COMUNE DI POLLICA

HuMUS
Healthy Municipal Soils

Medi-Terra

FINAL REPORT

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Publishable summary

The Medi-Terra project, rooted in Italy's Cilento National Park, set out to answer a fascinating question: can humans actually smell the difference between healthy and degraded soil? The core idea was that our innate connection to soil, like enjoying the scent of petrichor, could be a key to inspiring more people to care about soil health.

The project had two main goals. First, to scientifically explore this "smell" capability, and second, to get more people in Cilento excited about and knowledgeable about soil. The project started with a neuroscientific study at the Mediterranean Mind Lab, where participants, a mix of farmers, citizens, members of academia, and policymakers, smelled five different soil types (from regenerative pastures to conventional land) and ranked them. The soils were also lab-tested, and the results compared to both conscious rankings and subconscious brain responses measured by an Electro-Encephalogram (EEG).

For the first time, according to scientific literature, this project showed that people could tell the difference between soils managed (or created) in different ways. Regenerative and potting soils generally got higher rankings than conventional soil, and this preference intensified when they could also see the soil. The EEG data backed this up, showing that regenerative soils sparked more engagement and positive emotional responses in the brain, suggesting an innate bias towards healthier soils.

While the science was happening, the project also focused on practical learning. Participants joined a "Soil Steward" training, including two hands-on farm workshops. They learned about regenerative practices, used simple tools like the "underwear test" and MicroBiometer to assess soil health, and discussed challenges. These sessions led to identifying three key areas for action: education, supporting regenerative farming, and boosting farmers' roles in soil protection.

The second workshop involved a "Soil Sommelier" session, training participants to identify soil scents related to health and awarding an official certificate. The project wrapped up by gathering participants' ideas into a "Territorial Management Agreement" (TMA), a shared pact and action plan signed by local authorities, farmers, and citizens, committing to soil protection.

The adoption of innovative methods like the neuroscientific experiment and the Soil Sommelier workshops helped attract new audiences to soil health educational initiatives and to local markets of regenerative producers, and support from local authorities was vital for turning these ideas into real action through the signature of the TMA. Formally, this facilitated the creation of a plan to include a new soil health section in the Museum of the Mediterranean Diet and to further include action plans in the territorial development strategy through the Master Plan.

Finally, these findings suggest a new paradigm for human-environment interaction, where multisensory neuroscience tools support the recognition of ecological value through direct, embodied experience. Rather than relying solely on information or ethics, regenerative practices can be felt, not just understood. This opens the path toward a model of

eco-affective learning, in which environmental stewardship is driven by personal connection, attentional depth, and emotional resonance - measured, validated, and enhanced through neurophysiological means.