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**THE PENLLYN ESTATE:
A FUTURE IN EGG PRODUCTION**

BRITISH FARMING – BRITISH BUSINESSES

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THE PENLLYN ESTATE: A DIVERSE ESTATE WITH FUTURE IN EGG PRODUCTION

They are now on their fourth flock in their 24K bird free range unit, with a 15K barn unit recently completed. Estate & Poultry Manager Andrew Shackell has received an award for 44 years of service to agriculture at this year's Royal Welsh. He has a strong team working for him, who he involves in the decision-making process to support development plans.

Roots of steel

Penllyn Estate has been farmed by the Homfray family since 1846 and it remains in ownership of the Homfray family, direct decedents of Sir Francis Homfray, a successful ironmaster who moved to Cardiff in 1749. Today, the estate is home to a diverse range of businesses, but agriculture remains at its

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core. Feed wheat, oil seed rape, maize and vegetables form the bulk of the crops grown; while the livestock operation focuses on the rearing of cattle, sheep, and pigs. There are also fishing lakes, beehives, holiday accommodation, and the award-winning Forage Farm Shop and Kitchen. In addition, 45 commercial units house a variety of businesses including a local ice cream producer, a vet practise, and a firewood company. "Forage is our public face and one that has gone from strength to strength," explained Tom Homfray, managing partner. "As well as the eggs we sell our own, beef, lamb and pork – alongside products from carefully selected Welsh producers." In under three years the shop and kitchen has gone from a field to an award-winning business. "We were a finalist in the Wales Food and Drink awards and last year were the regional finalist in the Grocer Farm Shop and Deli 2022 – retailer awards

and winner of Welsh farm shop of the year in 2022 and 2023.

Diverse operations

The Penllyn estate comprises 820ha near Cowbridge in the Vale of Glamorgan, 13 ha of which is home to a 24K flock of free range hens. They also produce farm assured Welsh lamb, native bred beef, and home reared pedigree Welsh pork. Andrew Shackell is the estate manager, a position he has held since 2011 – although he first worked on the farm in 1979. "When I was a teenager, I picked potatoes on the farm and worked on the harvest for several years afterwards. My relationship with the farm continued when I set up a farm contracting business and in 2002 I started as a fulltime stockman."

Andrew explained that the estate was home to a large suckler herd but now the cattle are



manged as part of a share farm partnership with a neighbour. “Also grazing the land are 1,000 head of breeding ewes, Romney and Aberdale. Our rare breed traditional Welsh pigs are home bred and forage freely across grass paddocks.” 420 hectares of arable land produces a variety of cereal crops along with oilseed rape. “We have 6-8 tonnes of the seed crushed, the oil flavoured and bottled to sell back in the shop.”

Free range operations

In 2014 the estate started looking at the possibility of adding free range hens to their operations. “It was 2018 when we received planning permission for the unit and building stated the following year. Andrew Watson and the team at Bowlers offered invaluable support through the whole process. When the first flock of birds arrived in September 2019 the Bowler Team worked closely with us,

helping us through the steep learning curve and were on hand to deal with any issues.”

They were pleased with the performance of the first flock and the second flock did even better. “Production peaked at 96.7% and laying a total of 352 eggs per hen housed. Unfortunately, our third flock suffered in the very hot weather we had last year, resulting in an E. coli infection requiring antibiotics. The birds did recover but were also subject to the long housing order in place.”

Andrew Watson, Free Range Director at Bowler Eggs, described how delighted the company has been to work with Andrew and his team. “They have achieved excellent results with their dedication and attention to detail. But most of all, like with the rest of their business, they are always positively looking for new and dynamic ways of managing the flocks.



And in so doing, achieve a high standard of welfare and outstanding performance.”

Team effort

John Homfray recently retired but his sons Tom and Matt now manage the business, working closely with the rest of the estate team. “Tom was previously a lawyer in London and Matt is a vet, with practises in Bali. Both came home in 2020 at the start of the pandemic to support their father. The full staff count for the estate is 63, with 13 employed directly on the agricultural side.”

Nerys Cosier was thrilled when she was offered the job of stockperson for the hens. “I’d previously done a variety of jobs, including helping with lambing on a local farm and had always had an interest in agriculture.” She has learnt on the job and become an invaluable member of the team, now working as poultry supervisor. Monique

Morris joined six months after the first flock went in and Frankie joined a year ago, with a Saturday worker also helping. “Nobel foods has given us a lot of training, in addition we’ve completed the animal welfare and food hygiene elements of the RSPCA and Lion Code assurance codes. And we’ve recently achieved our poultry passport qualification.”

Andrew agreed that good staff are everything and that the ‘chicken ladies’ are brilliant, “caring and conscientious to a fault. Good staff are everything, once you’ve got them you want to support them in terms of training and development.” The whole business implements the concept of transparency and team effort. “We share financial details with the staff so that they understand what is happening in the business - to show them where improvements can be made and why certain changes need to be made. It’s important for the whole team to be involved



in the decision-making process, to get their input and ideas. I find that once you get their buy in, and projects are successful."

