International Hatchery Practice

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Practical information for better breeding and hatching



FEATURED IN THIS ISSUE

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Antimicrobial Use in On-Farm Hatching Systems Vs. Traditional Systems

Successful Incubation Begins with Good Quality Eggs

Measuring Eggshell Quality On-Farm: Translating Scores to Hatchability Success

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Fertile Thoughts

The pressure to solve the issue of culling male chicks continues to grow. It is estimated that 7 billion day-old male chicks are culled annually around the world.

Female chicks can be raised to become egg-laying hens, or broilers fed to be slaughtered for meat. Male chicks are deemed to have much less economic value.

What if the sex of the eggs could be determined early on in incubation?

There has been some important commercial success with in-ovo sexing by selecting only female embryos before hatching. In-ovo sexing technologies have evolved into two main categories: invasive and non-invasive, many can accurately sex embryos on day 13 of incubation.

But what if there is another solution for this growing issue?

In response to consumer demand, the industry is seeking a solution to identify the sex of fertilised developing embryos without disrupting the eggshell and membrane surfaces.

According to researchers at the University of California, Davis, and Sensit Ventures Inc, fertilised eggs can be sexed, early in incubation by sniffing volatile organic chemicals emitted through the eggshell. The researchers implemented a moderate vacuum pressure system through commercial egg-handling suction cups to collect volatile organic compounds.

Their volatile organic chemicals-based method correctly differentiated male from female embryos with more than 80% accuracy on eggs incubated for just eight days.

This technology could save hatcheries space and offer savings on the energy required to operate incubators, and in addition to reducing the resources needed for hatching chicks, hatcheries could also benefit from reduced costs associated with the sorting and culling of day-old male chicks.

Hatcheries would also be able to divert male eggs for alternative uses, easing this growing pressure. It is also worth noting that this method also operates with the commercial vacuum cups and pressures currently used in existing automation equipment, and is compatible with novel multiplexing sensor hardware, saving hatcheries money.

Cover Picture:

The key to successful incubation

(photo courtesy of Cobb Genetics - see page 13)



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World Focus

An executive summary of key international issues

UKRAINE

Ban lifted

Ukraine has finally lifted the restrictions it had previously imposed on the importation of hatching eggs, live poultry and unprocessed poultry products from Poland. The ban was initially imposed country-wide on 13th July 2023 after the first outbreak of Newcastle Disease in 50 years was recorded on a poultry farm in the Bialystok district with over 43,410 birds being slaughtered. A short while later the restrictions were narrowed down to only affected districts determined by the relevant authorities in Poland.

UGANDA

Adopting new technologies

An experiment implemented by the governments of China and Uganda, through the Ministry of Agriculture, Animal Industry and Fisheries, aims to promote new technology and enable farmers to adopt this new technology for breeding chicks with high productivity. Under this joint venture, which is code-named Food and Agriculture Organisation (FAO) China-Uganda South-to-South cooperation, the Iganga-based National Association of School Community outreach demonstration farm has been given 400 chicks of agricultural technology advancement.

INDIA

Hatchery centre tests positive for AI

Avian Influenza has been confirmed at the government's Regional Hatchery Centre Nagpur after it had reported sporadic deaths among poultry since 29th February 2024, and then the sudden death of more than 200 birds which raised the alarm. Strict containment measures have been put into place, as well as stopping the purchase of poultry feed, transportation, markets, fairs and exhibitions for 21 days, chicken shops and egg sellers in the affected areas have also been asked to dispose of their stock and stay shut for 21 days, and no new bird stock will be raised at the hatchery for 90 days.





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Necessities for successful incubation in the modern hatchery

The practice, or "art", of artificially incubating the avian egg dates back 3,000 years to the ancient Egyptian mud/brick oven-type rooms designed to incubate eggs from native fowl. Since the earliest practices of artificial incubation, the general goal of those incubators, as well as the incubators of today, is to mimic "nature's incubator" or the mother hen.

by Dr Keith Bramwell, Director of Hatchery Consultancy, Embryologist, Jamesway Incubators. jamesway.com



In chickens, the feral hen incubates her clutch of eggs for 21 days, or about 504 hours, which has consistently remained the goal in artificial incubation systems, to mimic the mother hen.

Therefore, the goal of artificial incubation is to pattern our practices after the mother hen and do what she does to achieve so much success.

However, even with all the extensive research and modern technology available to us, modern equipment developed to implement this commercially sized artificial incubation, we still have much to learn to provide the embryo with the optimum environment to develop properly and uniformly.

In addition to the hen's innate instinct and desire to incubate and hatch her eggs, she must respond to ambient environmental changes for the benefit of the embryo.

The hen provides warmth to the eggs, mostly through direct contact of her skin to the egg with little, if any, forced air movement around the incubating eggs. This could explain why data suggests the mother hen provides warmer temperatures than most artificial incubators, and thus may not be as helpful for mimicking the hen's daily incubation profile.

Nevertheless, attempts to copy the natural incubation process remains the primary objective for commercial hatcheries and incubation design and operations.

ARTIFICIAL INCUBATION

While modern incubation equipment can control conditions within the machines better than ever, the same basic principles of incubation still apply. Namely, we must control temperature, humidity, ventilation (air or gas exchange), and turning of the eggs. How well these conditions are met may vary with equipment age and type as well as their upkeep and maintenance. It is imperative to keep incubation equipment and the ambient environment working in the manner in which they were designed.

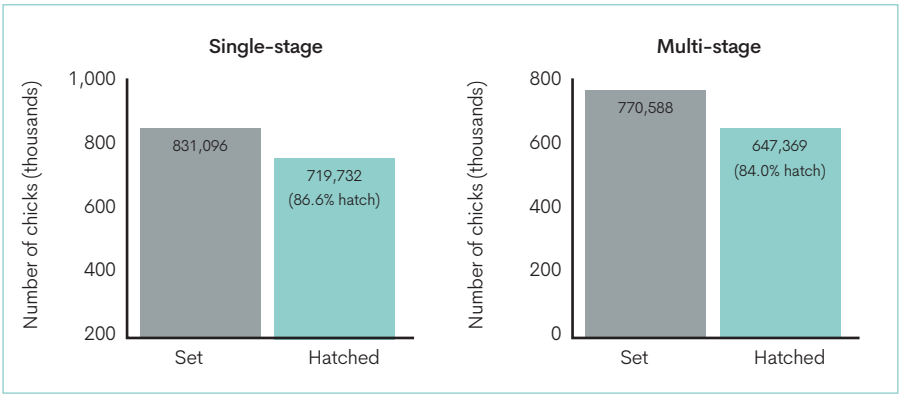
Once these conditions are met, the incubation process is often thought to be a separate event from the grow-out phase of broiler production.

Embryo growth and the basic physiological development of the embryo should be considered to be the first three weeks of the broiler grow-out phase. In other words, the first three weeks of the broiler grow-out should be considered as occurring in the egg and in the hatchery as we know the effects of incubation conditions will affect the production level of the hatched birds as the the physiological makeup of the chick will have a lasting effect on the performance of the birds as they age.

While incubation conditions can affect the physiological development and livability of the embryo, this will also affect the

Continued on page 9

Fig. 1. A study with 1.6 million eggs set over several weeks, all from the same source flocks and divided between single-stage and multi-stage incubation equipment.

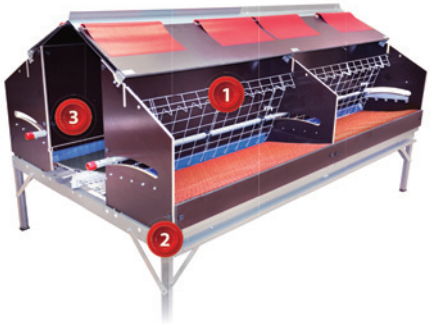


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Continued from page 7
performance of the chick long after hatch.

Taking this into consideration, there is much to be learned about the long-term effects of the environment we subject developing embryos to, in addition to hatchability and 7-day livability.

As producers, we should be just as concerned about chick quality as we are about hatchability and chick numbers.

ROOM FOR CHANGE?

One area receiving considerable attention recently is the effects of carbon dioxide (CO_2) on embryo growth and physiological development during the incubation process. The long-held belief around ventilation or air/gas exchange during incubation was that a setter should work to continually remove carbon dioxide from the machine and replace it with oxygen.

It has always been assumed that CO_2 was harmful to the developing embryo and that fresh air and plenty of oxygen were needed for optimal chick development and hatchability.

However, with atmospheric CO_2 levels typically hovering around 400ppm, and with the average measured CO_2 under the hen at around 4,000ppm it is obvious that the hen incubates her eggs to maintain a level of CO_2 above what is found in the ambient environment.

While the concentration level of CO2 under the hen is dependent upon the age of the embryo and the frequency of which she remains on the nest, or leaves the nest (attentiveness), it is thought that she incubates her eggs at CO_2 levels substantially higher than atmospheric levels. Measurements as high as 10,000ppm of CO_2 have been measured under setting hens, so this is the peak level we should allow in the incubator.

Single-stage incubation systems that operate in a closed cabinet space can best control the environment in the cabinet.

Most incubator manufacturers accept the need to control and monitor CO_2 levels to produce the best chicks possible, and not just to replace it with oxygen, but to maintain specific levels of CO_2 for periods of time early in the incubation process. During embryo growth, the embryo utilises a lot of oxygen (O_2) and produces excess amounts of heat and CO_2.

As the embryo grows, its level of CO_2 production continues to increase at about 1,000ppm per day and continues for up to eight to ten days of incubation.

Therefore, at around eight to ten days of incubation, CO_2 is continually monitored closely to control peak levels (<10,000ppm) attained inside the incubator with the understanding that elevated CO_2 levels late in incubation is detrimental to embryo livability.

At the cellular level of the developing embryo, O_2 and CO_2 exchange is occurring

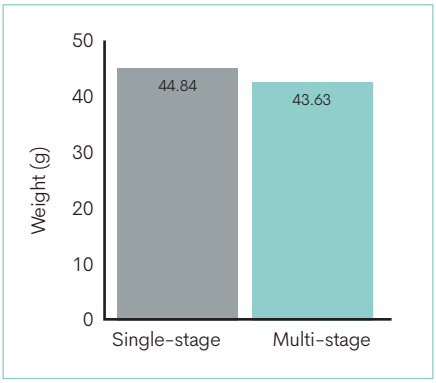


Fig. 2. Chick weight.

rapidly so, as the embryo grows in size and structure, the O_2 demands and CO_2 production are increased. Therefore, the measure of gas exchange of eggs in incubation is simply a magnification of what is happening at the cellular level of the developing embryo.

While the overall goal of incubation is still to provide optimum conditions for embryo growth, technology has allowed for better control of these conditions, allowing for 'fine tuning' of the environment we create for developing embryos.

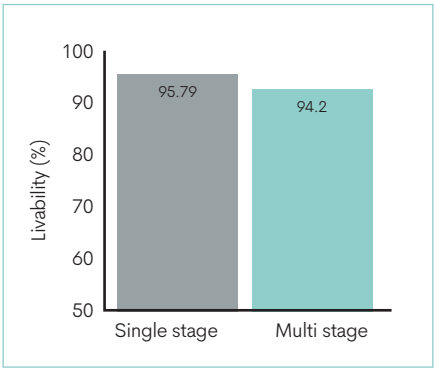
Additionally, improved single-stage incubation equipment, allows our management programs to more precisely incubate eggs and provide the developing embryos with the exact environmental conditions necessary for the optimum growth of specific embryos rather than the average.

