

## **Visit Report on Innovations in Sustainable Commercial Free Range Egg Production**

**Visit to Cumbria and Yorkshire 24<sup>th</sup> and 25<sup>th</sup> October 2019**

### **Introduction**

A group of 14 Free Range Commercial Egg producers from throughout Northern Ireland took part in a Farm Innovation visit to Penrith in Cumbria and Helperby in Yorkshire. The purpose of the visit was to give the farmers the opportunity to visit farms and gain first-hand experience of on-farm innovative approaches in commercial free range egg production which are not currently practiced within Northern Ireland.

### **24<sup>th</sup> October 2019-The Lakes Free Range Egg Co, Penrith**



David Brass (MD) started the business in 1997 with 200 chickens. Today he has 74 producer supplying him. He has 165,000 birds of his own of which 30,000 are organic and the other 135,000 are free range. In total he packs eggs from 1.7 million birds. He has producer meetings 3 times a year. He has a good agricultural team to give advice to farmers.

### **Rearing**

The company rear their own pullets. It gives them more control and is vitally important to control feather pecking. David showed us research they had been involved with "dark brooding" to control feather pecking in later life. Birds in rearing get 3 feeds a day. To enhance welfare, rearer producers are located <90 miles from the laying facility to limit travel time for the birds. They use CCTV to follow what is happening with the pullets during rear.

## **“The Lakes” Tree Planting advice**

The Lakes started planting trees in 1997.

- Format is 2m between trees in rows and 4 m between rows.
- They don't plant in straight lines but plant in waves or a curved shape. When curved it looks more like natural woodland.
- Strimming trees was a problem. Therefore they changed that. Can get in between rows with a grass cutting machine (4m width).
- Plant 15-20m out from the poultry house
- Plant 20% of the range
- Plant faster growing trees close to the house.
- They are all self-funded planting the trees.
- Plant some Scots Pine in the main canopy
- Original tree planting was for bird welfare and biodiversity. This year they will be planting ranges for ammonia mitigation

