The exercise demonstrated that, by using a device to identify high impact areas and then making simple adjustments to these areas, considerable financial savings can be made.

Adjustments included tightening conveyor belts, altering gradients, inserting plastic crash barriers at specific transfer points and reducing egg belt speed.

Based on an average graded egg price of approximately 86p per dozen, 1% seconds would equate in monetary value to £0.655/p/doz. If each bird lays 26 dozen eggs, 1% seconds is equal to 17p per bird, which over a 32,000 bird unit would mean a saving of £5,449.6 per flock. Egg producers with graded second quality eggs at above 5% could particularly benefit from using a device such as this.

For more information on this project, click here.

Project 2 – Controlling air, litter and water quality to enhance bird health and increase productivity (started in May 2020, ongoing)

The aim of the second project is to explore optimal environment conditions for free-range laying chickens i.e. air, litter and water to increase bird health and thus productivity and profitability. A combination approach is being applied to reduce bacterial loading by using non-infective bacteria to improve air, litter and water quality and introducing herbs and vitamins to the bird’s diet to enable them to naturally manage red mite infestation and improve egg shell quality. In May 2020, a LoRaWan sensor system and dashboard measuring ammonia, carbon dioxide, humidity and temperature was installed within the buildings. The will enable the farmer to modulate the delivery of the management plan accordingly.

Between 26/06/2020 and 21/07/2020, ammonia was measured at between 10-15ppm. One of the project aims is to reduce this to at least 5ppm in the new flock with the automated system. Bacterial swabbing was carried out in mid-July at Wern which allowed us to see what bacteria was dominating the sheds at that time and gave us ammonia readings. The flock depleted the shed on the 24/08/2020 and the new flock was placed on 10/09/2020.

On 25/09/2020 Osian cleaned out the belts in both sheds and again on the 2/10/2020. This resulted in ammonia levels dropping back down to below 5ppm, proving the importance of regular removal of faeces from the sheds. Next steps are to treat the environment according to results collected by the sensors.
A North Wales Poultry Discussion Group were visited by Energy expert Chris Brooks, Westflight Ltd, to help members understand their electricity usage and looking at reducing costs to improve efficiency.

Electricity cost has increased dramatically as the figures below show.

- 1990 – Electricity Cost £0.06 / kWh
- 2000 – Electricity Cost £0.10 / kWh
- 2019 – Electricity Cost £0.17 / kWh

This is an increase of 70% in 29 years. The question was posed to the group – will your egg price increase at the same rate?

Each group member brought their latest utility bill to the meeting, and Chris went through the bill layout to highlight what they should be looking out for:

- Wholesale Cost 40.09%
- Network Costs 25.16%
- Social and Environmental Costs 13%
- Other Direct Costs 0.65%
- Supplier Operating Costs 15.4%
- Supplier Profit Margin 0.94%
- VAT 4.76%

Members were urged to look at day and night tariffs to see if they could induce efficiency savings by utilising the lower night time tariff. Peak usage times amongst the group businesses were discussed, focusing on what could be done to reduce these peaks.

Chris gave the group some take home messages to consider:

- Who is responsible for energy purchase on your farm?
- Beware of brokers, buying G=groups etc. Do your own checking.
- Choose at least two possible suppliers and negotiate.
- Calculate the actual cost per kWh.
- Check meter readings against invoices

If consideration is given to these points, then efficiency savings can be made.

Several members were keen to gain knowledge of usage in their own holdings and it was agreed to organise on-farm clinics to monitor and benchmark further within the group.

E-learning

Some of the e-learning courses completed within this period relating to the Poultry sector:

- Poultry Vaccination
- Poultry Parasites
- Injurious Pecking in Laying Hens
- Managing Poultry Manure

For more information on e-learning, please visit the website.

This energy review surgery opened our minds to future technologies in terms of electricity production in the poultry sector.