

# Chelmsford Monitor Farm Meeting Report

## Meeting 10 – Effective nutrient management

8<sup>th</sup> February 2019

Galleywood Heritage Centre

For more information, visit: [cereals.ahdb.org.uk/Chelmsford](http://cereals.ahdb.org.uk/Chelmsford)



Hew and Christy Willett,  
Chelmsford Monitor Farmers

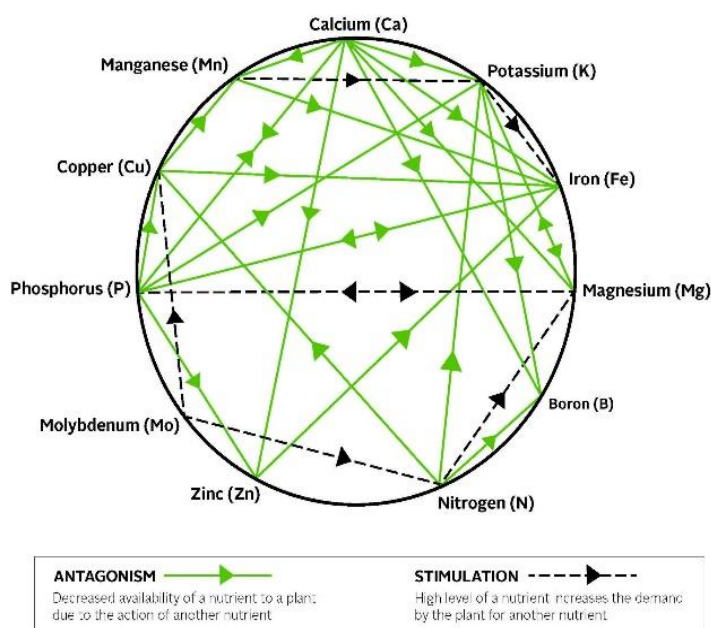
## Meeting Summary – Key Messages

1. Think about your nutrient programmes, soils and interactions between the two – are the products and rates being applied the most effective for your soil, varieties and rainfall?
2. Think about ways of reducing your inputs, whilst maintaining yields.
3. Exercise caution when using biostimulants – ask your manufacturer for evidence of effectiveness or carry out on-farm tramline trials.

## Input reduction

Andy Howard

- The aim of the farming system should be one of holistic management, where there is a balance between soil and plant.
- Andy's aim is to design a farm system that can thrive with minimal human and outside inputs. Andy has a 5 year plan to reduce inputs by 50%.
- Key is to know the nutrient interactions (see chart) and ratios, eg. Ca:Mg should be 7:1 for effective soil structure and permeability.
- Soil and plant monitoring is carried out on-farm in multiple ways, including: soil testing, soil biology monitoring, worm counts, Brix meter use, YARA N sensor.
- Different products are used to add to synthetic inputs, such as biostimulants and biological products.
- Cover crops and catch crops are used in the rotation. Herbicides are more of a difficult input to reduce – management with rotation.
- Intercropping is used across the farm for benefits to the cash crop and wider benefits, eg. for assisting with aphid and cabbage stem flea beetle control.



## Nitrogen Use Efficiency and the role of foliar N products

**Syed Shah**

- Nitrogen use efficiency (NUE) is the ability of a crop to capture nutrients from the available supply and the efficiency with which it is utilised to produce grain yield.
- NUE is affected by multiple factors, including: soil type, soil chemistry, soil biology, nutrients and soil pH interaction, rainfall, variety, drilling date, fungicide inputs, timing of application of nutrients and N products used.
- Liquid fertilisers can be applied accurately and are more crop available in dry conditions.
- Foliar N products should be applied at T2 and T3-good crop canopy is essential. Apply at least 140-180 kg/ha of solid or liquid N before GS32.
- DAP is better than TSP- Apply DAP in spring in cereals if P-indices are at target
- 50 kg/ha of SO3 is enough for cereals. 75 to 100 kg/ha of SO3 is enough for oilseed rape
- Nitram is the most reliable source of N in cereals - No difference in Urea and Nitram for winter wheat. Spring barley is different.
- If 36m tramlines Liquid N is better than Solid N products.

## Biostimulants

**Susie Roques, ADAS**

- Biostimulants are a material that contains substances and/or microorganisms that stimulate natural process to enhance/benefit: nutrient uptake, nutrient efficiency, tolerance to abiotic stress, crop quality, activity against pests and/or diseases. They are used to increase crop growth and/or yield. The main role should not be as a fertiliser or pesticide.
- There are many different types of products, split into two main categories: non-microbial (eg. seaweed extracts, humic substances and phosphites) and microbial (eg. plant growth promoting bacteria and arbuscular mycorrhizal fungi).
- The Research Review (link below) showed that more evidence was needed into the effectiveness of these products in a UK arable situation.
- Important to ask the manufacturer for details of evidence – questions to ask include: how many trials have been done, are these in a pot or field situation, are they done on a small scale or tramline scale?
- If testing out on-farm, employ a scientific approach, for example the one outlined in the ADAS guide to on-farm trials or with a YEN group.

## Further Information

- AHDB Nutrient Management: <https://cereals.ahdb.org.uk/crop-management/nutrient-management.aspx>
- AHDB Biostimulant Research Review: <https://cereals.ahdb.org.uk/media/1134407/rr89.pdf>
- AHDB Biostimulant Guide: <https://ahdb.org.uk/biostimulants>
- ADAS Guide to on-farm trials: <https://www.adas.uk/Portals/0/ADAS%20Guide%20to%20Farm%20Trials.pdf>

For details about the Chelmsford Monitor Farm and past meeting information, please visit: [cereals.ahdb.org.uk/Chelmsford](https://cereals.ahdb.org.uk/Chelmsford).

### Contact Details

- For more information, please contact your AHDB Knowledge Exchange Manager: Teresa Meadows - [teresa.meadows@ahdb.org.uk](mailto:teresa.meadows@ahdb.org.uk) - 07387 015465
- For more details about Farmbench and benchmarking, please contact: Holly Howsam - [holly.howsam@ahdb.org.uk](mailto:holly.howsam@ahdb.org.uk) - 07767 001543