Northampton Monitor Farm meeting report

Soil Health (2) – Above ground

Speakers: Neil Fuller (Biosystems); Tom Robinson (Bionature)

Date: 14 May 2019

Venue: Newton Lodge Farm

For more information, visit: cereals.ahdb.org.uk/northampton

Meeting summary

- Don't get complacent in a low disease year – you still need to be vigilant
- The rapidly expanding world population presents huge opportunities for food producers
- The nutrient content of raw produce has declined significantly over the last 100 years
- Farmers have the opportunity to deliver food with a minimum nutritional standard
- Farmers need to lead the debate on carbon sequestration and demonstrate what they can do
- The water holding ability of soils can be increased by increasing their organic matter content

Monitor Farm update

Rick Davies

- Most crops looking well now following much needed rain (27 mm) – light land in particular was struggling
- T1 fungicides applied three weeks ago
- Thought this was a disease-free year but septoria and yellow rust found in wheat variety Zyatt before T1; lesson learnt – it's easy to become complacent but you need to be really vigilant even in a low disease year
- Nitrogen (urea) applied early April
- Remaining OSR is poor – it never came into full flower and roughly 60% pods aborted
- Compost turner has been purchased - turf / cattle muck/ wood chip / horse muck mixed in windrow ready for when the machine arrives

Composting mixture in windrow

Compost turner

Update on trials

- Sheep on stubble turnips
- Worked well although some shallow compaction made it hard to get the drill through
- Spring barley (Explorer) drilled 13th March at 400 seeds/m^2

Spring barley after sheep grazing stubble turnips

Bionature micronutrient formulations

- Rainfall had a much greater effect than either of the products on test

MOP trial and seed dressing trial

- No differences can be seen at present

Comparison of drill types

Claydon vs Dale – the Dale looks more even

Claydon

Dale

John Deere 750A vs Claydon (two drilling depths)

John Deere 750A

Claydon 3”

Claydon 7”

Soil and sustainability

Neil Fuller

In the current political climate there is huge opportunity for farmers in producing quality food sustainably

Key challenges

- Food security
- The world population is undergoing huge growth
- Around half the people on the planet only get food because we use nitrogen fertiliser
- The challenge for farmers is how to get value back from the supply chain

Food quality

- The nutrient content of food has decreased significantly e.g. the magnesium content of an apple is 82% lower than it was 100 years ago
- Crops are not making very good use of N
- Addition of magnesium nitrate could have a significant effect
- Many chemicals are at low levels
- This presents another opportunity for farmers – to deliver food with a minimum nutritional standard

Environmental dynamics

- Rising sea levels and the flooding of our prime crop growing land
- It takes 1000 tonnes water to produce 1 tonne grain of wheat
- Each year there is a huge range in crop performance caused by changes in temperature and the water dynamics of the soil
- You need to make sure the foliage has plenty of potassium and magnesium to cope with stresses such as high temperatures

Management of soil carbon

Carbon sequestration

- 70% of arable soils have a total soil carbon content of less than 20 g per kg (3.4% soil organic matter)
- Farmers need to lead the debate and demonstrate what they can do for carbon sequestration (i.e. to put C back into the ground and build resilience), e.g. adding compost, growing cover crops
- 40% of the C footprint of a loaf of bread is influenced by what happens on the farm – again this presents opportunity for the farmer

Bicropping and living mulches

- For example, growing clover with a cereal crop – clover pulls N out of the air and has the added benefit of attracting pollinating insects
- The cereal crop shades the clover which stresses it and causes it to release N which is then available to the cereal

Soil health

- You can't alter the sand, silt and clay content of soil but you can change the organic matter
- The suitability of a soil to be cultivated depends on its water content
- The water holding ability of soil increases as organic matter content increases

Final comment

- Farmers need to use their collective power to influence policy

Find out more – Links to AHDB information sheets or research

GREATsoils
Soil biology and soil health partnership
Cover crops, drainage and targeted cultivation for improved soil structure
Soil assessment methods
Biological tests for soil health

For more information or to find out more about Farmbench, AHDB's benchmarking tool, contact: Judith Stafford
E: judith.stafford@ahdb.org.uk M: 07891 556623 @Cereals_North

AHDB
Stoneleigh Park
Kenilworth
Warwickshire
CV8 2TL

T 024 7 669 2051
E info@ahdb.org.uk
W ahdb.org.uk
@AHDB

CEREALS & OILSEEDS