



# Rewarding farm trials in pursuit of Net Zero

PGRO Roadshow, 22-25 January 2024





# British On-Farm Innovation Network

- Launched in September 2020
- Represents farmers who carry out on-farm trials
- Particular emphasis on pre-commercial tech
- Current membership >800, 50% of whom are farmers







# Farmer-led research

- For the farmer with a curious mind
- A spray miss is never a mistake, it's a learning opportunity
- The role of science
- Push the boundaries, co-create the tools of 4AR
- A culture of sharing
- Payment for on-farm trials





# Nitrogen efficient plants for Climate Smart arable cropping systems (NCS)

£5.9M four-year research programme

200 UK Farms

17 Project Partners







# Project aims/targets

- A reduction of 1.5Mt CO<sub>2</sub>e per annum or 54% of the maximum potential for UK Agriculture.





# Project aims/targets

- Achieved by:
  - Increasing pulse and legume cropping in arable rotations to 20% across the UK (currently 5%).
  - Replacing 50% of imported soya meal used in livestock feed rations with home-grown legumes.







# Project aims/targets

- Steered by science and proven by real farm enterprises.
- Benefits for both crop and livestock productivity, including cost savings of over £1bn/yr.





# How will this be done?

- Work with 200 farmers whose carbon baseline will be established
- On-farm crop and feeding trials involving c40 farmers, paid as contractors
- Implementation of scientific platforms and initiatives

