# ARABLE DASHBOARD
## October 2019 – September 2020

FARMING connect
cyswllt FFERMIO

**% of activity relevant to the Arable sector:**

**710** BUSINESSES REGISTERED **with Farming Connect are from the Arable sector.**

**21%** ARABLE ACTIVITY

## Demonstration Network

### Soil mapping to enable more precise land management at Pantyderi

60 hectares (ha) of cereal growing land and 40ha of grassland has been scanned and mapped at Pantyderi, creating soil management zones within every field. These zones have been analysed for phosphate (P), potassium (K), magnesium (Mg) and pH as well as laser texture to define soil type. Nutrient management plans have been drawn up for every mapped field which are now being used for variable rate nutrient and lime applications. Maximum use is being made of straw based muck from the beef cattle on the farm for base applications of P and K.

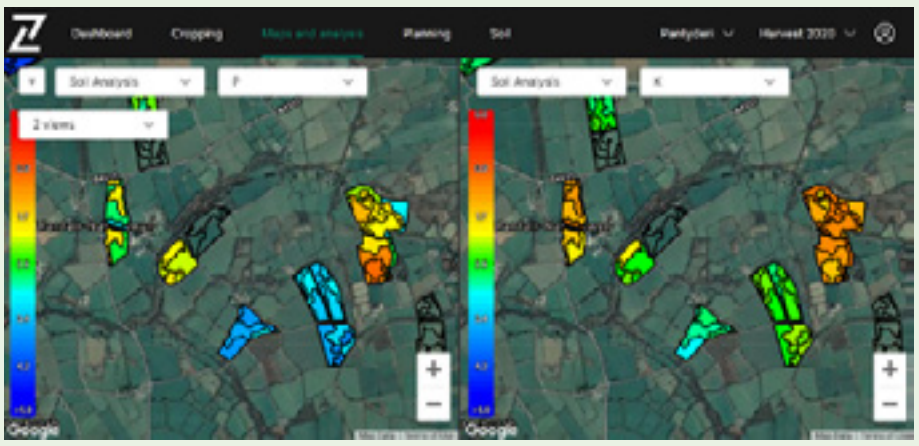



Figure 1: Soil mapping results for phosphate (P) and potash (K).

### Sowing barley using variable seed rate

Using the soil mapping information for growing a crop of spring barley by sowing with a variable seed rate has been trialled using two adjacent fields. The poorer soil type or problem areas of the field received higher seed rates to potentially even out crop yields across the field (Figure 3). Digital maps were provided to the sowing contractor on SD card which connects through the tractor GPS system to inform a variable sowing rate drill. Barley head counts taken in July were 5% greater in the variable rate sown field and at harvest the variable rate sown crop showed significantly less lodging, although crop yields were very similar for the two fields.

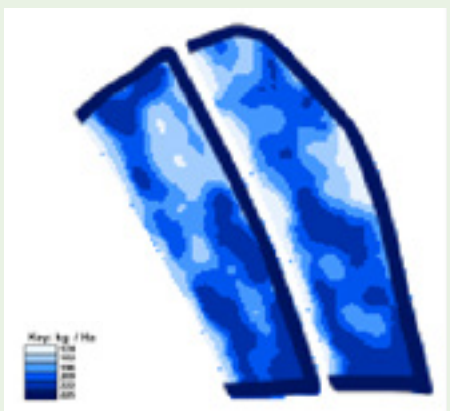


Figure 3: Variable seed rate map for spring barley for two adjacent fields

Figure 2: Transfer of soil mapping data to tractor GPS control panel on SD card.

### Variable rate lime application

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

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

Table 1: Savings in lime applications using variable rate lime spreading.

## Events

### 'Farming through challenge and change' – 18/02/2020 AHDB, NFU Cymru and Farming Connect Arable Conference

This event was designed to help develop the skills, knowledge and tools required to operate a resilient arable farming business.

The speakers were:

**Dr Bryan Watters** (Cranfield University)

Bryan reflected on formative leadership experiences whilst serving as a Commander with the UN Protection Force during the Bosnian and Iraq wars and discussed how he developed his critical decision-making skills under pressure while considering how to manage and value your own time.

**Rachael Madeley-Davies** (Kite Consulting)

Rachael Madeley-Davies discussed how to embrace and manage change in the farming environment to become a more resilient individual.

**Blair McKenzie** (James Hutton Institute)

Blair McKenzie evaluated the considerations to make when choosing the most suitable crop establishment approach to improve soil health and achieve yield potential for farmers.

