August 28, 2013 - Dairy CAP Newsletter

Climate Change Mitigation and Adaptation in Dairy Production Systems of the Great Lakes Region

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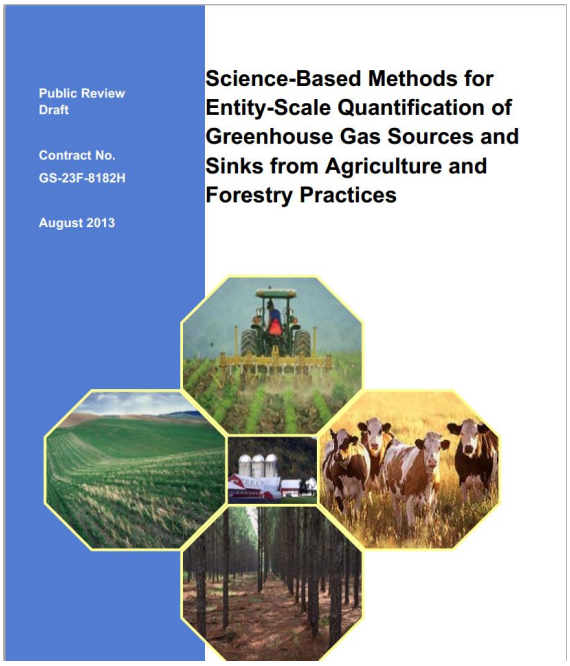
Announcements

- Diary CAP leaders of Objectives 1a, 1b, 1c, and 1d and Objectives 2a and 2b will meet via conference call on September 17th from 10:00 a.m. - 12:00 p.m. Please call 1 (855) 947-8255 and use the passcode 9276 439# to log in. Those who will be involved in the call have been contacted via email with a proposed agenda.
- Don't forget to submit the paperwork for the **second year of funding**. PIs and budget officers at UW-Madison, Penn State, Cornell, Arkansas, Michigan, ARS Labs (Arkansas, Wisconsin, Pennsylvania), and AgInfomatics should have received an important email from Kate Pemberton, dated August 13th, with information about what is needed to renew your contracts for Year 2. Please be sure to read the email carefully and **send Kate all necessary information by September 6th.** Thanks to those of you who have already responded! Kate can be reached at kpemberton@cals.wisc.edu.

Dairy CAP PIs Contribute to USDA Report

Six of our PIs were involved in the development of a USDA report published on August 28, 2013. The report, *Science-Based Methods for Entity-Scale Quantification of Greenhouse Gas Sources and Sinks from Agriculture and Forestry Practices.*

The objective for this report is to create a standard set of GHG estimation methods for use by USDA, landowners, and other stakeholders to assist them in evaluating the



GHG impacts of their management decisions. The methods presented in the Report address GHG emissions and carbon sequestration for the entire entity or operation, and also provide the opportunity to assess individual practices or management decisions. Therefore, ease of use is critical.

A co-objective is to demonstrate capacity within the Department, establishing a standardized, consensus set of methods for the Department, that become the scientific basis for entity-scale estimation of the GHG impacts of landowner management decisions. Therefore, scientific rigor and transparency are also critical.

Curt Gooch (Cornell University); Jerry Hatfield and Mark Powell (USDA Agricultural Service); Cesar Izaurralde (Joint Global Change Research Institute); Changsheng Li (University of New Hampshire); and William Salas(Applied Geosolutions) were all contributors to the report.

Soils, Modelers Talk

The Soils Team (Objective 1c), headed up by Curtis Dell, met via conference call for the second time to continue discussions about standard methodologies. They are using Basecamp.com as a place for housing shared documents and meeting minutes.

Matt Ruark, Olivier Jolliet and Marty Matlock also used a conference call as an opportunity to touch base over Modeling Objectives 2a, 2b. Notes from that conversation are also housed in Basecamp.com.

Does your group need help setting up conference calls or having a place to store documents, emails and other discussions? Please contact Carolyn for help.

Upcoming Events - Webinar

Introduction to Livestock GRACEnet and How ARS Research can be Transferred to NRCS
October 9, 2013 - 3:00 (Eastern Time)

This webinar will give participants an overview of the USDA-ARS Livestock GRACEnet research program, provide information about related upcoming webinars, and discuss how technologies developed via research from Livestock GRACEnet and other ARS programs can be transferred to USDA NRCS. Participate in this training to learn more about the animal air quality research being conducted by USDA-ARS in the Livestock GRACEnet program.

This presentation will also provide a glance at the upcoming Livestock GRACEnet webinar series on specific technologies for addressing air emissions from animal production. Click here to learn more about this webinar.

