

## NFU Article on Mycorrhizal Fungi



Recent Nature communications (Grassini et al) have reaffirmed that farming output is plateauing in many global crops which, in conjunction with increasing global demand for output, leads to an inevitable quest for innovation and change in the coming years as the demand from current farming practises exceeds capacity.

The paper acknowledges that the green revolution technologies, that saw the mass use of macro fertilisers, and indeed the shift in some economies from starving nations to net exporters of food was a 'one time innovation'. Other work reports that this approach to farming may have disguised the underlying status of our soils and contributed to a build-up of locked nutrients with only 5-10% of all inputs ever reaching the plants they were intended to support. Coupled to the demand for removal of many crop protection inputs, and world phosphorus reserves coming under strain in the coming decades, those with an eye on the strategic nature of farming are once again looking at how to harness soil biology to unlock bound macro elements, increase nutrient availability and thus reduce artificial inputs on a commercial scale.

Within the long list of species and strains of soil microbes that contribute to soil functionality, one of the most well characterised and arguably the most important group is mycorrhizal fungi. These microbes link to plant roots and extend a vast network of fungal hyphae into the soils that function like a secondary root system. Research to understand the value and function of mycorrhizal fungi has been a global endeavour with groups across the world contributing to more than 60,000 technical papers and articles over the last fifty years representing many tens of millions in investment. It is well documented that one major function of mycorrhizal fungi in soils is to significantly enhance phosphorus uptake. But more recent work has shown that enhanced nitrogen and micro nutrient uptake is also significant, together with locking essential soil carbon in the upper soil horizons. Strictly speaking, 90% of land plants don't just have roots they have a 'mycorrhiza' which describe this root fungal union.

<http://www.nfuonline.com/science-environment/science/increasing-the-value-of-uk-farming-soils/>

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