

PLANTWORKS LTD

Mycorrhiza: an aid to success

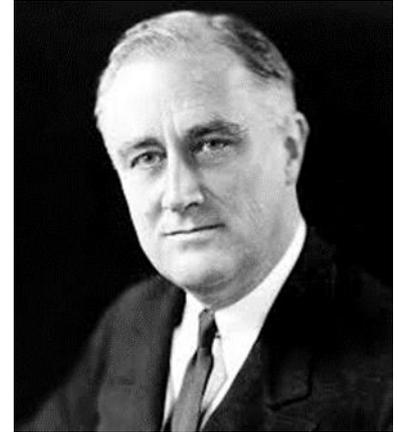
Dr. Louisa Robinson Boyer

Technical Director PlantWorks Ltd.



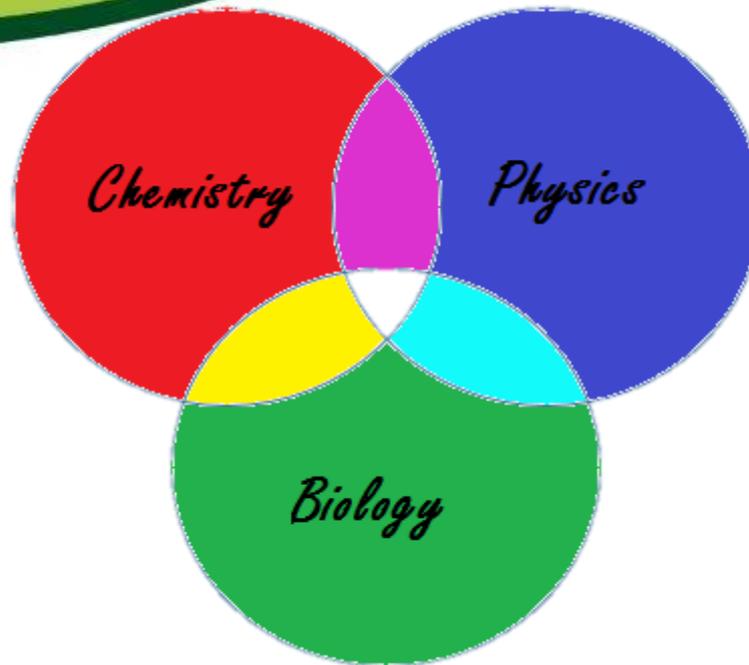
In a letter to
all State Governors...

**IN 1937,
FRANKLIN D. ROOSEVELT SAID:**



**"A NATION THAT DESTROYS
ITS SOILS DESTROYS ITSELF".**

Soil Science

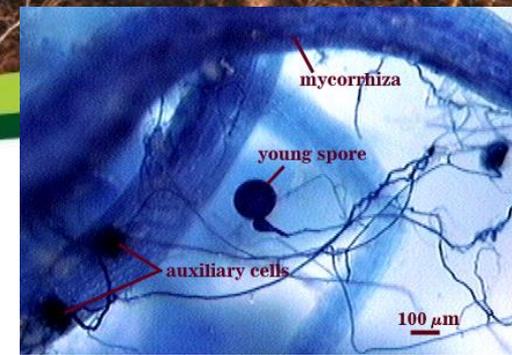


- (NPK+micros)
- Reliability and dependable
- Toxicity/contamination
- Infertility/nutrient lock up

- Erosion
- Salinity
- Poor soil management
- Soil structure
- Drought/water holding capacity
- Porosity

- Microbial populations (Including AMF and PGPR)
- Release of plant available nutrients
- Increase soil health
- Increased plant health and tolerance to pest and disease stress
- Lifetime benefits

Why soil microbes?



You?

Landscape architects

Garden designers

Managers of green spaces

What can they do for me?

