IRRI
International Rice Research Institute

REMET-RICE Newsletter
Reducing Methane Emissions from Rice Project

## Building Knowledge, Building Networks: REMET-Rice Midyear Highlights!

REMET-Rice Project Charts Next Phase in April Planning Workshop

Strategic workshop guides research direction and modeling efforts for climate-smart rice systems

The REMET-Rice team convened for a two-day Progress Review and Planning Workshop on 28-29 April 2025 at IRRI Headquarters. With the project now in Phase 2b, and with three experimental seasons completed, the workshop was organized into four focused sessions aimed to:

- Synthesize GHG emissions data from the 2024 dry and wet season trials to guide low-emission interventions and upcoming publications

- Review and refine the ORYZA V4 model, with emphasis on data requirements for validation

- Analyze initial results from DS2025 to inform WS2025 experimental design

- Outline future directions, including a prioritized list of research options for Phase 3

The Day 2 discussions opened the floor to long-term planning, with teams generating "Next Gen" concepts for REMET - ranging from AI-assisted modeling and microbiome-informed mitigation to multi-site testing of amendments such as biochar and phosphogypsum - setting the stage for the project's next phase for impact.
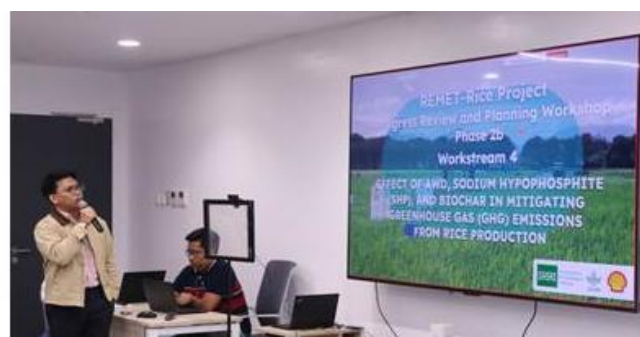
# REMET-Rice Wet Season 2025 Experiments Underway

New season of REMET-Rice experiments drives innovation in methane mitigation and sustainable rice systems

The 2025 wet season marks another critical phase for the REMET-Rice Project as experimental activities kicked off in June at IRRI experimental field sites. Now in its third year, the project continues to explore how environmental conditions and crop management practices influence methane emissions from rice systems.

The project's research portfolio includes four ongoing field trials, a glasshouse study evaluating methane-inhibiting treatments, and an embedded microbiome study to investigate microbial drivers of methane production and reduction.

For this season, the team is testing biochar to mitigate emissions from the use of organic manure (as N source) to inform organic fertilizers application with co-benefits for soil fertility improvement. In addition, a new protocol to evaluate GHG emissions variability within plot is being used to resolve environmental differences and treatments effects in the variety and the combinations of technologies trials.

The upcoming harvest expected in October 2025 will mark the fourth completed cropping season of the REMET project.
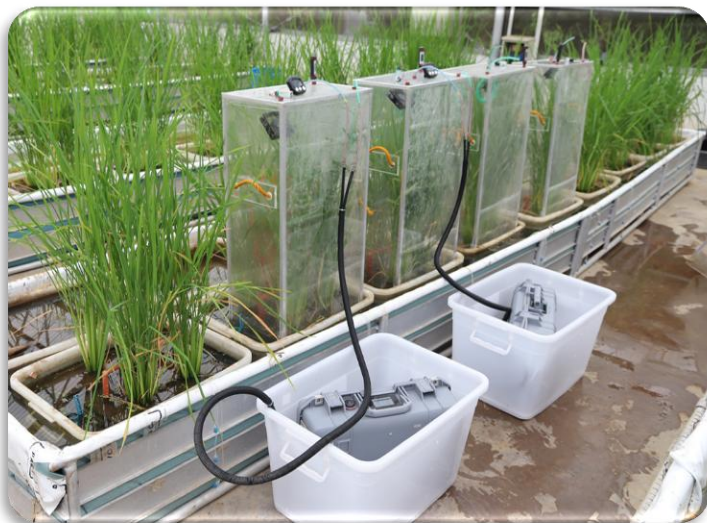
REMET-Rice Project Staff Serve as Resource Persons in GHG Emissions Training

On May 19 - 24, 2025, REMET-Rice project staff served as resource persons in the IRRI Education training course on "GHG Emissions in Rice Systems: Basics of Mechanisms and Standards for Measurements" held at the International Rice Research Institute (IRRI) Headquarters, Los Baños, Philippines.

