

Optimising Soil Nutrition

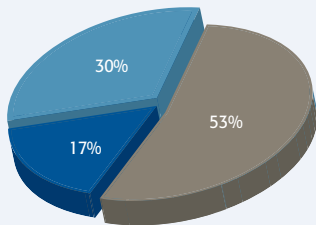
Data Summary 2009 - 2010



NRM has reviewed the analytical data from agricultural soils analysed at the laboratory between June 2009 and May 2010 and a summary of the amount of soils with indices either at the optimum level for grassland and arable crop or below or above these limits is detailed in the pie charts below (levels as specified in the 8th Edition of the Fertiliser Manual)

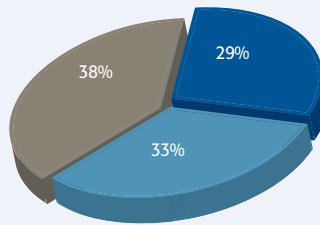
Arable and Forage Crops

Phosphorus 30% of soils at target value



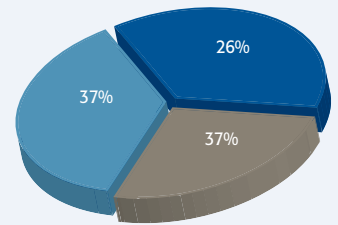
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Potassium 33% of soils at target value



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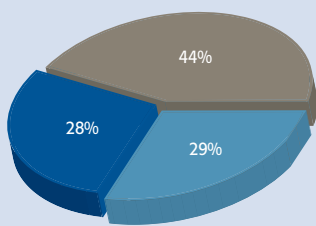
Magnesium 37% of soils at target value



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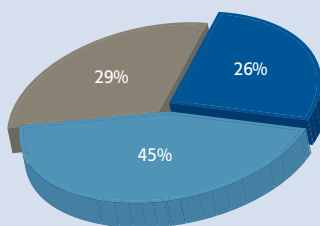
Grassland

Phosphorus 29% of soils at target value



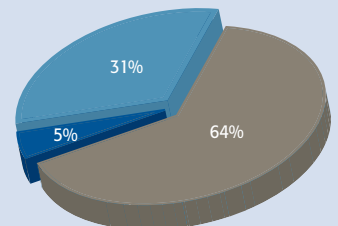
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Potassium 45% of soils at target value



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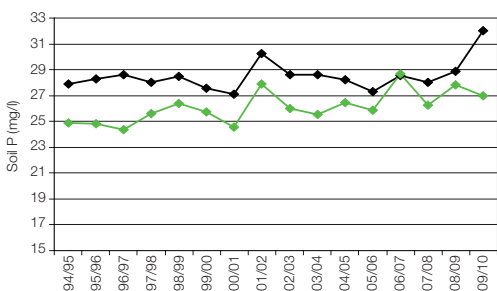
Magnesium 31% of soils at target value



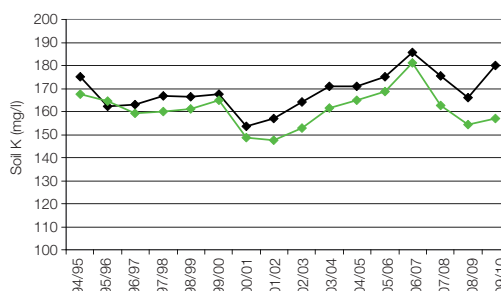
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Below are graphical representations of the mean results in the P, K and Mg status of arable and grassland soils from samples analysed by NRM over the last 15 years.

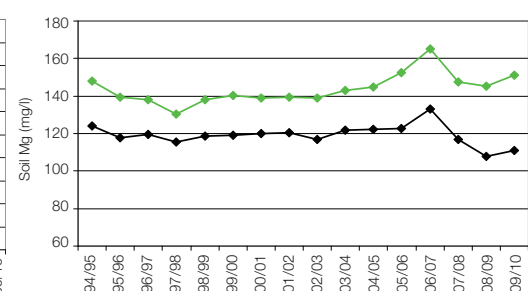
Mean soil P



Mean soil K



Mean soil Mg



Conclusions should be drawn cautiously as this data was not necessarily representative of all UK fields and data collations were not statistically rigorous.

