

# What is a healthy soil?

A healthy soil is vital to ensure both high grass and crop yields and environmental protection through carbon sequestration. Soil health can be defined as a soil's ability to function and sustain plants, animals and humans as part of the earth's ecosystem. However, due to our relative lack of understanding of soil and the fact that (most of the time) grass and crops grow, the health of the soil is often overlooked. Five main factors impact the health of the soil and can have a large influence over its capability for crop growth and resilience to function. The five factors are:

1. Soil structure
2. Soil chemistry
3. Organic matter content
4. Soil biology
5. Water infiltration, retention and movement through the profile

A healthy soil will have a good combination of all these factors, whilst an unhealthy soil will have a problem with at least one of these. Structural problems such as compaction, plough pans or waterlogging will have a knock-on effect on all the other aspects of soil health. A healthy soil will provide a buffering effect against extremes in temperature and rainfall, reducing the impact of extreme weather events. A healthy soil has plenty of air spaces within it, maintaining aerobic conditions.

When a soil has limited air spaces, anaerobic conditions dominate, leading to waterlogging and stagnation of roots and the proliferation of anaerobic microbes and denitrification (the loss of nitrogen from the system). A healthy soil will filter water slowly, retaining the nutrients and plant protection products applied to the crop. If rainfall moves through the soil profile too quickly or if it is prevented from entering the soil through compaction or soil sealing, surface runoff increases, taking valuable nutrients with it.