

# Fungi in Agroecosystems

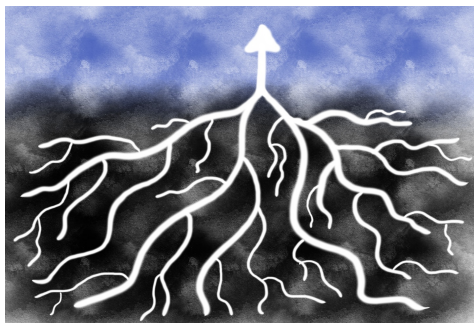
exploring the hidden world of microbes

Just like farmers, fungi are **ecosystem stewards**. In healthy soils, fungi assist with nutrient cycling, enhance soil fertility & boost plant immunity.

## How do you know a fungus when you see one?

Fungi spend much of their lives **belowground**, invisible to us.

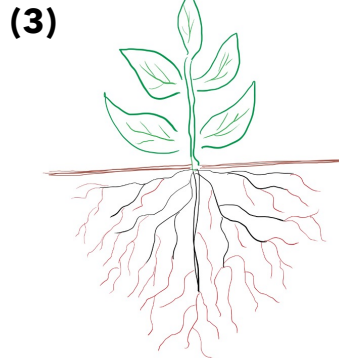
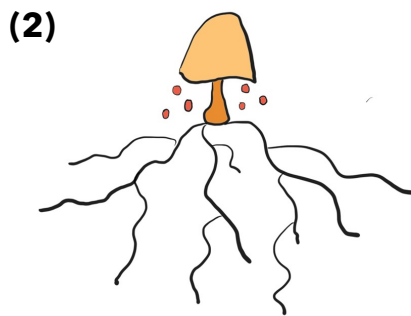
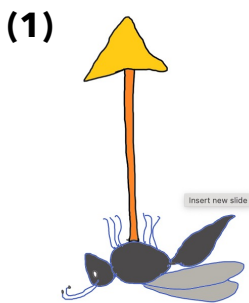
Fungi are a diverse group of organisms that come in all shapes & sizes. Some are made of a single cell, but most are **multicellular**.



Multicellular fungi are made of **mycelium** - a complex network of branching fungal tissue. Nutrients, water & other signals travel through the mycelium.

A **mushroom** is the reproductive structure of fungi.

## There are three groups of fungi found in the living soil



(1) **Pathogenic Fungi**  
disease causing

(2) **Saprophytic Fungi**  
decomposers

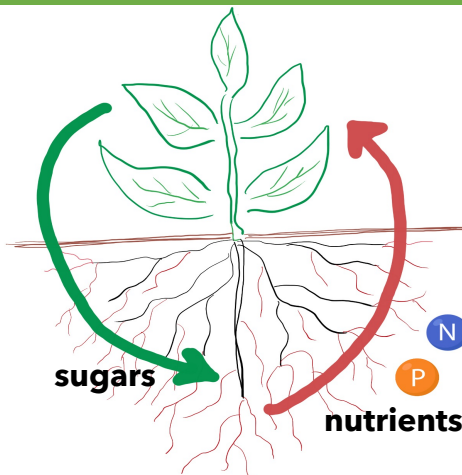
(3) **Mycorrhizal Fungi**  
plant allies

## Mycorrhizal fungi have been plant allies for over 400 million years

Mycorrhizal fungi must **colonize a living plant root** to survive.

Over **90%** of plants on land associate with mycorrhizal fungi.

The fungi & host plant form a beneficial relationship called **mycorrhizal symbiosis**.



### Mycorrhizal Symbiosis

The plant gives the fungi anywhere from **10-40%** of its sugars.

The fungi can provide the plant with up to **90%** of its nutrient requirements.

### Arbuscular mycorrhizal fungi (AMF)

AMF are most studied type of mycorrhizal fungi.

They enter plant root cells and form structures called **arbuscules**.

They have enormous potential to aid agriculture.

