

Mapping farmland soil life

The Netherlands has the most intensely surveyed soils in the world. But one aspect has not received so much attention, namely soil life. That will change with the new SoilProS project, funded by the Dutch Research Council and aimed at producing a new map of soil life.

The initiator Wim van der Putten, professor of Functional Biodiversity at WUR and the Netherlands Institute of Ecology (NIOO), explains how the map will be made. 'We are going to collect and analyse 1000 soil samples. We will draw on the existing soil maps and our knowledge of soil use.'

The survey is just the first step. The idea is to develop sustainable production systems, which are urgently needed, says Van der Putten. Intensive farming has led to soils specialized in one function only: crop production. That has been at the expense of other soil functions such as storing greenhouse gases, supplying clean drinking water and suppressing diseases and pests.

Molecular profile

SoilProS aims to revitalize soil life and restore that multi-functionality. 'There is still a lot of biodiversity in farmland soils,' says Van der Putten. 'But certain components are missing that are essential for multi-functionality. The

important thing is to get back those components.'

The sample analyses are not about cataloguing individual micro-organisms. 'What we do is make a molec-

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ular profile of the soil based on the DNA we find in a sample. The profile says something about the diversity of micro-organisms in that soil.'

Artificial intelligence and machine learning will be used to identify patterns in the data. Van der Putten: 'Can the soil use be related to the profiles we find? And what should you do to change a certain cluster X of soil life into a different cluster Y?' Trials will also be run to test whether it works in practice. **PK**

