

Innovations in Pullet Rearing for the Commercial Egg Sector

10th and 11th October 2019

This two day trip was planned around the opportunity to visit an open day at a newly commissioned pullet rearing facility of 'The Yorkshire Farmhouse Eggs' at Westwick Hall Farm, near Boroughbridge in Yorkshire. The site is owned by James Potter Eggs Ltd (www.jamespottereggs.co.uk) who have invested in a 64k pullet rearing bird unit to supply point of lay pullets to their own commercial egg farms.

The unit has two, bespoke Morspan houses (32k bird houses side by side) built by Morspan Construction Ltd and feature equipment from Vencomatic UK Ltd. The system observed was an aviary pullet rearing system designed to marry with the multi-tier system to which the birds will be moved at 16 weeks.

There are no aviary rearing systems in NI or ROI presently, so the visit presented an opportunity to see innovation in this sector and determine whether investment in this or a similar system would present a sound decision in terms of animal welfare and return in investment.

As a visiting group we also had the opportunity to attend the Vencomatic Connect Roadshow in the evening of the first day and heard short informative talks on the latest innovations from Vencomatic, Prinzen and Vencomatic Energy as well as talks from specialists guests speakers Jean-Paul Michalski (Noble foods), Aled Davies (Pruex), Will Garton (Avivets) and Eloise Lawlor (Premier Nutrition).

Vencomatic - Bolegg Starter

Our visit was facilitated by technical staff from Vencomatic UK Ltd, who demonstrated their new rearing system – the Bolegg Starter. The key feature of the Bolegg Starter is that the platforms and drinker lines are winchable, allowing the operator to increase the height differences across the system. This encourages the birds to climb and allows the system to grow with the pullets. The Bolegg Starter offers chicks the opportunity to move vertically around the system from day one, which both ensures the chicks wellbeing and develops the three-dimensional spatial awareness that is essential for a smooth transfer into lay. It is expected to be RSPCA approved following monitoring of this site.

Photo – 1 The Bolegg Starter showing the flexibility of adjustment in platform height and also the lateral movement experienced by the birds as they grow and develop.



Photo 2 – Illustrates the adjustment in drinker height and perching available to the birds in the higher part of the compartment.



Heating system

The rearing units have been fitted with the Vencomatic ECO Unit – an efficient air to air heat exchanger which recovers up to 80% of the heat contained in the exhaust air. This heat is transferred to the fresh air entering the shed and is then delivered both to the house environment and directly to the manure belts to dry the litter and provide underfloor heating to the chicks in the compartments. The ECO unit can supply up to 300% of the fresh air requirements for the shed at a consistent temperature, despite the changes in the weather outside.

In addition the ECO unit is fitted with a unique self-washing system that washes the internal heat exchange pipework thus ensuring the efficiency of heat exchange is kept at optimum levels. This can also be used in warm weather to aid cooling of the house.

Photo 3 - Vencomatic Energy's ECO Clima unit heat exchanger. The system will provide up to 25,000m³ fresh air/hr. The Clima unit is capable of reducing ammonia and dust emissions from the house.



Pre-warmed air from the heat exchanger is brought directly into the heater module, passing over the radiator block. Hot water is provided either by a ground source heat pump or hot water boiler system either gas or biomass.

Photo 4 – PVC heat transfer pipes inside the Clima unit



Photo 5- Inlet and outlet fan shafts of the Clima heat exchanger



Alt-Energi supplied LPG gas boilers to provide a heated hot water circuit for the ECO units installed. The heaters provide heat when required and are controlled from the ECO unit. This provides indirect heat ensuring combustion gases are external to the bird area.

In addition a supplementary gas space heater (111kW) is used to help raise initial air temperatures and act as a backup should the ECO unit heating fail.

Photo 6 - supplementary gas space heater (111kW)



A constant supply of fresh water is available to the birds due to the Lubing auto-flush system, which ensures there is no build – up of biofilm. This helps protect the health of the chicks and aids with vaccine delivery.

Anti Surf

One of the really clever innovations on the Bolegg Starter System are the ‘Anti-surfing grills’. They’re a protective grill that prevents the chicks from being transported along the feed track. This solves the problem that occurs when the chicks enter the feed track and are moved (Surf) along and effectively bypass the compartment walls. This can lead to overcrowding in the end compartments and can increase competition for food, water and space and results in staff having to move birds back up the house.

