

Benefits of a Healthy Soil Food Web

Although not apparent to the naked eye, a healthy soil is a dynamic living system that is teeming with life. Most of the organisms that live in the soil are beneficial micro-organisms such as fungi, bacteria, protozoa, and nematodes. While seemingly insignificant, they are represented in the millions in any given soil, providing a range of important services that promote plant growth and vigour.

The collective term for all of these organisms is the 'soil food web'. The interactions amongst these organisms can provide plants with many of the requirements that they need to survive and flourish which includes the availability & retention of nutrients, disease suppression, and the building of soil structure. However, soil biology is an aspect that has largely been overlooked with many growers preferring to settle for something delivering a quick short term fix. The use of chemicals to kill pathogens and pests can also kill the beneficial organisms. The result is a sterile environment conducive to further disease and nutrient deficiencies. The quick fix often leads to a grower's dependency on more and more artificial chemical and fertilizers to maintain his crops as with each application he is killing the natural soil food web. This could be compared to developing a drug dependency and the need to enter rehabilitation to kick the habit.

Soil Foodweb Institute have been the soil rehab specialists since 1986 and by utilising their services you will learn how you can manage and maintain a balanced and healthy soil. A balanced and healthy soil food web provides many benefits including that the need for fertiliser, pesticide and water requirements can all be substantially reduced.

What makes a healthy soil food web?



A healthy foodweb occurs when:

1. All the organisms that a plant requires are present and functioning.
2. Nutrients in the soil are in the proper forms that will enable a plant to take-up them up. It is one of the functions of a healthy foodweb to hold nutrients in non-leachable forms that remain in the soil, until such time the plant requires the nutrients. At this point the

plant "turns-on" the right biology to convert the nutrients into forms the plant can take-up (but which are typically very leachable).

3. The correct ratio of fungi to bacteria is present, and that the ratio of predator to prey is present ensuring soil pH, soil structure, and nutrient cycling occur at the correct rates producing the right forms of nutrients the plant requires.

The functions of a healthy foodweb are:

1. Retention of nutrients so they do not leach or pass off as vapour from the soil. Retaining the natural nutrients means a decrease in the need for fertiliser usage.
2. Nutrients are cycled into the right forms at the right rates for the plant. The correct ratio of fungi to bacteria is needed for this to happen, as well as a balanced level of natural predator activity.
3. Building the soil structure, so that the oxygen, water and other nutrients can easily absorb into the soil thus enabling plants to develop a deep, well-structured root system. When the biology is functioning properly, water use is reduced, the need for fertilizers is reduced, and plant growth is increased.
4. Suppression of disease-causing organisms via competition with beneficials, by setting up the soil and foliar conditions so as to assist the beneficials as opposed to diseases.
5. Protection of plant surfaces, above or below ground, This is achieved by making certain the foods created by the plant surfaces release into the soil and are used by beneficial, not disease organisms, thereby ensuring that infection sites on plant surfaces are occupied by beneficial, and not disease-causing organisms. This also ensures that the certain predators that prefer disease-causing organisms are present to consume them.
6. Production of plant-growth-promoting hormones and chemicals that assist in plants developing larger stronger root systems.
7. Control of toxic compounds through the breakdown or decay of these organic materials.