Production particulars

The Harlow wooden shed has a Potters Aviary system installed. "Planning issues meant that we couldn't have the house in the middle of the range but working with the Bowlers architect to overcome hurdles, we have the house sited near the rest of the farm buildings with the birds ranging in one direction in the fields above." They have always had Lohmann brown hens, the pullets coming from Fritwell Farm near Oxford. "We visit them in rear and have always been very pleased with the birds. The last three flocks have gone out at 76 weeks of age, but the plan is to take them until 80 weeks this time." A four-stage ration programme is delivered by Noble Foods Milling. The flock is first introduced to a Startlay ration to help their physical

development and support them coming into production. This is followed by Layer 1 and Layer 2 when egg size, intake and production is on or above target. Finally moving to Layer 3 towards the end of lay.

The area around the house was a clover rich sward for grazing. "This hasn't been as hard wearing as we'd like and it's too dry to re-seed now but in the autumn, we hope to be able to. The rest of the range is permanent pasture, with deep rooting species making it more resilient." Six alpacas patrol the range, to deter and keep foxes away. New saplings, shelters, and logs to perch on have been added to encourage the birds out.

"A very capable catching team from Noble collect the birds and then the shed is mucked out by our own agricultural staff. It's a win-win, in that we can use all our own muck on the arable crops, reducing the requirement for

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artificial fertilizer.” A contractor then washes and disinfects the shed and this time around also applied Fossil Shield, due to an issue with red mite in the previous cycle. Ian Jones at Hafran Vets looks after the health of the flocks. “His advice was very important when we had an E. coli problem in the last flock.” The unit is protected by a security gate, with foot dips,

and boot changes. “During the housing order we didn’t have anyone near the unit apart from essential staff, but AI is always a worry.”

Performance

“Floor eggs was a significant problem in the last flock, but Bowlers and their Technical Advisor Peter Furlong worked to address the

| Parameter | Value | Comments |
|-------------------|-----------------|-------------------------|
| Flock size | 24,000 | |
| Breed | Lohmann Brown | |
| Flock age | 22 weeks | |
| Laying % | 86.3 % | Well ahead of target |
| Mortality % | 0.3 % | Majority from 1 smother |
| Feed intake | 127 g per bird | |
| Water consumption | 215 ml per bird | |
| Body weight | 1.5 kg | @17 weeks of age |
| Floor eggs | 3.1 % | |
| Seconds | 2.4 % | |
| Accreditation | RSPCA Assured | |



issue. Drinker and feed management was key, and he also recommended changing the tilt on the floor of the nest boxes at the start of lay." This meant that other hens could see that eggs had been laid there and follow suit.

"Obviously that means that there is a lot of manual collection initially but over a short period floor eggs reduce, and time is saved overall. We also give two separate feeds in the morning, one at 8am to get the bird up and moving - this is when the most dominant birds will feed. Then another feed 15 minutes later gives the less dominant hens a chance to find space at the feed track - helping to ensure they don't lay on the floor."

"Once the hens start laying, we don't like to disturb them by weighing them too much; instead we use the accurate feed and water intake data, as well as egg numbers, to let us know if there's anything wrong."

Nerys takes enrichment for the hens very seriously making a variety of 'toys' to keep them busy. "The hens particularly like the bottles with tinsel in as well as the plastic balls hung from coat hangers. My latest purchase was some long plastic twisters which move and catch the light." Nerys also likes the hens to take part in any celebrations and as such for the Jubilee last year, the house was red, white and blue themed.

Keeping the hens occupied is particularly important during the housing orders, which saw an initial 1-2% drop in production after they were shut in. "Thankfully we haven't had any issues with feather pecking - just a couple of white feathered birds in the last flock were picked on."

Opportunities and investments

Following a visit to the Prinzen factory in The Netherlands, Andrew and Nerys decided to



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purchase a palletiser to work alongside the packer. "It certainly speeds up the packing process, which will be particularly important when the new unit comes online. But it was also a matter of staff welfare, reducing the amount of manual handling required." The equipment can stack 25K eggs per hour.

Penllyn Estate have worked with Bowler Eggs from the inception of the project, with their eggs going to Nobel to fulfil supermarket contracts. Around two percent of the eggs produced are sold in the farm shop, graded using a small tabletop grader. This is a particularly useful market for extra large eggs, which may otherwise be graded out at the packers. "We sell half a dozen extra-large eggs for £3.20 and at the start of a flock most of these are double yolkers." Their eggs are also used in cakes and pies that are made onsite to be sold in the shop and café.

Regenerative plans

Sustainability is at the forefront of the estate decision making and as such has planted more than 50,000 trees since 1990. Approximately 10% of the farm is woodland. "This includes two hectares, of native saplings, which have been inoculated with *tuber aestivum syn. uncinatum fungus*, with the hope that they will start producing black truffles, five to six years after planting." Renewable energy is also a key part of the estate's sustainability plan with 450kw of solar on site and electric car charging points at the café.