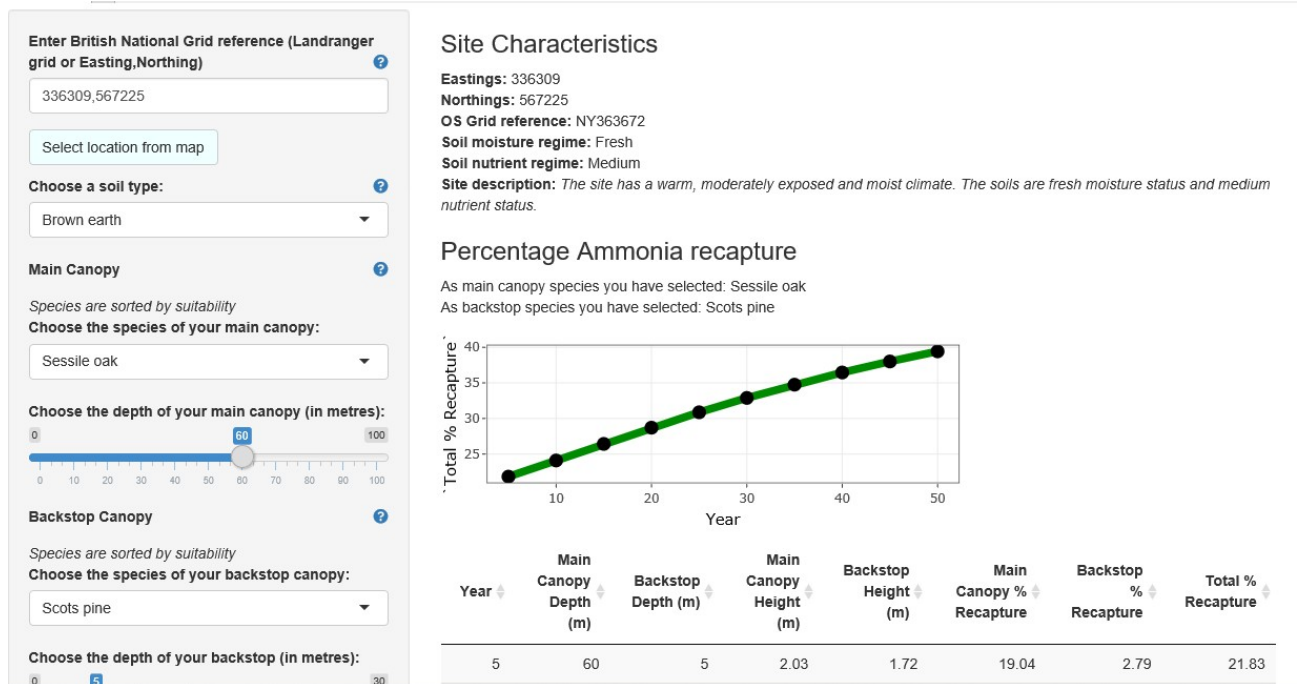
### **Tree maintenance:**

- Grass must be pulled out of the tubes in the early years to give the trees a chance to grow.
- Spray around the bottom with a weed killer (not near the tree or it will be killed!)
- Replace trees that die
- Plant in early November. Later in the year there is increased trees that die as it is too dry.
- For protection use 3ft tree shelters. Spirals are no good. (4ft tree shelters are too big and 2ft are too neat as the hens will eat the leaves.)
- When they get to 4/5 year old –they take off the tree tubes in March. (Rabbits kill trees in winter so don't remove then!)
- If need be chop the branches off the bottom after 5 years.
- If need to thin trees-they will be used for biomass.

BENEFITS OF TREE PLANTING-not as much pressure in the sheds-  
less antibiotic use. CAUTION-if trees are too close to the ground the  
hens will lay in there.

David demonstrated the Ammonia Reduction Calculator from the CEH. He mentioned between 20- 30% NH<sub>3</sub> reductions could be achieved by planting 20% of the range in the format described by the Centre of Ecology & Hydrology-downwind of the poultry house ([www.farmtreestoair.ceh.ac.uk](http://www.farmtreestoair.ceh.ac.uk)).

## CEH Farm Trees to Air Calculator used to calculate % Ammonia Reduction on site



## 1<sup>st</sup> Farm Visit (no birds in house)-Shows more mature trees -planted in 1998 (21 years old)





## **2<sup>nd</sup> Farm Visit 6000 Bird Organic Free Range Unit-Trees Planted in 2004 – 15 years old**

3000 birds on each side with a partition in the middle. These birds in the pictures are 32 weeks. The birds range up to 150m on a good day.







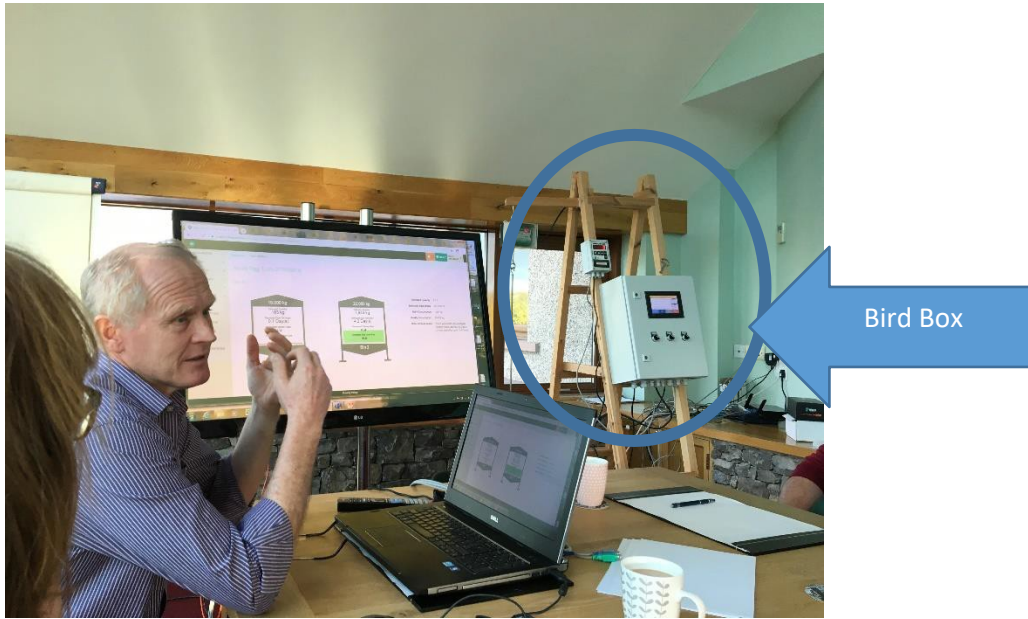
### **3<sup>rd</sup> Farm Visit 32,000 bird Free Range Flat Deck House-Trees Planted 5 years**

This house (pictured below) is 3 year old (20m x 240m naturally ventilated) and is David's own house. He installed 4.15m x 100m cattle manure scrapers on chains which runs 3 times a day. David said he would not install it again due to maintenance problems. There is a 7m muck store on either end and a 10m egg store. He fills a trailer once a week with manure and takes the contents to a manure store a few miles down the road. From here the manure is drawn to a local power station (Drax power station) [www.drax.com/about-us/our-projects](http://www.drax.com/about-us/our-projects). The birds in this house were 76 weeks.