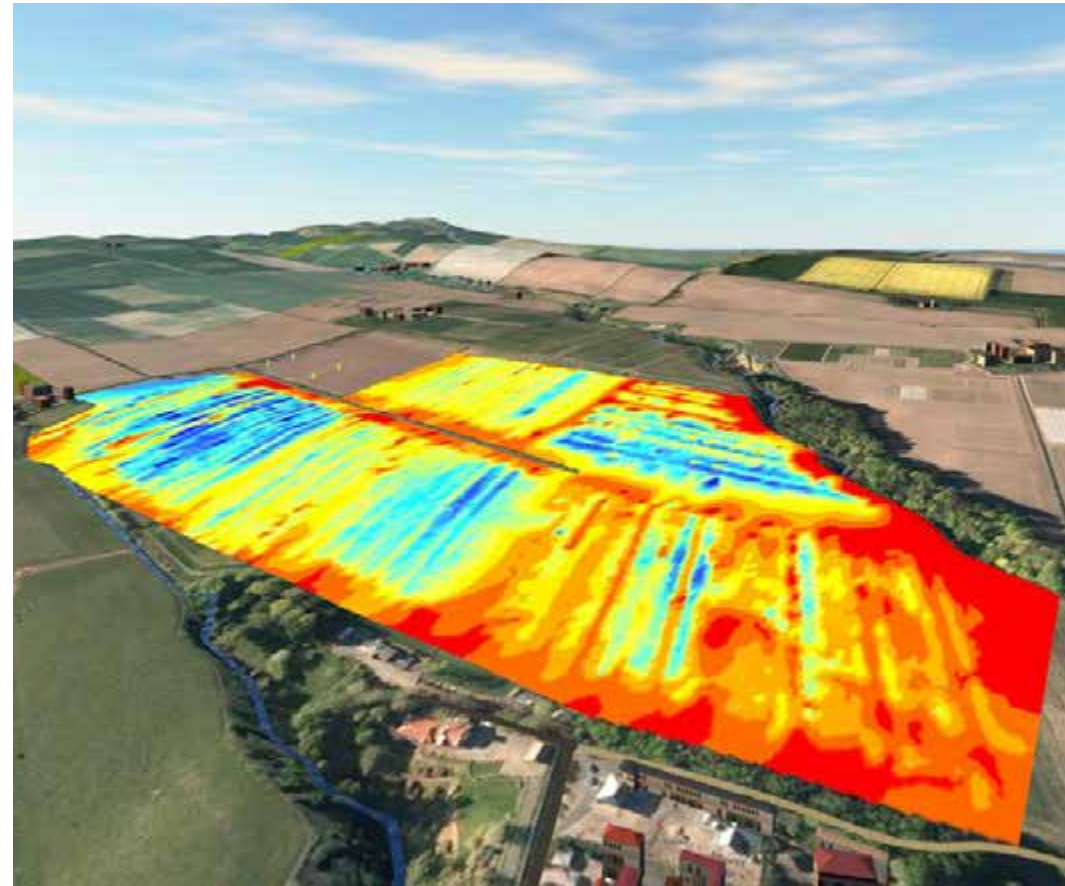






# Scientific platforms

- Centre for sustainable cropping
  - Long-term farm-scale crop rotation, 42 ha, 6 fields/crops, open access resource
  - For each field split-design, conventional- or integrated-management on each ½ field
  - 300 systems function indicators e.g. crop yields, soil, biodiversity, GHG, economics, etc
  - Faba bean and clover (understory) based rotation with reduced synthetic fertiliser use







# Scientific platforms

- CHAP Plant Phenotyping and Soil Health Facility
  - In-glasshouse gantry-based phenotyping platform.
  - Allows precision control and monitoring of soil, water, crop and climate conditions
  - Study entire rotation systems including required tillage operations in a realistic set up.

