Annual Soil Summary

NRM is the UK's leading provider of agronomic analysis.

Every year we publish summarised data from thousands of samples from farms across the country. Our soil, plant tissue, harvested crops, and inputs analyses help farmers and their advisors understand their nutrient status and benchmark against other farms. This data helps them plan and implement insightful management decisions to prepare them for the coming season.

The 2023 - 2024 summary includes data from over 25,000 soil samples collected between June 2023 and May 2024. The nutrient levels outlined in the 9th edition of the RB209 are used to summarise our data for phosphorus, potassium, and magnesium in the soils of four different crop categories.

Our results from arable fields show that around a third of phosphorus samples were at the target index (2), which is similar to previous years. However, the proportion of samples greater than the target index was much higher (42%) this year, whilst 25% of samples were below average.

Soil P levels that are too high or too low can have significant implications for crop production and environmental health. Excessive phosphorus can lead to nutrient imbalances, reducing the availability of nutrients such as zinc (Zn) and iron (Fe), which can impact plant development. High soil P levels can also cause environmental problems. If P-bound soil surface particles enter streams, algal blooms develop, reducing water quality. Low phosphorus levels limit plant growth by restricting root development and energy transfer processes, leading to poor crop yields and quality. Maintaining soil P nutrition is crucial for agricultural productivity and environmental protection.

Our results show that 42% of grassland samples and more than a quarter of arable samples were lower than the target index (2-) for potassium (K).

When soil K levels are deficient, plants struggle to maintain an appropriate water balance, making them more vulnerable to drought and heat stress. This can result in wilting, stunted growth, and poor root development. Potassium deficiency also increases a crop's susceptibility to pests and diseases and leads to less productive crops of a poorer quality.

To book analysis for your farm or for help interpreting your results, talk to your agronomist or contact us.

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2023-2024 Soil Summary

Analysing soil for organic matter is essential as it helps determine soil health and productivity. Soil organic matter (SOM) enhances nutrient cycling, improves soil structure, and boosts water retention, all of which are vital for sustainable agriculture production.

Even though 90% of arable farmers regularly undertake standard soil tests (P, K, Mg and pH), only around 17% currently test for organic matter. This gap is significant, as managing SOM alongside nutrient analysis plays an essential role in maintaining soil health, influencing everything from fertility and water retention to carbon sequestration.

Although standard soil nutrient testing provides valuable insights into soil health, adding SOM analysis will give you a more comprehensive understanding. Benchmarking SOM levels for year-on-year improvements will help you improve soil health and meet sustainability targets. For example, up-to-date SOM results are required to meet the obligations of the Sustainable Farming Incentive (SFI)'s SAM1 action for soils.

SOM analysis is also helpful to help you bolster the resilience of your farming business by learning how better to withstand challenges such as extreme or unexpected weather. For example, active carbon can be a good indicator of soil fertility, so improving SOM and active carbon levels in the soil will help support crops both now and in the future. Boosted SOM levels are also critical for the functioning of important natural ecosystems, for improving and enhancing biodiversity, and for habitat protection.

So, SOM analysis is a valuable tool not just for helping you improve sustainable productivity and increase profit margins but to help us all ensure fertile, healthy soils for future generations.

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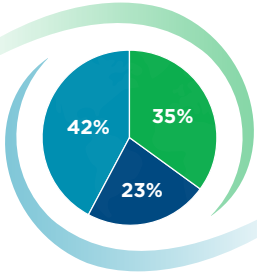
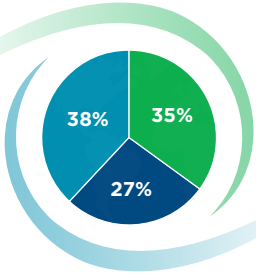
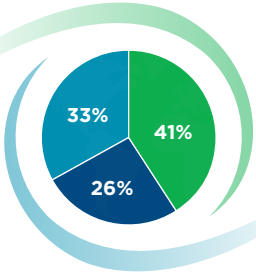
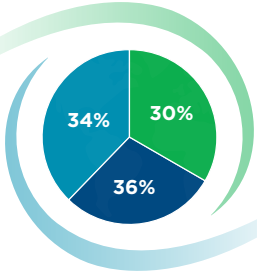
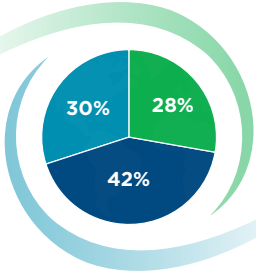
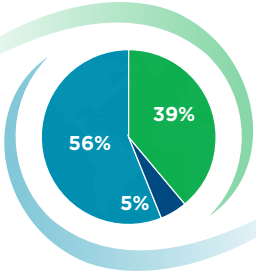
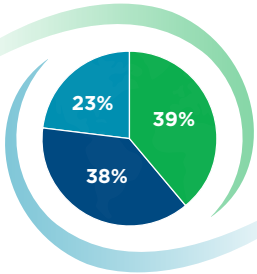
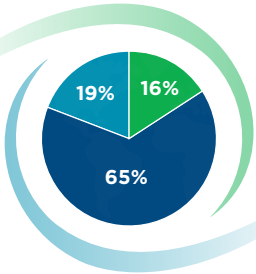
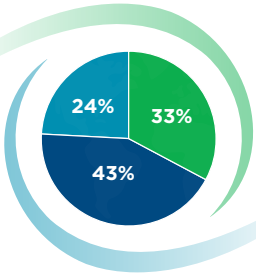
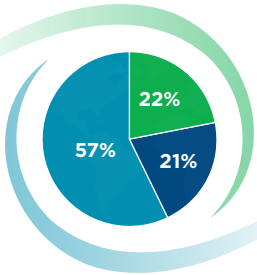
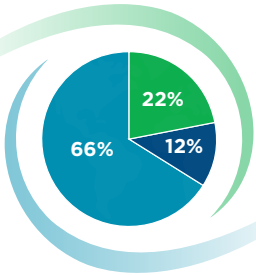
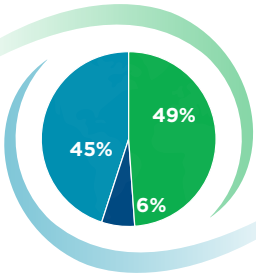
Summarised Results