17 participants from 9 organizations and institutions joined the training, which combined lectures, field demonstrations, and hands-on exercises. One participant shared, "This training is highly recommended for professionals and researchers in climate change and mitigation studies, GHG measurement (for rice and other crops), carbon markets, and natural resource conservation. It will provide valuable guidance to help you move your work in the right direction."

REMET-Rice staff delivered sessions on the mechanisms of GHG emissions in rice systems, mitigation practices such as Alternate Wetting and Drying (AWD), and GHG measurement techniques, while also leading practical exercises on monitoring, sample collection, and data analysis.

Exploring Gene-Microbe Interactions for Climate-Smart Rice: REMET-Rice Researcher Presents at 11th ACSAC

The 11th Asian Crop Science Association Conference (ACSAC) was held on May 19-21, 2025 at the Sheraton Hotel in Taipei, Taiwan, with the theme "Toward Net-Zero Production, Food Security and Sustainability." The event brought together researchers across the Asia-Pacific to highlight innovations in crop science, sustainable agriculture, and climate-smart practices.

Representing the REMET-Rice project, Assistant Scientist Mr. Israel Dave Ambita presented a poster under the soil health theme titled "The effects of pyramiding bacterial blight resistance genes on root-associated methanotrophs and greenhouse gas emission." The study explored how gene pyramiding in rice influences the recruitment of beneficial microbes, particularly methanotrophs and methanogens, and its implications on methane emissions. Findings revealed genotype-dependent variation in microbial communities and greenhouse gas output, underscoring the potential of breeding for both disease resistance and climate mitigation.

REMET-Rice Soil Chemist Shares Research on Greenhouse Gas at International Symposium in the U.S.

Francis Hennel C. Rubianes, Soil Chemist of the REMET-Rice project, participated in the 18th International Symposium on Soil and Plant Analysis held from June 9-13, 2025, in Durham, North Carolina, USA. The event gathered global experts to share advances in soil and plant science in support of sustainable agriculture.

Mr. Rubianes presented his research titled "Soil Parameters to Estimate Greenhouse Gas Emissions and Yield in Intensive Rice Cultivation Environments." The study focused on identifying cost-effective soil screening methods and understanding how environmental and seasonal factors influence soil properties in high-intensity rice systems. He also toured several research and service laboratories, gaining exposure to the latest technologies and best practices in soil and plant analysis, knowledge that can further enrich REMET-Rice research efforts.

Microbiome Mini-Forum to Expand REMET Collaborative Efforts

REMET-Rice forum builds momentum for integrating microbial insights into methane models

On 1 July 2025, the REMET-Rice Project hosted a virtual Microbiome Mini-Forum to explore how microbiome data can enhance methane emissions modeling in rice systems. Opening the forum, Dr. Tao Li, REMET-Rice modeling lead, emphasized the importance of linking genomic research with field-based applications to improve climate-smart agricultural modeling. He highlighted the growing microbiome dataset as a key opportunity to refine methane flux predictions.

Key discussion points included:

- Updates on genomic and field research progress
- Strategies for incorporating microbiome variables into models
- Challenges in data integration and parameterization
- Opportunities for joint analysis and co-authored publications

Participants reaffirmed the value of microbiome data for strengthening methane emissions modeling.

Priority actions include collaboration on data analysis and development of methane mitigation methods that IRRI lead Pathologist Dr. Van ScheperLuu is coordinating.

If you would like to collaborate or learn more about the team's progress, please feel free to reach out to Dr. Van or any member of the REMET team - we would be glad to connect with you.
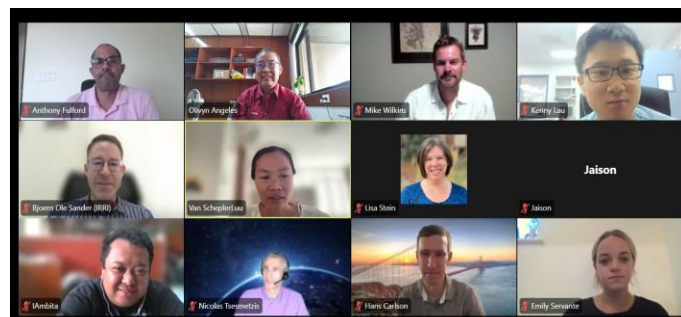
Building Bonds and Shared Goals: AM4E Team Heads to Cagbalete

Team-building retreat strengthens collaboration and aligns performance goals for 2025

In April 2025, the AM4E team stepped away from their desks and research fields to come together for a two-day retreat at Aquazul Resort & Hotel in Cagbalete Island. The activity served as both a team-building exercise and a strategic planning session, providing space to connect beyond daily routines and align expectations for the year ahead.