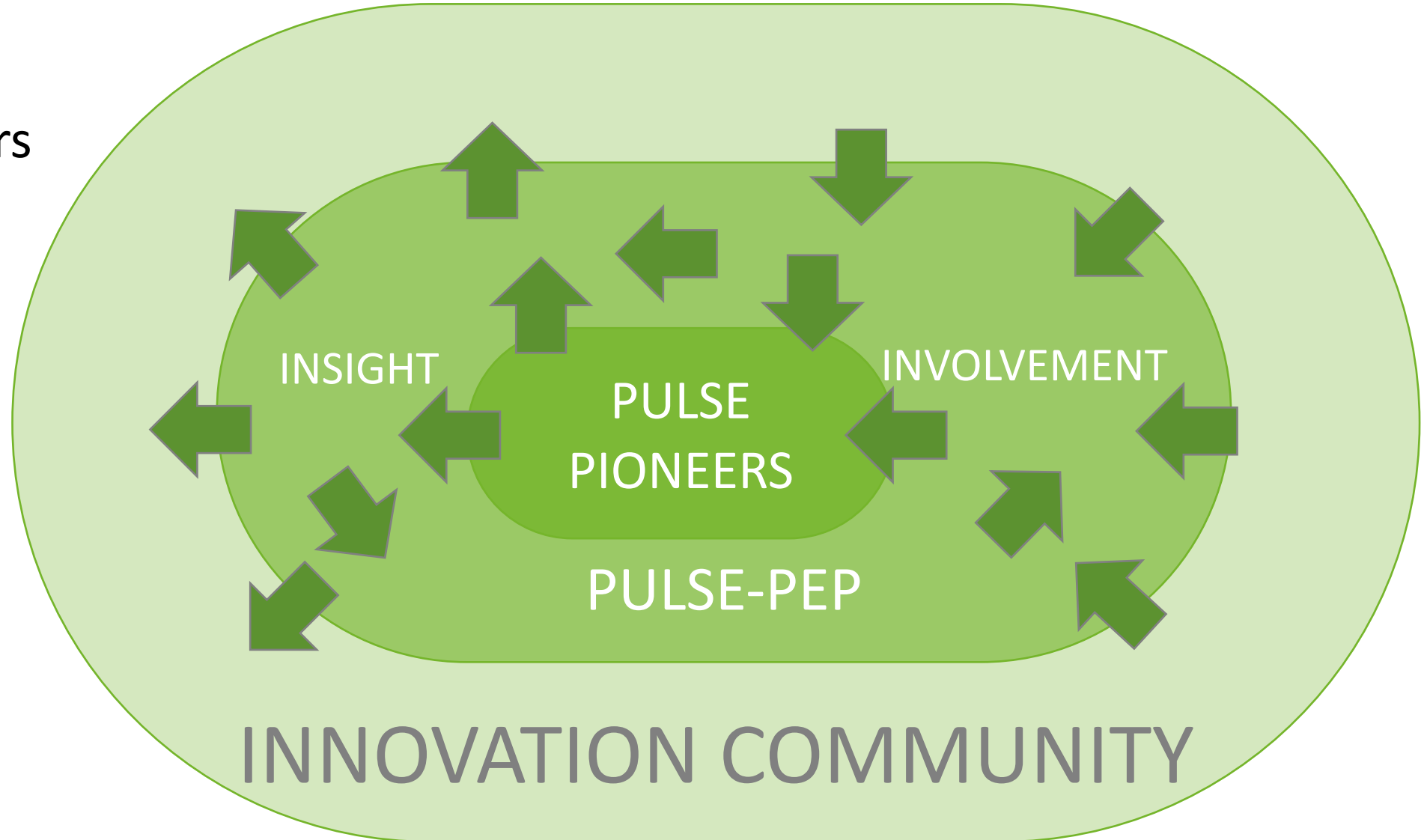






# PulsePEP

- 344 members
- 178 farmers





## Peas and beans as a livestock feed

This guide is designed to be a starting point for livestock farmers who may be looking at ways to

RESOURCE

### Topics



#### Pulse Crops

Pulses are leguminous crops harvested for dry protein-rich seed, with peas...



#### Animal Nutrition

Animal nutrition plays a crucial role in livestock agriculture for several...



#### Pea and Bean Weevil

The pea and bean weevil adults cause characteristic leaf notching around...

### Resources



#### 12-week catch crop produces high protein baled for...

The search for a catch crop to fill the gap between lifting carrots in...



#### Pulses grown for greening cut out bought-in protei...

An innovative approach to growing and preserving peas, beans and lupins...



#### Dehulling and Roasting Trials with McArthur Agricu...

As part of the NCS project, McArthur Agric... ed to carry out...

### Events



#### Cheltenham Monitor Farm: Check your pulse! Managin...

Join us for the third (and final) Cheltenham Monitor Farm meeting of...

VIEW EVENTS

### Recommended Content



A reflection on maximising N provision from Pulse



### Agromony Guide Harvesting and Storage

Peas and beans are usually harvested dry, but there are situations where it's better to harvest them green...



Introducing pulse peas to growing is popular and can offer a large percentage of nitrogen provision to your livestock. The key to success is to ensure that the peas are harvested at the right time and in the right way...

**Tempering**  
There are two options which impact the feed value of pulses which are harvested in a green state. Both involve some form of drying process, but the primary one is achieved by tempering or treating with a blast of superheated steam which improves the feed quality for ruminant and animal digestion.





Forums > [Knowledge in Farming](#)

## PulsePEP

[Post thread](#)

Farmers Working with Scientists to Achieve the best from Pulse Crops and reduce their Carbon Emissions. If you want to be able to contribute to discussions, please join [PulsePEP Community here](#)

**PulsePEP Resources**

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Messages:	6,063,418
Members:	63,874
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### John Deere Engines | The Far...

Farm TV · Tuesday at 11:44 AM  
NOV 21

 1,213 · 0

**The latest video on Farm TV:**

**John Deere Engines ...**  
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<div style="background-color: #f0f0f0; padding: 5px;"> <input type="text" value="Thread title"/> </div>					
	<b>Welcome to PulsePEP</b> Tom @ BOFIN · Jul 27, 2023		Replies: 15 Views: 988	Thursday at 4:25 PM skye @ bofin	
	<b>Cropping pulses - top tips and queries</b> skye @ bofin · Aug 22, 2023		Replies: 2 Views: 580	Nov 7, 2023 skye @ bofin	
	<b>Give us your 'Pulses of Brilliance'</b> skye @ bofin · Aug 2, 2023		Replies: 2 Views: 396	Sep 19, 2023 Pete Iannetta (JHI)	
	<b>Assessing Cropped Systems</b> Pete Iannetta (JHI) · Sep 5, 2023		Replies: 0 Views: 305	Sep 5, 2023 Pete Iannetta (JHI)	

Nov 6, 2023

**E**  
Ewen McEwen  
New Member  
BASE UK Member  
Location: Kent

Having applied more slug pellets than I have for many years I am now catching lots of tiny slugs as opposed to the eggs have still been hatching - what timescales does a slug life cycle operate over?