As a biological entity, the chicken embryo is designed to grow and develop to survive. By controlling the ambient environment of the incubator cabinet, we can more precisely control the O_2 and CO_2 in which we incubate chicken eggs.

Altering various incubator conditions, such as O_2 and CO_2 levels during the incubation period, causes physiological changes in the developing embryo as it strives to survive. The physiological changes in the developing embryo will persist after hatching, and this has been well documented.

Therefore, the embryo develops in a slightly hypoxic environment that is suitable for growth, but it also causes the basal physiological development to be altered to

Fig. 3. Livability.



survive. Data generated in conjunction with customers has shown that by controlling the CO_2 levels in Single-Stage cabinets the developing chicks thrive.

A study with 1.6 million eggs set over several weeks, all from the same source flocks and divided between Single-Stage and Multi-Stage incubation equipment (Fig. 1) shows that we can gain better than 2.5% in hatchability. Additionally, Fig. 2 also shows an increase in chick weight of 1.2 grams per chick.

A good measure of chick quality is their livability after placement in the growout barns. Fig. 3 shows data from the same set of eggs as previously mentioned and shows a 1.5% improvement in livability when eggs were incubated and chicks developed in Single-stage incubators where CO_2 levels were allowed to rise up to, but not more than, 10,000ppm.

Much like athletes who train at high altitudes to alter their physiology so that they can better utilise O_2, young fowl hatched produce broiler chicks that are better prepared for the sometimes stressful conditions in which they are reared.

The process of incubation is not entirely difficult; however, it requires paying attention to details in the hatchery as well as following the needs of the embryo and following the pattern of incubation that 'nature's incubators' (the mother hen) has set for us.

The domestic fowl begins sitting on her clutch of eggs after she has laid her last egg so that all eggs develop on the same timeline and subsequently hatch after 21 days. Her process of incubation creates a very uniform environment that results in chicks hatching in a 24-hour hatch window (first to last chicks hatched), so they can all begin life as one collective unit.

Any delays or aberrations from following what nature has taught us about incubation would go against what is biologically normal for the incubation and hatching of chicks, and could be considered a breach of animal welfare as it is not 'normal'. Let's begin hatchery evaluation by paying more attention to chick quality and performance instead of only total chick numbers.

It is also important for us as producers to utilise every opportunity we have to learn from our successes (progeny that excel in the field) as well as our failures (analyzing hatch residue).

From this data, we can then analyze our incubation processes to achieve the best results and produce the best quality chicks.

While artificial incubation is a known science that dates back thousands of years, the 'art of incubation' is alive and well as the originators of artificial incubation had to be flexible in learning how to accomplish what the mother hen does in a seemingly easy manner.

They had to adjust to the conditions they had, much like a mother hen does, and make the necessary changes for the benefit of the soon-to-be hatched chicks. ■

Antimicrobial use in on-farm hatching systems vs. traditional systems

In traditional hatching systems, the norm is that chicks remain in the hatchers until all chicks have hatched during the foreseen 'hatching window', up to 24–36 hours.

After pulling from the hatchers, the chicks undergo handlings such as separation, grading, counting, vaccination, and packaging and are transported to the broiler farms.

by Julia G. Jerab,
University of Ghent,
Veterinary Department.



Throughout this period, the chicks usually have no access to feed and water, resulting in a total period of up to 48 hours of feed and water deprivation.

In on-farm hatching systems, eggs are brought to the broiler farm at day 18 of incubation (range is 17-19 days), where the chicks will have immediate and uninterrupted access to feed and water after hatching. Commercial on-farm hatching systems claim to have a variety of benefits in comparison to traditional hatching systems.

As an example, two scientific opinions of the European Food Safety Authority (EFSA) state that transporting fertilised eggs in the context of on-farm hatching is the only manner to minimise welfare consequences during transport and on broiler farms. EFSA also emphasised that state-of-the-art animal welfare practices also help to make animals, in this event day-old chicks & broilers, healthier and that this is in line with the One Health principle.

While many provide scientific support for certain positive claims made by commercial on-farm hatching companies, data regarding a lower antimicrobial use in on-farm hatching systems, compared to traditional hatching systems, are limited, and claims are mainly made based on empirical observations.

Therefore, a case study was conducted in Belgium to collect, quantify, and compare antimicrobial use in commercial flocks that were hatched using traditional hatching systems and with those hatched using on-farm hatching.

The results of this study were published (Open Access) on 19 October '23 in the scientific Journal "Animals", with Julia G. Jerab (Faculty of Veterinary Medicine, Ghent University, Belgium) as lead author.

TREATMENT INCIDENCE (TI)

The numerator of the TI equalled the total quantity of active substance (AS) purchased, which was calculated by multiplying the number of packages purchased with the package size and the concentration of AS in the product. The denominator of the TI equalled the Defined Daily Dose (DDDvet). Thus, the TI represented the number of DDDvet administered per 100 animal days at risk (AAR), using the following formula:

$$\frac{\text{Total amount of AS purchased}}{\text{DDDvet (mg/kg/day) X no. of days at risk X kg of AAR}} \text{ X 100 AAR}$$

The DDDvet was defined as the assumed average dose of a drug for its main indication per day per kg of broiler. For the DDDvet values, those defined by the European Surveillance of Veterinary Antimicrobial Consumption (EVSAC) were used, as most of the antimicrobials purchased were registered for broilers. DDDvet values were generated from the summary of product characteristics (SPC) if combination products were not on the ESVAC list, and the dose of one or both ASs was significantly different from the dose of the single AS products. To determine the 'kg of animal at risk', a growth curve for standard broiler breeds was used, as no slow-growing breeds were used. The 'number of days at risk' was set at 42 days, which was the length of conventional broiler production in Belgium.

MATERIALS AND METHODS

The antimicrobial use (AMU) data were collected by PEHESTAT (Lummen, Belgium) at 211 Belgian broiler farms and to quantify AMU in a standardised manner, treatment incidence (TI) was used (see box, left).

Of these 211 farms, 204 farms (415 houses) applied traditional hatching methods, whereas 28 farms (54 houses) applied on-farm hatching methods.

Of the 204 farms that applied traditional hatching at the start of the period of data collection (2nd of January 2020), 21 farms (36 barns) moved to on-farm hatching during this period (until 31st of December 2020).

In total, the AMU data in 2244 traditionally hatched flocks and 227 on-farm hatched flocks was collected.

All farms had conventional broiler production, with no slow-growing breeds. All flocks, regardless of hatching method, were thinned once (25% of chicks at a weight of +/-2kg), and the remaining 75% were slaughtered at day 40–42, with a final weight of around 2.7kg.

Vaccination did not differ between the two groups.

All broiler data included in the dataset originated from two Belgian hatcheries that were both part of the same integration with common health and management amongst all broiler breeders.

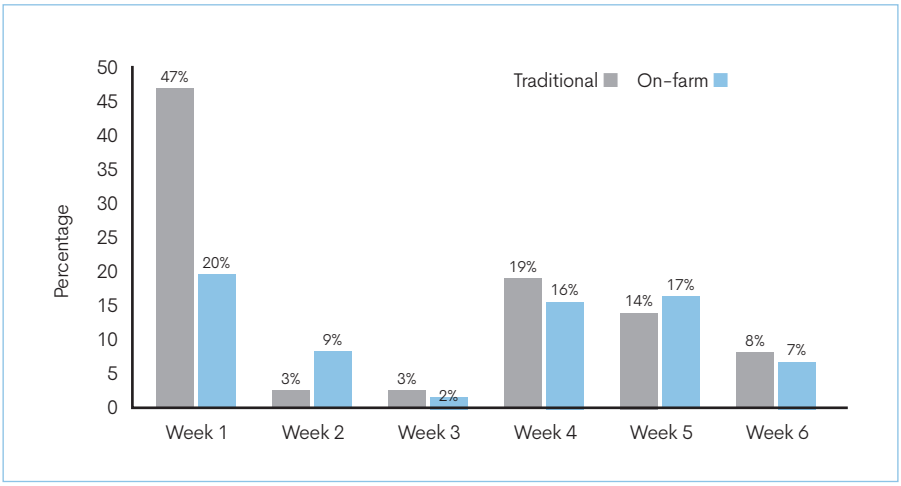


Fig. 1. Percentage of traditional (n=2244) and on-farm (n=227) flocks receiving antimicrobial treatments per week.

RESULTS

Antimicrobial treatment was administered in 2091 flocks (84.62%) of the 2471 total production flocks included in the dataset, with the remaining 380 antimicrobial-free production flocks.

The 2091 treated flocks consisted of 1973 traditionally hatched flocks and 118 on-farm hatched flocks, leaving 12,07% non-treated traditionally hatched flocks (271) and 48.01% non-treated on-farm hatched flocks (109).

Farms using traditional hatching systems had 5.6 times higher odds of using antimicrobials than farms using on-farm hatching systems (95% CI: 3.6–8.8).

When the treatment incidence in all 2471 followed production rounds, regardless of whether or not they received antimicrobials, was compared based on the hatching system, on-farm hatched flocks had a 44% lower treatment incidence ($p < 0.01$) (TI 8.40, CI [6.31–10.49]) compared to traditionally hatched flocks (TI 15.11, CI [14.36–15.85]).

Breeder farms (p=0.19) and flock size (p=0.83) were also taken into account; however, both did not have a significant impact on the AMU. When only the treated flocks are considered, on-farm hatching flocks had a slightly lower ($p < 0.01$) median AMU (TI 11.69, CI [8.77–15.12]) compared to traditionally hatched flocks (TI 13.14, CI [12.60–13.71]).

In the treated traditional production rounds, 75% of the total treatment incidence took place within the first week, compared to 51% in treated on-farm hatching rounds.

Furthermore, in traditionally hatched production rounds, 37% of all antimicrobial administration took place within the first two days of the production round, more than double compared to on-farm hatched flocks (16%).

When comparing the percentage of flocks that received a diagnosis resulting in AMU per week, AMU occurred in 94.62% of the weeks for traditionally hatched flocks, whereas AMU took place in 69.64% of the weeks in on-farm hatched flocks.

Both on-farm and traditional flocks experienced an increase in AMU during week four, with 19% and 16% of all flocks (treated and untreated) receiving treatment, respectively (see Fig. 1).

Both in traditional production and on-farm hatching, lincomycin-spectinomycin (linco-spectin) (TI 6.83, SD 7.41 versus TI 2.13, SD 5.65, respectively) and tetracyclines (TI 3.82. SD 12.80 versus TI 3.08, SD 11.83, respectively) were the most commonly used antimicrobials (see Table 1).

Linco-spectin use was three times higher in traditional flocks compared to on-farm hatched flocks. ■

Table 1. Treatment incidence (TI) per antimicrobial class and sum of all treatment incidences for traditional and on-farm flocks.

