GLOBAL
RESEARCH
ALLIANCE

ON AGRICULTURAL GREENHOUSE GASES

GRG Annual Meeting, San Antonio, TX   **14 November 2024**
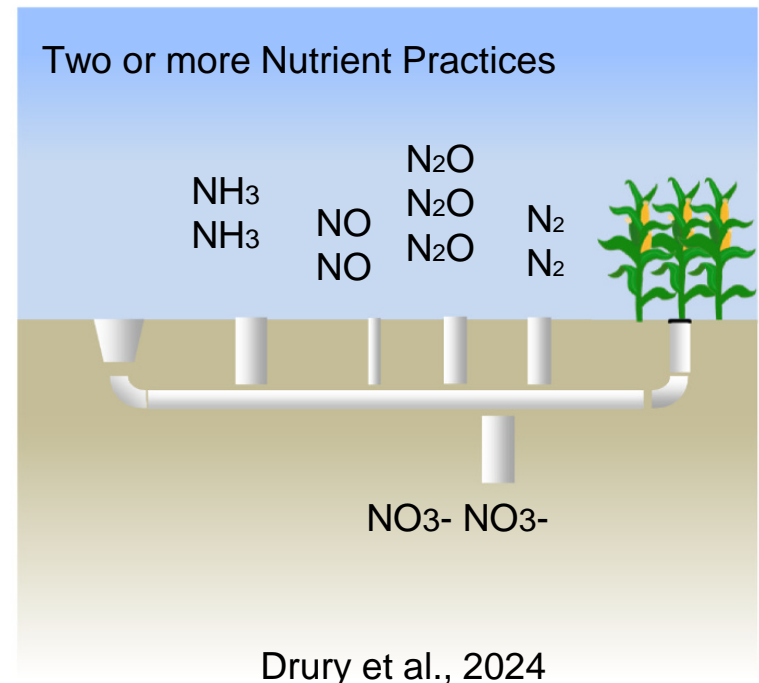
Croplands Research Group Co-Chairs' Report

Hero Gollany

CROPLANDS RESEARCH GROUP
RECENT ACTIVITES:

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❖ Four webinars this year. The last webinar for the year from Spain will be in December 2024. Agroecology and Policy, Balancing Climate Change.

❖ <u>Webinar</u> in June 2024: "Stacking 4R Practices with Conservation Agriculture to Mitigate Nitrous Oxide Emissions". Craig Drury, Agriculture & Agri-Food Canada, and Diego Abalos, Aarhus University, Department of Agroecology, Denmark).

Two or more Nutrient Practices

NH_3
NH_3 NO N_2O
            N_2O N_2
        NO N_2O N_2

NO_3- NO_3-

Drury et al., 2024

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RECENT ACTIVITES:

❖ <u>Webinar</u> in March 2024: "Co-benefits and Tradeoffs of Agricultural Mitigation and Adaptation in Rice Based Cropping Systems" CRG & AgMIP (Roberto Valdivia, Oregon State University, USA, Sonali McDermid, New York University, NASA-GISS, USA, Tao Li, International Rice Research Institute, IRRI, Philippines, and Erik Mencos, Columbia University, NASA-GISS, USA).

WEBINAR | MONDAY, 4 MARCH 2024

❖ <u>A workshop</u> on "Knowledge Gaps in Emission Reporting on cultivated organic soils and managed peatlands", November 2023: Simon Weldon, NIBIO, Norway, Fahmuddin Agus, BRIN, Indonesia and Junbin Zhao, NIBIO, Norway).

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RECENT ACTIVITES:

❖ <u>Webinar</u> in November 2023: "Greenhouse Gas Balance of Peatland: Lessons from the Tropics and the North. Fahmuddin Agus, BRIN, Indonesia and Junbin Zhao, NIBIO, Norway).

NOAA

❖ Procinorte online 2024 American Workshop on Soil, Water, and Climate Change: Can Models Guide Our Way. March 14, 2024. Hero Gollany presented "Research on Field Scale Soil Organic Carbon Modeling Using Long-Term Agricultural Experiments and the Process-Based CQESTR Model.

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Guided by Science,
Improved Technologies
and Science-based Policies

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Capacity Buliding

❖ Hosted 4 CLIFF-GRADS students at USDA-ARS, in Pendleton, OR, USA: Hero Gollany, hosted Bethel Geremew (Ethiopia) and Husaain Tajamul (Pakistan) and were trained on the CQESTR carbon model.

❖ Primitiva Andrea Mboyerwa (Tanzania) and Mercedes Busto (Argentina) were trained on GHG emissions measurement.

Mercedes Busto taking GHG sample

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➢ **USA** – CLIFF-GRAD Publications:

Geremew, B., Tadesse, T., Bedadi, B., Gollany, H.T., Tesfaye, K., Aschalew, A. 2023. Impact of land use/cover change and slope gradient on soil organic carbon stock in Anjeni watershed, north-west Ethiopia. Environmental Monitoring and Assessment. 195, Article 971. https://doi.org/10.1007/s10661-023-11537-7.

➢ Geremew, B., Tadesse, T., Bedadi, B., Gollany, H.T., Tesfaye, K., Aschalew, A., Tilaye, A., Abera, W. 2024. Evaluation of RothC model for predicting soil organic carbon stock in north-west Ethiopia. Environmental Challenges. 15. Article 100909. https://doi.org/10.1016/j.envc.2024.100909.

➢ CLIFF-GRAD Publications:

❖ Hussain, T., Gollany, H.T., Mulla, D., Ben, Z., Tahir, M., Tahir Ata-Ul-Karim, S., Liu, K., Maqbool, S., Hussain, N., Duangpan, S. 2023. Assessment and application of EPIC in simulating upland rice productivity, soil water, and nitrogen dynamics under different nitrogen applications and planting windows. Agronomy. 13(9). Article 2379. https://doi.org/10.3390/agronomy13092379.

❖ Alice Budai and Thiago M. Inagaki at NIBIO, Norway are hosting a CLIFF-GRADS Jane Omenda (Kenya). Focus on the production of biochar-based fertilizers.

❖ Thiago M. Inagaki and Eva Farkas are hosting Inviolata Lusweti (Kenya), and Junbin Zhao (NIBIO, Norway) and Carla Stadler (CIFCEN, Argentina) are also involved in GHG measurements and relevant data processing/analysis.

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➤ **USA** – USDA NIFA

- The USDA National Institute of Food and Agriculture (NIFA) provided ~$220 million in FY23 funds for competitive and capacity projects to support climate change-related research, education, and Extension.

- NIFA launched in partnership with the National Science Foundation institute hosted at U of Minnesota - *AI Climate, Artificial Institute for Climate-Land Interactions, Mitigation, Adaptation, Tradeoffs and Economy*

- NIFA continues to expand support for climate change related work through the Agriculture and Food Research Initiative

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➢ **USA** – USDA NIFA (cont.)

- Regional Innovation and Demonstration of Climate-Smart Agriculture for Future Farms funded two projects focused on advanced, precision technologies that reduce GHG emissions

- Extension, Education & USDA Climate Hubs Partnership Program supports collaborations between USDA's 11 Regional Climate Hubs and Cooperative Extension

- NIFA supported National Climate Change Roadmap: A Research Framework for Agriculture, Forestry, and Working Lands to inform the next decade of climate-smart agricultural research and education

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GRA Council meeting, Online

11 September 2024

Thank you for your kind attention!

Hero Gollany/United States, hero.gollany@usda.gov)