

1,792
DAIRY FARMS REGISTERED
WITH FARMING CONNECT

EIP Wales

Using 'Internet of Things' (IoT) technology to improve slurry management on farms



College Glynllifon is one of three farms in north Wales that are testing the capabilities of a selection of LoRaWAN- (Long Range Wide Area Network) enabled IoT sensors to make better informed decisions on when conditions are appropriate for applying slurry on fields in relation to minimising the risk of polluting nearby water courses.

Sensors are placed in a representative field location on each farm. A continuous stream of data, along with the immediate weather forecast, is fed into a data visualisation tool that farmers can use to decide whether or not field conditions are suitable for applying slurry.

Demonstration Network

Master Slurry for Dairy Farmers

Dairy farmers came together to improve their manure knowledge of manure values and their environmental impacts and benefits. Coleg Glynllifon was the venue for the course, which was split into two separate days to accommodate off-farm commitment requirements, and allow for attendees to reflect on their learning in between each session.

The presentations were split into two, with Keith Owen of KeBeK Ltd and Chris Duller, a grassland and soils expert. Keith led during the morning, and Chris followed in the afternoon to introduce the changes to the Agricultural Pollution Regulations post-January 2023 and January 2024.

Keith Owen, building design and muck storage specialist, KeBeK Ltd, covered the following:

- Difference between previous SSAFO regulations and new regulations.
- What needs to be done and when.
- What classifies as slurry and what doesn't.
- What classifies as lightly fouled runoff, and what this means.
- How to reduce slurry/dirty water production economically, thus increasing storage capacity.
- How to calculate existing storage capacity.
- How to calculate required storage capacity, what can be included and what can be left out.
- Farm walk, looking at examples of what is compliant and what isn't compliant, with advice on what can be done to address any issues.

Chris Duller, grassland soils specialist, covered the following topics in the afternoon:

- Main pathways of nitrogen (N) and phosphorus (P) loss.
- Key drivers for nutrient loss.
- Total vs available nutrients.
- Value of slurry/manures, including digestate and poultry.

The college's own contractor, William Huw Roberts, came in for the final session to share his experience to date and how he will manage the forthcoming changes that will be in place post-January 2023.

This detailed event offered dairy farmers the opportunity to discuss their current practices and brainstorm how they will/can alter management practices to meet the new legislation.

Focus on feet: reducing lameness in a robotic milking dairy herd

Back in May 2022, lameness had risen to 21% at Graig Olway Farm, near Usk, with some more new cases creeping up. Due to TB restrictions, the heifer housing was stocked higher than farmer Russell Morgan would have liked, as another shed was being built with a new robot; this did contribute to an increased lameness percentage in the heifers. Fast forward to July, and lameness had reduced to 16%. Cows were becoming sound faster, due to the early and sensitive scoring, which allowed them to be seen no longer than a few days after showing signs of lameness.

As part of the revised protocol back in June, all new cases of lameness were given Non-steroidal Anti-inflammatory Drugs (NSAID), alongside a trim and block-fitted. This was to reduce the severity of the lameness and to stop any bruising or small cases of lameness developing further. However, with the cost of milk production increasing, it was decided to stop using NSAID for a while, to see if it was actually beneficial. After a couple of weeks without treatment, Russel was noticing that cows took less time to recover, and bruising in the hoofs were developing further, and lameness wasn't reducing. Therefore showed the importance of NSAID for new cases and reducing chronic lameness – a good lesson for the business.

We are all aware of the impact hot weather has on cows, and the extremely hot weather in July had a large impact on the cows, unfortunately, with lameness reaching 26% during the hottest week. This was not unexpected, but very encouraging that the severity of the new cases were not to the extent of previous years and cows recovered well by the next scoring. This, however, does show the importance of airflow and cooling systems in housing. Graig Olway have installed tube fans over the last six months, but installers have not yet been successful in ensuring the best airflow for best cow comfort. This is a challenge moving forward, and Russell is keen to persist in order to reach optimum airflow. Below is an example of the report generated by Sara Pedersen every fortnight, after reviewing the mobility scores and foot trimming records.