	Traditional		On-Farm	
Antimicrobial Class	**Mean**	**Standard**	**Mean**	**Deviation**
TI Aminoglycosides	0.00[a]	0.04	0.00[a]	0.00
TI Amphenicols	0.01[a]	0.04	0.00[a]	0.00
TI Extended Spectrum Penicillins	1.53[a]	3.79	1.15[a]	4.03
TI Fluoroquinolones	0.24[a]	1.74	0.22[a]	1.45
TI Lincomycin-spectinomycin	6.83[a]	7.41	2.13[b]	5.65
TI Macrolides	0.36[a]	1.41	0.18[a]	0.44
TI Other Quinolones	0.22[a]	1.27	0.19[a]	1.56
TI Polymyxins	0.01	0.26	0.29[b]	3.12
TI Tetracyclines.	3.82[a]	12.80	3.08[a]	11.83
TI Trimethroprim-Sulfa	1.66[a]	6.52	0.66[b]	3.33
TI ß-lact sensitive Penicillins	0.45[a]	2.80	0.50[a]	2.40
Sum of TI	15.11[a]	18.01	8.40[b]	15.95

Note: Values in the same row with different subscripts are significantly different at $p < 0.05$ in the selected test used (Mann-Whitney test)

CONCLUSIONS

In this case study, on-farm hatched flocks had significantly more antimicrobial-free flocks (48%) compared to traditional flocks (12%).

As convenience sampling was used, factors such as farmer motivation could influence antimicrobial use and the percentage of antimicrobial-free flocks, nevertheless, the difference in the percentage of antimicrobial-free flocks remains considerable. In addition, on-farm hatched flocks had a significantly 44% lower treatment incidence (TI) at flock level (TI 8.40 vs. TI 15.13).

Overall, the farms using traditional hatching had 5.6 times higher odds of using antimicrobials than the farms using on-farm hatching. Treated on-farm hatched flocks received three times fewer lincomycin-spectinomycin (linco-spectin) and fewer (routine) treatments at the start of the production round.

These results indicate that on-farm hatching may contribute substantially to the decrease in antimicrobial use in broilers and thereby could play an important role in the future of more sustainable and ethical broiler production.

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Successful incubation begins with good quality eggs

Successful incubation of eggs relies on maintaining four key environmental conditions:

By Tommy Lively, Hatchery Specialist, Cobb-Vantress, LLC. Cobbgenetics.com



• **Temperature:** The air temperature in the Incubator directly affects the speed of embryonic development and the egg's weight loss during incubation. Maintaining the correct temperature throughout the incubation process is essential for maximising hatch and chick quality. Low temperatures will cause insufficient weight loss and delay hatch contributing to poor chick quality and a low hatch percentage.

Conversely, high temperatures will cause the embryo to develop too rapidly creating chicks with abnormalities, an early hatch leading to dehydration, and generally poor chick quality such as navel issues.

• **Humidity:** Humidity along with temperature, controls the amount of weight lost by the egg during incubation (through the transfer of moisture out of the shell's pores). Achieving the correct amount of weight loss is critical for the developing embryo and plays a huge role in hatching first-quality chicks.

The correct weight loss at 18 days is roughly 10 to 13% of the pre-incubation egg's weight. If weight loss is low the chicks will have to draw in a larger yolk sack contributing to the number of navel "buttons", and some chicks will have "red hocks" created when the low moisture loss causes a small air cell leading to high pips and the chick struggling to hatch.

If weight loss is excessive (above 14%) due to low humidity in the incubator an elevated number of late dead embryos will result.

• **Ventilation:** Adequate ventilation ensures a fresh supply of oxygen and removal of carbon dioxide. Ventilation also helps regulate humidity levels inside the machines and allows the incubators and hatchers to control temperature more consistently.

• **Turning:** Turning prevents the embryo from sticking to the inner shell membrane, promotes even heat distribution inside the incubator, and ensures proper embryonic development. Eggs should be turned to a minimum angle of 39 degrees every hour to maximise hatch. (Example: Turn 39 to 45 degrees to the left then one hour later turn to 39 to 45 degrees to the right).

Even if all the above conditions are perfect, one contaminated egg in the incubator can explode and contaminate many other eggs. Contaminated eggs lead to poor hatch rates and poor chick quality.

WHAT IS THE COST OF CONTAMINATED EGGS?

The cost of rots in an incubator can vary depending on several factors. Costs include not only direct financial losses of the egg itself but also the indirect costs related to increased mortality rates, especially in the first 7-days.

Moreover, rots increase labour costs as removing contaminated eggs slows the transfer process and sanitation becomes much more time-consuming when dealing with the mess created by exploding eggs. Actual cost estimates, vary from company to company and include factors such as the size of the incubator, the scale of production, and the market value of the chicks produced.

PREVENTING CONTAMINATED EGGS FROM BEING INCUBATED

Above average hatching egg contamination (> 0.5%) is often traceable to the farm. On-farm management decisions that may lead to hatching egg contamination include collecting and not discarding floor eggs, over cleaning eggs, poor egg handling creating hairline cracks, and dirty nests, belts and collection tables. To reduce the risk of incubating contaminated eggs, remove defective eggs and discard them before incubating:

• **Cracked or Broken Shells:** Eggs with cracks or fractures allow bacteria to enter. These cracks can occur during handling, transportation, or storage.

• **Soiled or Dirty Eggs:** Eggs with visible dirt, faeces, or other contaminants carry the risk of bacterial contamination. Bacteria thrive in warm, humid environments, making soiled eggs a breeding ground for harmful microorganisms.

• **Malformed Eggs:** Eggs with irregular shapes, rough shells, or fragile shells typically have a much higher rate of damaged cuticles which can compromise the protective barrier and increase the risk of contamination.

• **Eggs with Extended Storage Time (over 7 days):** As eggs age past 7 days the number of early dead embryos increases and these "dead" embryos create a fertile area for bacteria growth increasing contamination rates.

It is also important to remember that contaminated eggs can be created during transportation or in the hatchery.

Moving eggs from cool to warm environments can lead to condensation forming on the eggs, and this moisture can promote contamination. Finally, leaks from hatchery equipment such as humidity nozzles or cooling coils can wet eggs promoting contamination.

REMOVAL AND ACCURATE RECORDING

Removing and accurately recording the number of contaminated eggs can help limit the damage and identify egg-handling issues

During the transfer process, the team members should remove as many of the contaminated eggs as possible to prevent the eggs from exploding during the transfer or pull process and contaminating more eggs or chicks.

This is even more important when using "In ovo Vaccination" as eggs exploding when "punched at injection" will clog and contaminate needles and can overwhelm the In ovo machine's sanitation process leading to high numbers of late dead embryos and elevated 7-day mortalities.

Hatcheries should also ensure that the number of contaminated eggs is accurately counted so that this data can be recorded and graphed over time to identify trends or specific times of the year when incidents increase. This information must be relayed to the production team to help them identify problem producers. ■

Options for

Sophisticated technology for maximum efficacy

The use of certain vaccines in chicken flocks can be useful in reducing disease and may also have a positive impact on human health by reducing the risk of human infection through food consumption.

henkesasswolf.de

To transfer individual vaccines to the proper spot at the correct dosage in the animal's body, many veterinarians and poultry producer put their trust in Henke-Sass, Wolf – a leading manufacturer of high-quality, durable and reliable application and injection systems.

The HSW products are innovative, and user-friendly and are especially designed for their intended application in the veterinary field.

In hatcheries, day-old vaccination is generally accomplished by giving vaccines subcutaneously under the skin at the back of the neck or intramuscularly in the leg.

The HSW Pneumatic Vaccinator ensures that the full dose of vaccine is delivered to the proper location and depth inside the chicken.

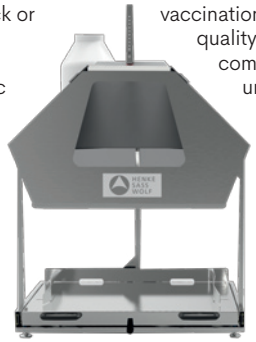
Reliable double-stroke cylinders and syringes capable of delivering different volumes (0.1ml, 0.2ml, 0.3ml fixed/0.3ml, 0.4ml, 0.45ml fixed/0.05ml – 0.35ml adjustable in increments of 0.02 ml) guarantee best possible results throughout the vaccination process.

The Pneumatic Vaccinator is available in single- and double-syringe versions, allowing operators to apply live and inactivated vaccines at once. To fulfill all biosecurity standards the device can be cleaned easily and the adjustable trigger element cleans itself with compressed air after each batch.

To prevent disease outbreaks in day-old chicks in the hatcheries, chicks are vaccinated with live vaccines using a spray cabinet that administers a defined amount of water-based vaccine to each box of chicks.

The HSW Spray Cabinet offers adjustable volumes based on various crate sizes and vaccination procedures, high-quality stainless steel components as well as a unique spray nozzle to enable equal and effective distribution of the vaccine to the chicks.

Additionally, a constant airflow in the ten litre reservoir prevents sedimentation of the vaccines.



Two dispensers for different dosage combinations

The Valery Technologies Double Syringe for poultry is a double pumping syringe with fixed regulation equipped with two dispensers coupled with different dosage combinations.

poultryplast.com

The device can be supplied with a dip tube or bottle holder directly on the syringe body. The work is ensured by a single pneumatic jack powered by a compressor or connectable to mobile storage units.

The model has an adjustable capacity, separately for each injector, from 0.1ml to 2ml.

The device can be integrated with a separate extension allowing the animal to be reached from a safe distance (700 mm).





Poultry injections – select the adequate syringe

Socorex Isba SA is a Swiss manufacturer of self-refilling injection syringes with spring-loaded plungers and a three-way valve system.

Socorex.com

Simple conception, perfect hand balance and ergonomic design provide ease of use, operator comfort and fatigue-free fieldwork.

Opting for a quality syringe is a long-term investment, but it pays back rapidly. From a safety point of view, all animals will be efficiently protected against diseases, and economically as there is no need to constantly purchase new instruments. Not to mention that high reliability enables substantial savings on the cost of rather expensive vaccines.

The trend goes clearly towards greater vaccine efficiency, requiring a smaller dose. At this stage, Socorex is best positioned with its ultra 1810 syringe line going down to 0.02ml. There are Six models ranging from 0.1, 0.2, 0.3, 0.5, 1 and 2ml available so far. As for maintenance, all Socorex syringes are made of a few parts easily disassembled and cleaned. Parts are available separately to maintain the syringes in good working condition over a long period.

Ensuring safe, traceable, and transparent in ovo vaccination

In ovo vaccination is a proven technology for the application of vaccines in a hatchery.

viscon.eu

Viscon takes in ovo vaccination to a new level through the integration of innovative technology to detect, inject and transfer only live embryos, excluding infertile, dead and contaminated eggs.

Pro-Vacc-Tive is a unique real time monitoring solution to guarantee the efficacy of the vaccination process.

By monitoring the vaccine delivery of each injection, the system can detect and alert the operator of potential operational issues, such as blocked needles, in real-time without the necessity of regular manual inspection during production.

This integration improves vaccination accuracy, enhances quality control, increases machine up time and optimises vaccine saving.

Tregg is a software solution specifically designed to analyze and report data, empowering hatcheries with robust traceability and informed decision-making capabilities.

Information related to individual and flock performance, automation processes and hatching results can be collated to support the improvement of the hatchery's overall performance.





