LAND

April 2021 – July 2021

FARMING connect
cyswllt FFERMIO

Number of Arable businesses registered:
743

Number of Horticulture businesses registered:
318

Demonstration Network

Glebelands Market Garden: Evaluating the benefits of the Terrateck Wheel Hoe with Bio-Discs for weed control in vegetables

Glebelands Market Garden is a 4ha organic enterprise near Cardigan, supplying a farm shop on-site plus local restaurants and shops. Crops grown include spring greens, pak choi, spinach, broccoli, salad leaves, beans, leeks, cauliflowers, fennel, courgettes, lettuce, squashes, cucumbers and herbs. All produce is grown to Soil Association organic standards using well-established techniques such as onsite composting, crop rotation and green manure crops to maintain soil fertility and plant health. The business supports ten employees over the year, amounting to five full-time equivalents.

Weed control is a constant challenge in small and medium sized vegetable growing ventures that routinely depend on hand hoeing techniques requiring significant time and labour input. The business currently deploys two Glaser wheel hoe models which are used alongside hand hoeing but would find benefit in examining how to reduce or eliminate the hand hoeing altogether.

This project will evaluate the benefits of a French made Terrateck wheel hoe with Bio-Discs which appears to address several significant problems for smaller growers:

- Challenges of efficiently cultivating around drilled crops/earthing up small transplants
- Problems of using tractor mounted kit on sloping or uneven ground
- The lack of horticultural kit for small to medium growers (and lack of UK manufacture)
- Comparison with the well-known Glaser (Swiss) wheel hoe and similar older models which are still widely used

Figure 1: Adam and Lesley York with the Terrateck hoe and Delana Davies, Farming Connect Technical Officer

The wheel hoe will be specifically trialled on leek transplants at Glebelands where around 10,000 plants are set, followed by hand and Glaser wheel hoeing and spring tine cultivating, all several times. Use of the Terrateck wheel hoe has the potential to reduce the hours involved on the hand hoeing markedly. In addition, the sooner a cleaner crop can be achieved, the earlier under sowing with ryegrass can be carried out. This is an important soil protection action which needs to be precisely timed to minimise competition with leek plantlets but aim to provide adequate growth to protect soil from winter weather, particularly soil erosion associated with an intense rainfall incidence.

Cae Derw: Diversifying into Horticulture and Establishing a Pick Your Own Enterprise using the no dig method

Cae Derw, near Ruthin, is developing a horticulture diversification project on 1.2 acres of land previously used for growing crops on a mixed farm that also has a sheep flock. The field will be divided into separate units for soft and top fruit, vegetable rows, flowerbeds and a pumpkin pick your own (PYO). The main objective is to grow as naturally and ecologically as possible, using local resources such as compost from Ruthin and muck from the next farm. The intention is to sell directly to the local community through vegetable box collections, the village shop, the butcher and post office.

Establishment will use the no dig method, which provides minimal disturbance of the soil life, allowing beneficial micro-organisms, worms and fungi to thrive. As well as promoting better soil health outcomes, this also helps with weed suppression by not exposing further weed seeds for germination. In essence, no dig is beneficial for speed, ease, and productivity. Wool is being trialled as a method of suppressing weeds. The use of wool has been found to be beneficial when used in a mixture as compost or mulch. It is a sustainable, renewable product and an environmentally sustainable alternative to peat.

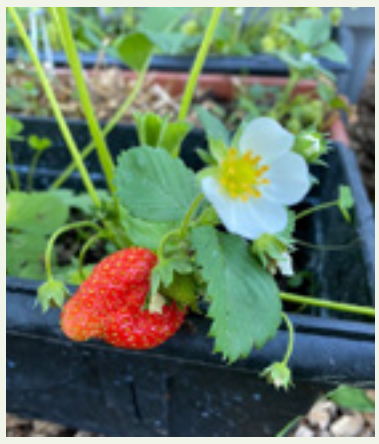

Figure 2. Indoor strawberries starting to bear fruit May 2021

The first strawberries are shown bearing fruit in the polytunnel. As an experiment, half were planted outdoors and half inside; the outdoor ones have proved disappointing, but the indoor ones are thriving.

The site is being kept tidy with weekly strimming to keep the surrounding areas and paths clear. Plans are coming together for opening at the weekends in August, where members of the public will be allowed on site to choose and/or pick their own flowers..

Erw Fawr: LoraWan gateway project looking to link soil and air temperature with grass growth rate

A LoRaWAN (Low Range Wireless Access Network) sensor has been installed at Erw Fawr to collect soil temperature data to compare with grass growth rates during the 2021 grazing season. Installed back in October 2020, a small five-year battery life sensor has been sending temperature data every 15 minutes via a LoRaWAN gateway installed in one of the paddocks that is regularly measured with a platemeter. This data is being interpreted on a bespoke dashboard as a series of graphs and downloadable data sheets. Data thresholds can be set with an alarm function on a mobile device to notify the farmer of any required actions such as correct timing of fertiliser or the suitability of soil conditions to apply manures.

Continuous work with sensors at Erw Fawr will combine all the available data to aid the management and timing of fertiliser and slurry application to optimise grass growth.

