Can we Improve Plant Performance with Symbiotic Fungi?

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Methods A reciprocal pot experiment was established. Raspberry plants were grown with different soil innocula representing both their native AM communities and those of other genotypes tested. Wild plants and soil: Gella Bridge Glen Doll Kingoodie. Arable soils: SCRI New Field - one year old plantation Old Field - 25 year old plantation In order to test plant performance, we recorded plant height (of the tallest cane), the number of nodes (also on the tallest cane) and mineral content of leaves. Conclusions

Introduction Arbuscular mycorrhizal (AM) fungi are obligate symbionts that form a symbiosis with around 90% of all plant species worldwide. These fungi are beneficial to plants in a number of ways: - Phosphorus and nitrogen uptake - Heightened resistance to pathogens - Increased drought tolerance1 In return, the host plant provides the AM fungi with carbon, in the form of photosynthate. Because of these functions, it is thought that the symbiosis is important for plant health and productivity2 The aim of this experiment is to test the following hypotheses: 1. Soil innocula effects plant performance of raspberry. 2. Plants perform better in innocula with which they have "co-evolved" 3. Innocula from high diversity sites generate better plant performance.







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In all innoculum treatments, there appears to be no significant difference in plant height.

No significant differences can be observed concerning the number of nodes relating to the different soil inoculums.

Non-mycorrhizal control always had the lowest P content, although often there was no significant difference. This suggests that there are AM fungi present in the other inocula, helping the plant to obtain essential phosphorus.

Future Work

Analysis of the AM fungi colonising the roots of the plants. Further analysis of plant performance.











1. Smith, S. E. & Read, D. J. 2. van der Heijden, M. G. A. et al. Nature 396, 69-72 (1998). 3. Helgason, T et al. Nature 394, 431 (1998). 4. Taylor J & Harrier L. Plant Soil 225, 53-61 (2000).