This retreat followed the AM4E/REMET Team Dialogue held in February 2025. Organized in partnership with HROD, the dialogue created a platform for open discussion on team dynamics, expectations, and the upcoming shift to a KPI-based performance system.

During the Cagbalete retreat, staff were introduced to the Performance, Achievement, and Career Enhancement (PACE) App and guided in drafting Key Performance Indicators (KPIs) aligned with unit and supervisor goals.

Supervisors initiated the process through a focused breakout session, which informed broader team discussions. The retreat successfully combined structured planning with opportunities for informal engagement, fostering both clarity of direction and team cohesion.

Greenhouse Gases Flux and Modeling from Rice Workshop
Global experts convene to advance GHG flux research and modeling in rice systems

The International Rice Research Institute (IRRI) hosted the Greenhouse Gases Flux and Modeling from Rice Workshop on September 1 - 5, 2025, at its headquarters in Los Baños, Philippines. Co-led by IRRI, the Agricultural Model Intercomparison and Improvement Project (AgMIP) in partnership with the Global Methane Hub (GMH), Bringing together over 70 experts from 40 organizations across 20 countries, the workshop aligns with IRRI's broader strategy and ongoing initiatives in climate change mitigation, as well as the goals of the IRRI and Japan Ministry of Agriculture, Forestry and Fisheries partnership and the CGIAR Climate Action program.

The five-day event fostered collaboration among greenhouse gas (GHG) researchers, rice crop modelers, agronomists, and remote sensing specialists to address critical challenges in methane (CH_4) measurement, modeling, and mitigation. Participants worked on advancing best practices for chamber-based flux analysis, simplifying simulation methods for wider application of the Tier 3 IPCC approach, and integrating climate change adaptation into rice modeling.

Key outcomes included progress towards:

- Comprehensive guidelines for closed chamber-based protocol for GHG measurement

- A model intercomparison protocol to strengthen rice models capabilities for methane simulations

- Plans for publications to consolidate and disseminate findings to different audiences from the science community to practitioners and policy makers

Looking ahead, the newly formed global community of scientists present at the workshop will continue to collaborate on developing robust, comparable data and tools to support GHG reporting, improve access to climate finance, and accelerate adoption of climate-smart practices in rice systems. As IRRI Director General Dr. Yvonne Pinto emphasized, "It really requires bold thinking on how we measure, model, and manage emissions at scale."

Upcoming Training

GHG Emissions in Rice Systems: Basics of Mechanisms and Standards for Measurements

IRRI Education will offer a training course titled "GHG Emissions in Rice Systems: Basics of Mechanisms and Standards for Measurements" on November 17-21, 2025 in Varanasi, Uttar Pradesh, India.

This intensive five-day program combines lectures, field demonstrations, and hands-on laboratory sessions to strengthen participants' skills in:

- Measuring and analyzing greenhouse gas (GHG) emissions in rice fields
- Applying IPCC guidelines and GHG inventory approaches
- Exploring mitigation practices such as Alternate Wetting and Drying (AWD)

The course is open to researchers, students, extensionists, government officers, farmers, and rice carbon project agents.

Application deadline: **October 15, 2025**

Read more: **https://bit.ly/4g9Dxwk**

Contributions from the Community:
The strength of our newsletter lies in the diverse experiences and perspectives that you, our readers, bring to the table. If you have a story, research findings, or reflections on rice cultivation that you wish to share with the REMET-Rice family, we invite you to contribute.

How to Contribute:
Connect with our editorial team to share your ideas, articles, or any valuable content through the following contact information:
Email: a.ferrer@cgiar.org / a.radanielson@cgiar.org
Your contributions will not only enrich our newsletter but also contribute to the collective knowledge that propels the REMET-Rice project forward.

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