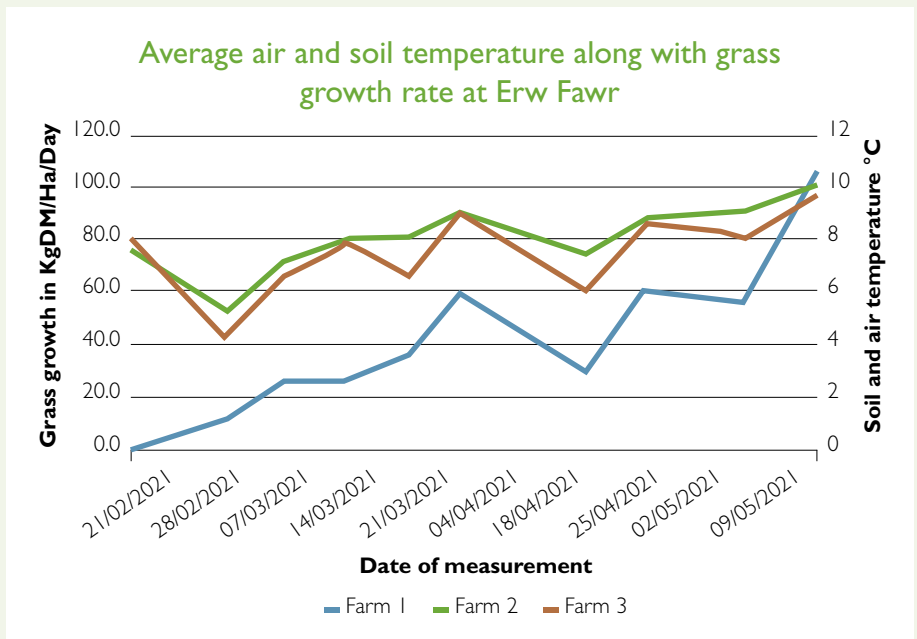

Figure 3. Soil and air temperature data with weekly grass growth measurements

Advisory Service

53 individuals received one-to-one support through the Land Categories of the Advisory Service during this period.

130 groups made up of 384 individuals received support through the Land Categories of the Advisory Service during this period.

Feedback from businesses on delivery of this Advisory service:

"Really interesting results from soil sampling across farm. It will inform our application of nutrients going forward. Where I have ticked further advice, this refers to 2/3 years in the future when further sampling should be done. Also, follow-up on same topic reflects my desire to learn more and improve soil management on-site. The process has been really useful and informative. The consultant has been excellent and took time to explain the results and their implications to me on a video call."

"As a result of testing and implementing the recommendations, we will be saving money by feeding the ground what it needs, not leaving it to guesswork, therefore improving productivity and profitability."

Discussion Groups

Pembrokeshire Arable Group.

The group met with 2018 Soil Farmer of the Year Simon Cowell to discuss no-till arable farming who began by by showing pictures of a small hay meadow which has had zero inputs for numerous years yet still provides a crop of hay every year. He explained that this gives him confidence that the soil alone, if looked after, is able to provide a lot of what the crop requires. Simon then showed two pictures comparing the soil profile on his arable fields in 2005 and 2017. There was a significant difference in the soils, with the 2017 soil looking far healthier with a better soil structure, more topsoil, higher organic matter content. Simon also emphasised noticeable differences seen when managing the land such as better drainage and a longer window to access the fields due to better drainage and therefore better accessibility.

During the meeting, Simon also pointed out the basic principles of the no-till system that he operates which included the following:

- No cultivation
- Halve nitrogen (N) use by changing crops, e.g. legumes, linseed, spring crops
- No phosphorus (P) and potassium (K) used for 20 years
- Reduce chemicals where possible
- Low input crops
- Inoculate with homemade compost

Final discussion then proceeded to include:

- The use of compost on his farming system, how this is done and how it benefits the soil health
- Drilling techniques and equipment, specifically the direct drilling opportunities of both the tine drill and disc drill
- The importance of drainage for his system and for soil health
- A comparison of machinery costs, input costs, total costs and net profit for zero N, bio no-till and conventional systems.

Webinars

18 WEBINARS HELD with **454** VIEWERS

Examples of webinars held include:

- The value of trees and hedges to grassland and livestock management
- Control of Agricultural Pollution Regulations – what is changing?.

EIP Wales

22 APPROVED LAND BASED PROJECTS WORKING with **65** FARMERS AND FORESTERS

An examination of the practical and financial potential for growing asparagus organically at two locations in south Wales

The growers were keen to evaluate the potential for organic asparagus as it can command strong prices, is a good draw for farm gate sales and falls in the 'hungry gap' from April to June when few other crops are ready. However, the crop does present some challenges as establishment costs are high and does not compete well with weeds. There is very little benchmarked data available to inform growers of its potential and therefore this project sought to address some of these gaps.

The project provided an opportunity for the growers to learn about crop establishment, agronomy, harvest and marketing demonstrating that with the correct management throughout the season the crop can provide an important contribution to farm sales in the spring and early summer.

Marketing options: Farm shop, local veg boxes, farmers markets and wholesale. Price per kilo: £9 – £18/kg depending on quality, time of year and availability.

Potential problems:

- Skilled labour availability for planting, weeding and harvesting
- High labour requirement as it is difficult to automate the processes
- Inconsistent yields from year to year dependant on weather and pests with vulnerability observed to weather extremes
- Flavour and tenderness is also affected by the weather

E-learning

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

- CLIMATE CHANGE & LAND MANAGEMENT
- FARM SAFETY – TELESCOPIC LIFT TRUCKS
- PESTICIDE SAFETY
- PRECISION TECHNOLOGY IN AGRICULTURE

Click here to visit the website.

Training

Courses	Number of individuals trained during this period
Rough Terrain Telescopic Lift Truck	17
Chainsaw Maintenance & Cross-Cutting	10
Sit Astride ATVs including Loads & Trailed Equipment	7
Assessing & Managing Grassland Management Using Plate Meter	5
Level 2 Award in Safe Use of Pesticides PA1 & PA2	7

Cronfa Amaethyddol Ewrop ar gyfer Datblygu Gwledig: Ewrop yn Buddsoddi mewn Ardaloedd Gwledig
European Agricultural Fund for Rural Development: Europe Investing in Rural Areas
Llywodraeth Cymru Welsh Government