

THE IMPORTANCE OF SOIL BIOLOGY FOR NT FARMERS

What is soil biota?

Soil biota refers to the living organisms found in soil. The majority of organic matter is found in the top soil layer, which in the Northern Territory is generally within the upper 15-20cm of the soil profile.

Soil biota includes:

- Micro-organisms
 - > Microflora (bacteria, archaea, fungi and viruses)
 - > Microfauna (bematodes and protozoa)
- Mesofauna (small arthropods, eg: mites and collembolan)
- Macrofauna (earthworms, ants, termites, beetles)

What part do each of these organisms play in soil health?

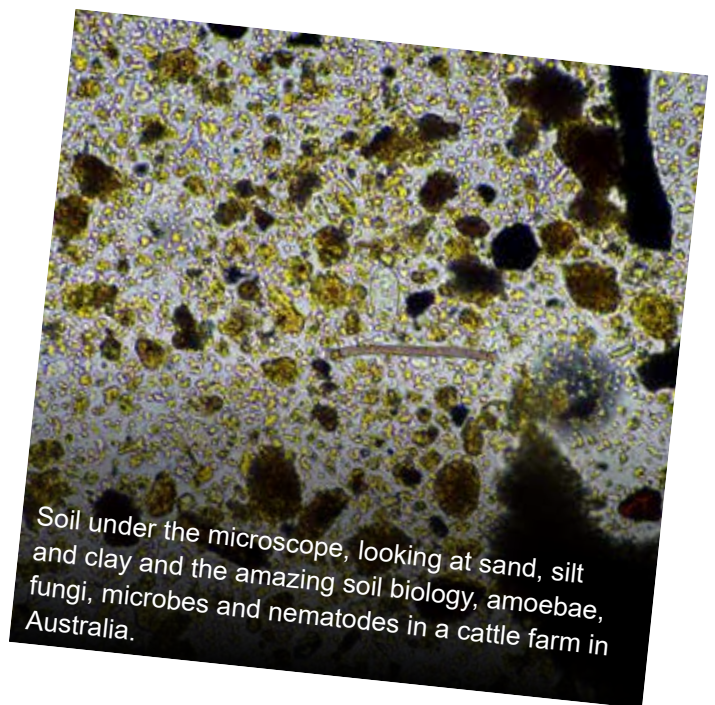
Microorganisms

Microorganisms are tiny, requiring a microscope for identification. They are usually found within the topsoil and surrounding plant roots, in the rhizosphere where food sources are easily accessible. The role of microorganisms include

- Decomposition of organic mater
- Facilitation of nitrogen fixation to assist with plant growth
- Filtering of harmful toxins
- Improvement of aeration, water infiltration and holding capacity, and root establishment
- Supply of important nutrients such as nitrogen or phosphorus
- Some antagonistic micro-organisms can suppress disease organisms



One teaspoon of soil contains more living organisms than there are people on the planet.



Soil under the microscope, looking at sand, silt and clay and the amazing soil biology, amoebae, fungi, microbes and nematodes in a cattle farm in Australia.

For more information:

☎ 08 8942 8300

@ info@territorynrm.org.au

🌐 www.territorynrm.org.au

THE IMPORTANCE OF SOIL BIOLOGY FOR NT FARMERS

Mesofauna

Mesofauna are small invertebrates, visible to the naked eye that habituate air pockets within soil. They feed on microflora and organic material and are particularly sensitive to soil tillage and pesticides. Mesofauna contribute to the

- decomposition of organic matter, which in turn increases soil fertility by the deposition of excrement
- stimulation of micro-organisms

Macrofauna

Macrofauna includes living insects and their remains. Through the digestive process and subsequent excrements macrofauna aid in

- altering the physical structure of soil, creating aggregates that safely store carbon molecules
- assisting with decomposition of toxins
- transporting organic matter into deeper soil profile layers, creating gaps for water and roots to infiltrate and influence nutrient cycling



An extreme macro shot of a very small Springtail (collembolan)

"No other living organism in soil is as important as earthworms in increasing soil health."

Dr Guta Bedane, University of Queensland

How can we maintain healthy soil biota?

Trying to strike a balance with agricultural practices is the hardest part of being a farmer but if you are looking to help your mini farmers aka microbes here are a few tips.

- Provision of food through diversity of; crop rotation/ vegetation and/ or rangelands with sources of perennials/ ground covers and seasonal crops.
- Soil biota thrives in undisturbed and sheltered soil. This can be supported by having consistent groundcover and implementing a no-till practice.
- Consider using organic fertilizers in place of inorganic fertilizers, such as; manure, compost, compost teas, or bio-fertilizers.
- Avoid severe soil compaction where possible.



Fungi mold mycelium growth and spores under the microscope

For more information:

☎ 08 8942 8300

@ info@territorynrm.org.au

🌐 www.territorynrm.org.au