In terms of engagement with the public, Forage Farm Shop and Kitchen hosts events throughout the year. "We have pumpkin picking, a Christmas extravaganza and pick your own Dahlias. Several primary school visits were hosted during early summer to educate children on how food is produced,



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their reactions are lovely, and they really enjoy it. So much so, shortly after the last visit we received 33 handwritten letters in the post, with pictures of animals they had seen. We are also proud to support the local homeless charity Llamau, to whom left over food is donated.”

The estate continues to develop under regenerative farming principles, to improve both soil health and ecosystems. “In this plan the farm will cut down further on the use of chemicals and artificial fertilisers, using a soil testing plan; as well as employing precision farming tools. Understanding of the soil food web is increasing all the time – soil health is key for both crop yield and biodiversity both above and below ground.” How stock is grazed, tillage methods, planting to improve carbon sequestration and providing habitats on farmland are other areas of regenerative farming.

The estate management are always looking at new idea to supplement and strengthen the business and have recently been investigating the possibility of growing salad leaves in a vertical farming system. “We will also expand and develop our holiday accommodation offering, as well as doing an evening service at the Forage Kitchen.” The site is beautifully landscaped and well maintained, with wildflower verges and modern architecture with Forage Farm Shop and Kitchen’s ever-expanding offerings extremely popular.

Industry support

Andrew has confidence in the market for both free range and barn eggs. “Egg prices are improving but volatility is hard to plan for and we are pleased to have a feed tracker in place with Bowler Eggs. The egg operation is great for cash flow in the business overall; particularly with energy, fuel and chemical



prices so high.” In terms of challenges AI and climate are at the forefront in egg production. “We always have to remain vigilant in terms of biosecurity and embrace new technology to optimise the hen’s environment to remain efficient producers.”

He also believes that more could be done address the time-consuming nature of audits. “We have audits from the RSPCA, APAH, Nobel, Lion code – much of the information required is overlapping but each one needs it presented or recorded according to their scheme. I have absolutely nothing to hide and think it’s important to have the accreditations, but I think the system could be streamlined.” He proposed that there must be a way for centralised records and process manuals to be kept online for farms, so that the organisations can access them to do much of the auditing process remotely. Then visits would be more like spot checks causing minimal disruption to the daily work of the unit.

Future plans

With egg production a success for the business, Andrew looked to expand. “I was concerned

about the problems we had with heat stress last year, along with the now annually occurring AI housing order and the significant issue we have with fox predation. The climate and environment for egg production is clearly changing so it means we need to adapt. So, we looked at a climate-controlled barn unit rather than another free range house. It also means that we don’t lose any land out of arable production.” Working with Bowlers, who also see opportunities for barn eggs in price sensitive markets – the unit will house LSL white birds. “This will improve the efficiency of production, with the plan to take the birds to 94-96 weeks of age.” The Powells steel building houses nearly 16K birds and is installed with the Vencomatic ECO Zero system.

Ventilation Technology

Ben McGill explained that this is the first time this system has been fitted in the UK but that it is used in a range of poultry operations in Europe including barn and free range production. “ECO Zero uses heat exchangers to ensure that the unit maintains an easy to manage and more constant climate all year round. In this case two ECO Units have been



combined, both with the integrated cooling module to ventilate the unit. The technology is controlled by the Fortica poultry computer from Hotraco.

In cold weather it uses the heat created by the birds themselves to warm the incoming air – recovering up to 80% of the difference between outdoor and indoor temperature. By ventilating with warmer, drier air, the indoor climate and litter quality are easier to manage.” With a drier climate and subsequently drier litter and manure, we also see reductions in ammonia emissions. Under hot conditions an indirect evaporative cooling system reduces the temperature of the incoming air without increasing humidity. With recent summer periods hitting record temperatures, heat stress is an increasingly common challenge faced by poultry farmers.”

By creating a constant, optimal climate in the house, bird health and performance is optimised. “We see that feed consumption is reduced, as birds don’t need as much energy to maintain their body temperature, which as well as reducing costs also has potential to

reduce the carbon footprint of the operation.” Providing the optimal climate for the birds gives them the best possible chance to achieve their genetic potential.

Andrew described how, “the last build was a steep learning curve but this time, there is plenty of time to get the unit finished before the pullets arrive, towards the end of September. At some point we’ll put solar on the roof of this shed too but build costs have been high. It shows how much materials and equipment have increased in price, that that the new unit is costing the same as the 24K bird unit did, despite housing 8K less birds.”

The same team will look after the new unit as well as the current one. “Automation, including the palletiser will save time and they will work later into the afternoon to cover both sheds.” Nerys herself is very excited about the new shed and can’t wait to get started. “All the knowledge I’ve acquired over the last 4 years has given me a lot of confidence and I’m keen to keep learning with the new system.”



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