Elevate hatchery services with in ovo vaccination

PlumaGen, a significant player in the Brazilian egg hatchery sector and partner with Hendrix Genetics, has taken a substantial stride forward by introducing in ovo vaccination against Marek's Disease for its 1-day-old chicks.

hendrix-genetics.com

This innovation marks a pioneering step, positioning PlumaGen as the first commercial egg genetic house in Brazil to adopt this advanced vaccination technique.

The company's in ovo vaccination process will be fully automated, employing the Rispens strain of the Marek's Disease vaccine. This novel approach will be implemented in 3 out of the 4 hatcheries of the company (Birigui, Louveira and Campina Grande). The in ovo vaccination method, long employed in the broiler segment, is a technological leap for laying genetics.

Despite potential vaccine loss due to male egg discards during the hatching process, PlumaGen is embracing this method to furnish Brazilian farms with more robust and immunologically prepared chicks. This investment demonstrates PlumaGen's dedication to employee well-being, process enhancement, product quality, animal welfare, and unparalleled flock health.

Vaccine against coccidiosis for in-ovo administration

Hipra have launched Evanovo, the first vaccine attenuated for precociousness against coccidiosis specially developed for in-ovo administration to broilers.

Hipra.com

Vaccination against coccidiosis is already an essential part of the strategy for the control of coccidiosis in Europe.

Nevertheless, it is hoped that its use will continue to increase in the coming years as a result of consumer demands for restriction of the use of coccidiostats.

Evanovo, the only vaccine against coccidiosis in Europe for in-ovo administration, represents a clear development in the prevention of this disease.

Its many advantages include in particular the fact that administration to each individual chicken is ensured and that lasting protection is provided for a minimum of 63 days post-vaccination. Evanovo can also be given in the same injection with other vaccines such as Gumbohatch, Hipra's immune-complex vaccine against Gumboro, thereby optimising and minimising hatchery vaccination processes.

Hipra complemented the launch of the vaccine in Europe with various support services from administration to the outcomes on the farm.

An example is the Global Hatchery Health Programme (GHHP) which focusses on helping the customer to maximise the health potential of the chick from the hatchery onwards by means of optimisation of the vaccination processes.



Next generation in ovo vaccination and nutritioin

Royal Pas Reform has developed an advanced technological solution to deliver safe and effective in ovo vaccination and nutrition: SmartVac.

pasreform.com

● **100% effective in ovo vaccination and nutrition:** SmartVac delivers the injectables only into the amniotic fluid, thus preventing possible injury to the growing embryo.

It enables the poultry industry to apply a wide range of vaccines in ovo, including Gumboro, Marek, ND and coccidiosis vaccines.

This is optionally performed in combination with nutritional components – for chickens with a healthy gut, favourable microbiota, enhanced immunity, and thus improved field performance.

● **Embryo Soft Touch (EST) technology:**

SmartVac was designed to maximise the safety of the injection process, by focusing on the development level and needs of the growing embryo.

The Embryo Soft Touch (EST) sensor on the injector allows automatic and individual adaptation of the injection depth to every single embryo, regardless of egg and embryo size.

EST also detects when the setter tray has an empty egg position or contains non-viable eggs (infertile or early dead), helping to reduce the wastage of valuable vaccine.

Only eggs containing grown embryos are inoculated with vaccine or nutrition.

● **Dual needle system provides extra safety:**

The innovative SmartVac design features a sophisticated dual needle system, which consists of an outer needle to penetrate the eggshell and an inside needle to dose the vaccine and nutrients.

This ensures that each vaccination is administered consistently and safely in the egg's amniotic fluid.

The inner needle does not have a sharp end, which avoids lesions to the embryo and promotes optimum security in the process.



Measuring eggshell quality on-farm: translating scores to hatchability success

The eggshell is an ingenious structure of different layers. But with the human eye, it is difficult to judge if the shell is well developed. This is important to know to maximise hatchability results and strong chicks. There is now an easy way to measure this – right on the farm. The results help to address opportunities for improvement regarding management and nutrition.



by Emmy Koeleman.
Freelance Journalist.

Working with eggs is a delicate business. Not only because they are fragile, but mainly because disturbances in eggshell quality have a direct effect on the number of eggs that reach the market (in the case of table eggs) and hatchability results (in the case of breeder eggs). Eggshell quality is affected by nutrition, disease challenges and environmental stress. Genetics and age also play a role. You don't want the shell to be too thick. When too thin, embryos can experience dehydration during incubation, leading to an increased mortality rate.

"Eggshell quality is on every poultry farmer's mind, and it is a growing problem with the high-performing birds we use today. Producing many eggs can lead to higher sensitivity to stressors and reduced absorption of nutrients, which is crucial for the formation of eggshells.

While modern breeds have high genetic potential in terms of number of eggs, we might end up with low-quality eggs instead.

This is what we should prevent at all times, as this can lead to fewer chicks hatched, and a loss of resources (energy) of having them in the incubator", Duarte Neves, poultry nutritionist at Zinpro told International Hatchery Practice.

HOW TO MEASURE EGGSHELL QUALITY AT SCALE

Improving eggshell quality is crucial to productivity. Between the moment the eggs are laid and the moment they are put in the incubator can easily take 3-5 days in large operations.

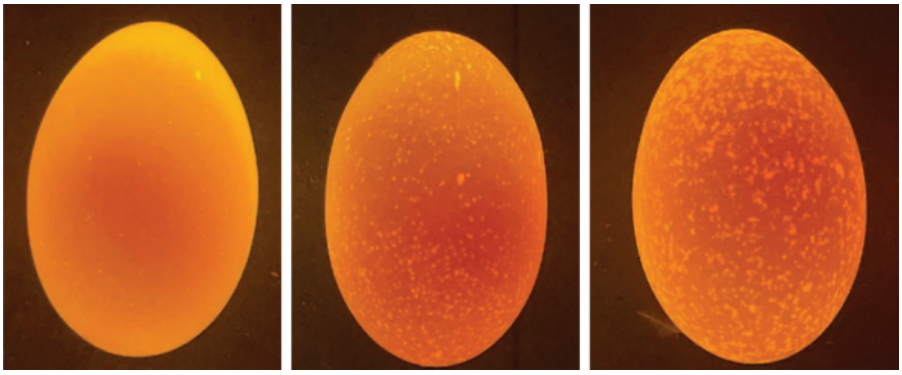
During this 'waiting period', the eggshell starts revealing its translucency imperfections, as shown when the egg is held up to a light source. The presence of high translucent eggs leads to losses in production since translucent eggs are weaker, more prone to humidity losses and increase the risk of bacterial penetration.

"If we can have a better grip on the quality of the eggs from the moment they are placed in the incubator, we can better predict hatchability and make better use of the resources.

This sounds logical, but for breeder operations, it is not standard procedure to measure it before they place the eggs in the incubator, due to a lack of a good scoring system and a smart way to measure multiple eggs at the same time. It sparked Zinpro to develop an easy-to-use "egg-assessment tool", based on translucency and equipped to use on-farm.

We were looking for something that would allow us to gain a better insight into the relationship between nutrition and management on eggshell quality, and hence the effect of eggshell quality on hatchability results. And to make this more visible!" explained Duarte.

Fig. 1. From left to right: score 1: represents a few small white spots, score 2: more white spots, widely spread and score 3: shows a lot of white spots/patches.



REDUCING THE NUMBER OF 'HIGH TRANSLUCENCY EGGS'

The idea of the tool and associated scoring system started many years ago, with a simple prototype to test a few eggs. Ever since, it has been learning by doing and we have constantly improved the process and the device, which led to the so-called Zinpro BlueBox that is available today. The device can take a picture of a significant number of eggs at once.

These images are sent to the computer, where they are given a score, based on the in-house developed scoring system from Zinpro (Fig. 1).

Pedro Tomasi, business manager in Brazil at Zinpro explained. "The evaluation works very easily and involves a unique and innovative sampling method for scoring and one to measure the correlation between the scoring results and the hatchability of fertile eggs."

The results are circled back to see if all agree on the right score.

Tomasi explained: "This makes the process very transparent. We want to reduce the number of eggs with translucency as much as possible because they negatively influence the total hatchability results. If we can increase the percentage 'hatch of fertile eggs' we can increase the number of saleable chicks."

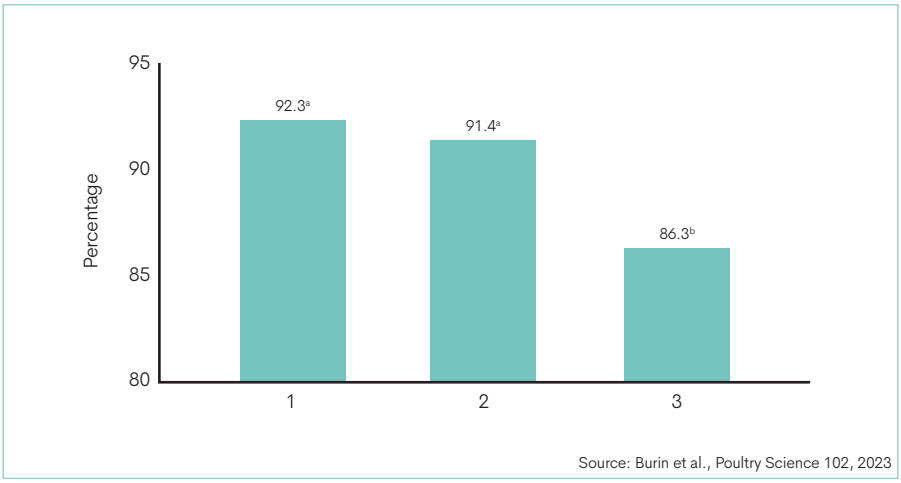


Fig. 2. Hatchability of fertile eggs (%) for three different eggshell quality scores (1,2,3).

LINKING SCORE WITH HATCHABILITY

The translucency results that are collected at farms help to address opportunities for improvement regarding management and nutrition.

Tomasi explained: "When it comes to nutrition, we know that several trace minerals are involved, and each has their specific role. Calcium and phosphorus can be seen as the bricks of the construction (the eggshell). They are important, but you also need the right cement to hold the construction (organic matter) together. Copper, manganese, zinc, and selenium play a critical role in structuring the inner egg membrane and can be seen as the "cement" we need for strong eggshells."

Zinpro is using the new tool to translate nutritional advice to eggshell quality and hence hatchability results. It also establishes a benchmark and sets goals to achieve better outcomes and ROI.

Duarte explained: "We know that supplementation with the right set of trace minerals improves the ultra-structural organisation of the shell membrane. With our translucency device we can now also see how this translates in the scores and hence hatchability." To test this in practice, evaluations were performed from 2020 to 2022 with data taken from four hatcheries in Brazil.

A total of 10,270 eggs were collected from 18 broiler breeder flocks having 35 to 77 weeks of age, including two genetic lines. These were individually scored for eggshell translucency. All eggs were scored between 6 and 7 days after laying, being immediately incubated.

A total of 1,102 eggs (10.7%) were found unfertile. This recent study confirmed that the most translucent eggs (3) had the lowest hatchability of fertile eggs, but that results also depend on the genetics and age of the breeders.

CONCLUSION

Much information has been learned about eggshell quality during the past decades, but we are still learning every day. It is not only about calcium or adding limestone to the diet. Eggshell quality involves many factors and feeding a matrix of trace minerals, each having its specific role.