**Tom Mead** (AHDB Duxford Monitor Farm)

Tom Mead explained how he aims to establish, nurture and maintain a healthy and profitable cereal crop on his Cambridgeshire farm.

Key take home messages:

- Do not be afraid of change
- Use change as an opportunity
- Utilise change to evaluate your business' direction

## Management Exchange

### William Scale's Management Exchange, July – December 2019

**Topic:** No tillage and diversification

**Countries:** Finland and France

The aim of William's exchange was to develop knowledge and see techniques that would enable his farm to become more regenerative, competitive and efficient and learn how to further develop combinable crop and annual cropping techniques and make improvements. He chose to visit Finland as it's a country with a marginal arable agriculture. The farms there are also family-sized and it has the highest percentage of no-till in Europe at around 10-12% of all land. They also had a long-running no tillage trial site which had been running for over 20 years. He also chose to visit France because of the focus on intensive cover cropping to build soils. Climatically, it is somewhat more similar to Wales than Finland because of the fewer hard frosts, but they have a shorter growing season and extreme heat to contend with.

Click here to read William's report.

## EIP WALES

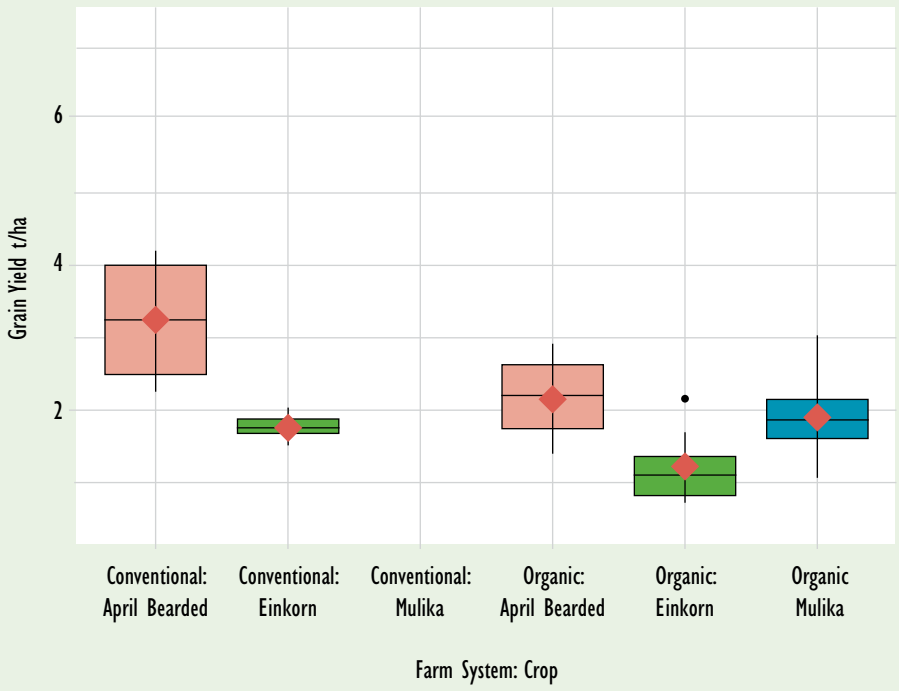
### Investigating the potential for cultivating heritage and ancient wheat varieties in south west Wales

With increasing demand from artisan bakers for flour made from traditional cereal grains, this project is investigating whether they do have a place in modern systems and whether modified agronomic practices could assist in their production.

