Methane oxidation potential of reclaimed grassland as affected by management. (S03-jacinthe123320-Oral)

Authors:

- P.A.Jacinthe Ohio State University
- R.Lal Ohio State University

Abstract:

Reclaimed mineland converted into grassland could be a CH4 sink, but the effects of management on this sink strength are not well known. Methane oxidation was studied using soil samples collected at 3 reclaimed mineland sites including a fertilized grassland dedicated to hay production (S1), a degraded pasture (S2), and a pasture-feeding area (S3) characterized by external input of hay and longer animal stay. An undisturbed grassland (hay production, S4) was also sampled. Samples were incubated at ambient (2 ppm) and elevated (45 ppm) CH4 levels. The S1 and S2 samples exhibited the lowest uptake rates. Under ambient CH4, uptake was similar (0.26 ug CH4/kg/h) in the S3 and S4 samples. The S3 samples were the most responsive to elevated CH4 with uptake rates averaging 7.4 compared to 2.1 ug CH4/kg/h in the other samples. These results suggest that, in the pasture-feeding area, animal droppings may have led to the evolution of a larger population of CH4 oxidizers.

Corresponding Author Information:

Pierre-Andre Jacinthe Ohio State University 210 Kottman Hall, Ohio State Columbus, OH 43210 phone: (614) 292-5678 fax: (614) 292-7432 e-mail: jacinthe.1@osu.edu

Presentation Information:

Presentation Date: Wednesday, November 13, 2002 Presentation Time: 2:45 pm

Keywords:

methane uptake, mineland, animal droppings, grassland