



The key to unlocking yield

A scientific assessment of your
soil delivered as a report with key
recommendations and action plans



Healthy Soils

As an irreplaceable, physical resource, it is essential to protect and nurture the soil if we are to continue producing crops under the current agricultural model.

To help in this process we have introduced the Healthy Soils service which provides essential information to growers and agronomists to actively manage soil resources and optimise crop performance:

- Measure and monitor soil health
- Maximise crop nutrition
- Reduce environmental impact



The importance of Healthy Soil to the grower

Healthy soil is more resilient to harsh conditions such as drier summers and wetter winters and helps to increase crop yields, lock up Carbon and optimise production.

Benefits of a Healthy Soil assessment report

Using in-field and laboratory science, our detailed analysis sets out key recommendations and advice on a field by field basis. We analyse three key components:

- **Physical** – texture (sand, clay, silt fractions), bulk density, compaction/pans plus water infiltration
- **Biological** – soil organic matter and “soil-life” including carbon content and activity
- **Chemical** – presence of minerals/nutrients in the soil, plus availability for plant uptake including nutrient-cycling



The Healthy Soils Concept

Good soil health is fundamental to agricultural productivity and sustainability. Although soil health is predominately seen as a function of biological activity, it is influenced by the dynamic interactions that occur between the physical, chemical and biological components of the soil.



Chemical components

The impact soil chemistry has on the development of plant microbe interactions is particularly important.

For example, limestone soils tend to be rich in calcium and be alkaline, so restricting the uptake of phosphorus and manganese. This can reduce root mass and limit root exudate production, reducing both microbial activity and response to microbial growth promotion.

Soil chemical properties also regulate microbial growth rates directly through nutrient availability and will affect the rate at which microbes release available nutrients.



Biological components

During its conversion from plant and animal residues to humus, soil organic matter has a direct impact on soil health.

Fresh organic material provides a food source for macro-organisms such as earthworms, which mix partially decomposed organic matter with minerals as it passes through them, creating channels for air and water movement in the process.

Microbes thrive in worm casts converting organic matter to available nutrients and humus.

This results in increased soil fertility and yield potential. Humus also provides a long-term source of energy and nutrients for beneficial fungi and bacteria.



Physical components

The physical properties of a soil are determined by the balance between sand, silt and clay particles, which results in texture and these particles combine with organic matter to form soil aggregates.

The size and distribution of these aggregates determines soil structure, which directly affects the movement of air and water through the soil profile. This affects biological activity, root development, crop establishment and tolerance to environmental stress.

Your Soil Audit

Examples of some of the information contained with the Healthy Soils audit report

Cropping & Cultivations Review

Assessment of current practices with historical use of the land, crop rotations, cultivation regime and in-field drainage. Aerial images will also be used to show key field/soil features.

VESS Test

A detailed Visual Evaluation of Soil Structure conducted through the soil profile and recorded in detail with photographs. Where possible the soil structure will be assessed to 1m depth.

Infiltration Assessment

The ability for the soil to allow water to permeate through the profile is measured and categorised – revealing any issues with soil structure, capping and impermeable horizons in the profile.

Soil Health test and Soil Texture

A full soil texture assessment is conducted to determine sand, silt and clay composition, while soil health is assessed using techniques such as the Solvita CO₂ burst test.



Key Organisms & Earthworms

The soil population of key organisms (principally earthworms) is assessed to show the numbers of Epigeic, Endogeic and Anecic worms within the top 200mm of the soil profile.



pH & Key Nutrient (Macro and Micro)

The soil pH profile is assessed on 3 horizons - at the soil surface, ~ 150mm depth and at 300mm depth. Soil samples are taken for laboratory assessment of the key macro and micro nutrients.

Soil Yield Potential Assessment with Omnia Software

Based on the information gathered, Omnia precision software analyses the local field data and information alongside regional information to calculate a theoretical potential yield that should be achievable. The variance between the potential yield and what is actually currently being achieved can then be explored to identify what are the critical limiting factors which need to be addressed.



Reports and Action Plans

The output from the Healthy Soils service is delivered in a bespoke report which details the soil audit findings. The experience of the agronomist and the historical farm knowledge of the client are used together to define key action plans to remedy any issues which are identified.

A critical part of the action plan is to modify farm practices which will allow soil organic matter to build, fauna and flora to flourish (especially earthworms) and increase the moisture holding capacity of the soil.





Contact us

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