

Using soil bacterial communities to predict soil quality

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Video Byte

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Abstract

Soil quality is crucial to sustaining agriculture and maintaining food security. Soil ecosystems involve complex interactions between biological communities, such as microbes, and physicochemical variables, but although living organisms can affect soil health, they are often ignored in soil management systems, running the risk that we won't detect detrimental impacts of our actions on the soil until it is too late. A recent study shed new light on bacteria living in soil ecosystems. Researchers examined the composition of bacterial communities and physicochemical properties in 3,000 soil samples from 606 sites in New Zealand, covering indigenous forests, exotic forest plantations, horticultural areas, and pastoral grasslands. Their results showed that soil bacteria community composition was strongly tied to land use. Soil properties such as pH, nutrient concentration, and bulk density could be predicted by the bacterial communities present in the soil. with enough accuracy that bacterial communities could be used to assign soil quality scores. Further research could reveal how bacterial community data can be harnessed to promote a healthy soil ecosystem.