Understanding the role of all these factors and how we can influence them is a powerful tool to increase hatchability and directly influence business results. The Zinpro BlueBox methodology, developed over the last 6+ years in cooperation with industry experts can be seen as the most detailed research that the industry has ever done regarding translucency.

This is because the methodology uses a series of steps, tools, and processes to do accurate egg evolution. So far, over 160,000 eggs have been scored using this new methodology.

Duarte shows that the relationship between eggshell quality and hatchability is an important first step to improving the business performance of poultry producers.

"A successful hatch has a considerable economic impact on all poultry companies. Combining the knowledge of trace minerals and the use of the translucency device – the Zinpro BlueBox – and associated scoring system helps us put the "puzzle of eggshell quality" together in a very practical and transparent way.

But we are also very much interested in how eggshell quality translates to the performance of the chicks from hatch to market weight in terms of development and body weight growth. Then we would have the full picture and can use this information to further improve the business success of our breeders," Duarte concluded. ■



Talking POINTS

INDUSTRY QUESTIONS ANSWERED

Poultry Producers' Top Priority: Hatchability

A bird's ability to lay the eggs that will become the production birds of tomorrow is a vital part of the global food supply chain. With this in mind, what can producers do to support and maximise hatchability?

Q1: WHAT AFFECTS HATCHABILITY?

Hatchability is one of the prime economic indicators of a breeder operation. Increased hatchability means more chicks which results in more profit. Hatchability is a mirror wherein the health of a breeder operation is observed. Any deviation in management at the breeder house (such as improper egg collection, handling, sanitation and storage of eggs), and/or at the hatchery (irregularity in temperature, relative humidity, pre-incubation storage), and flock health can affect hatchability. Other factors in hatchability include diseases (Mycoplasma, Newcastle disease, infectious bronchitis, etc.), feed formulation, vitamin or mineral deficiency, and improper feeding allocation of the birds.

Q2: WHAT SHOULD PRODUCERS WHO WANT TO IMPROVE HATCHABILITY TAKE INTO CONSIDERATION?

Any deviation in breeder management, hatchery unit, flock health and nutrition can affect hatchability. One helpful method is to list all the critical control/checkpoints of the operation and evaluate them individually to identify areas to improve or adjust. This allows corrective measures to be applied and can establish a standard operating procedure for the operation. An easily identifiable and rectifiable area of improvement is at the feed nutrition level where adjustments can take effect immediately. Attention should be given to vitamin and trace mineral levels in feed as they are often added in lesser quantities and are very important for egg production. Therefore, underdosing and using lower quality/purity/bioavailable products can have a tremendous effect on hatchability.

Q3: HOW DOES NUTRITION SUPPORT HATCHABILITY?

What we feed to the hen determines the quality of the chick. It is necessary to feed the birds balanced feed with an optimum amount of energy, protein, essential amino acids, vitamins and minerals as per breeder recommendations. We must keep in mind that the nutrients present in the egg support chick developmental metabolism. Providing the correct amount of vitamins and trace minerals is important as these nutrients are essential to internal organ development and enzyme metabolism in the embryos. But the source of the mineral also matters. Bis-chelated trace minerals are shown to be highly bioavailable, avoiding antagonism in the gut and allowing more mineral to be utilised by the birds.

Q4: WHAT RESULTS DO YOU SEE FROM A BROILER BREEDER TRACE MINERAL PROGRAM?

Our research shows when breeder birds were fed MINTREX® Bis-Chelated Trace Minerals in the form of zinc, copper and manganese at 50ppm, 10ppm and 60ppm respectively, the hatchability improved by 3-5%, hen housed egg production increased by 3%, and cracked eggs were reduced by 36%. Ultimately, this mineral program fosters an improved number of quality chicks produced, in turn providing better profitability and return on investment to producers.

CONCLUSION

Breeders are like the central bank in any operation. Whatever we feed them or deposit to them, we should be able to withdraw with interest in terms of better hatchability and additional chicks. Providing the optimum mineral nutrition to breeders is critical to improving productivity and hatchability. Thanks to its high bioavailability and additional methionine value, breeders fed MINTREX® Bis-Chelated Trace Minerals are able to get more minerals to the site of absorption, allowing birds to optimise hatchability.

ANNA FE PERINO
Poultry Solutions Manager
Asia NOVUS



To learn more about how NOVUS is supporting the poultry industry, **visit novusint.com**.

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Focus on Research

Non-Antibiotics Strategies to Control Salmonella Infection

Antibiotics have been the main strategy for Salmonella control for many years, which has allowed producers to improve the growth and health of food-producing animals. The use of alternatives to antibiotics has been recommended and successfully applied in many countries, leading to the core aim of this review **(Animals 2022, 12(1), 102)**, focused on (1) describing the importance of Salmonella infection in poultry and the effects associated with the use of antibiotics for disease control; (2) discussing the use of feeding-based (prebiotics, probiotics, bacterial subproducts, phytobiotics) and non-feeding-based (bacteriophages, in ovo injection, vaccines) strategies in poultry production for Salmonella control; and (3) exploring the use of complementary strategies, highlighting those based on -omics tools, to assess the effects of using the available antibiotic-free alternatives and their role in lowering dependency on the existing antimicrobial substances to manage bacterial infections in poultry effectively.

Rapid egg cooling rate after oviposition influences the embryonic development, hatchability, and hatch time of young and old broiler hatching eggs1

This study **(Poult. Sci., Vol. 102, Issue 12, Dec. 2023, 103083)** investigated the effect of the egg cooling profile after oviposition on blastoderm development, embryonic mortality, hatchability, and hatch time of broiler hatching eggs from young and old breeder flocks. Hatching eggs were obtained from commercial Ross 308 broiler breeders at 28 wk (young) and 64 wk (old) of age.

A total of 3,150 eggs laid within a 15-min period were collected and randomly assigned to 2 temperature-controlled chambers in both flocks. The eggshell temperature (EST) was cooled to 24°C either within 6 h (control) or 45 min (rapid). After the EST reached 16°C in the chambers in all groups, eggs were transported to the commercial hatchery. Eggs were stored for 6 d at 16°C and 75% relative humidity.

The development of the blastoderm in sampled eggs (25 embryos in each batch) was determined immediately after egg collection and before transport to the hatchery (after cooling) on a farm in each flock. At each flock age, there were 5 replicate trays of 150 eggs per egg cooling treatment set in a single commercial incubator. The results showed that the embryonic developmental stage was retarded by rapid cooling and by the younger flock. A flock age × cooling rate interaction was observed for fertile hatchability and early and late embryonic mortality ($P<0.001$). In the young flock eggs, the fertile hatchability was significantly lower in the rapid than in the control cooling treatment (88.7 vs. 92.8%) due to higher early and late embryonic mortality, whereas rapid cooling reduced early embryonic mortality ($P<0.01$) and numerically increased the fertile hatchability (88.7 vs. 87.2%) in the old flock eggs. Hatch time was affected by the cooling treatment. The average hatch time was delayed by 3 h by rapid cooling (486.2 vs. 489.2 h) after oviposition compared with the control. This study showed that cooling the EST to 24°C within 45 min (rapid cooling) compared to 6 h (control) after laying retarded the blastoderm developmental stage and hatch time of eggs from both young and old broiler breeder flocks.

Evaluation of Antimicrobial Resistance of Different Phylogroups of Escherichia coli Isolates from Feces of Breeding and Laying Hens

Escherichia. coli is frequently used as an indicator of fecal contamination in the food industry and known as a reservoir of antimicrobial resistance genes (ARGs). Microbial contamination as a major outcome for the poultry and egg industry and is a serious public health problem. In the present study **(Antibiotics 2023, 12(1), 20)** we performed the quantification of β-glucoronidase positive E. coli in 60 fecal samples of breeding and laying hens collected in Portugal in 2019. Phylogenetic and pathotypic characterisation, antimicrobial susceptibility, and detection of resistant extended-spectrum β-lactamase (ESBL) genes were assessed. The phylogenetic and pathogenic characterisation and detection of ESBL genes were assessed by real-time PCR and antimicrobial susceptibility was evaluated using the disk diffusion method. Overall, E. coli quantification was 6.03 log CFU/g in breeding hens and 6.02 log CFU/g in laying hens. The most frequent phylogroups were B1. None of the isolates was classified as diarrheagenic E. coli (DEC). In total, 57% of the isolates showed MDR and 3.8% were positive for ESBL. Our study highlights that consumers may be exposed to MDR E. coli, presenting a major hazard to food safety and a risk to public health.

Central Taurine Attenuates Hyperthermia and Isolation Stress Behaviors Augmented by Corticotropin-Releasing Factor with Modifying Brain Amino Acid Metabolism in Neonatal Chicks

The objective of this study **(Metabolites 2022, 12(1), 83)** was to determine the effects of centrally administered taurine on rectal temperature, behavioral responses and brain amino acid metabolism under isolation stress and the presence of co-injected corticotropin-releasing factor (CRF).

Neonatal chicks were centrally injected with saline, 2.1 pmol of CRF, 2.5 μmol of taurine or both taurine and CRF. The results showed that CRF-induced hyperthermia was attenuated by co-injection with taurine. Taurine, alone or with CRF, significantly decreased the number of distress vocalisations and the time spent in active wakefulness, as well as increased the time spent in the sleeping posture, compared with the saline- and CRF-injected chicks.

An amino acid chromatographic analysis revealed that diencephalic leucine, isoleucine, tyrosine, glutamate, asparagine, alanine, β-alanine, cystathionine and 3-methylhistidine were decreased in response to taurine alone or in combination with CRF.

Central taurine, alone and when co-administered with CRF, decreased isoleucine, phenylalanine, tyrosine and cysteine, but increased glycine concentrations in the brainstem, compared with saline and CRF groups. The results collectively indicate that central taurine attenuated CRF-induced hyperthermia and stress behaviors in neonatal chicks, and the mechanism likely involves the repartitioning of amino acids to different metabolic pathways. In particular, brain leucine, isoleucine, cysteine, glutamate and glycine may be mobilised to cope with acute stressors.

Focus on Research

Effects of dietary vitamin E on fertility functions in poultry species

Vitamin E is found in high quantities in vegetable oils. Although vitamin E has multiple functions in humans and animals, its key function is protecting cells from oxidative damage. Since its discovery, several studies have demonstrated that vitamin E deficiency causes impaired fertility in humans and lab animals. However, the effects of vitamin E deficiency or of its supplementation on the fertility of farm animals, particularly on poultry, are less well studied. Therefore, a comprehensive review of the effects of dietary vitamin E on the fertility of poultry species is needed in order to understand the beneficial role of vitamin E in the maintenance of sperm and egg qualities. Based on the observations reviewed in this study **(Int. J. Mol. Sci. 2015, 16(5), 9910-9921)**, we found that a moderate amount of vitamin E in poultry diet significantly protects semen/sperm qualities in male birds and egg qualities in female birds via decreasing the lipid peroxidation in semen/sperms and eggs.