## Bird Box



David had developed this device to measure real time data (feed, water, CO<sub>2</sub> etc.) in house. It is only on 30 farms presently but they plan to put it on all farms supplying the Lakes as well as Rearing Poultry houses. The box has microphones installed. If birds are stressed they make higher pitched sounds. Research has shown that on Day 1 of placement if a higher pitched sound is detected in the birds, there will be an increased risk with these birds smothering in the house.



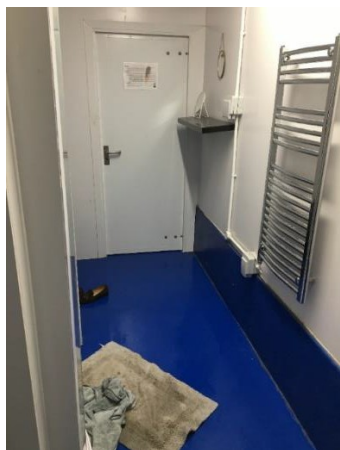
## 25<sup>th</sup> October 2019-Sally Farm, Helperby, Yorkshire



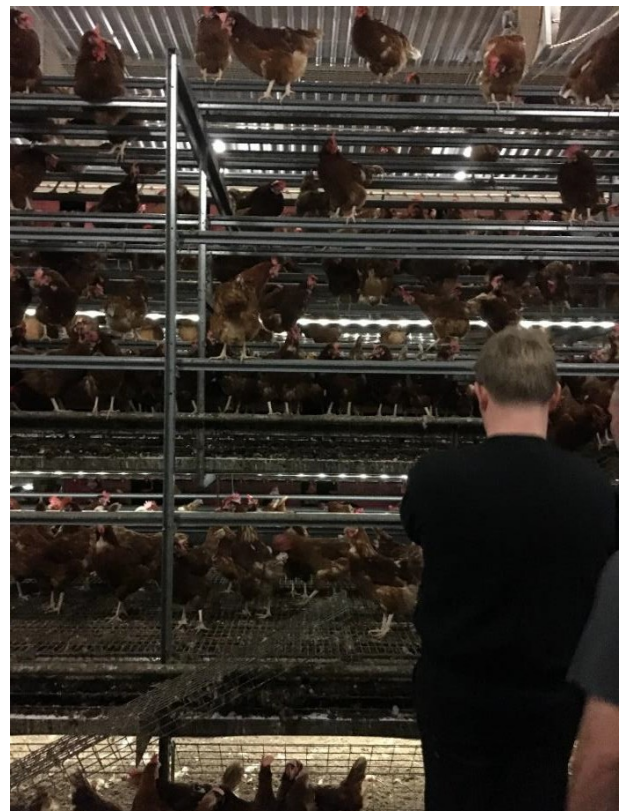
### Business Model

The group visited this single age 64,000 bird free range commercial egg unit set in 600 acres and built 10 months ago. The farm operated a strict biosecurity shower-in and shower-out policy. All clothes and boots were supplied to the group after showering to ensure no disease entered the premises. The unit is owned by Leon Furlong (owner of Vencomatic UK Ltd) but leased by Wot-A- Hen. Warrendale Farms is a property business that owns Wot-A-Hen – their egg business. They also own Wot-A-Pullet which is a 4 million/year pullet rearing business. They also have 130,000 Organic Hens producing organic eggs in Lincolnshire. The business operates a rental model like this where Leon has access to the capital and land but does not choose to farm. They also buy land and put buildings on it with a view to grading and marketing eggs. They engage heavily with the local community to communicate all their plans. (Leon also rents 9 farms to James Hook on the broiler meat side of the poultry business).

It takes 2.5 hours to pack the eggs with the help of the egg packing machine. The clean egg packing area was accessed after showering in and then plastic overshoes were used to go into the internal house with 16,000 birds.







-Poultry house has a lower apex which cannot be seen from the road. Building is a H-shape with 4 x16, 000 bird houses and is easy to ventilate. There is a tunnel in the middle which is beneficial for ventilation.