Photo 7 showing anti-surfing bars and ejection point on the track feeder system



Photo 8 shows anti-surfing bars



Control panel

The Operator has full control over the functions in the rearing house via the Hotraco Fortica-ps control panel. The Fortica controls the entire ventilation system to maintain the internal environment – the ECO unit heat exchanger, side air inlets and tunnel air inlets and also manages other functions such as feeding, water, in-system weighing and lighting control. The Fortica-ps is fully operable via the remote app SyslinQ, allowing the operator an at a glance overview and the opportunity to configure settings and respond to alarms from anywhere in the world.

Chick Placement

Chick trays are placed onto the table of each compartment. The compartments are heated to 34°C from underneath via aeration tubes. Only this area is heated conserving energy. The chicks are spray treated with Parcox8 and left for 15 minutes before being tipped on to chick paper within their cage (200chicks/cage). Supplementary feed is poured on the back sheets of paper.

Photo 9 showing compartment setup ready to receive day old chicks with chick paper covering the wire compartment floor. In the centre of the photo can be seen a perch bar which is raised above the feeder at 3 days of age. Supplementary feed can be placed on the chick paper on day one.



Day 3

A quarter of the chick paper is removed which helps acclimatise the chicks to the wire compartment floor surface. The chick paper will be removed a quarter at a time up to 12 to 14 days of age, by when all birds should be suitably covered with the Paracox 8.

Day 15

Once the chicks are 15 days old (to comply with RSPCA standards) the compartment doors are opened and the chicks can access the floor area. This is quite a jump for them at this stage and awkward landings can damage their still developing keel bones, so to allow them to move comfortably and safely between the floor and the system welfare ramps are added, which the birds confidently make use of from the start. The ramps used in rear, differ from those used in the laying house as the bottom couple of inches are open to allow the chicks to move underneath, preventing them from becoming trapped or hiding behind the base of the ramp.

Photo 10 shows training ramps used with the Bolegg Starter



If the compartment doors are not opened by 15 days, it may be extended to 21 days but a letter of explanation must be given to RSPCA regarding the reason e.g. poor quality chick (which may result in an RSPCA inspection as well).

The lowered perch will be raised as the birds are now more active. At this stage the aim is for the birds to be 3D aware. Reticent birds will be monitored by the stock person and placed on the ramps.

Vaccination

While the system encourages the birds to roost in the system at night, planned vaccinations can be done by simply locking the birds in the system the previous evening and vaccinating one compartment of birds at a time which are transferred to an empty compartment to the side.

Costs

The cost of the Bolegg Starter system costs in the region of £9.00/bird (without ventilation system) and £12.00 per bird including ventilation system. Heating costs are estimated to be in the region of £0.01/bird using the ECO unit heat recovery system.

The Morspan houses cost £160k

Photos 11 and 12 below illustrate light proofing on external doors of the Morspan constructed shed good light proofing baffles on the gable end fans

Photo 11



Photo 12



Photo 13 and 14 showing good light proofing to the bottoms of the doors on the Morspan constructed sheds

Photo 13



Photo 14



Photo 15 floor belt removal system used at Westwick hall farm, which eliminates the need for a deep pit removal belt which can become a vermin trap



Landmeco rearing system

On the second day we had a presentation from Graham Frankpitt of Draper poultry Ltd who demonstrated the Landmeco rearing system. This system is a simpler system and can be adapted for most houses. It does not feature a manure belt.

The system is designed to offer the day-old chicks a protected environment on the lowest tier. The system is equipped with height-adjustable feeding and drinking systems, giving the chicks optimum conditions throughout their growth. The height-adjustable feeding and drinking system is attached to the tiered system itself and there are therefore no special requirements on housing unit design. The system can be delivered with either manual or electrical hoist.



As the chicks become more mobile and learn to fly, the side screen can be lowered to provide a stairway to and from the floor. Alternatively, side screens can be placed horizontally and thereby act as extra space.

When the birds are to be captured the feeding and drinking system is simply raised and the tiers folded up. The system has just a single central upright, allowing a total width of only 496 mm to be achieved when folded. This ensures optimum conditions during capture and cleaning. Cost - £6/bird

