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Strategies for Nitrous Oxide Emission Mitigation in Agrosystems

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Deadline for manuscript submissions:
closed (15 January 2022)

Message from the Guest Editor

The objectives of the Paris Agreement require the rapid reduction of global greenhouse gas (GHG) emissions. Nitrous oxide (N_2O) is a powerful GHG estimated to account for 6% of the change in radiative forcing since 1750. This gas is now also considered as the major ozone-depleting substance in the atmosphere. Agriculture, through soil emissions, is the main anthropogenic source of N_2O. Soils can act both as a source and a sink of N_2O. However, on the global scale, the activity of soil as a source largely dominates its activity as a sink. The production and consumption of N_2O in soils mainly involve biotic processes such as denitrification and nitrification, and depend on multiple factors.

While different strategies to decrease N_2O emissions from agricultural soils have been identified, for example (i) increasing N use efficiency concomitantly with lowering total N input, and/or (ii) decreasing the release of N_2O per unit of nitrogen from nitrification and denitrifcation, etc., technical options remain to be specified at the operational scale.

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Message from the Editor-in-Chief

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