◆ Arable
◆ Grass

In reviewing this data alongside the optimum index as detailed in the Fertiliser Manual, set out below is the 15 year P, K and Mg status of arable and grassland soils indicating the percentage of soil samples analysed by NRM that are either at, greater than or below the optimum index.

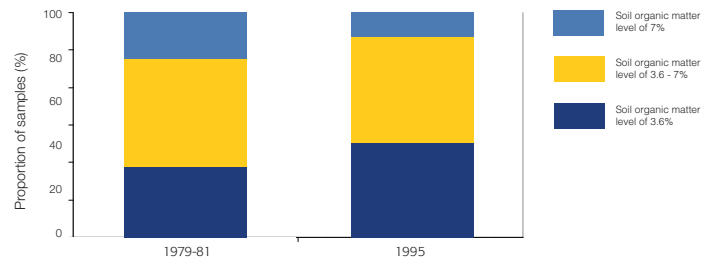


Soil Organic Matter – the Elixir of Plant Life

The term Soil Organic Matter is generally used to represent the organic constituents in the soil, including undecayed plant and animal tissues, their partial decomposition products, and the soil biomass. Soil Organic Matter affects both the chemical and physical properties of the soil and its overall health by affecting soil structure and porosity, water infiltration rate and holding capacity, the diversity and biological activity of soil organisms and plant nutrient availability. Therefore Organic Matter has an essential role to play in improving the productivity of the soil.

Organic Matter declines in soils where the input of organic matter in crop residues or manures is less than loss through oxidation. This can occur where organic soils are cultivated or old grassland is ploughed up.

Decline in the Organic Matter content of UK Soils



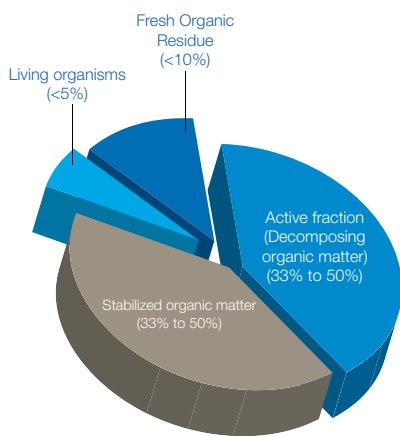
Over the past 15 years, organic matter content levels have generally decreased by an average of 0.49% in the 904 arable or ley-arable soils re-sampled in the National Soil Inventory. Soils that have been under long-term arable management have generally been stable or only lose organic matter content very slowly. The largest decreases have been on grasslands ploughed up for arable use, and on cultivated peaty or organic soils. Some of the decline in organic matter may have been caused by dilution following deeper ploughing over the last 15 years.

Therefore the improvement of the organic matter content of soils is becoming of key importance for maintaining the productivity of soil and hence why an emphasis has been placed on its management as required under the Common Agricultural Policy and the European Soil Thematic Strategy. Increases in soil organic matter content will also have a role to play in carbon sequestration by acting as a carbon sink and therefore help meet the demands of the Kyoto protocol.

In order to build up more Organic Matter in topsoil, more organic material must be added compared to that which is lost through erosion and decomposition. This can be achieved by the addition of organic amendments such as composts, manures, sewage sludge, slurries and anaerobic digestate as well as utilising techniques such as no-till or min-till and cover crops. However it is important to ensure that these materials are applied correctly as injudicious use can lead to diffuse water and air pollution.

NB: The information above has been taken from various documents including the European Soil Thematic Strategy, Organic Matter in the Soils of Europe, Present Status and Future Trends from the European Commission Joint Research Centre and the FAO Soil Bulletin on the Importance of Organic Matter.

Constituents of Soil Organic Matter



For further information on the analytical services that NRM provides in the agricultural sector please contact our customer service team on:

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