

## Soil microbiome transplantation

**Supervisory team:**

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**Project description:**

The rapid reduction in soil health is one of the most pressing issues facing food security, and novel solutions are urgently required. A key determinant of soil health is the soil microbiome, which can be negatively affected by intensive agricultural practices. Re-establishing “normal” soil microbiomes by transplantation is likely to play a key role in promoting soil health, because of the positive feedback between biotic and abiotic aspects of the soil environment. In this project, we will determine how to optimise transplantation of soil microbiomes to improve soil health in experimental soil microcosms. Specifically, we will identify what makes a successful, invading community, and what conditions promote successful invasion. To achieve this aim, we will use a combination of theory and “model” soil microbiomes that we have developed. The simplicity of the system makes them amenable for determining underlying mechanisms through genomic and metabolomic analyses.