

(English version)

**Question for written answer E-001986/24
to the Commission
Pascal Arimont (PPE)
(8 October 2024)**

Subject: Reducing emissions of nitrous oxide (N₂O) through the action of specially cultivated *Cloacibacterium* bacteria

The third most important greenhouse gas — after carbon dioxide (CO₂) and methane (CH₄) — is nitrous oxide (N₂O), which is also known as laughing gas. Nitrous oxide traps heat particularly effectively; as a result, the greenhouse effect it produces in the atmosphere is up to 300 times greater than that of carbon dioxide. The main sources of nitrous oxide emissions are nitrogenous fertilisers used in agriculture and livestock farming.

In an article entitled ‘Unlocking bacterial potential to reduce farmland N₂O emissions’, published in the journal ‘Nature’ in May 2024, a research team from the Norwegian University of Life Sciences explained how *Cloacibacterium* bacteria (CB-01) specially cultivated from organic waste, which are capable of degrading N₂O, reduced N₂O emissions caused by fertilisation by 50 to 95% in field experiments, depending on soil type.

On the basis of modelling based on its findings, the research team then estimated potential reductions for the EU. According to the authors, this method would be relatively inexpensive and straightforward and, if extended to all types of mineral and natural fertilisers, could reduce N₂O emissions within EU agriculture by up to 20%.

Is the Commission aware of this study and, if it is, what is its view of it?

Submitted: 8.10.2024

**Answer given by Mr Wojciechowski on behalf of the European Commission
(19 November 2024)**

The Commission has taken good note of the publication in ‘Nature’ on the results of research and innovation that could help reduce emissions of nitrous oxide — a potent greenhouse gas (GHG) and damaging substance of the ozone layer — from application of fertilisers to soil.

Research and innovation (R&I) on potential innovative solutions is an important part of the strategy to mitigate GHG emissions from agricultural activities. The Commission already supports many R&I activities on GHG mitigation, not least in relation to soil management.

Horizon Europe, the current research and innovation framework programme ⁽¹⁾, can assist the further development of proofs of concept (POC), such as the one described in this publication, to higher technology readiness levels (TRLs) and to market uptake in a final stage.

In addition, living labs ⁽²⁾ created under the EU Mission ‘A Soil Deal for Europe’ ⁽³⁾ could help in testing such types of innovation in real-life conditions and with commercial farmers.

Moreover, the Joint Research Centre (JRC) is continuously synthesising the scientific evidence on farming practices and their impact on environment and climate ⁽⁴⁾, including GHG emissions.

Through a combination of minimum obligations (enhanced conditionality) and voluntary interventions, the Common Agricultural Policy (CAP) 2023-2027 provides a wide set of tools to boost sustainable farming across EU Member States, including efficient management of nutrients, thus reducing GHGs, water pollution and dependencies on chemicals.

In their CAP Strategic Plans, Member States have planned interventions under Eco-Schemes and/or Agri-Environmental and Climate Commitments to improve nutrient management that cover up to 15.5% of the utilised agricultural area.

⁽¹⁾ https://research-and-innovation.ec.europa.eu/funding/funding-opportunities/funding-programmes-and-open-calls/horizon-europe_en

⁽²⁾ <https://mission-soil-platform.ec.europa.eu/living-labs>

⁽³⁾ https://research-and-innovation.ec.europa.eu/funding/funding-opportunities/funding-programmes-and-open-calls/horizon-europe/eu-missions-horizon-europe/soil-deal-europe_en

⁽⁴⁾ <https://wikis.ec.europa.eu/display/IMAP/Impacts+of+farming+practices+on+environment+and+climate>