In ovo probiotic supplementation supports hatchability and improves hatchling quality in broilers

In modern broilers, the period of embryonic development constitutes a greater proportion of a broiler's productive life. Hence, optimum embryonic development can exert a significant influence not only on chick hatchability and hatchling quality but also on overall broiler growth and performance. Further healthy and active hatchlings are correlated with improved posthatch performance. In this regard, probiotics are good candidates to mediate early-life programming. Therefore, in this study **(Poult. Sci., Vol. 103, Issue 6, June 2024, 103624)** we evaluated the effect of In ovo probiotic spray application on broiler hatchability and hatchling quality.

The experiment was set out as a completely randomised study with 2 independent trials. In each trial, 540 eggs (Ross 308) were either sprayed with phosphate buffered saline (PBS; control) or probiotics [~9 log CFU/egg of Lactobacillus rhamnosus NRRL B-442(LR) or Lactobacillus paracasei DUP 13076 (LP)] during incubation. On day 18, eggs were transferred to the hatcher and set up for hatching.

Starting on day 19, eggs were observed for hatching to determine the spread of hatch and hatchability. Hatched chicks were then assessed for quality using the Tona and Pasgar score and morphometric measurements including hatchling weight, yolk-free-body-mass and hatchling length were measured. Further, chicks were reared in floor pens for 3 wk to assess posthatch growth. Overall, In ovo probiotic supplementation improved hatchability and hatchling quality. Specifically, the spray application of LP improved hatchability by ~5% without affecting the spread of hatch. Further, both LR and LP significantly improved Pasgar and Tona score, indicating an improvement in hatchling quality. Also, LP and LR significantly improved hatchling weight, yolk-free-body-mass, and posthatch growth in chicks. LR significantly improved hatchling weight and hatchling length ($P<0.05$).

Moreover, this increase in posthatch growth was positively correlated with hatchling weight in the probiotic groups.

Embryonic thermal manipulation reduces hatch time, increases hatchability, thermotolerance, and liver metabolism in broiler embryos

The broilers' health and growth performance are affected by egg quality, incubation conditions, and posthatch management. Broilers are more susceptible to heat stress because they have poor thermoregulatory capacity. So, it is crucial to develop a strategy to make chicks thermotolerant and cope with heat stress in post-hatch life.

This study **(Poult. Sci., Vol. 103, Issue 4, Apr. 2024, 103527)** investigated the effects of embryonic thermal manipulation (TM) on different hatching parameters (hatch time, hatchability, and hatch weight), brain thermotolerance, and liver metabolism.

Six hundred fertile Cobb 500 eggs were incubated for 21 d. After candling on embryonic day (ED) 10, 238 eggs were thermally manipulated at 38.5°C with 55% relative humidity (RH) from ED 12 to 18, then transferred to the hatcher (ED 19–21, standard temperature, 37.5°C) and 236 eggs were incubated at a standard temperature (37.5°C) till hatch.

The samples were collected from the Control and TM groups on ED 15 and 18 of the embryonic periods. Hatchability was significantly higher ($P<0.05$) in the TM group (94.50%) than in the control group (91.0%). Hatch weight did not differ significantly between the TM group (50.54 g) and the Control group (50.39 g). Most importantly, hatch time was significantly lower ($P<0.05$) in the TM group than in the Control.

In the D15 embryo brain, the mRNA expression of TRPV1, TRPV2, TRPV3, and the epigenetic marker H3K27 were significantly lower ($P<0.05$) in the TM group compared to the Control group. However, in the D18 brain, the expression of TRPV1, TRPV2, and CRHR1 was significantly higher ($P<0.05$) in the TM group than in the Control group.

In the liver, the mRNA expression of SLC6A14 was significantly lower ($P<0.05$) in the D15 TM group than in the D15 Control group. Conversely, the DIO3 mRNA expression was significantly higher ($P<0.05$) in the D15 TM group than in the D15 Control group.

The expression of GPX3, FOXO1, IGF2, and GHR in the liver was significantly higher in the D18 TM group compared to the D18 Control group ($P<0.05$).

Eggshell translucency: its relationship with specific gravity and eggshell color and its influence on broiler egg weight loss, hatchability, and embryonic mortalities

Eggshell quality is among the most important factors affecting hatchability in broiler breeders, and therefore several methods for its assessment are available in the poultry industry.

Among them, eggshell translucency has received special attention in recent years due to its connection with ultrastructural disorganisation of the shell layers. However, there is very limited data on the impact of translucency on hatching eggs and on the possible links between this trait and specific gravity (SG) or shell color. This study **(Poult. Sci., Vol. 103, Issue 5, May 2024, 103528)** investigated associations and interactions between eggshell translucency, SG, and color on incubation parameters of eggs from the

Contact with adult hens affects the composition of skin and respiratory tract microbiota in newly hatched chicks

Chickens in commercial production are hatched in hatcheries without any contact with their parents and colonisation of their skin and respiratory tract is therefore dependent on environmental sources only. However, since chickens evolved to be hatched in nests, in this study **(Poult. Sci., Vol. 103, Issue 2, Feb. 2024, 103302)** we evaluated the importance of contact between hens and chicks for the development of chicken skin and tracheal microbiota. Sequencing of PCR amplified V3/V4 variable regions of the 16S rRNA gene showed that contact with adult hens decreased the abundance of E. coli, Proteus mirabilis and Clostridium perfringens both in skin and the trachea, and Acinetobacter johnsonii and Cutibacterium acnes in skin microbiota only. These species were replaced by Lactobacillus gallinarum, Lactobacillus aviarius, Limosilactobacillus reuteri, and Streptococcus pasterianus in the skin and tracheal microbiota of contact chicks. Lactobacilli can be therefore investigated for their probiotic effect in respiratory tract in the future. Skin and respiratory microbiota of contact chickens was also enriched for Phascolarctobacterium, Succinatimonas, Flavonifractor, Blautia, and [Ruminococcus] torque though, since these are strict anaerobes from the intestinal tract, it is likely that only DNA from nonviable cells was detected for these taxa.

same breeding flock (Ross 308AP, 51 wk of age).

To this end, light and dark eggs within 5 different SG categories (≥1.065, 1.070, 1.075, 1.080, and ≤1.085) were selected from 15,976 eggs, graded into 3 translucency scores, and later incubated to evaluate egg weight loss, hatchability and embryonic mortalities. In general, translucency scores were evenly distributed within SG categories (χ^2 [8, N=1,138]=13.67, P=0.090) and color (χ^2 [2, N=1,138]=4.93, P=0.084). No interactions between eggshell translucency and SG or between translucency and color were found for the analyzed variables.

An interaction was observed between SG and eggshell color for the variable egg weight loss, where the light-shelled eggs, in most SG categories lost more weight throughout incubation than dark eggs.

Eggshell translucency affected egg weight loss, hatchability, and embryonic mortality on 11 to 18 d of incubation, with highly translucent eggs showing the worst results. At the same time, eggs with SG lower than 1.070 displayed the greatest weight loss, lowest hatchability, and highest contamination. We found no influence of eggshell color on weight loss or hatchability, but light-shelled eggs exhibited higher late embryonic mortality.

Assessment of fungal contamination and biosecurity risk factors in duck-breeding farms in South Korea

Fungi are pathogens that infect all types of poultry and farmers, leading to economic losses in poultry production. Fungi can be isolated from environmental samples and are ubiquitous in the air. This study **(Poult. Sci., Vol. 103, Issue 1, Jan. 2024, 103197)** aimed to evaluate fungal contamination in domestic duck farm environments and analyze biosecurity risk factors associated with fungal infection incidence to assess the vulnerability of the farms to fungal infection.

The average fungal concentration was 203 colony-forming units (CFU)/m^3 in the air and 365×103 CFU/m^2 in the wall surface samples. Sixteen fungal genera were recovered from air and wall surface samples from 19 duck-breeding farms, Aspergillus being the most frequently isolated (air: 43.2%; wall surface: 40%). Eleven additional fungal genera (Acrophialophora, Byssochlamys, Fusarium, Lichtheimia, Paecilomyces, Penicillium, Polycephalomyces, Rhizomucor, Scopulariopsis, Talaromyces, and Thermoascus) were isolated from air samples. Also, 8 additional fungal genera (Chaetomium, Lichtheimia, Penicillium, Petriella, Rhizomucor, Rhizopus, Talaromyces, and Trichosporon) were isolated from wall surface samples. The characteristics of the poultry farms (geographic region, stocking density, breeding house type, affiliate, duck age, and season) and fungal concentrations in the air and wall surface samples were analyzed to evaluate the biosecurity risk of the farms. Fungal infections were significantly affected by high stocking density (>2 ducks/m^2), duck age (18–25 wk and >60 wk), and high fungal concentration in the wall surface samples (>300×103 CFU/m^2).

Effect of crossbreeding on egg quality, incubation, and hatching activities of the pure and reciprocal cross between the Sasso and Wassache chickens

Understanding the effect of crossbreeding on egg quality and incubation is essential for the selection of superior genetic combinations in breeding programs.

This study **(Poult. Sci., Vol. 103, Issue 4, Apr. 2024, 103406)** evaluated the effect of crossbreeding on egg quality and incubation activities of the Sasso and Wassache chickens in a pure (Sasso X Sasso [SS]; Wassache X Wassache [WW]) and reciprocal cross (Wassache X Sasso [WS]; Sasso X Wassache [SW]) design.

A total of 1431 eggs were incubated while 400 eggs were selected for egg quality.

Fertility, hatchability, and hatching activities were expressed in percentage, while egg quality traits were determined.

The crosses with Sasso hens laid similar (P>0.05) but heavier (P<0.05) eggs with higher (P<0.05) egg components compared to the crosses with Wassache hens. The SS, SW, and WW genotypes recorded similar (P>0.05) early embryonic mortality (EEM) and were lower (P<0.05) compared to the WS genotype. Late embryonic mortality (LEM) between the reciprocal crosses and SS was similar (P>0.05) and lower (P<0.05) compared to the WW.

he hatchability and hatchability of fertile eggs between the purebreds and the SW cross were comparable (P>0.05), while those of the WS genotype was lower compared to the SS cross. Hatch duration in the crossbreds was shorter (P<0.05) compared to the pure Sasso. Mortality between the SW and WW was similar (P>0.05) while the WS cross recorded a higher (P<0.05) mortality compared to the purebreds.

Research from Poultry Science is reprinted with permission of Elsevier.

International News

Indian company aims for superior performance



Poultry company Swami Feeds Pvt. Ltd. recently built a new hatchery in Shoolagiri, Tamil Nadu Province operates Petersime's intelligent single-stage incubators and hatchery software to achieve top-notch quality and has a setting capacity of 44 million hatching eggs per year.

To support Swami Feeds' mission of optimising its performance results and its output of high-quality chicks, Petersime delivered and installed 18 single-stage X-Streamer 24S HD setters and 9 X-Streamer 8H HD hatchers.

The hatchery is equipped with Eagle Trax hatchery software, enabling Swami Feeds to digitalise, analyse and optimally use data, not only within its own operations but across the complete production value chain. Petersime also designed and installed a tailor-made HVAC system and provided additional hatchery equipment.



The installation was completed in 2 phases between 2020 and 2023 and has resulted in the hatchery's total production capacity of over 44 million eggs per year.

"We are sure to achieve better hatchability and stronger, healthier day-old chicks thanks to Petersime's Embryo-Response Incubation technology.

