

Downpatrick Monitor Farm

Meeting title: Cover crops

Date: 9 December 2019

Speakers: Elizabeth Stockdale (NIAB) and Lisa Black (AFBI)



Good soil health

Soil health is the ability of a soil to sustain, in the long term, its most important functions. It requires a good balance of physical, chemical and biological soil properties. A healthy soil will be able to sustain crop and livestock productivity and maintain or enhance environmental benefits.

The soil health scorecard has been developed in the Soil Biology and Soil health partnership and it brings together information about the chemical, physical and biological properties of soil. 'Traffic light' coding is used to identify properties where further follow-up investigation is needed to identify management options that could minimise any potential risks to crop productivity.

Different soil types and cropping systems require different benchmarks for a lot of the soil properties and the scorecard allows for this, giving farmers a good overview of their own soil. It highlights things to monitor and things they need to take action to resolve.

Take-home messages

- Physicochemistry provide the foundation for soil biology
- pH matters, look carefully and consider precision liming
- Use organic matter additions but target them

Further information

- [Testing soil health](#)
- [Soil assessment methods](#)
- [Soil health and biology partnership \(91140002\)](#)
- [Using the soil health scorecard case studies](#)
- More information from the GREATsoils programme can be found at ahdb.org.uk/greatsoils

Cover crop trial

We carried out the soil health scorecard assessment on the cover crop try out that Richard had planted to see if there were any differences, results are below:

Cover Crop	DSV Beta Sola	Rye	Vetch	Phacelia	Mustard	Bare Soil
Texture	Clay					
% clay	43					
pH	5.8	5.8	5.5	5.5	5.7	5.7
SOM %	6.7	6.7	7.0	7.0	7.4	7.4
Ext. P (mg/l)	29.2	29.2	34.4	34.4	32.0	32.0
Ext. K (mg/l)	187	187	140	140	169	169
Ext. Mg (mg/l)	96.8	96.8	123	123	158	158
VESS	3	3	2		2	3
Earthworms (No/pit)	5	18	9		22	10

The main concern the group had was with the soil pH, we have to remember that pH 5.5 is 10 times more acidic than pH 6.5.

Take-home messages

- Go out with your spades and have a go!

Further information

- [Research project 21140009: Maximising the benefits of cover crops through species selection and crop management \(Maxi cover crop\)](#)
- [Cover crops in conventional rotations](#)
- [Measuring and managing soil organic matter](#)
- [Taking cover crops on farm](#)
- To find out more about the cover crop demonstrations at Strategic Cereal Farm – East, see ahdb.org.uk/farm-excellence

Soil Health and Cover Crops

- The key drivers for soil health in NI are sustainable agricultural production, environmental targets and the use of organic manures and slurries
- Paul Cottney is currently undertaking a PhD looking at maximising the benefits of cover crops through optimising the management of organic manures, rotations and nitrogen fertilisers
- The benefits of planting cover crops include:
 - Improve soil health
 - Weed, disease & pest suppression
 - Improve soil structure
 - Diversify rotations
 - Provide over winter fodder
 - Environmental benefits e.g. protecting against erosion, provision of habitats and food sources
- What is Paul looking at?

- Find species that respond to additional nutrients
- Evaluate the latest sowing date for species
- Evaluate effect on spring barley yield
- Can inputs of nitrogen fertilisers be reduced?

Take-home messages

- Findings so far:
 - Sow cover crops early
 - Manage the soil to prevent a high C:N ratio
 - Phacelia is the most stable at delayed planting
 - Cover crops can return equivalent amounts of carbon back to land as straw
 - Protect leachable nutrients
 - Can break down effectively to reduce N rate in subsequent crop
 - No effect detected in field experiments on spring barley yield

If anyone would like any more information on Paul Cottney's research please chat with him at the CAFRE conference in January.

AHDB resources

- Understand your business costs with AHDB's benchmarking tool Farmbench at ahdb.org.uk/farmbench
- Monitoring tools are available at ahdb.org.uk/tools
- Sign up to market information and research newsletters at ahdb.org.uk/keeping-in-touch
- Find out what's going on at other Monitor Farms and Strategic Farms at ahdb.org.uk/farm-excellence
- All AHDB events can be found at ahdb.org.uk/events
- For guidance on how Brexit will impact your business, see ahdb.org.uk/brexit

Next Meeting

Soil and Manures with Philip Wright and Sajjad Awan – 10:30 – 14:30 on Tuesday 21st January 2020 at Bright Community Centre [Click here to book.](#)

Contact details

For more information contact: Michelle Nuttall

E: Michelle.Nuttall@ahdb.org.uk

M: 07778 143404

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