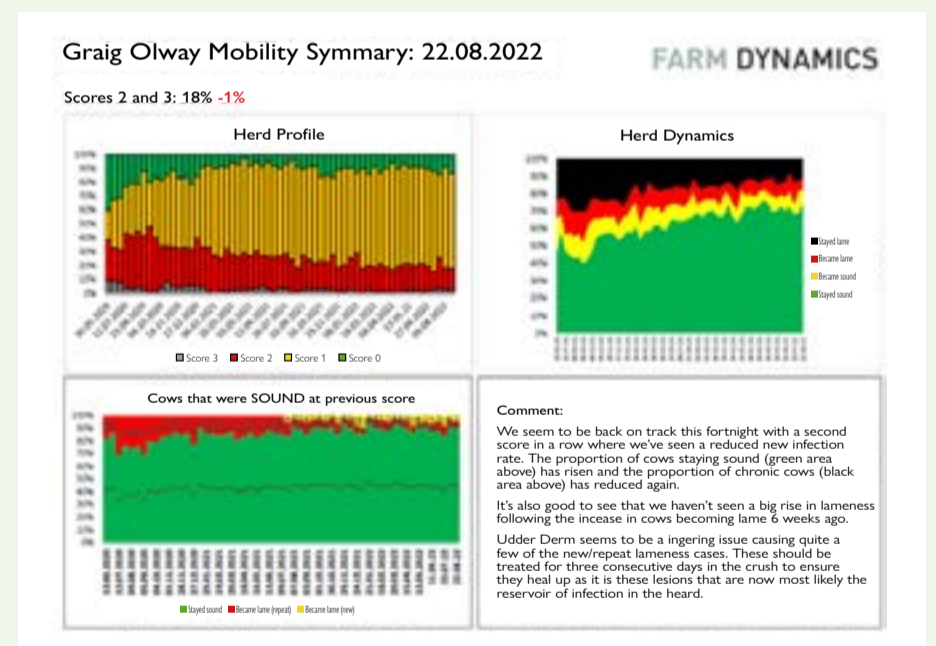


Figure 1. Graig Olway Mobility Summary: 22.08.2022

Below is an example of the trim list prepared for the whole team and shared around to ensure everybody is aware of the current situation. As you can see, there is a lot of detail on the list, which is great for data analysis and understanding patterns in the lameness from month to month.

GRAIG OLWAY TRIM LIST 23.09.2022
NEW CASES - BLOCK AND KELAPROFEN

| ID | Milk | Milk % | LAST SCORED - MOST RECENT FIRST | | | | LAST 5 TRIM SESSIONS - MOST RECENT FIRST | | | |
|------|------|--------|---------------------------------|------------|------------|------------|--|------------|------------|------------|
| | | | 23.09.2022 | 09.09.2022 | 26.08.2022 | 12.08.2022 | 29.08.2022 | 15.08.2022 | 01.08.2022 | 18.07.2022 |
| 1001 | 100% | 100% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1002 | 100% | 100% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1003 | 100% | 100% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1004 | 100% | 100% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1005 | 100% | 100% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1006 | 100% | 100% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1007 | 100% | 100% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1008 | 100% | 100% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1009 | 100% | 100% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1010 | 100% | 100% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1011 | 100% | 100% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1012 | 100% | 100% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1013 | 100% | 100% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1014 | 100% | 100% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1015 | 100% | 100% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1016 | 100% | 100% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1017 | 100% | 100% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1018 | 100% | 100% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1019 | 100% | 100% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1020 | 100% | 100% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1021 | 100% | 100% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1022 | 100% | 100% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1023 | 100% | 100% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1024 | 100% | 100% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1025 | 100% | 100% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1026 | 100% | 100% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1027 | 100% | 100% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1028 | 100% | 100% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1029 | 100% | 100% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1030 | 100% | 100% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1031 | 100% | 100% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1032 | 100% | 100% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1033 | 100% | 100% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1034 | 100% | 100% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1035 | 100% | 100% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1036 | 100% | 100% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1037 | 100% | 100% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1038 | 100% | 100% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1039 | 100% | 100% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1040 | 100% | 100% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1041 | 100% | 100% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1042 | 100% | 100% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1043 | 100% | 100% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1044 | 100% | 100% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1045 | 100% | 100% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1046 | 100% | 100% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1047 | 100% | 100% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1048 | 100% | 100% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1049 | 100% | 100% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1050 | 100% | 100% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Figure 2. Graig Olway Trim list 23/09/2022

Discussion Groups



30 DAIRY DISCUSSION GROUP MEETINGS

held with



208 ATTENDEES

Case Study

Grŵp Llaeth Llanrwst, a dairy discussion group from North Wales, have been hearing more and more about regenerative farming in the dairy sector. Farming Connect mentor and joint venture farmer Sam Carey (Milkwell Ltd) was invited to talk to the group about his journey so far into regenerative farming, and why he did it.