The technology mimics the natural incubation process and helps us produce robust chicks that show superior performance in terms of survival expectancy, viability, optimal feed consumption and excellent growth." Dr S. Palanisamy, General Manager at Swami Feeds told International Hatchery Practice.

petersime.com



New measures to help protect from bird flu



New measures to better protect the poultry sector from future avian influenza outbreaks have been set out by the government on the 19th March 2024. Under the changes announced, there will be new requirements for all bird keepers – regardless of the size of their flock – to officially register their birds.

Currently, only those who keep 50 or more poultry must do so, limiting the effectiveness of our national disease control measures.

By registering their birds, keepers will ensure they receive important updates relevant to them, such as on any local avian disease outbreaks and information on biosecurity rules to help protect their flocks. This will help to manage potential disease outbreaks, such as avian influenza and Newcastle disease, and limit any spread.

The information on the register will also be used to identify all bird keepers in disease control zones, allowing for more effective surveillance so that zones can be lifted at the earliest possible opportunity and trade can resume more quickly following an outbreak of the avian disease in Great Britain.

The changes come following the UK's worst-ever outbreak of avian influenza, with more than 360 cases across Great Britain since late October 2021, including in a significant number of backyard flocks.

"These new rules will enable us to have a full picture of the number and location of birds kept across Great Britain, making it easier to track and manage the spread of avian disease.

"This information will be vital in helping to inform future risk assessments and maintain our commitment to continually building our extensive avian influenza research portfolio," Christine Middlemiss, UK Chief Veterinary Officer told International Hatchery Practice.

This proposal follows a 2023 GB consultation and takes forward the recommendation from the 2018 Dame Glenys Stacey Review and lessons identified from the 2021/2022 highly pathogenic avian influenza (HPAI) H5N1 outbreak and previous HPAI outbreaks. This change to bird registration is required to protect the health of all poultry and other captive birds in GB and also public health. Bird keepers will need to provide information, including their contact details, the location where birds are kept and details of the birds (species, number and what they are kept for).

In England and Wales, keepers are encouraged to register their birds ahead of the legal deadline on 1st October 2024. In Scotland, keepers should register from 1 September 2024 when there will be a new Scottish Kept Bird Register in place.

The new rules cover owners of backyard flocks, birds of prey and pigeon fanciers, but do not affect caged pet birds (excluding any poultry species) kept entirely inside a domestic dwelling, such as a parrot, canary or budgie, which never leaves the property other than to visit a vet or another short-term period.

The requirements will be set out in legislation shortly and keepers will also be legally required to update their information on an annual basis.

gov.uk

International Mini Ads





AstroTurf Extra Performance Nest Padding (XPNP)

WHY ASTROTURF?

- Can be used in all nest types for both breeders and layers
- Hens prefer AstroTurf and like its structure
- The number of floor eggs is reduced to a minimum
- Cleaner eggs, free of bacteria and fewer broken eggs, cause eggs to roll smoothly down to the belt
- Made of polyethylene, it's unaffected by bacteria, mould and insects
- No more traditional litter to be used. This saves labour costs
- Any pad size can be cut from the rolls
- Can be cleaned and maintained easily (dirt falls through the holes)
- Rounded blade tips minimise contact with eggs and make them cleaner
- Farmers keep the nest pads for more than 4 or 5 flocks

AstroTurf POULTRY PADS

Email: jean-jacques.vankesteren@grasstech.com
website: www.astroturfpoultrypads.com

Optimal incubation takes 24 days



With SetCare, the new setter developed by HatchTech Incubation Technology, eggs are incubated for 24 days instead of the traditional 21 days.

This results in a 3% lower embryo mortality, which automatically means an improved hatching performance.

The chicks that hatch will demonstrate an overall improved chick quality. SetCare builds on HatchTech's years of research into the beginning of the incubation period, in which embryo mortality is relatively high.

This has long been accepted as an inevitable part of incubation, but a more in-depth research and a closer look at the natural incubation process, reveals that the industry standard of a 21-day incubation process is sub-optimal.

A 24-day incubation process with a more gradual increase in egg temperature is needed to help embryo cells survive and achieve the best hatch result.

"SetCare suits our promise to deliver superior chick quality" Joost Ter Heerdt, Commercial Director of HatchTech Group told International Hatchery Practice.

"SetCare reduces embryo mortality, resulting in an increase of hatchability by at least 3%.

Also, overall the number of 1st-grade chicks increases, as do average chick length and quality, and improved FCR while a smaller hatching window ensures higher uniformity.

"It's not only about the length of the incubation period, SetCare builds on all benefits that were already present in our MicroClimer Setter but adds even more. The unique precision-control set-up of the SetCare incubation environment enables a consistent extremely slow warming process (+0,1°F per hour).

"Combined with carefully controlled humidity and CO_2 levels, this provides a uniform and optimal incubation environment. Both for layer and broiler eggs. We are convinced that SetCare is a breakthrough solution changing the poultry industry at large. Because optimal incubation takes 24 days." Later this year HatchTech will organise SetCare-days in their new HQ in the Netherlands.

hatchtech.com

Hatch Africa raises $9.5m



Hatch Africa, a rapidly growing, high-impact poultry business targeting underserved rural households, has secured a combined USD 9.5 million investment with participation from AgDevCo and IDH Farmfit Fund.

The investment into Flow Equity Africa Ventures (FEAV), the holding company for Hatch Africa's operations in Kenya, Ghana, and Cote d'Ivoire, will scale their innovative business model to millions more smallholder farmer households.

Hatch Africa's purpose is to make farmers healthier and wealthier.

The company distributes dual-purpose breeds of day-old chicks through a large network of agents, who rear the birds to maturity at around five weeks before selling them to smallholders.

Compared to indigenous breeds, Hatch Africa's chickens grow faster, lay more eggs and are more resistant to disease.

hatchafrica.co

Update to the Aviapp platform



During a health monitoring session on the farm, it is very important to correctly interpret the obtained values. To further help poultry producers with this evaluation, Huvepharma has introduced the expected values in Aviapp.

The expected value is the average coccidiosis score at a certain age of the birds, month of the year, and country. This data is presented visually in Aviapp, showing the evaluation of the coccidiosis pressure in your flock against the expected value (long-term average).

huvepharma.com

Orvia
HÉRÉDITÉ & PERFORMANCE

THE PEKIN ORVIA ST5H STRAIN: FUNDAMENTAL RULES FOR OPTIMAL DEVELOPMENT

By Ludovic CHOSSAT
Technical and Scientific Director - Orvia Group

The Pekin Orvia ST5H strain garners particular interest due to its high growth potential, reaching 3,739 kg at 42 days and 4,187kg at 49 days. These genetic potentials are not limited to controlled conditions but also manifest in real farming conditions, provided certain fundamental rules are adhered to. The crucial startup period requires special attention for this waterfowl species. It is imperative to stimulate the consumption of complete feeds by facilitating access, particularly using starter paper and feeders.

Ensuring access to water, stimulating animals through high light intensity and the human presence of the farmer, as well as maintaining an appropriate perceived temperature, are essential elements. Young ducklings, sensitive to hypothermia, require special vigilance and attention.

The heightened sensitivity of ducklings to dehydration underscores the importance of spraying warm water upon reception and in the days following the rearing process. Supplementing drinking water with rehydration solutions and providing water-filled plates for duckling paddling also help prevent dehydration and discomfort.

To maximise its ingestion, starter feed will be presented in crumbs during the first week, then in vermicelli or short-cut pellets. At 3.5 weeks, the animal's size will determine its future size. The objective of the next phase is to promote muscle deposition on the carcass by stimulating protein intake.

This requires appropriate formulation, adequate water intake, optimal litter maintenance, good leg support, and proper ventilation.

Pekin ducks are sensitive to high temperatures, with a significant decrease in feed intake beyond 28°C. It is therefore essential to adjust the perceived temperature for the animals (air velocity, cooling pads) and to adapt feed formulation and density during hot periods. Adhering to these basic rules allows for full exploitation of the growth potential of the Orvia ST5H strain (FCR, FI, yields) while minimising mortality and condemnation rates at the slaughterhouse.

For optimal farming management, precise adherence to recommendations is essential, involving daily measures and the collection of numerous data. To facilitate this monitoring of zootechnical performance, Orvia is developing a tool specifically designed for data collection and processing, thereby helping to make the most of the genetic performance of this strain.



Ludovic CHOSSAT has been the Technical and Scientific Director of the Orvia Group since April 2023. He is responsible for maintaining the technical performance level of our production. He provides expertise to clients and partners of the Orvia group, succeeding Mr. André ENGLER, the former Technical and Scientific Director of the group, who retired in September 2023. With over ten years of experience as an Engineer/Technical Expert in poultry production, Ludovic also served as a veterinarian for various productions for more than 10 years.

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Aviagen

Hatchery TIPS 72

THE ROLE OF THE INCUBATIONIST IN THE HATCHERY

We can describe the 'rules of incubation' very clearly now, putting them into terms that define the needs of the embryo for temperature control, time, weight loss (humidity control) and turning. However, the day-to-day management of the incubators needed to allow them to deliver the correct environment to what can often be quite variable eggs and machine load levels can be a challenge. It is not made any easier with both hatcheries and the incubators inside them getting steadily bigger and bigger.

The development of accurate gas sensors and data loggers has made it easier to record and analyse actual conditions inside an individual machine, but keeping on top of the information can be very time consuming. In the past, the hatchery manager was usually expected to deal with setting up and managing the incubators. In modern hatcheries, a dedicated incubationist reporting to the hatchery manager is the best way to make sure that the machines are set up to suit the needs of the eggs they are presented with.

A dedicated incubationist can make a considerable difference to hatchery performance because, over time, they can monitor and correct the performance of every incubator. Thus, measuring weight loss to 18 days can not only show that water loss is satisfactory on average, but will also enable the incubationist to drill down to the performance of individual machines and banks of machines – often finding irregularities in how well machines are sealed and how effectively they are ventilated. Monitoring chick yield will help to keep pull times right for short or long journey times.

Temperature checks may be as basic as checking machine calibration or as complex as setting up data loggers to measure eggshell temperature at critical areas within each machine. Again, making small corrections will even up performance within the machine. Modern loggers, with Bluetooth or ethernet connectivity, make it much easier to make real-time checks and monitor the impact of changes. Monitoring chick vent temperatures in the hatcher at intervals through processing makes it possible to refine holding conditions to keep chicks comfortable and resilient.

Turning frequency and angle can make a big difference to both hatch and chick quality. It is amazing how many hatcheries rely solely on the machine counter rather than observing and measuring turning angles regularly (Pic. 1). Regular breakouts of unhatched eggs are informative, giving early warning of transfer damage and of turning problems as well as storage issues (pic. 2)

Most importantly, the incubationist will keep good records of all the information they collect so that they can monitor trends, ensure that no machine is struggling and that the Hatchery Manager can be confident that the hatchery is performing well.

Pic. 1. Measuring turning angle with a mobile phone app.



Pic. 2. Recording data after a hatch debris break out.



A service to hatchery personnel from Aviagen www.aviagen.com

International New

Philippines push livestock, poultry and dairy bill

Saying that poultry and egg production is vital in food security, sustainability and poverty reduction, Cynthia Villar underlined the need to always seek ways to help our farmers.

