Measuring methane

March 1 2011

Methane is an extremely potent greenhouse gas. Wetlands, gas hydrates, permafrost, termites, oceans, freshwater bodies, non-wetland soils, are all natural sources of atmospheric methane; however, the majority of methane presence ca n be accredited to human-related activities. These activities include: such as fossil fuel production, biomass burning, waste management and animal husbandry. The release of methane into the atmosphere by cattle and other large grazing mammals is estimated to account for 12 to 17% of the total global methane release.

Recently, scientists developed a methane release measuring technique as way of tracking the discharge of the gas without disrupting the regular management of the herd. This is part of a collaborative research study conducted by researchers from Agriculture and Agri-Food Canada's Lethbridge Research Centre, the Commonwealth Scientific and Industrial Research Organization, and the University of Melbourne in Australia.

Cattle were fitted with global positioning devices to track their movements and wind speed and direction were constantly measured. Unlike previous studies in which a few cattle were handled daily and methane measurements were taken directly, this technique centered on using open-path lasers to obtain a short-term measurement of methane release from an entire grazing herd. For instance in one study, the technique was used to take repeated measurements of methane concentration every 10 minutes directly above the height of the 18 cattle in the paddock. According to the results, the technique developed so well it can account for 77% of methane release at a single point in a paddock.

Sean McGinn, the author of the study describes the technique as a "significant advancement in assessing greenhouse gas emissions from the cattle industry."

Collaborative research is continuing to further measure methane release from other agricultural sources. The full study is published in the January/February 2011 issue of the *Journal of Environmental Quality*.

Provided by American Society of Agronomy