-Chose to install Vencomatic equipment as it is better for bird welfare and system has birds with almost zero keel bone damage. It is more expensive but a better system and easy to manage.

System has double nest boxes which is easy to check at the right height. The benefit of this is that there are no system eggs with the sloping floor.

-Red mite is controlled by Mite-Perch which has electrical currents running through the perches which kill the red mite but does not affect the bird. For the Mite-Perch to work effectively 80% of birds need to get perching. The Mite-Perch kills the red mite as they come up at night to go onto the birds. Cost benefit analysis on the 64,000 birds show a 50p saving from not treating with chemicals, which equates to £32,000/year. The Mite-Perch is on all the time and it is only if the hen grips the under perch live wire that it gives an electric shock.



-House has a Hercules Manure belt (above). It is a good design and good moving away from pits.

-Correct rearing is important for Multi-Tier systems so the birds can use the system properly.

- Use Face Time with their vet to get immediate diagnosis in the event of a health challenge.

### Tree-Planting

-Sally Farm have planted in the range for bird welfare. There was a mature wooded area at the back of the house where 1000's of birds would congregate.

-Trees started 15m out from the house and they were approximately 2m apart within rows and 2.5m between rows.



## **Innovative Technology not in use in Northern Ireland**

### **Heat Exchanger and Ground Source Heat Pump**

- Negative pressure ventilation in house and a lot of insulation.
- Ground Source Heat Pump was not on in the house.
- Plan to build another house with an entire wall as glass for the general public to view the birds. As a visitor they will never enter the same air as the poultry shed or the birds with this plan.

### **Vencomatic Headquarters Research Presentations**

- Leon Furlong presented research Vencomatic had been involved in with the University of Bristol on rearing. It was termed the “Stairway to Stress” and resulted in injurious pecking and cannibalistic behaviour if not dealt with in the rearing phase. A feed change in rearing can result in 62 times more pecking among birds. In the wild birds are 65% under the mother’s wing and 35% foraging which is natural synchronised behaviour. In modern day systems there is nowhere for the chick to relax under the wing so destructive behaviour can be learned up to this point. Perching is a good way for birds to escape other birds and this opportunity is lost in flat deck systems. Dominant birds tend to go to the top of multi-tier systems.
- Research has shown there can be 250,000 red mite on one bird which can lead to anaemia in the bird. The method of control of red mite with the electrical current of the Mite-Perch was discussed. It cost £1.60/bird. Gordon Alexander (Chief Executive, Vencomatic UK Ltd) discussed the chemical control methods for red mite.
- Degradable pecking material is needed and provided as environmental enrichment for the birds. Some people use breeze blocks but there are carcinogenic compounds in breeze blocks which should be avoided.



-Keel bone Protection. Research has shown that at 30cm height a chicken will land safely and at 60cm height, 61% will land safely. Vencomatic studies have put vests on birds to measure flights heights and patterns.

-Dark brooding studies by David Brass has shown injurious pecking can be reduced by 86-90% if chickens are kept in dark brooders.

-Air to air heat exchangers have been studied with broilers and reducing CO<sub>2</sub> levels with their use. Ammonia can be reduced by 57% as research on broiler farms in a recent GB study. Research in The Netherlands has proven 90% of dust can be caught by a heat exchanger.

-Roundel in the Netherlands aim for sustainable egg production. They don't beak trim their birds and give them extra scratch area. The Vencomatic product gives barn birds more space so they won't peck at each other to the same extent. The Vencomatic HQ in the Netherlands is the most sustainable commercial centre in Europe. It has ground source heat pumps and solar panels and was built for 80% of the costs of a traditional build. Eggs produced from the Roundel system in the Netherlands sells for as much as the 4 star Organic Free Range Egg due to its marketing as a sustainably produced egg.

-Leon gave all the producers heart by stating that nowhere in the world has a surplus of free range eggs. He stated that 17 million birds are still in cages in the UK and that 4-8million may stay in cages for the cheap egg to be produced post 2025. He

### The Future

-Leon believes that hatcheries will become defunct and that all chickens will be born on the farm where they live. The problem is that currently chicks could be in hatcheries for 2-3 days with not enough food and water whereas been born on farm does away with these stressors and brings many commercial advantages. He briefly mentioned the benefits of Vencomatics X-Treck for this purpose and their current work with Crown Poultry.

<https://www.vencomaticgroup.com/en/products/broilers/housing-solutions/x-treck>

-He thinks soon we will be able to sex eggs on farm and females chosen at that point rather than sexing after hatching.