Speaking during the United Broiler Raisers Association (UMBRA) and the Philippine Egg Board Association events in Quezon City, Villar stressed the country's poultry industry is a major contributor to the economy.

She said the Philippine broiler industry comprises 20% small farms and 80% commercial farms, with 588 registered poultry farms and approximately 175 meat processors. She noted poultry farming in the Philippines is projected to have a bright future.

"Our total chicken inventory is composed of native/improved chicken- 43.3%, broiler chicken- 34.5% share, and layer chicken with 22.2% share," she said.

The highest chicken inventory was noted in Central Luzon with 33.68 million birds, followed by Calabarzon with 27.32 million birds and Northern Mindanao with 25.87 million birds.

"These 3 regions accounted for 43.4% share of the country's total chicken inventory. Western Visayas has the highest 12.91 million birds which are native/improved variety." Central Luzon reported the highest inventory of broiler chicken with 18.48 million birds, while Calabarzon had the highest layer chicken stocks with 16.35 million birds.

"Improved Genetics and Breeding, Good Farm Management, Excellent Nutrition, Feeding and an effective biosecurity with a complete vaccination program will prevent highly contagious diseases from entering the farm, reduce mortality and increase the overall health of the poultry sector," Villar told International Hatchery Practice.

To further boost the poultry industry. she cited the Livestock, Poultry and Dairy Bill which seeks to strengthen the livestock industry to promote its development, protection and regulatory functions.

She said a twin bill- the Corn Industry Development Bill, is at the final stage in the Senate.

This intends to improve the availability, profitability and development of corn farming.

She said corn in animal feeds goes up to as high as 60% for chickens and pigs.

legacy.senate.gov.ph

Aviagen's update now available

Aviagen is pleased to introduce its latest publication, "Decades of Breeding for Welfare and Sustainability." This extensive update shines a light on the steady advancements Aviagen has made over the years.

Balanced progress in the breeding program has translated into continuous improvements observed in the field. Breeding for welfare and sustainability is not a final destination, but an ongoing journey, promising a continuous strengthening of bird health, welfare, efficiency, and sustainability. Explore Aviagen's leading-edge selection techniques that leverage the latest innovations in our breeding programs.

Most importantly, the publication highlights the inseparable connection between bird welfare and sustainability. These two vital aspects combine to ensure economic prosperity for poultry producers and contribute significantly to the preservation of the planet.



Aviagen.com

New duck nest is proving its worth

After just five months, the Vencomatic Duck Nest is proving its worth at Silver Hill Duck, a fully integrated premium Duck Producer.

At Silver Hill Duck the ducks are housed in traditional duck houses with floor nests placed against the shed walls. In those houses on average 10% of eggs are floor eggs. Daily operations include many hours of collecting eggs by hand that are laid across the floor and in the more difficult-to-reach places for the workers.

Already 15 years ago, Peter McConnell became aware of the Vencomatic nest box systems, but the time just hadn't been right.

However, with the recent purchase of a new farm, the opportunity was there, and in close cooperation with Padraig Mulvey Sales Ltd (Vencomatic Group dealer Ireland), the project to house 2,600 ducks was agreed upon. It included the installation of the Vencomatic Duck Nest in combination with Vencoslat as natural access ramps to the raised nest boxes. In addition, the Vencobelt was installed to transport the eggs safely to the central collection point.



"I am particularly pleased with the reduced % of floor eggs – less than 6%" Peter McConnel, Farm Technical Manager at Silver Hill Duck told International Hatchery Practice.

The first flock of ducks moved into their new environment last year. "Results achieved in those first five months are impressive", according to Peter McConnell. "I am particularly pleased with the reduced % of floor eggs – less than 6% – improved hatchability and creating working conditions that are not only more efficient but also more pleasant for the team."

Silver Hill Duck's first results show <6% floor eggs which significantly increases hatchability rate as there are more 1st class, clean eggs, not trampled upon, not bashed around 50% reduced time required to collect the duck eggs allowing the teams to focus on other operational tasks

Looking into the future, Peter McConnell mentioned: "You could say it is a matter of time and money before we transition the other houses into a Vencomatic Duck Nest system. This can contribute positively to our operational efficiencies and bottom-line results."

vencomatic.com

HatchTech acquires NYtor

De Klomp/Nijmegen, The Netherlands, 29 March 2024 – Dutch hi-tech poultry incubation solutions provider HatchTech Group B.V. has acquired NYtor B.V., a developer of DNA-based tests, to expand its in-house innovation capacity.

In recent years, HatchTech has built up significant expertise in developing technologies for microbiological analysis, with a focus on the use of polymerase chain reaction (PCR) technology for sorting male and female eggs during the incubation process, a process known as in ovo sexing.

Together, HatchTech Group and NYtor have identified significant potential for high-volume, low-cost-price testing in a wide range of agricultural production systems, with a focus on poultry. The acquisition of NYtor will allow HatchTech to expand and commercialise its expertise and speed up the development of lower cost in ovo sexing.

"Our ultimate goal is to determine sex in the egg at such a low cost that it is attractive for all types of poultry hatcheries," Tjitze Meter, founder and CEO of HatchTech told International Hatchery Practice.

"By combining NYtor's expertise in PCR with our technical experience, we can accelerate improvements and the development of many other innovations with all sorts of applications in agriculture."

Han Zendman, CEO of NYtor added, "The strength of HatchTech is that it respects NYtor's 'DNA' and will ensure that our existing potential lines up with their hi-tech ecosystem. That mutually beneficial combination is very appealing to us."

hatchtech.com



Stronger under international brand identity

From a corporate identity point of view, with the aim of better positioning our trade name in the international poultry sector, we have chosen to have the companies belonging to the Italian Giordano Holding continue under the same name. The name is Giordano Global.

The companies involved are the Dutch limited GI-OVO and its affiliated entities in the US and Brazil, Eddygypt Giordano from Egypt and of course Giordano Poultry Plast from Italy. Each company has built up an excellent reputation over the past decades and has acquired an important position in their markets. To further emphasise our ambitions to become an internationally recognised brand, we have designed a new logo to represent all three companies that will be part of Giordano Global, starting with that of Giordano Poultry Plast, the head company.

The P in the logo stands for Poultry-Plast and is now replaced with a Circle as in globe, world, circularity and global offer.



Perhaps a small adjustment, but with great significance.

In addition to adjusting the company name, we are also adjusting our domain name. This will become giordanoglobal.com.

Even though we are changing our name, nothing will change for our customers, suppliers and stakeholders. They keep the same contact persons as before. Also, our quotes and invoices are sent from the same body. In addition, our company details, bank account and registration numbers remain unchanged.

No change applies to our valued brands either: EggsCargoSystem – HatchCargoSystem – Eggyplay and

Valery Technologies will continue to be fully operated under the Giordano flag.

A new name naturally also means a new website. On this site, visitors will find the complete Giordano Global offer, which of course means that all products and systems are brought together under one roof.

We are convinced that continuing together under one name, will strengthen our international position and further increase brand recognition among our customers, suppliers and stakeholders.

giordanoglobal.com

International News

New hatchery operation in Tanzania



Tanzania's Silverlands, a growing integrated farming, processing and poultry business, chose Royal Pas Reform technologies for its new hatchery operation in Arusha, Tanzania.

When fully operational, the facility will have a production capacity of 7.3 million day-old chicks per year.

Already a leading producer of day-old chicks, Silverlands' hatchery project involved the installation of 6 x SmartSetPro%4 setters and 4 x SmartHatchPro% hatchers, together with a complete climate control system – with air handling units, air distribution and control, cold-process water chillers, heat pump and heat-recovery system and cold-water buffer tank.

The hatchery also features SmartCenterPro% for process control and data management.

"We are delighted to have partnered with Silverlands on this important new hatchery. It will help to bring new skills and prosperity to the region and support its commitment to being socially responsible to the communities it operates in.

"We also look forward to arranging a hatchery managers course with Silverlands in the near future." Adriaen Sligcher, Pas Reform's Sales Director told International Hatchery Practice.

pasreform.com

Strong exhibitor interest in EuroTier



The EuroTier 2024 exhibition, 12-15 November in Hanover, Germany, is attracting a large number of international companies. With 2,000 exhibitors from 51 countries already currently committed nine months before the exhibition kicks off, the world's leading trade fair for animal farming and livestock management is at pre-pandemic levels, according to the organiser, the DLG, (German Agricultural Society).

All leading companies from the poultry sector will be participating at the World Poultry Show, which will be part of EuroTier 2024.

Under the guiding theme "We innovate animal farming", the EuroTier innovation platform for the global livestock sector presents technical solutions and established standards for cattle, pig and poultry production.

For the first time at EuroTier, there is a focus on suppliers at a dedicated area at EuroTier for suppliers' solutions that support manufacturers of technical equipment and services. "Supplier Industry - powered by Systems & Components", the name of the new area, is aimed at engineers and purchasing managers as well as system integrators for feeding technology, milking systems, transport wagons, presses and mixing and dosing systems.

EuroTier.com



Affordable, high-quality chickens to African farmers



Hendrix Genetics has been awarded a multi-year grant by the Bill & Melinda Gates Foundation to support rural farming, local communities, and small-scale poultry farmers in Africa. Under the grant, Hendrix Genetics will co-invest significant resources to not only develop poultry breeds tailored for Africa but also deliver the animals to small-scale farmers in an effective way.

Hendrix Genetics will work closely with other players in the poultry value chain to ensure that small-scale farmers in Africa have access to affordable, high-quality genetics.

"This program has the power to make a real impact on the lives of small-scale African farmers through transforming the poultry value chain.

"We will further accelerate our genetic improvement of parent stock. This includes expanding testing birds under African conditions which will allow us to better breed chickens adapted to local conditions, including climate, housing systems, and feed.

"We will also investigate the opportunity to establish a grandparent facility in Africa for Africa to secure access to parent stock. Through collaboration with partners, we aim to improve the efficiency of the poultry value chain, which will lead to more affordable chickens for small-scale farmers." Naomi Duijvesteijn, Program Manager told International Hatchery Pactice.

SASSO, the traditional poultry brand of Hendrix Genetics, has been an important partner in this program.

Currently, SASSO supplies hundreds of thousands of parent stock to African partners each year, reaching millions of smallholder farmers who produce billions of table eggs and millions of chickens for meat. Further expanding the market and improving genetic performance will amplify the impact these dual-purpose chickens have on the lives of many Africans.

hendrix-genetics.com

EVENT DIARY 2024

Pig & Poultry Fair
15-16th May
Stoneleigh, UK
www.pigandpoultry.org.uk

Livestock Philippines
22-24th May
Pasay City, Philippines
www.livestockphilippines.com

Ildex Vietnam
29-31st May
Ho Chi Minh City, Vietnam
www.ildex-vietnam.com

Indo Livestock
17th July
Jakarta, Indonesia
www.indolivestock.com

Ildex Philippines
28-30th August
Manila, Philippines
www.ildex-philippines.com

AgriBITS 2024
5-6 SEPT
Utrecht, Netherlands
www.agribits.nl

VIV Select China 2024
5-7 SEPT
Nanjing, China
www.vivchina.nl

VIV Africa
Kigali, Rwanda
2-3 OCT
www.poultryafricaevent.com

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