Reduced mortality

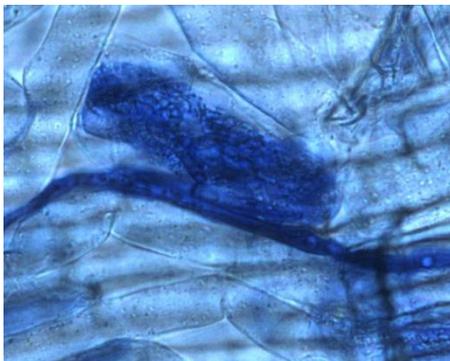
Soil stabilisation and health

Improved establishment of your planting
A single application protects for the life of the plant

Green credentials

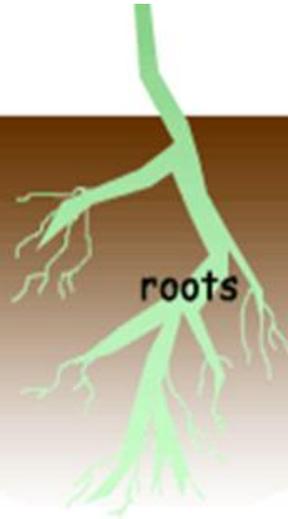
Drought tolerance

Particularly beneficial in situations where soil has been disturbed or situations with reduced biology



Starting to consider below ground

Reduced tillage/disturbance
compaction
Worms
Organic matter
Beneficial insects



Microbes
AMF

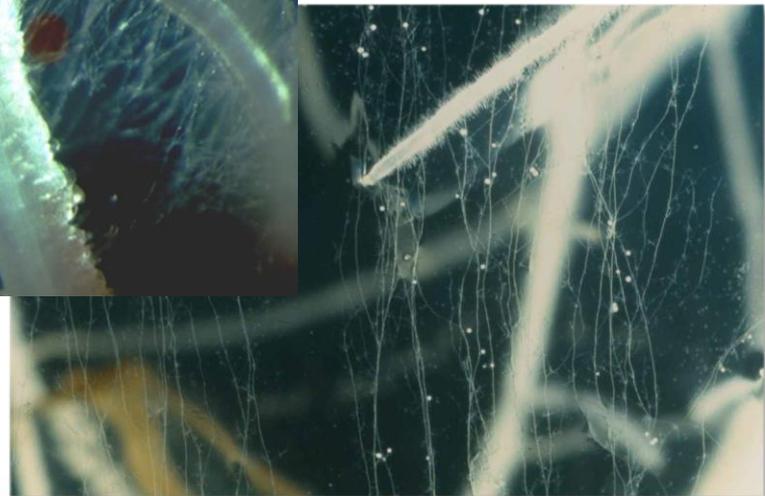
What damages mycorrhizal population in the soil?

- Poor soil management
- Excessive amounts of fungicides, pesticides and NPK
- Breeding out of mycorrhizal traits,
- New growing practice e.g. sterile substrates.

What are Mycorrhizae

Symbiotic association
between a fungus and
the roots of a plant

Obligate symbiosis with
>80% vascular plant
families



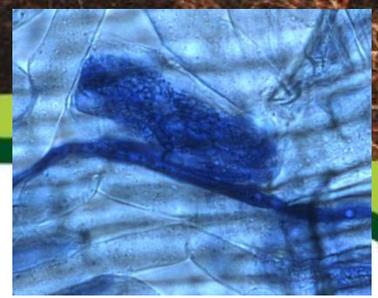
‘The majority of plants, strictly speaking, do not have roots; they have mycorrhizas’



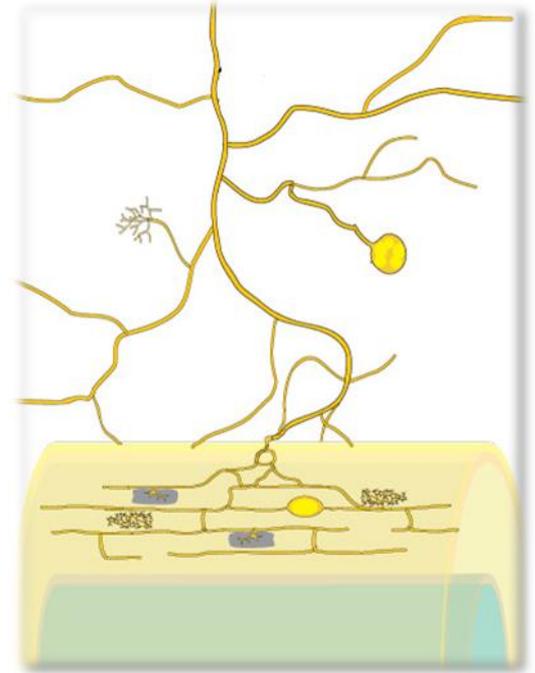
The fungal network increases the active uptake surface of roots up to 700x



