

## 23% of activity relevant to the Arable sector:

**748** OF BUSINESSES REGISTERED WITH FARMING CONNECT ARE FROM THE ARABLE SECTOR



## Discussion Groups



**28** DISCUSSION GROUP MEETINGS RELATED TO THE ARABLE SECTOR

held with **233** ATTENDEES

### Zero tillage arable

An arable discussion group in West Wales focused on zero-till arable farming and were joined by 2018 soil farmer of the year, Simon Cowell.

Simon showed pictures of a small hay meadow which has had zero inputs for numerous years, yet still provides a crop of hay every year and Simon explained that this gives him confidence that the soil alone, if looked after, is able to provide a lot of what the crop requires.

Following a discussion on the soil in the hay meadow, Simon 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. One interesting point that Simon highlighted on the 2017 soil was the dark patches seen lower down the soil profile. Simon explained that this was organic matter being taken down through the soil profile by the worms, proving that this is a healthy and biologically active soil. 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.

Simon 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 home made compost

Drilling techniques and equipment was discussed specifically the direct drilling opportunities of both the tine drill and disc drill.

### Tine drill

- Best for chopped straw
- More likely to block in long stubble
- Less smearing in wet soil
- Less weight needed

### Disc drill

- Less soil disturbance
- Best for long straw and big covers
- More accurate depth control
- Slot smearing

Simon finished the meeting by comparing the machinery costs, input costs, total costs and net profit for zero N, bio no-till and conventional systems and emphasised that he feels that there is greater profit to be made in the bio no-till system when compared to organic due to reduced costs involved.

## Demonstration Network

### Pantyderi: YEN Grain Nutrient Benchmarkings

The Yield Enhancement Network (YEN) connects agricultural organisations and farmers who are striving to improve crop yields with the aim of closing the gap between current yields and potential yields.

The need for routine grain analysis has grown increasingly evident with grain testing of over 900 samples from YEN farmers over the last four years revealing that 74% of cereal crops were deficient in at least one nutrient. This indicates that despite the best efforts of many growers, nutrition was commonly inhibiting the full potential of their crops.

In time for harvest 2020, ADAS launched a new YEN initiative called 'YEN Nutrition' to support those seeking to improve the nutrition of arable crops. Available to anyone in the UK or abroad, YEN Nutrition provides comprehensive grain analysis on all 12 essential crop nutrients and allows participants to benchmark their crops' nutritional performance against other growers.

Samples of grain were submitted for nutrient analysis at harvest 2020 from six fields at Pantyderi demonstration site. To increase the volume of data and facilitate benchmarking against concurrent crops grown in the locality, six fields were also sampled from a further five cereal growers in the area.

Results were then benchmarked through the YEN Grain Nutrition tool which incorporates results from all YEN grain samples harvested on a national basis.

Headline national results for the 2020 harvest showed:

- The most common deficiency noted is phosphorus
- Potassium is less commonly deficient than in past years
- Manganese is more commonly deficient than in past years

The Pembrokeshire group results demonstrated that:

- Nitrogen nutrition is generally too generous and occasionally excessive
- One farm showed low sulphur levels across all fields analysed whereas other farms were satisfactory for sulphur
- Manganese also appeared low on most farms growing barley

