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Soil Carbon 4 per 1000: A Global Perspective

Budiman Minasny¹, Dominique Arrouays, Damien J. Field, Brendan Malone, Alex. B. McBratney, Pierre Roudier

¹ University of Sydney, Australia. Email: budiman.minasny@sydney.edu.au

In response to the Paris Agreement, the 4 per 1000 program was set out as an ambitious aspiration, for the first time setting a global goal to promote good soil management that can help mitigate climate change. The target is to increase global soil organic matter stocks by 0.4 percent annually. It is now supported by almost 150 signatories from various countries, regions, international agencies, private sectors and NGOs. We mapped out the required sequestration rate globally and discussed potentials in several regions of the world. Global reported soil C sequestration rates showed that under best management practices, 4 per 1000 or even higher sequestration rates can be achieved. High C sequestration rates can be realized for soils with low initial SOC stocks in the first 5 years. Regions with high inherent SOC content can be difficult to further increase SOC levels. Conversely, regions with low inherent SOC can also be challenging, as high temperature enhances decomposition, and the removal or burning of crop residues are still frequently practiced. The potential of soil to sequester C to offset greenhouse emissions has been widely debated. However, 4 per 1000 is a practicable solution that soil scientists can offer. There are direct benefits through improving soil conditions. The 4 per 1000 initiative should be view as concept than a specific number. The challenge for cropping farmers is to find a new generation of practices that will further improve soil condition and deliver increased soil carbon. Disruptive technologies can help agricultural practices to soak up more carbon in the soil, create soil security to achieve food security and mitigate climate change. The initiative is also an opportunity to implement a sound and credible soil carbon auditing protocol for monitoring, reporting, and verifying SOC sequestration which can be fit into national GHG inventory procedures. As a strategy for climate change mitigation, SOC sequestration should be implemented immediately. It buys time over the next ten years whilst other effective sequestration and low carbon technologies will become viable. Advances in 4 per 1000 initiative requires collaboration and communication between scientists, farmers, policy makers, and marketeers. Soil C 4 per 1000 can make soils a sustainable resource, not a renewable resource.



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