Sam's foremost aim is to move from a 365 housed to 365 grazing dairy unit with minimal cost and labour, working in harmony with the environment.

Farming journey so far:

Raised in Pembrokeshire

2013 – Tyn y Bryn, Pentrefoelas (employed herdsman)

2015 – Rhiwlas, Bala – share farming (full conversion)

2021 – Mathrafal, Machynlleth, 20-year FBT converting 180ha sheep farm to dairy

The definition of regenerative farming is:

“Any and all forms of agricultural practice that actively restore soil quality, biodiversity, ecosystem health, and water quality while producing sufficient food of high nutritional quality.”

Scientific studies to support regenerative farming are sparse, therefore Sam depends on similar producers/businesses across the world for guidance and influence. Despite the landscape and climate being so different, there are many similarities. Sam's main influencers are:

Allen Williams, USA; Ian Mitchell-Innes, SA; Elaine Ingham, USA; Newman Turner, UK

Sam's main objectives in the new unit:

- Aim to convert farm with only animal impact
- Grazing 365 days a year (no housing)
- No inputs other than hay (no concentrates, lime, fertiliser, reseeded, chemicals)
- Comparable profitability per hectare to conventional system

System target

- Calving – 20th April – 42-day calving period (6 weeks)
- Calving outside, calves reared outside
- Free choice minerals
- 250 days in milk, producing 3800 Litres/cow stocked at 2 cows/Ha
- Break even milk price of 19.5 ppl
- Farm working expenses 40% of income
- No inputs

Milkwell Ltd – business aims and purpose:

- Build a regenerative share farming business
- Improve all resources – people, soil, grass, cows, environment and finances
- Create progression opportunities for people who work with us

There was excellent interaction throughout, with many questions from the group members. Sam certainly provided food for thought, with many members questioning their own farming practices in view of rising input prices.

Animal Health & Welfare Workshops (relevant to Dairy)



4 DAIRY WORKSHOPS

held with



48 ATTENDEES

Antibiotic Resistance



Parasite Control in Cattle



Knowledge Exchange Hub

Technical articles produced by the KE HUB:



FARM BUSINESS DIVERSIFICATION – A RESEARCH PERSPECTIVE

Surgeries



40 SURGERIES HELD

Key topics included:

| | |
|---|------------------------------|
| Agri Pollution Planning (14 individual Surgeries) | Accountancy |
| Business | ICT |
| Infrastructure | RPW Surgeries |
| Marketing and diversification | Legal |
| Planning | Agriculture & Succession Law |

The infrastructure and Agri Pollution surgeries gave advice and guidance regarding slurry storage, discussed N loading and how to comply with new agri-pollution regulations.

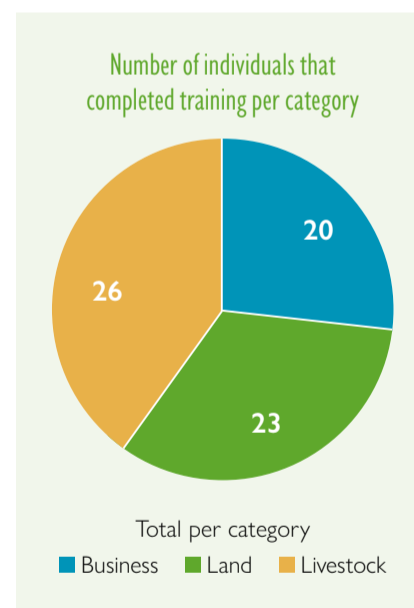
A business applied for a Marketing and Diversification surgery regarding installing robotic milking parlour and wanted to start a diversification project alongside with this. This resulted in another surgery held regarding planning.

Training

During this period, **69** instances of face-to-face training were delivered to the Dairy sector.

The most popular courses in each category were:

Total



| | |
|---|----|
| Emergency First Aid | 10 |
| Rough terrain telescopic lift truck | 8 |
| Cattle Scanning | 7 |
| Cattle Foot Trimming | 4 |
| Sit-Astride ATVs, including loads and trailed equipment | 4 |
| Advanced Cattle Foot Trimming Course | 4 |

E-learning

Some of the e-learning courses completed within this period:

| | |
|----------------------------|---------------------------|
| GRASSLAND SPECIES | COMPOSTED FARMYARD MANURE |
| AGRICULTURAL AIR POLLUTION | FARM HUMAN RESOURCES |

Click [here](#) to visit the website.