AMF



Arbuscular mycorrhizal fungi
Ancient asexual organisms,
Hyphae penetrate the roots.
Form arbuscles and spores, no
fruiting bodies

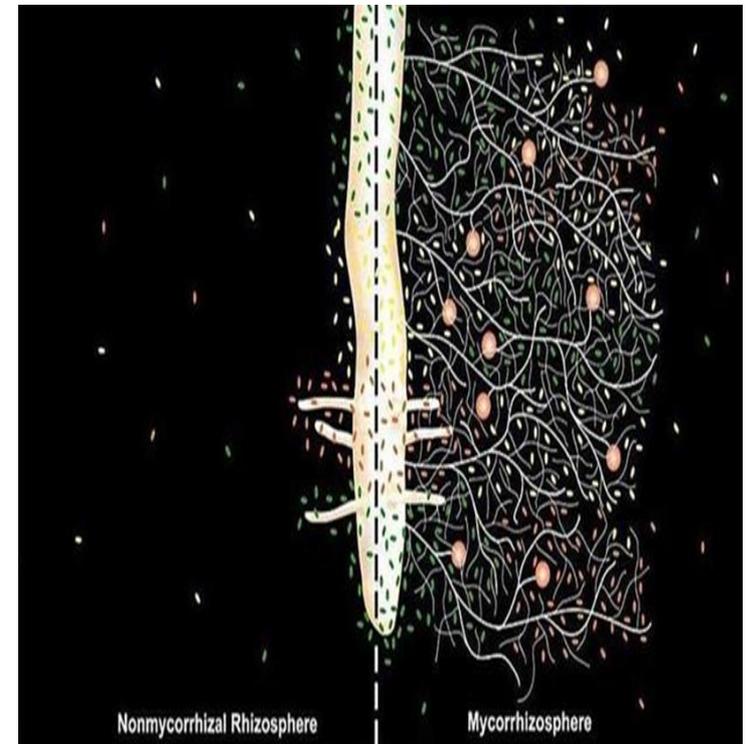
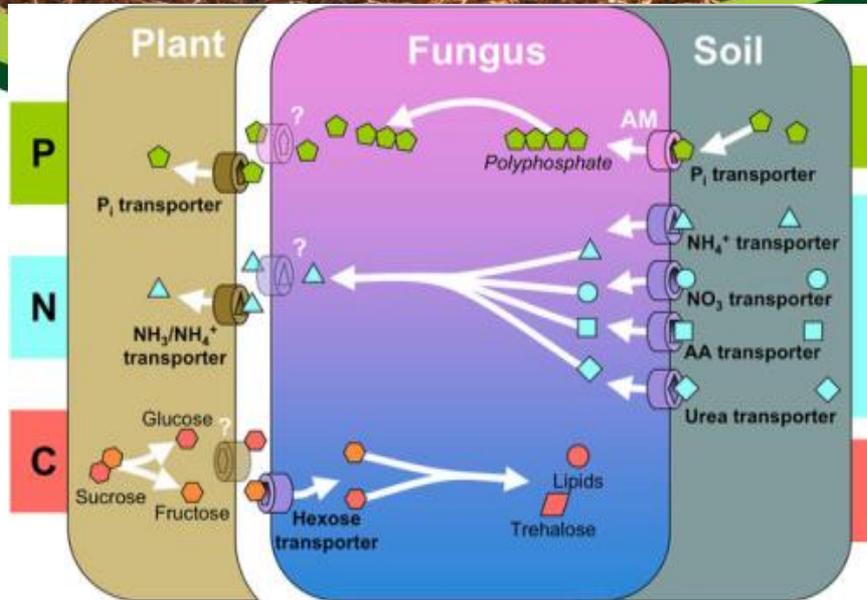


Mineral nutrients
and water
extracted from the
soil



Organic carbon
compounds
transferred to fungus

Role of Mycorrhiza:



- Nutrient uptake primarily P, N and Zn
- Protection from biotic stress
 - pathogens and herbivores
- Protection from abiotic stress
 - drought, heavy metal tolerance, salinity
- Soil stabilisation (glomalin), compaction

