

Downpatrick Monitor Farm meeting report

Meeting 3: Rotations, Soil Nutrient Management and Weed Management

Speaker: Padraig Shevlin (Sustainable Soil Management) and Richard Hackett (Hackett Agricultural Consultants)

Date: 08 Jan 2019

Location: The Quoile Bar & Bistro, 2b Strangford Road, Downpatrick, BT30 6SL

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



Meeting summary – key messages

- Understand the cost of production of your rotation: it helps you make informed decision
- Soil test results are only as good as the sample that is taken, you need to be proactive on testing – make a plan
- No soil nutrient works in isolation – understand the relationships
- Reduce the pressure on chemical herbicides and reduce the selection pressure on resistance
- Where possible let nature do the work in weed management (ploughing? Rotation? Smothering? Site selection?)

Update on Downpatrick Monitor Farm

- A lot of work has gone into the new tearoom over the last couple of months
- With the good weather looking at taking a chance and planting potatoes
- The cultivation/drill farm try out plots (Dickens WW) the cultivated plots look the best and disc + direct drill not looking as good as if cultivated or ploughed
- Crops all generally look good, but some mildew in the winter barley. Will the weather take care of it? Yes, and the leaves that are affected at the moment will not have an impact on yield
- There are visual differences in an area where unseparated digestate so it is clearly doing something. We do still need to understand the nutrient content of the digestate and then we can look at the cost of spreading/kg of nutrient. Also the proposed changes to the regulations of phosphate will have an effect on the use of digestate.

Rotations at the Downpatrick Monitor Farm

- Top five concerns when deciding rotation are:
 - Market
 - Profit
 - Soil
 - Consistency in price / yield
 - Workload
- Recent changes in rotation include:
 - Cutting down on turnips because a lot of damage was done to the soil whilst harvesting: profit isn't worth the risk
 - Cutting down on spring barley because of inconsistent yields and having a small planting window whilst being busy planting potatoes
 - Introduction of hybrid rye. It is a growing market which is early to harvest and is easy to manage and gives the opportunity to get a cover crop in. Downsides are that the price could do with being higher and the harvest date is critical
 - Maize has been added as there is a market for it, it is easy to manage and a first wheat can follow it. Downsides include late harvest, inconsistent yield, and soil damage if wet harvest
 - Silage for AD to give a break from arable rotation which is good for weed control and cheaper to grow yearly. However reseeding is expensive and it can remove a lot of K, the market value needs to be higher. The other consideration is that if we don't grow the silage then they will just take the land!
 - Spring oats (silage) added as a second crop, as they are cheap to grow. Is this too hard on the land though? They are also late to harvest which could impact the following crop and they need moisture in the summer to get established
- The key is making sure that you have got a profitable rotation, and that means you need to understand your costs.

Downpatrick Monitor Farm Average Profit by Crop

10 year avg	Out	In	P/L
Wheat	461.354	715.313	253.959
W Barley	454.57	622.2167	167.6467
S Barley	401.4911	538.5656	137.0744
Hybrid Rye	339.85	481.42	141.57
Grass Silage	281.2	381.06	99.87
Leeks	280	580	300
Turnips	280	450	170

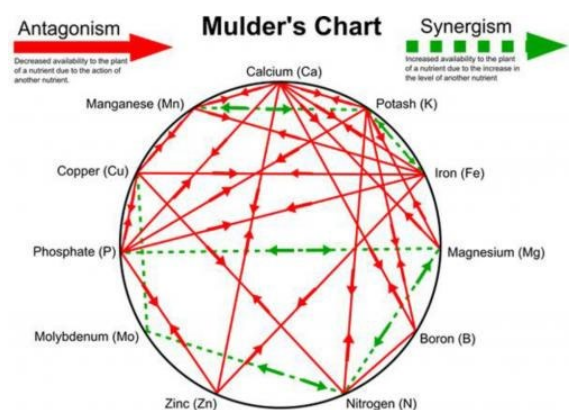
Soil Nutrient Management

- Soil tests need to be carried out, but you also need to make sure you make the most of the results through interpretation
- Soil moisture can have a big effect on soil pH
- As people we are not all average, we should not expect our soils to be either: not every field is the same

All of these soils have the same pH, P, K and Mg index, does that make them the same? Will they perform in the same way? Should we manage them the same?



- There are relationships between all of the nutrients, and we need to understand them. For example if you have high Ca then you need more Mg and K
- Phosphate going forwards:
 - One of the most inefficient elements applied to soil
 - Is it leached or is it locked up in chemical bonds in soil?
 - Phosphate only moves 2mm every year
 - How can we help availability?
 - Microbial activity
 - Root growth
 - Correct balance between acidity and alkaline
- Timings are important, the plant needs nutrients all growing season
- Cold, wet or very dry soils will not deliver nutrients (the wet 2017/18 season caused issues)
- Winter crop considerations: What has already been applied? Plant counts and organic manures
- Spring crop considerations: Are soil tests needed? Lime? Fertiliser compound?
- Organic manure considerations: Liquid or solid? Nutrient supply? (get them tested) Soil health



Weed Management

- A weed is a plant in the wrong place: you can't grow two plants in one place
- Modern agriculture has created a synonym between weed control and pesticide application
- Chemical weed control is a modern phenomenon (post WWII) a development from the green revolution
- The best herbicide is a strong competing crop – it smothers out weeds, competed for light, moisture and fertility to overcome the foe of the weed (requires the right variety planted in fertile and well-drained soil, a good rotation with well controlled disease)
- Broadleaved weed control in cereals:
 - Increasing levels of resistance in main weeds (poppy/chickweed/speedwell)
 - Changes to Sulfonyl urea/ hormonal mix
 - Products are available
- Grass weed control in cereals:
 - Increasing levels of resistance in main weeds (wild oats, sterile brome, blackgrass)
 - Loss of key chemical controls through resistance development and regulatory withdrawals
 - Sterile brome is becoming resistant to herbicides, it is going to fail eventually
- Pressures on herbicides:
 - Less products coming to market
 - Social media / public awareness
 - Min till / no till
 - Early sowing
 - Mono-cropping
 - Loss of active ingredients
 - Resistance development
- We need to reduce the pressure on chemical herbicides and the selection pressure on resistance. We can do this through changes in cultivation, crop spacing's, rotation and site selection

Find out more – Links to AHDB information sheets or research

[Horizon - Preparing for change: The characteristics of top performing farms](#)

ahdb.org.uk/greatsoils

[RB209 - Section 1 - Principles of nutrient management and fertiliser use](#)

[RB209 - Section 2 - Organic Materials](#)

[The encyclopaedia of arable weeds](#)

[Managing weeds in arable rotations - a guide](#)

Next meeting

Date: 19 Feb 2019

Topic: Labour and Machinery Review ([register to attend](#))

Time: 10:30

Location: The Quoile Bar & Bistro, 2b Strangford Road, Downpatrick, BT30 6SL

For more information or to find out more about Farmbench, AHDB's benchmarking tool,

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