trend towards investment in hatchers as a priority continues

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Chick Master have been in the setter and hatcher business for over 120 years now.

The knowledge gained over those years tends to pass its way down through 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 do not conform to that ever changing thing called 'the norm'.

Changing trends

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! The events of a day or even a month are rarely meaningful, but when events start tracking into years however then we all start to take notice.

Chick Master have been watching such a trend for several years now and thought that it was time to share their thoughts about the way the world is changing.

No, this is not another article about single stage. 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.

This article is about the rapidly changing trend towards upgrading hatchers. Many 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 does not 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.

Look at any multistage setter on the market, including all of the Chick Master range, and more than 30 years ago most manufacturers converted to water cooling. More than 25 years ago most converted to electronic controls; conversion to multizone climate control for most was accomplished 10-20 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 favour 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.

These are all positive things, but also things that can be accomplished as upgrades. Nothing but the oldest of setters is unable to be upgraded to incorporate any of these 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 have not, most of the Chick Master supplied upgrades can be fitted to those machines improving them as well.

Why replace machines?

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 over 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 shells – all leading to more live embryos finding their way into the hatchers.

These live embryos are producing much more heat than their counterparts from 15-20 or 30 years ago. Estimates of 20-35% more heat producing mass are probably very accurate.

Increased heat load

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 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 do not 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 realisation 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 the Zephyr series runs well in excess of 98%, while the older hatchers run 2-3% 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 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 hatcher and excessive humidity are the two most common failings that lay at the feet of the hatcher. 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 through 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 to recently introduce the first two zone hatcher we have even offered.

Two zone hatcher

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 hatcher where the hatcher reaches 100% hatch of viable with no downgrades. In fact, we accomplished that exact thing in two different hatches in June alone.

Chick Master customers are well aware 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 that hatcheries today are more likely to invest in replacement hatchers than they are in replacement setters – and with good reason. ■