Report Edit Delete Warn

Yapter and Tom @ BOFIN

Nov 7, 2023

**BOFIN**  
skye @ bofin  
Member

Ewen McEwen said:

Having applied more slug pellets than I have for many years I am now catching lots of tiny slugs as opposed to larger ones still been hatching - what timescales does a slug life cycle operate over?

This is a great question - I wonder if @Repwal would know the answer?

Report Edit Delete

Nov 7, 2023

**R**  
Repwal  
New Member

As you will no doubt have realized already nothing is straightforward with slug biology, so the answer is the environmental conditions, time of year and a variety of other factors!

In general, however, slugs such as the grey field slug (thought to be the main but not the only arable pest) are round so your thought that eggs are currently still hatching is almost certainly correct. There are two overlaid waves with peaks of egg laying in March-April and September-November. When the eggs mature they turn white to a month to hatch, depending on the environmental conditions and the time of year at which they are laid. Eggs laid in late winter can overwinter, and may not hatch until the following spring, again if environmental conditions favour them.

**Wrong ID?**

Sep 18, 2023

**R**  
Roger Vickers  
Member  
Trade

Beans and peas are considered a "break" crop. Many of their benefits being well appreciated, ( even if it is not always realized ) Does this imply that the best place for them in a rotation is already realised as between cereal crops?

Report Edit Delete Warn Like Quote Reply

Sep 19, 2023

**Pete Iannetta (JHI)**  
Member  
Location: Dundee

Ah ha! One of my pet annoyances. Why are legumes perceived as a "break" crop? They are a crop like any other, yet are labelled "break", only because of (current) dominant markets. I am more interested in the question: after which crops (or land use), might pulses perform best?

Report Edit Delete Warn Like Quote Reply

Nov 16, 2023

**S**  
Sinkt  
New Member  
Arable Farmer

Hi,

Mine swings massively from 0 to 12 to 5, and then back to 0. This is in a crop of wheat ex OSR.

Yup, emptying them out each time too.

Report Edit Delete Warn Like Quote Reply

You and Elanish

Nov 16, 2023

**Y**  
Yapter  
Member  
Arable Farmer

Elanish said:

Hi all,

Been monitoring the traps for a couple weeks now after taking over this project from a colleague.

What is the average number of slugs you people are finding in each trap? and how many traps are you finding populated?

So far I am finding a maximum of 1 GFS in a trap, with approx 10% traps populated.

Click to expand...

I average about 2 in each trap. Very few traps without at least 1. I'm on the verge of needing to treat again looking at the crop damage slowly developing. Numbers are also slowly increasing in the beetle traps

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Elanish and Tom @ BOFIN

but I think the overall goal is to get a more accurate count than not including them since they were within the data collection zone. Perhaps something to think about for future trial set up / data collection protocol? J

Report Edit Delete Warn Like Quote Reply

You and Tom @ BOFIN

Nov 16, 2023

**S**  
Sinkt  
New Member  
Arable Farmer

Interesting to read all of the above. Just thought it would be worth adding my observation about the weight of the 'weighing' stone. Where large bits of concrete or anything really heavy has been used it has almost sealed the trap in the moist soil and little to no slugs are ever there. Where I have heavier stones I try to balance them on one edge to at least allow part of the trap to not be under such pressure... obviously you go back in a week and it hasn't worked. To add to Trotters point above; maybe uniform weights for the future.