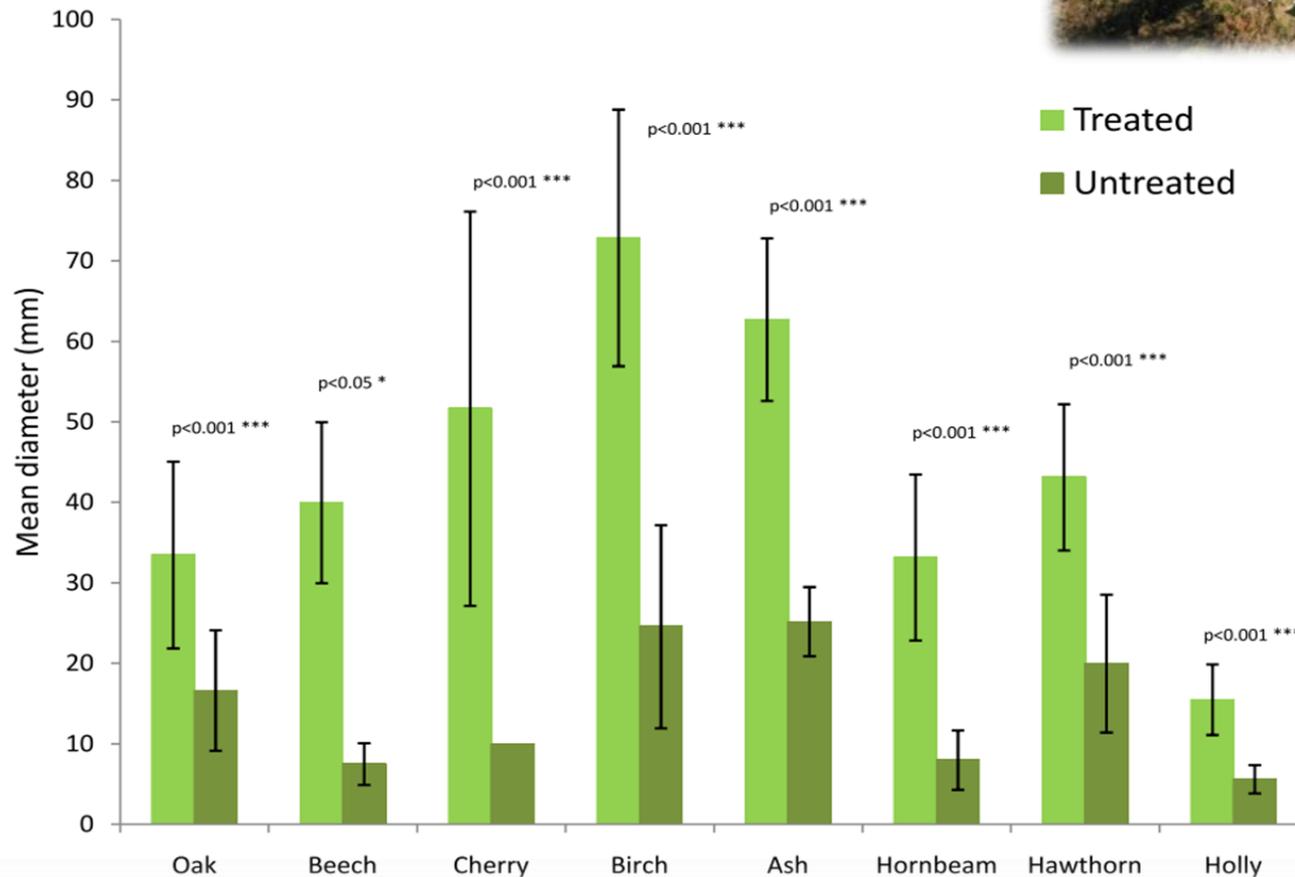
Using Inoculum



- ◆ Must be in contact with roots
- ◆ Add to planting hole
- ◆ Pat onto rootball
- ◆ Use a gel product – add the gel powder to water and ,inoculum and dip bare roots.



The effect of AMF on the establishment and tree growth:



Conclusions

- Mycorrhiza play an important role in the healthy establishment and growth of plants and trees.
- The relationship is natural and ancient
- Current management systems can lead to a reduction in soil mycorrhiza.
- Inoculums are available which can be used at time of planting.

**Microbes are a real possibility for
aiding sustainable land management**

Thanks for listening

Please see us at the stand

www.rootgrow.co.uk

Email: info@rootgrow.co.uk



- ✓ 2.5, 5 and 10L tub
- ✓ Sold to landscapers and professional gardeners
- ✓ RHS Endorsed
- ✓ UK produced with full QA
- ✓ Text available for tender documents