	Phosphorus	Potassium	Magnesium
 **Arable Soils**	 35% of soils at target value	 35% of soils at target value	 41% of soils at target value
	> Index 2 < Index 2 Index 2	> Index 2 < Index 2 Index 2	> Index 2 < Index 2 Index 2
 **Grassland**	 30% of soils at target value	 28% of soils at target value	 39% of soils at target value
	> Index 2 < Index 2 Index 2	> Index 2 < Index 2 Index 2-	> Index 2 < Index 2 Index 2
 **Vegetable & Bulb Soils**	 39% of soils at target value	 16% of soils at target value	 33% of soils at target value
	> Index 3 < Index 3 Index 3	> Index 2 < Index 2 Index 2+	> Index 2 < Index 2 Index 2
 **Fruit, Vines & Hops Soils**	 22% of soils at target value	 22% of soils at target value	 49% of soils at target value
	> Index 2 < Index 2 Index 2	> Index 2 < Index 2 Index 2	> Index 2 < Index 2 Index 2

NRM Focus: Soil Organic Matter

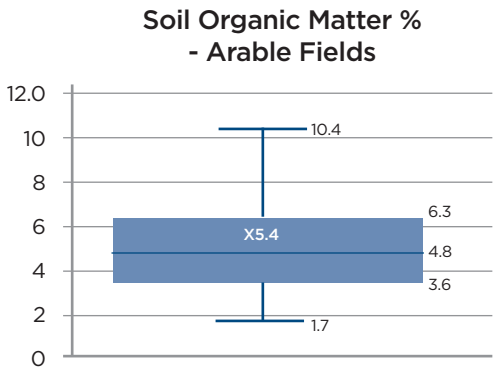
Significant contrasts in SOM levels are found between arable and grassland soils.

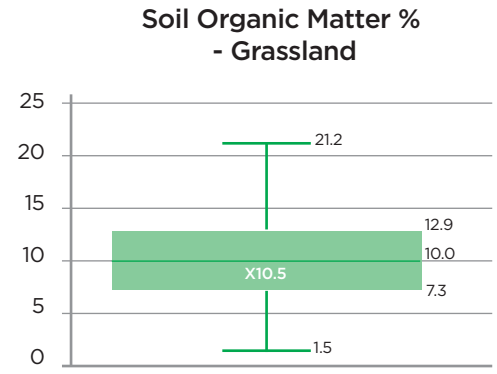
Key Findings

- Arable soils, which can often be subjected to intensive cultivation, show an average SOM of 5.4%, with values ranging from 1.7% to 10.4%.
- Grassland soils, in contrast, display a richer and more variable SOM profile with an average of 10.5%, nearly twice as high as arable soils. SOM levels in grasslands range from 1.5% to 21.2%, demonstrating greater variability.

The height of the shaded boxes in the diagrams represents the interquartile range (IQR). For arable soils, the range lies between 3.6% to 6.3%, indicating moderate SOM levels..

- Grassland soils exhibit a higher IQR, 7.3% to 12.9% SOM, suggesting these soils are healthier and often more resilient.
- These differences emphasise the impact of land use on SOM content, with grasslands benefiting from reduced soil disturbance and the addition of organic inputs, such as plant residues and manure from grazing animals.





The broader SOM range in grasslands can be linked to multiple factors, such as grazing intensity, plant diversity, and soil management practices. In contrast, the narrower SOM range in arable soils suggests that intensive farming practices, such as ploughing and the absence of cover crops, can lead to more uniform levels but tend to reduce SOM over time.