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# Pulse Pioneers – three roles

## Trial Host

Provides resources  
(land, crop, data)



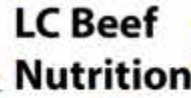
## Trial Monitor

Data recording  
and operation



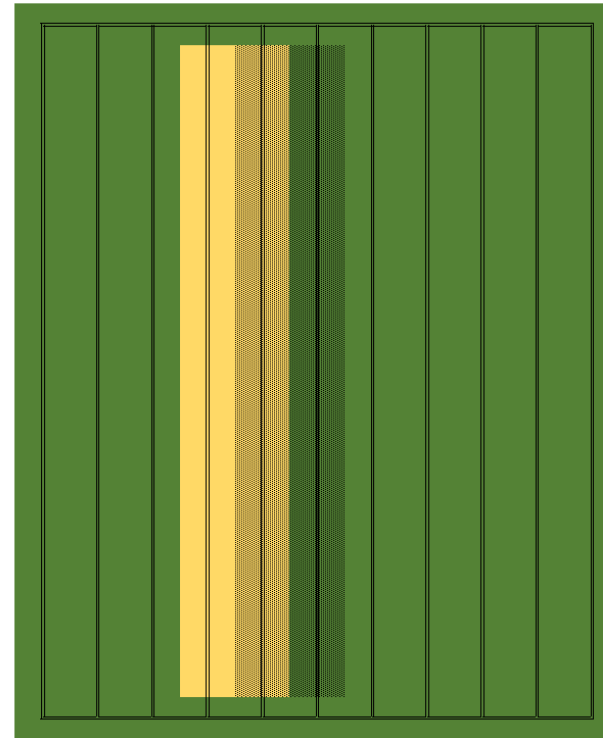
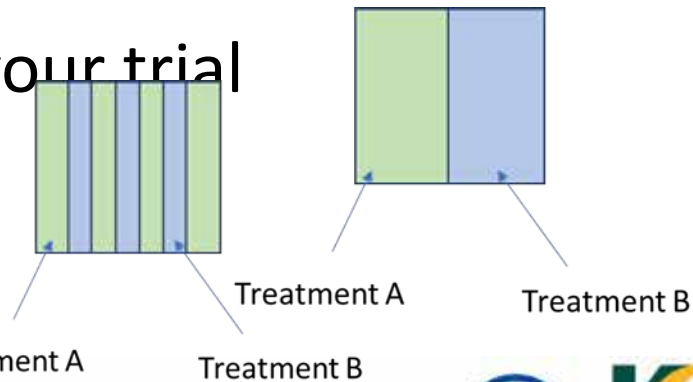
## Project Ambassador

Shares information  
Drives discussion



# How to become a Pulse Pioneer

- Complete the online survey
- Read the outline protocol
- Plan your trial



■ Spring beans oversown with clover  
■ Spring cereal oversown with clover  
■ Spring beans no clover  
■ Spring cereal no clover

