Typical sampling costs, savings, impacts and timescales

A standard soil test typically costs around £50 + VAT per sample, and its good practice to take at least three samples per field or management zone. This helps to create an average that accounts for natural variation and identifies any outliers that could skew your decision-making. Involvement in government schemes tend to provide financial support for soil analysis.

Regular soil testing can reduce input costs by helping you target composts, manures, and other amendments more precisely. This minimises waste, avoids over-application, and lowers the risk of nutrient leaching. Many farmers find that testing leads to improved nutrient use efficiency, fewer crop deficiencies, better soil structure and drainage, and a noticeable increase in soil life such as earthworms. As soil organic matter (SOM) increases, you'll also benefit from improved water holding capacity, greater drought and flood resilience, and lower reliance on bought-in fertility.

Soil health improves when you test, track and adapt your management.

Soil analysis also contributes to environmental goals, helping to reduce runoff and pollution, support carbon storage, and build healthier, more biologically active soils. It provides the kind of evidence increasingly needed to qualify for agri-environment schemes.

Soil improvement is a medium to long-term investment. In the short term - within 6 to 12 months - you may observe changes in pH or available nutrients following lime or manure applications. Over a medium-term window of 3 to 5 years, you can expect to see gains in organic matter levels and measurable improvements in structure, biology, and overall soil resilience. Longer-term, soil testing gives you the data to track how your use of cover crops, grazing regimes, and rotational strategies is contributing to soil health. Rather than a one-off task, soil testing should be treated as an integral part of a regenerative and resilient farm management system.

Soil Association Exchange

The Soil Association Exchange is a great place to bring all your sampling data together and securely store it in one place. We can even handle your sampling for you. Using Exchange, you can compare your results with industry benchmarks like those shown here, as well as with your peers, to see where you're excelling and where there's room for improvement. Plus, we can help you find funding opportunities to support your farm's improvements.

SOIL ASSOCIATION EXCHANGE

Contacts

Soil Association advice and support

Contact our Farming and Land Use Team
Speak to a farming advisor: 0117 314 5100
General enquiries: 0300 330 0100
Email: producer.support@soilassociation.org
Find out more at https: www.soilassociation.org

POSITIVE OUTCOME AREAS

- [x] SOIL
- [x] CARBON
- [x] WATER
- [ ] BIODIVERSITY
- [ ] ANIMAL HEALTH & WELFARE
- [ ] SOCIAL

TECHNICAL GUIDE

What is Soil Analysis?

A soil analysis gives you a snapshot of soil health and fertility. It helps farmers understand nutrient levels, organic matter, pH, and soil structure; these are key to improving resilience, crop performance, and biological activity. In a Whole Farm System approach, such as organic, soil analysis is essential for understanding nutrient availability to effectively plan inputs, crop rotations and monitoring changes over time.

Why should I be doing this?

A soil test is more than a tick-box exercise, it's a gateway to better fertility, stronger crops, healthier livestock systems, and long-term resilience. It also provides evidence for payments and planning under agri-environment schemes. Knowing what's in your soil reduces input costs as you can target nutrient additions where necessary, supporting nutrient use efficiency, improving soil life and reducing harmful losses to water courses and the air.
For those who are part of government schemes, a management plan and recent soil test provides the evidence that is often a requirement for the different scheme options.
Results inform where compost, manures or cover crops are needed and help benchmark progress in building soil health.

The Science behind Soil Analysis.

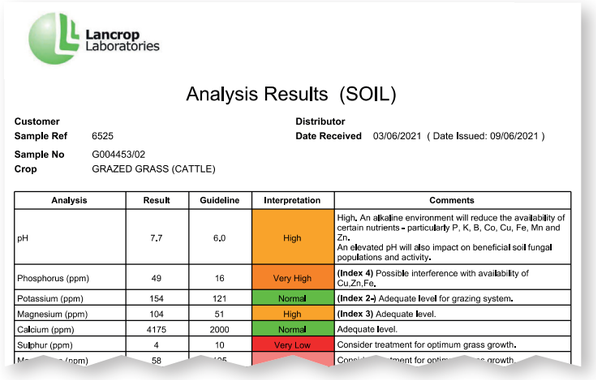
Soil health is vital for a sustainable and resilient farm business, and there is a strong link between regular soil testing and improved soil health. Simply the better informed and engaged you are, the better impact decisions you make can have.

For soil carbon and organic matter, monitoring change to make informed decisions to improve levels will in turn improve soil structure, infiltration and water holding capacity, reduce risk of erosion, buffer pH and store more carbon (see What is soil organic matter).

For nutrients, trials conducted by AHDB show farms using soil testing reduced fertiliser use by up to 30%, simply because they could target applications where needed rather than using a blanket approach or over applying (see AHDB project). This improvement in nutrient use efficiency will not only help financially due to reduced inputs, but it will improve crop health, reduce farm carbon calculations and improve local biodiversity and water quality with better prevention of nutrient leaching and pollution.