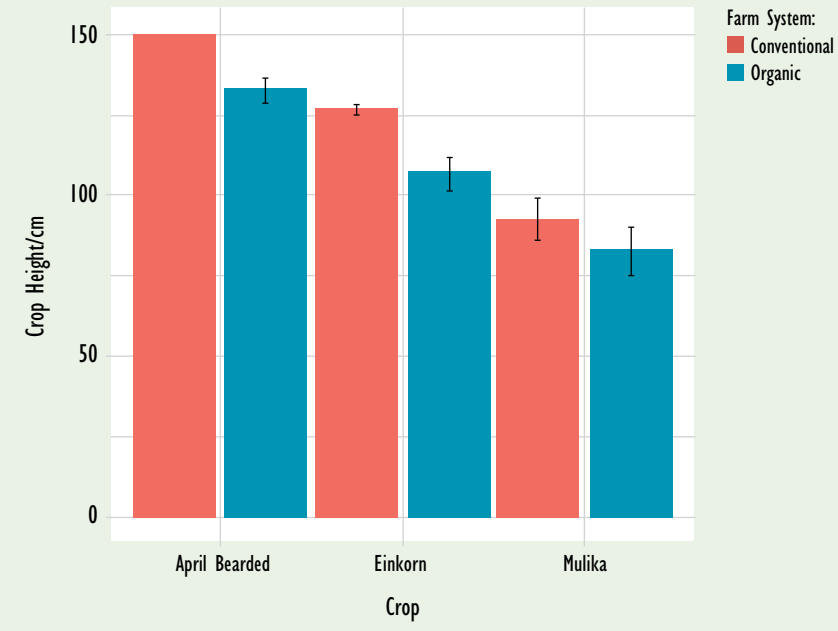
The first investigations have been to compare three spring varieties, Einkorn, April bearded and Mulika in organic and conventional systems.

Mulika is a modern variety that was used as a control. On the organic plots April bearded outperformed Mulika and also achieved good results on the conventional plots. Einkorn did not perform as well as April bearded in either system.

Plot of Grain Yield by Farm System and Crop




Another measure was crop height as taller crops can be very prone to lodging. The older varieties grew taller and were more prone to lodging making their management far trickier.




The next phase of the project is to compare autumn sown varieties and gather information on how these perform when compared to modern varieties.

## Webinars

**31** WEBINARS HELD with **4,267** VIEWERS

Examples of webinars held include:

- Maintaining soil health
- Soil mapping to enable more precise land management
- Tractor GPS technology – what can it do for you?

## Discussion Groups

**16** DISCUSSION GROUP MEETINGS RELATED TO THE ARABLE SECTOR held with **128** ATTENDEES

### Case Study

#### Cardiff Dairy Group – Sustainably produced protein crops for animal feeds

The group decided to look at how they could produce sustainable protein crops for animal feeds.

Bryn Hughes, the speaker for the meeting, pointed out that protein has historically been overfed in the UK with the crude protein levels being higher than required and usually the most expensive component of any feed ration. Crude protein is a measure of nitrogen, and published figures show that the rumen is only 25-30% effective at utilising the nitrogen that we feed, the remainder is lost in the urine, faeces and milk.

Therefore, the question was posed 'Can we reduce the amount of protein that we feed and achieve higher nitrogen capture in the rumen, without impacting on yield and production?'

Bryn's suggestions to the group included:

- Formulate ration diets for metabolisable protein
- Balance of home-grown feeds/forage
- Reduce purchased protein
- Measure your nitrogen efficiency on farm
- Monitor milk urea
- Increased rumen nitrogen efficiency
- Feeding less soya
- Increase utilisation of home-grown feeds

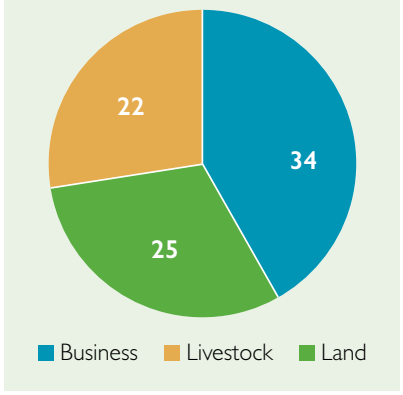
Suggested alternative protein crops included:

- White Clover – 10% increase in white clover = 1% increase in silage Crude Protein
- Red Clover – Yield 10-15tDM/ha
- Lucerne/ Alfalfa – Good yield when grown in the right conditions. 14t/DM/ha. 3-4 cut system
- Beans/Peas – Yield 1-2t/acre. Feed value 26-28% Crude Protein however can be very variable
- Others – Lupines, Berseem Clover, Crimson Clover, Soya, Vetches, Brassicas

Hannah Wright, South Wales Development Officer, mentioned the project being run at Pantyderi, Cardigan. The group intend to follow this project's developments.

## Training

There have been 4 application windows between October 2019 and September 2020 with **878** instances of training delivered during this period. Of this number, **81** instances were from the Arable sector.




The most popular courses within each theme included:

- MARKETING YOUR BUSINESS
- ROUGH TERRAIN TELESCOPIC LIFT TRUCK
- CATTLE FOOT TRIMMING

## E-learning

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

- Grassland Species
- Pesticide Safety
- Weed Control

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

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

www.gov.wales/farmingconnect