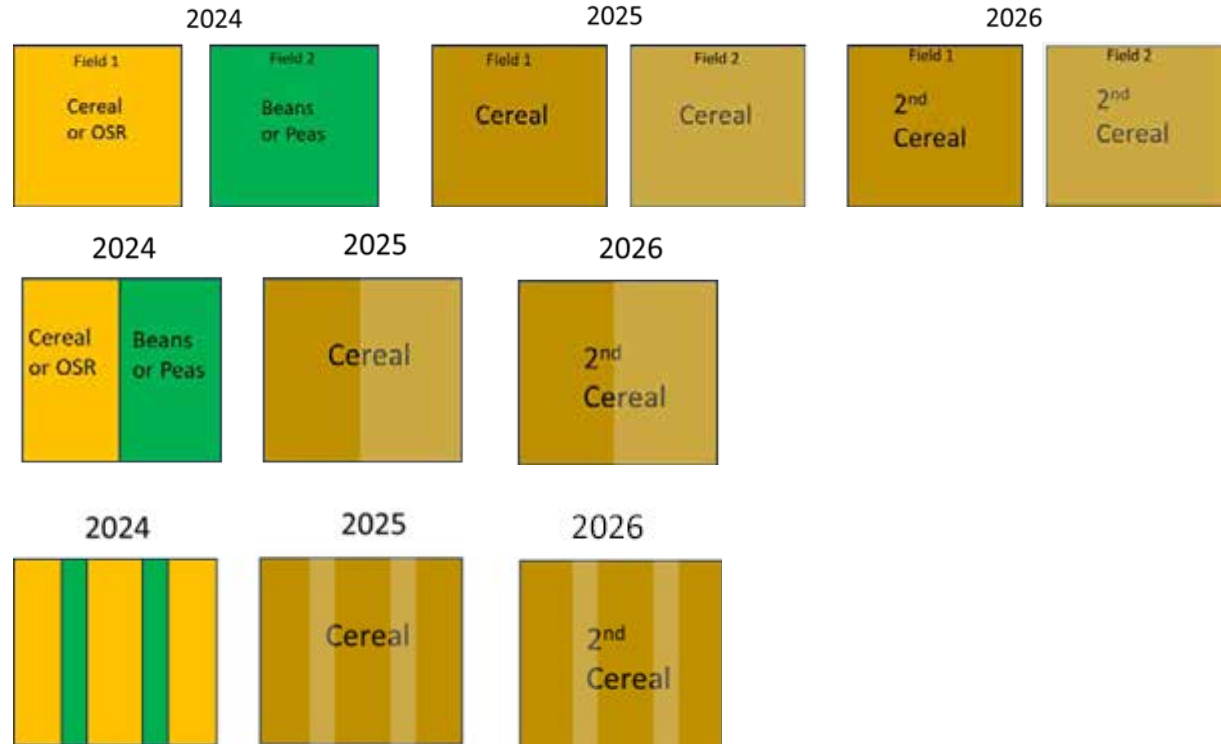






# NCS Rotational platform

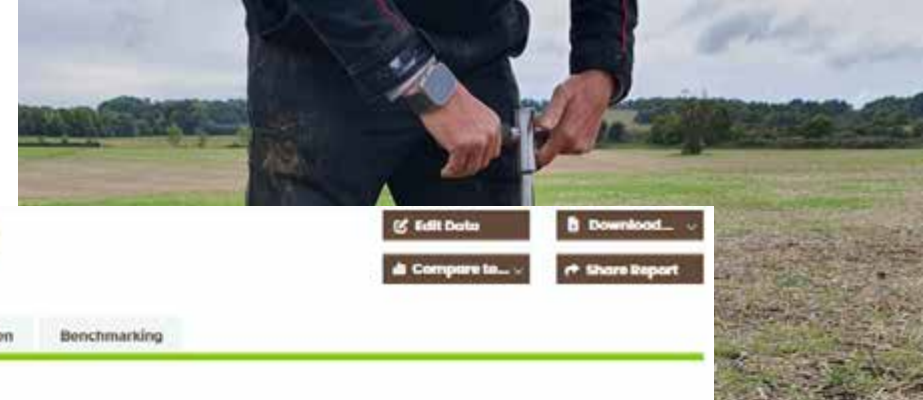
- Paired field design
- Split field design
- Alternating tramline design





# Monitoring

- Soil Mineral Nitrogen sample
- Carbon baseline
- Yield Enhancement Network (YEN)
- Yield