For more guidance see Advice for farmers about soil health and AHDB Nutrient Management Guide RB209

Reviewing Soil Analysis Results for your farm

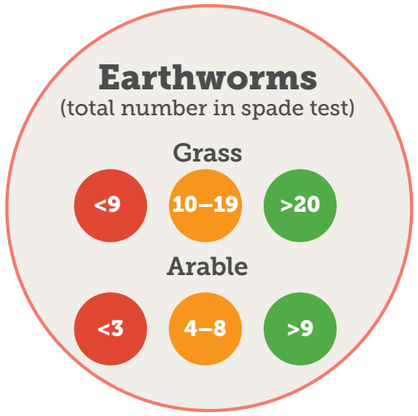


Lancrop Laboratories

Analysis Results (SOIL)

Customer **Distributor**
Sample Ref 6525 **Date Received** 03/06/2021 (Date Issued: 09/06/2021)
Sample No G004453/02
Crop GRAZED GRASS (CATTLE)

Analysis	Result	Guideline	Interpretation	Comments
pH	7.7	6.0	High	High. An alkaline environment will reduce the availability of certain nutrients – particularly P, K, B, Co, Cu, Fe, Mn and Zn. An elevated pH will also impact on beneficial soil fungal populations and activity.
Phosphorus (ppm)	49	16	Very High	**(Index 4)** Possible interference with availability of Cu,Zn,Fe.
Potassium (ppm)	154	121	Normal	**(Index 2+)** Adequate level for grazing system.
Magnesium (ppm)	104	51	High	**(Index 3)** Adequate level.
Calcium (ppm)	4175	2000	Normal	Adequate level.
Sulphur (ppm)	4	10	Very Low	Consider treatment for optimum grass growth.
[illegible] (ppm)	58	[illegible]	[illegible]	[illegible] growth



How to make the most of soil testing

Soil testing fits across your whole system. Whether improving herbal leys, planning rotations, or choosing inputs, a current soil report helps you adapt to your soil's needs. It's particularly important when transitioning to organic or reducing synthetic inputs. In mixed farms, it helps coordinate where FYM is most needed or where soil is compacted.

Aim to test SOM at least every 3–5 years and each year for nutrient planning, separating sampling locations by soil types or management blocks. If you are making any changes to management, remember to sample before any changes (a baseline), so you can effectively assess impact of the change.

Use a consistent sampling depth (15 or 30cm recommended) and avoid odd spots (gateways, dung patches). A standard test should include pH, N, P, K, Mg, and organic matter or organic carbon, using a lab familiar with UK farming systems.

For long term analysis it is preferable to use the same lab for testing to ensure consistency and to account for different protocols which may exist between different labs.

Pair the laboratory soil testing with visual tests, such as worm counts, VESS spade tests and rooting dept to give extra insights. Keep all the data in a safe and include results in your soil management or nutrient plan.

Soil Benchmarks

With soil type, rainfall and cropping system all influencing organic matter levels, no two fields can be compared exactly but some broad benchmarks can be used to compare the condition of your soil.

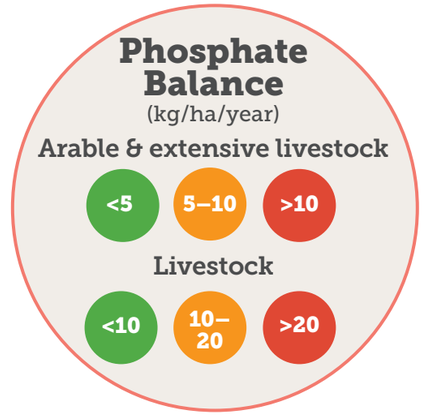
	Soil type	Rain Fall	Very low	Low	Target	High
Modified / Improved Grass	Sand		<3.0	3.1 - 4.4	4.5 - 10.0	10.1 - 14.9
	Light	low rain (<1000 mm yr^{-1})	<3.5	3.6 - 5.4	5.5 - 12.0	12.1 - 14.9
	Light	high rain (>1000 mm yr^{-1})	<4.0	4.1 - 6.4	6.5 - 12.0	12.1 - 19.9
	Medium	low rain (<950 mm yr^{-1})	<4.0	4.1 - 6.4	6.5 - 12.0	12.1 - 19.9
	Medium	high rain (>950 mm yr^{-1})	<4.5	4.6 - 6.9	7.0 - 13.0	13.1 - 19.9
	Clay		<5.0	5.1 - 7.9	8.0 - 14.0	14.1 - 19.9
Arable	Sand		<1.0	1.1 - 2.2	2.3 - 5.5	>5.5
	Light	low (<750 mm yr^{-1})	<1.5	1.6 - 2.7	2.8 - 6.0	>6.1
	Light	high (>750 mm yr^{-1})	<2.0	2.1 - 3.9	4.0 - 8.5	>8.6
	Medium	Low (<750 mm yr^{-1})	<2.5	2.6 - 3.7	3.8 - 8.0	>8.0
	Medium	high (>750 mm yr^{-1})	<3.0	3.1 - 4.9	5.0 - 9.0	>9.1
	Clay	Low (>750 mm yr^{-1})	<3.0	3.1 - 4.5	4.5 - 9.0	>9.1
	Clay	high (>750 mm yr^{-1})	<4.0	4.1 - 5.9	6.0 - 9.0	>9.1

