

Sugarcane farming practices contribute to global warming

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(PhysOrg.com) -- The global market for sugarcane is expanding, and new research at UQ is informing improved farming practices to reduce its environmental footprint.

In the study, a UQ team, in collaboration with Department of Environment and Resource Management, analysed [greenhouse gas emissions](#) from an experimental sugarcane farm near Jacobs Well, 45km south-east of Brisbane.

Emissions of nitrous oxide (N₂O) from soil were considerable when "higher-than-recommended" [nitrogen](#) fertiliser rates were applied and when soil became waterlogged during flood-irrigation.

Nitrous oxide is a potent greenhouse gas with a global-warming potential 300 times higher than [carbon dioxide](#), the Earth's most problematic climate warmer.

"Nitrous oxide originates from nitrogen stored in the soil. Concentrations of nitrous oxide in the atmosphere are rapidly increasing and contribute 10 percent to [global warming](#). Much of the increases in atmospheric N₂O are being caused by nitrogen fertilisers applied in all of agriculture," said Dr Susanne Schmidt, from the School of Biological Sciences.

"Our study demonstrates that N₂O is emitted from sugarcane soil early in the growing season. Approximately one percent of fertiliser-nitrogen is emitted as N₂O, but this emission can increase to be five times higher

when high amounts of nitrogen fertiliser are applied.

"Our study gives clear guidance of how N₂O emissions can be effectively reduced. [Sugarcane](#) growers who apply less nitrogen fertiliser will reduce emissions. Avoiding accumulation of soluble nitrogen in the soil, the precursor for N₂O, and preventing water-logging, strongly reduces emissions.

"Growers are aware that sustainable practices are key to future productivity and efficiency. There has been a significant change in the industry in addressing environmental issues and adopting sustainable farming practices."

Provided by University of Queensland

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