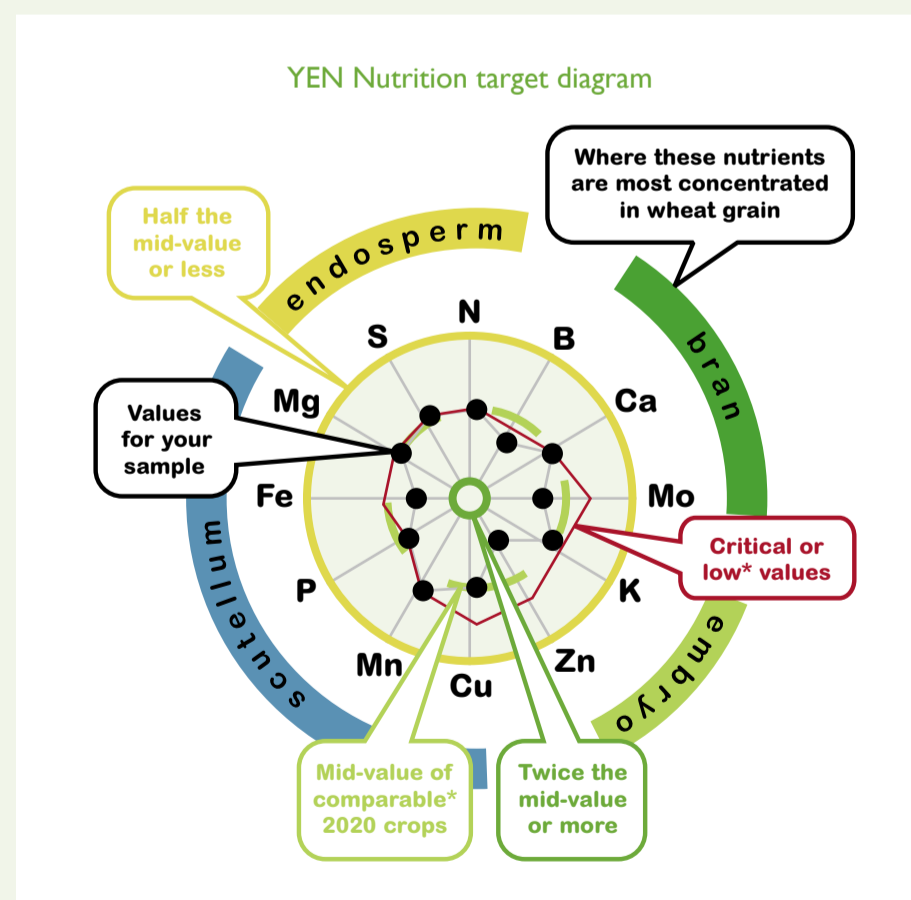


Figure 1. YEN Nutrition Target diagram

### Target nutrient levels should be just within the red circle

This information will be invaluable in helping to formulate an appropriate nutrition plan for cereal crops on these farms for the coming season, helping to improve yields, save unnecessary costs and provide for a better environmental outcome.

[Pantyderi YEN benchmarking report.](#)

## Pant Farm: Undersowing maize for environmental and economic benefit

In Denmark, thousands of hectares of maize are now undersown with grass seed and extensive trial work there has provided guidelines to ensure good establishment.

Pant Farm is an arable farm based in Llanvetherine, Abergavenny that has looked at under-sowing maize using a specially modified drill.

### What are the benefits?

- Reduces soil erosion
- Builds fertility
- Builds organic matter
- Retains soil nutrients (+/- 40kg/ha N and K)
- Enhances soil structure
- Easier preparation of spring seedbeds
- Cross compliance good practice
- Provides winter/spring grazing opportunity (> 1,500 ewe grazing days/ha or >300 heifer grazing days)

### Establishing the undersown cover crop

The target period for sowing cover crops into maize is from one week after the last herbicide is applied through to the stage when the crop is knee to thigh high in early July. The maize crop should be between the four leaf and ten leaf stage.

Early work involved either broadcasting the grass seed onto the ground or broadcasting and harrowing it in with a wire-tined rake; this can be effective when rain follows but is much less reliable when dry. Initial drilling work was carried out using a modified drill to deliver grass strips between the rows of maize, but purpose-built drills are now being manufactured.

### What will be done

A 5 hectare (ha) field situated on a slope and sown with Augustus maize has been chosen as being likely to suffer from soil erosion if left uncropped over winter. The overall aim will be to establish a root network by harvest time to stabilise the soil and carry traffic, reducing any possible run-off and erosion at the time of harvest and over winter.

Four trial plot areas made up of different seed mixes will be established by undersowing into the standing maize crop at the end of June/early July using a Zocon tine drill. Following maize harvesting, grass cover will be allowed to bulk up and grazed by tack sheep from November onwards with the number of grazing days achieved recorded.



Figure 2. Undersowing grass seed into the standing maize crop (2 July 2021)

### Events linked to demo network



#### 3.12.20 YEN Grain Nutrient Benchmarking

Open webinar to present national grain nutrient results



#### 17.12.20 YEN Grain Nutrient Benchmarking

Zoom meeting for Pembrokeshire discussion group to discuss and interpret their results



#### 23.7.21 Heritage cereal varieties-adapting their agronomy to fulfil demand

On-farm meeting to present results of EIP Wales project on growing heritage cereals

## Mentoring Programme

**17** MENTEES HAVE ARABLE LAND AND ARE BEING MENTORED ON ARABLE ISSUES



Topics discussed:

Mentoring support to look at the option of growing fodder beet on-farm



Mentoring support to look at a multi-cut silage production



## Agrisgôp

**31** MEETINGS HAVE BEEN RELATED TO THE ARABLE SECTOR

Some examples of group themes:

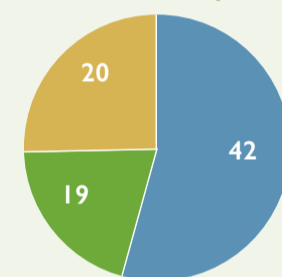


## Training

There have been **5** application windows (excluding reapplications for Covid) between October 2020 and September 2021 with **866** instances of training delivered during this period.

Of this number, **81** instances were from the Arable sector.

### Individuals trained by category



Total per category

■ Business ■ Land ■ Livestock

## E-learning

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

IMPROVING SOIL HEALTH



PESTICIDE SAFETY



WEED CONTROL



For more information on e-learning, please visit the [website](#).

## Courses



### Pesticide course

Level 2 Award in the Safe Use of Pesticides (PA1) & Safe Application of Pesticides Using Vehicle Mounted Boom Sprayer Equipment (PA2).