

Number of Arable businesses registered:

710

Number of Horticulture businesses registered:

267

Demonstration Network

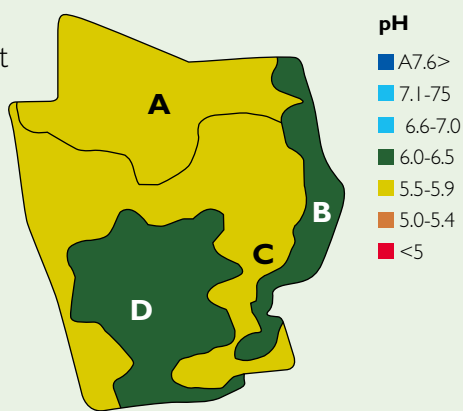
Soil mapping for more precise land management

Soil mapping by Electrical Conductivity (EC) scanning has been carried out on 60 ha of arable land and 40 ha of grassland at Pantyderi demonstration site. This process maps how soil properties vary across a field, and fields can be subdivided into management zones on this basis. Strategic soil sampling of these zones then yields a more detailed picture which can be used to more precisely manage lime and nutrient applications according to zone requirements.

Variable rate lime application

In the field below, soil classification for the field as a whole is a sandy silt loam, but zones A and B have soils with a higher sand content while zones C and D have a higher proportion of silt and clay.

This field map is colour coded for pH, with soil sampling indicating that zones A and C require a greater lime input to bring the soil pH to the optimum for grass production at 6.3. Should the field average pH have informed flat rate lime applications, half the zones would have been under applied lime while the other two zones would have been wastefully applied.



The use of the soil mapping has identified a saving in lime applications on both the grassland and arable area by using variable rate lime spreading:

Rate	Grassland		Arable	
	Flat rate	Variable rate	Flat rate	Variable rate
Lime (tonnes)	182.1	171.3	170.0	146.0
Cost	5,463	5,139	5,100	4,380



Field data was supplied to the lime spreading contractor through an SD card inserted into the tractor's GPS control panel.

Knowledge Exchange Hub

Technical articles published:

- CARBON AND CLIMATE CHANGE – AN OVERVIEW
- DROUGHT RESISTANT CROPS FOR THE FUTURE
- CAN PRECISION FARMING HELP MITIGATE CLIMATE CHANGE
- SOIL MAPPING FOR PRECISE LAND MANAGEMENT
- CHALLENGES FACING THE FUTURE DELIVERY OF SERVICES FROM WOODLAND IN WALES
- MANAGING CHANGING FRESHWATER AVAILABILITY AND WATER SCARCITY ON-FARM

Improving soil and livestock management to improve soil carbon capture, and reduce farm carbon footprint at Hendre Ifan Goch demonstration site



The project at Hendre Ifan Goch demonstration site in Bridgend is focusing on improving soil carbon capture. Following soil sampling and result analysis, the overall carbon levels in the soil at Hendre Ifan Goch are good, however, active carbon levels are lower than anticipated. This indicates a lack of biological activity within the soil due to an unfavourable habitat.

Soil sampling results suggest that one of the key contributing factors in this instance is the free movement of water within the soil. This is indicative of poor water infiltration within the soil, with water unable to move down through the soil. Therefore, project specialist Gareth Davies, recommended creating more favourable soil conditions for biological activity. This could be achieved by improving water infiltration. This would also remove high levels of iron within the soil. Aeration was completed on the project plots during April 2020 to improve water infiltration.

It was also recommended that phosphorus (P) and potash (K) were applied to the project fields. Although these are present in the soils analysed, they are currently inaccessible as a result of a lack of biological activity. Another common factor was the low levels of boron (B) present, therefore requiring the application of granular boron.



EIP

15
APPROVED LAND THEMED PROJECTS

working with

40
FARMERS AND FORESTERS

EIPWALES
Cydwethio a Ffyniant gwinid
Collaborating for rural success

Improving knowledge and experience of integrated pest control of soft fruit in Wales to reduce pesticide application and wastage



Managing pests in soft fruit crops can be challenging and with a desire to limit the use of chemicals, the group of farmers involved in this project in South Wales are looking at how integrated pest management can produce a more sustainable approach to pest control. In order to develop a pest control strategy, the

starting point is to know the levels of pests in the crop through regular and accurate monitoring. With this in mind they have developed a monitoring strategy that has been published as a factsheet, which can be downloaded from the Farming Connect website, to assist other farmers who are interested in tackling this problem. As the project develops, the group will be able to report on what has worked best for them and how they can effectively implement biological control strategies in their business.

Advisory Service

Number of business who have received support through the Land Categories of the Advisory Service during this period:



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



35 groups received support through the Land Categories of the Advisory Service during this period.