Reports

IPCC Report is Leaked (Reuters August 16, 2013)
Report is due out in September

Climate scientists are surer than ever that human activity is causing global warming, according to leaked drafts of a major U.N. report, but they are finding it harder than expected to predict the impact in specific regions in coming decades.

The uncertainty is frustrating for government planners: the report by the Intergovernmental Panel on Climate Change (IPCC) is the main guide for states weighing multi-billion-dollar shifts to renewable energy from fossil fuels, for coastal regions considering extra sea defenses or crop breeders developing heat-resistant strains.

Drafts seen by Reuters of the study by the U.N. panel of experts, due to be published next month, say it is at least 95 percent likely that human activities - chiefly the burning of fossil fuels - are the main cause of warming since the 1950s. That is up from at least 90 percent in the last report in 2007, 66 percent in 2001, and just over 50 in 1995, steadily squeezing out the arguments by a small minority of scientists that natural variations in the climate might be to blame.

That shifts the debate onto the extent of temperature rises and the likely impacts, from manageable to catastrophic. Governments have agreed to work out an international deal by the end of 2015 to rein in rising emissions. Read more of what was leaked.

NOAA Releases Annual Global Climate Assessment: "State of the Climate 2012"

The annual "State of the Climate" report, released on August 6, 2013, provides a detailed update on global climate indicators, notable weather events, and other environmental data from the last calendar year. Scientists from NOAA's National Climatic Data Center served as lead editors of the report, compiling contributions from 384 scientists from 52 nations. The 2012 edition of this peer-reviewed study was published in the Bulletin of the American Meteorological Society. Click here to read the report.

Other News

Quantifying Beetle-Mediated Effects on Gas Fluxes from Dung Pats

They may not be able to say this for long.....

"This study is, to our knowledge, the first to explore the effects of arthropods on GHG fluxes from dung pats."

Abstract
Agriculture is one of the largest contributors of the anthropogenic greenhouse gases (GHGs) responsible for global w arming. Measurements of gas fluxes from

dung pats suggest that dung is a source of GHGs, but whether these emissions are modified by arthropods has not been studied. A closed chamber system was used to measure the fluxes of carbon dioxide (CO2), methane (CH4) and nitrous oxide (N2O) from dung pats with and without dung beetles on a grass sward.

The presence of dung beetles significantly affected the fluxes of GHGs from dung pats. Most importantly, fresh dung pats emitted higher amounts of CO_2 and lower amounts of CH_4 per day in the presence than absence of beetles. Emissions of N_2O showed a distinct peak three weeks after the start of the experiment – a pattern detected only in the presence of beetles. When summed over the main grazing season (June–July), total emissions of CH_4proved significantly lower, and total emissions of N_2O significantly higher in the presence than absence of beetles. While clearly conditional on the experimental conditions, the patterns observed here reveal a potential impact of dung beetles on gas fluxes realized at a small spatial scale, and thereby suggest that arthropods may have an overall effect on gas fluxes from agriculture. Dissecting the exact mechanisms behind these effects, mapping out the range of conditions under which they occur, and quantifying effect sizes under variable environmental conditions emerge as key priorities for further research.

Citation: Penttilä A, Slade EM, Simojoki A, Riutta T, Minkkinen K, et al. (2013) Quantifying Beetle-Mediated Effects on Gas Fluxes from Dung Pats. PLoS ONE 8(8): e71454. doi:10.1371/journal.pone.0071454

Click for the popular version of the story.

Why Don't Farmers Believe in Climate Change? And does it really matter whether they do?

By David Biello, published in Future Tense, a collaboration among Arizona State University, the New America Foundation, and Slate.

If it isn't torrential downpours, then it's too dry. If there's one thing U.S. farmers can count on, it's bad weather, and perhaps as a result, many of them don't think humanity is to blame for the long-term shifts in weather patterns known as climate change. But even though agriculture is a major contributor to global warming, it may not matter whether farmers believe in the environmental problem.

When Iowa State University sociologists polled nearly 5,000 Corn Belt farmers on climate change, 66 percent believed climate change is occurring, but only 41 percent believed humans bore any part of the blame for global warming.

Indian Farmers Cope With Climate Change and Falling Water Tables from *National Geographic Water Current*

Farmers have started to shift away from plant-based agriculture as their primary source of livelihood, given that farming is risky and profits are highly variable from year to year due to fluctuations in climate and market prices. **One of the largest sectors that farmers are turning to is the rearing of livestock for dairy. Farmers say that investing in dairy is a low-risk livelihood since milk production is not very**

climate sensitive and because dairy earns high prices year round.

All farmers cannot make this transition, however, given the large initial capital needed to purchase livestock. One cow can cost up to $1,000 USD.

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