**FCT - Beef & Sheep**

Edit Data Download...  
Compare to... Share Report

Edit Farm Details

Summary Full Results Nitrogen Benchmarking

**Carbon balance**

**Emissions**  
436.79  
tonnes CO<sub>2</sub>e per year

**Offset**   
-248.06  
tonnes CO<sub>2</sub>e per year

**Carbon Balance**  
188.73



2020 Wheat Applications

**Region Report**

Add a note  
Description, photos and more

1.6 ha Harvested 14.6 Moisture 10.77 t/ha Avg Yield

By Variety	Avg Yield	hectares
KWS Firfly	10.77	1.6

By Elevation	Avg Yield	hectares
6 - 12 m	10.76	1.4
< 6 m	10.78	0.2

By Planter Date	Avg Yield	hectares
23/10/19	10.77	1.6

Applications 24/04

**YEN Review**



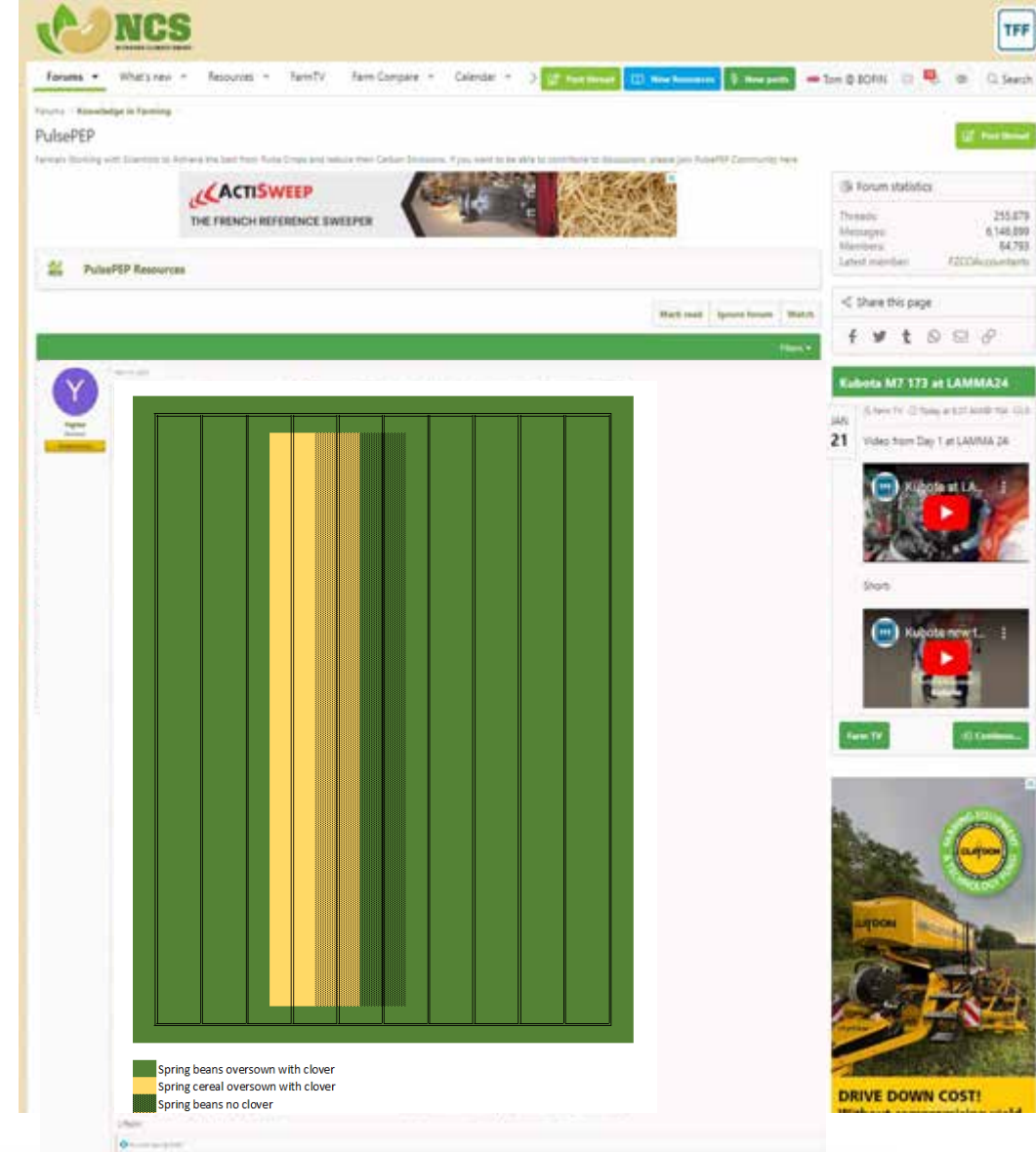




# PulsePEP

## Drive the discussion

- Each valued contribution earns 1 point
- Contributions can be liked – increases the value of your knowledge
- The best knowledge becomes easiest to find
- Link to knowledge hub on FarmPEP





# How much will you receive?

- Payment of **£2,500** per trial.
- Paid in two instalments – Feb 29, 2024; Sept 30 2024
- BOFIN membership fee of 30% + share of costs – c£900 total







# What happens if things go wrong?

- Here to support
- On-farm R&D is a lesser priority to the day-to-day running of a business
- Plenty of opportunities to earn points
- Support of voluntary activities





# Thank you



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