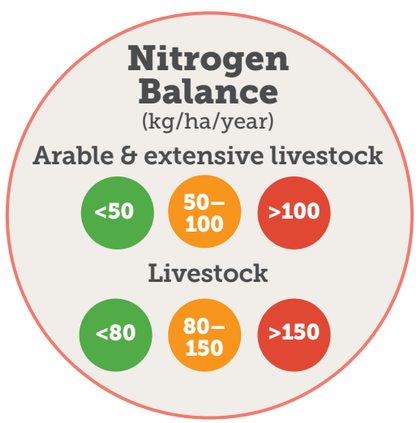
What your soil report tells you

Soil pH: Reveals acidity/alkalinity that will impact nutrient availability and crop growth. Most crops and pasture species thrive at pH 6.0–7.0. Outside of these ranges, nutrient availability may be restricted. Amendments or changes in practice may be needed to rectify issues with soil pH. Government scheme compliant sampling often includes pH as part of your soil assessment.

Major Nutrients: N, P, K, Mg are all essential for plant growth with crops utilising each differently based on their optimum demands. Inputting the results into a nutrient management plan and using a nutrient balance calculator will help ensure the best efficiency for cropping success with limited excess use which risks leaching and pollution.

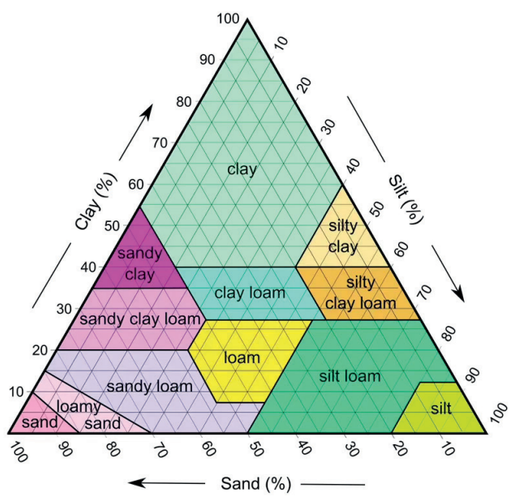
The results give nutrient levels as an index, with 2 being an ideal. Recommendations on analysis reports are guidance only but fields with indexes below 2 may need fertiliser or manure applications, and above 2 may not need additional fertiliser although advice for your crop and farming system will need to be taken from a qualified advisor. Under Farming Rules for water, application of P and K fertiliser or manure is not permitted on soils with an index of 4 or more. The aim is to keep the net nutrient balance (kg/ha/year) to as close to zero. Under government schemes you'll be expected to manage nutrient balances based on these levels.





Soil Organic Matter (SOM): Critical for soil life, water holding, and carbon storage, this is a core measure for baselining soil health planning, especially for government scheme evidence and is used as a proxy measure for soil carbon. Monitoring changes in SOM over time is very important to know your management is having an impact, for good or ill. Higher organic matter soils are associated with improved water holding capacity, drought tolerance, faster infiltration, higher fertility and better resilience. Actions such as applying compost, diverse cover crops, reduced tillage, and mob grazing can build SOM in soil over time.

What constitutes a 'good' SOM result is dependent upon your soil type and habitat/cropping use. Typically, a figure above 4%, ideally 6%, would be deemed as a good SOM figure on most farmed land in the UK although direct comparisons are difficult because results are dependent on soil type, cropping and rainfall. Most tests are done using a loss on ignition test but on calcareous soils, it is advised to use a Dumas method test.



Soil Structure, Texture and Life

Soil analysis reports may include texture – this the relative clay, sand and silt particles in the soil – this is very unlikely to change, especially over the short term.

Different soil textures, types and conditions pose different risks – however, whatever your soil type - a healthy, live, uncompacted soil will support multiple business and environmental benefits – it will just determine what the best options for management and agri-scheme choices should be.

Soil reports may also include calculations on soil health and soil biology and if requested will give details of micronutrients.

All lab test results are better interpreted along with worm counts, VESS tests and other approaches to monitoring soil changes. These all help in deciding between different cover crops, grazing plans, or tillage methods.