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SOM implications for sustainable agriculture and climate change mitigation

- Improving SOM not only enhances soil health but also contributes to carbon sequestration, which helps mitigate climate change.
- Farmers with arable soils face challenges in maintaining SOM, but practices like reduced tillage, cover cropping, and the use of organic inputs like manure can significantly enhance SOM levels.
- Grassland soils already act as significant carbon sinks due to their higher SOM content. Preserving and enhancing SOM in these soils through sustainable practices such as rotational grazing and minimising soil disturbance is essential to maintain and/or further increase carbon sequestration.

The stark differences in SOM between arable and grassland soils emphasise the need for tailored management practices. While arable soils may require more active intervention to improve SOM levels, grasslands demonstrate the value of less intensive, more natural systems in maintaining soil health and supporting broader environmental goals.

Ultimately, by adopting sustainable land management practices, both soil types can be optimised to improve productivity, boost resilience, and help mitigate the effects of climate change.

For further information on soil organic matter analysis, talk to your agronomist or contact our customer services team on 01344 886 338.

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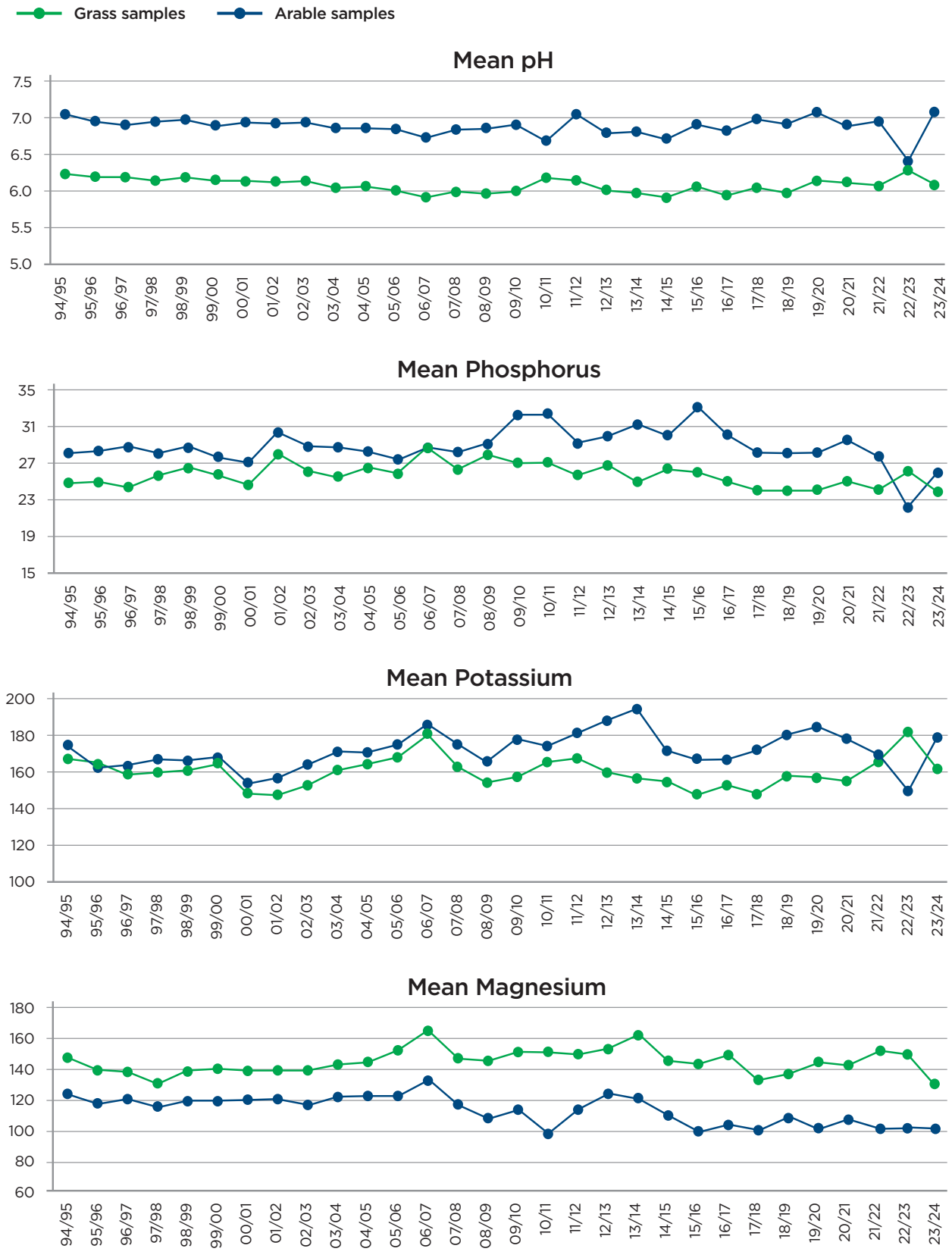
1994-2024 Trends



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