

Different Factors Control the Methane Emission Rates in the Rice Fields within the Wetland Reserve Area in Vietnam

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Abstract

Vietnam has a long-life wet rice agriculture, with an area accounting for 52.5% of the total agricultural land area. Vietnam is fourth out of 5 countries in rice exports, generating nearly a quarter of global rice exports 2021. An enlarged amount of CH₄ has been emitted in rice-growing countries compared to the average CH₄ emission in the world. Lowland rice producers have been known to be a source of greenhouse gases, including CH₄. Rice production in the Mekong River Delta (MRD) emits approximately 48% greenhouse gases and 70% methane (CH₄). Most Lowland rice, including rainfed and irrigated planting, is the dominant production system in Vietnam. However, rice fields contain a huge amount of CH₄ due to enriched organic matter from rice straw. A special feature in MRD is flooding with high organic matter in the rice field, which leads to the export of more CH₄ gas released into the atmosphere in this region. So, CH₄ emission will vary depending on the natural conditions, flooded water regimes (such as traditional irrigation conditions, Alternative Wetting Dry (AWD), flooded) and climate. IPCC (2006) has determined that water management should include fewer organic amendments and no flooding before the following season. So here, we will show the factors that may primarily control the methane emission rate during the rice growing stage in the wetland reserve. In this study, higher emissions rates are present in the reproductive stage compared to other stages.

Early Career Scientist

NO, I am not an early career scientist.

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