Feedback from businesses on delivery of this Advisory service:

"Very useful and informative and will help with future fertiliser applications and reseedling."

"Excellent understanding of crop nutrients."

"I gained knowledge regarding the required level of nutrients on the field."

23.07.2020 – What is agroforestry and how can it benefit the farm business? with Dr Tim Pagella, Bangor University

Agroforestry can take many forms, all of which are common in Wales:



Blocks with straight edges (normally more than 9 trees).



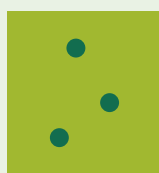
Groups with round edges (normally clumps of 5 or more).



Borders with trees planted around the edge of the field (can be in single or multiple rows).



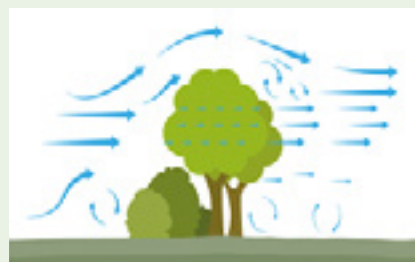
Strips in the middle of the field (can be in single or multiple rows).



Individual (single or more as in a parkland landscape).

Silvopastoral systems (shelterbelts) are the combinations of trees with grazed pasture. This includes various forms of forest grazing as well as trees retained in pasture to provide fodder and either shelter or shade, or both, for animals and is the most common form of agroforestry in the UK.

A key benefit of agroforestry is the shelter it provides.



A shelterbelt is a vertical barrier promoting wind to pass through the canopy rather than over it, with a row of shorter and more dense shrubs for low level protection once trees have matured and thinned at the base providing a robust structure.

The area protected by a shelterbelt is proportional to its height. The shelterbelt's maximum height should be as tall as possible to maximise the area that will benefit from shelter, as long as the trees remain wind-firm themselves.



Shelterbelts alter the microclimate of the area adjacent to it by influencing wind speeds, and pattern of wind flow over and through a narrow permeable shelterbelt: small rolling eddies creating a long zone of shelter impacting air temperature, soil temperature, soil moisture, humidity, night air temperature and evaporation.

Discussion Groups



Rhys Williams of Precision Grazing joined a South West sheep discussion group digitally to discuss resilient and sustainable sheep production systems, focusing on grazing and improved grass utilisation

Rhys explained that grass is the cheapest source of feed available to farmers, costing an average of 5p/kg/DM compared to 10p/kg/DM for silage and 30p/kg/DM for concentrate feeds. Improving grass utilisation is one of the best ways to improve production and reduce costs, with Rhys emphasising that farmers are grassland farmers first, then livestock farmers. Four key steps to improving grass utilisation are:

1. Correcting soil fertility
2. Grazing infrastructure
3. Grass measuring and budgeting
4. Reseeding

Rhys then covered the three golden rules of grazing:

- Grass grows grass
- Grazing 'on time'
- Appropriate rest period

By monitoring residuals, and sticking to the three leaf principle, well-managed grazing will improve the productivity of grassland with the general rule of 'grow in three weeks, graze in three days' as it takes three weeks for the plant to produce three leaves and three days grazing will help achieve the desired residual of 1,500kg/DM. Grazing on time should be between 1-7 days, with 3-4 days best suited for beef and sheep farms. Rounds that are longer than seven days won't see the benefits of rotational grazing. A rest period of 16-120 days is important to help build cover over the winter and have a good entry in the spring. To implement the three golden rules, you need to be rotationally grazing.

When feed budgeting, it is important to try to match peak lactation with peak grass growth. Rhys presented an interesting statistic that he learnt in New Zealand that genetics have a 10% effect on production, with management affecting 90% of production, and within that figure, nutrition accounts for 80%.

Finally, Rhys discussed benchmarking, saying the two most important physical KPI's to measure are average farm cover and ewe body condition score (BCS), which are interlinked.

Rhys finished by reiterating key messages to scrutinise costs, grow and utilise more grass, measure and monitor average farm cover, ensure an adequate rest period for grass, routinely condition score ewes and develop suitable genetics for your system.

E-learning

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

GRAZING MANAGEMENT



IMPROVING SOIL HEALTH



PESTICIDE SAFETY



GRASSLAND SPECIES



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

Training Courses

Course Name	Number of individuals trained during this period
Rough Terrain Telescopic Lift Truck	24
Level 2 Award in the Safe Use of Pesticides (PA1) & Safe Application of Pesticides Using Hand Held Equipment (PA6)	6
Chainsaw Maintenance and Cross Cutting	5
Practical Hedge Laying	3

