

Borders Soil and Nutrient Network Farm - Kerchesters Farm

Meeting 1: Plant tissue analysis & use of polysulphate fertiliser

Thank you for your participation in the 1st of the 2020 borders nutrient network farm meetings & thanks to host farmer Tommy Clark.

We have provided a summary of the meeting below, which includes some of the key points & reading references noted in the speaker powerpoints. Details of future meetings have also been included below.



Introduction to Kerchesters farm

Overview of Kerchesters farm from host farmer Tommy Clark.

Click on the youtube video link below to view again.

<https://www.youtube.com/watch?v=SinVL6oiCZo&feature=youtu.be>

Meeting aims

- How can we use tissue & soil analysis to achieve nutrient & mineral targets
- Assess the benefits of using poly sulphate & Potash Plus at Kerchesters

Mark Tucker: Head of agronomy for Yara UK & Ireland

Key points

- Tissue analysis should form only 1 part of your overall farm nutrient strategy.

Part 1 Soil = Planning (Plan your nutrient strategy based on crop type & soil results including pH and soil structure).



Part 2 Tissue = Tactical/Dynamic field management (tailor your granular and foliar applications based on weather, yield potential & plant tissue status at T1 & T2.

Part 3 Grain = Reviews the strategy (confirm if your strategy has worked or needs changed)

- When you make changes to your establishment technique, be aware that this can impact on nutrient availability. With ploughing, it is possible to lose nutrients, whereas with direct drilling, mineralisation of nutrients might be reduced.
- With tissue analysis you need to act early. Focus on sampling 2 weeks before T1 & T2 timings to allow reactive action to deficiency. Completing this over a number of years & different growing seasons should allow you predict deficiencies, which may exist in different areas of the farm.
- With tissue sampling learn from the good high yielding fields, as well as the bad fields. Be diligent with sampling (consistent & don't create variables).
- A high soil phosphate status doesn't always mean a high value in the tissue analysis, as phosphate is often unavailable to the crop.
- When we look at levels of Magnesium, zinc, copper in the plant tissue, we are thinking about the health of the canopy. Magnesium is critical for greenness of the crop, while zinc, copper & boron, really play a big role in grain numbers per ear.

Bill Crooks: SAC Consulting Soil and nutrient specialist

Key points

- Drainage & soil structure should always be the main priority for any farm.
- pH – a realistic target for Kerchesters is 6.2. In Scotland we have more acidic soils, and more extreme weather.
- Small changes in organic matter can have big changes in nutrient availability, so this is something worth focusing on. The value of returning straw to arable systems can often underestimated and is likely to pay dividends in the long term.
- Take care that timing of soil analysis avoids recent fertiliser or manure application e.g. 6 months since applications.

- Polysulphate = 6%Mg+ 48%SO₃+ 17%CaO. It is a great source of sulphur but not for other key nutrients. Useful on land known for being deficient in sulphur.
- Sister product potash plus = 37% K + 3%Mg + 24%SO₃+ 8%CaO adds potash, but less sulphur.
- Neither product provides phosphorus, which is important to the arable rotation and may become deficient over time if not introduced into the system.



Future meetings

Harvest analysis (late October)

- Review combine yield mapping data for sampled fields.
- Review results of YEN grain nutrition analysis for sampled fields. The aim is to gain a better understanding of actual nutrient offtakes & nutrients which were deficient during the growing season.

Organic manure (early November)

- Look at the available organic manure strategy at Kerchesters, with the aim of improving utilisation and availability to growing crops.
- Assess the value of farm produced compost as a fertiliser, in terms of nutrient availability & the variability which can exist between products.

Powerpoint references

- Peter Baraclough – RRS Minolta Spad 502 meter research
- Sylvester-Bradley, R., Rollett, A., Downing, E., Dudman, S., Slater, M., Morris, N. & Withers, P. (2019). Cost-effective Phosphorus Management on UK arable farms. AHDB Research Report 570-3. 60 pp.

For further information, please visit www.fas.scot/crops-soils/soils/kerchesters-farm-roxburghshire/ or contact George Gauley at george.gauley@sac.co.uk