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May 1, 2009

Chairman Henry Waxman
Committee on Energy and Commerce
2125 Rayburn House Office Building
Washington, DC 20515

RE: PROVEN AGRICULTURAL SOLUTIONS FOR MITIGATING AND ADAPTING TO CLIMATE CHANGE

Dear Representative Waxman:

On behalf of our organizations and members, we are collectively writing to congratulate the Committee on Energy and Commerce for taking up the challenge of enacting comprehensive climate change policy in the United States. Increasing scientific evidence demonstrates the immediate need to substantially reduce greenhouse gas (GHG) emissions, and establish ways to mitigate existing emissions. We applaud your leadership and we hope to continue to be a part of the growing dialogue among policy makers, consumers, non-governmental organizations, and the business community as climate change legislation moves forward in Congress this session.

As both the Committee on Energy and Commerce and the Subcommittee on Energy and Environment hold hearings, briefings, and meetings in the coming weeks, we encourage the committees to continue to recognize and address the significant contribution of agriculture to global warming. The U.S. Environmental Protection Agency (EPA) estimates that agriculture is responsible for two-thirds of all domestic nitrous oxide emissions and one-third of all domestic methane emissions.[1] Notable because of their unique potency and persistence, methane has 21 times the global warming potential of carbon dioxide and nitrous oxide is 310 times stronger than carbon dioxide.[2] To date, the agricultural sector has been largely overlooked as both a major source of GHG emissions and a potential tool for mitigation. Increasing research is demonstrating that organic production and practices, more than any other system, have the greatest potential for combating and mitigating climate change.

Estimates of food system GHG emissions, as a percent of total emissions, are as high as one-third of all global emissions.[34] In the United States, it is estimated that the food system uses nearly 20% of our total energy and fossil fuel requirements in the country.[5] A notable portion of this energy use is for the production, packaging, and application of synthetic fertilizers and pesticides. Each year, the U.S. agricultural system uses nearly forty billion pounds of synthetic fertilizers[6] and more than one billion pounds of synthetic pesticides.[7] Fully 40% of all agriculture production energy goes into making synthetic fertilizers and pesticides.[8] The production of synthetic fertilizers and pesticides contributes more than 480 million tons of GHG emissions to the atmosphere each year.[9] The EPA estimates that, once on our soils, synthetic fertilizers generate over 304 million pounds of GHG emissions annually.[10]

Fortunately, there are proven ways to reduce emissions from agriculture and further utilize agriculture as a tool for climate change mitigation. The FAO has concluded that, "[w]ith lower energy inputs, organic systems contribute less to GHG emissions and have a greater potential to sequester carbon in biomass than conventional systems."[11]

Organic agriculture abstains from using synthetic fertilizers and pesticides, and generally uses fewer energy inputs than equivalent conventional systems. Research has shown that conventional production systems require significantly more energy per hectare than organic systems, which use about thirty percent less energy, mostly because they refrain from synthetic fertilizer use.[12] Additional research published last year demonstrated that organic commodity cropping systems required half the energy inputs and resulted in about three-fourths the total global warming potential of conventional systems.[13] As a result, switching to organic agriculture systems can have an immediate drop in energy use and GHG emissions.

Organic production systems and practices also have the unique opportunity to help mitigate GHG emissions. While all types of agriculture have the ability to sequester carbon, organic agriculture can sequester more carbon and build soil better than conventional systems and conventional no-till systems,[14] in part because organic agriculture prohibits synthetic fertilizer and pesticide use and often incorporates leguminous cover crops.[15] Several studies have shown that organic soils can sequester more carbon than conventional soils and that synthetic fertilizer can have a negative impact on carbon sequestration.[16] As the Committee and Congress consider ways to mitigate climate change, we encourage them to strongly recognize the documented benefit of organic agriculture as a tool for mitigation.

In light of the recent food crisis, our society is also reminded of the need to consider agricultural development and food security threats that may result from climate change impacts, particularly in developing countries. Research published this year in *Science* has clearly documented the food security concerns of increasing global temperatures, noting with high probability that growing season temperatures in the tropics and subtropics at the end of the 21st century will exceed even the most extreme temperatures recorded between 1990 and 2006. The conclusions are simple: "Global climate change thus presents widespread risks of food insecurity".[17] Reports from the United Nations have recognized the vital role of organic agriculture in food security. "Organic farming leads to many improvements to the natural environment, including increased water retention in soils, improvements in the water table (with more drinking water in the dry season), reduced soil erosion combined with improved organic matter in soils, leading to better carbon sequestration, and increased agro-biodiversity. As a result, soils are healthier, are better able to hold water and are more stable, can sustain plant growth better and have a higher nutrient content. All this enables farmers to grow crops for longer periods, with higher yields and in marginal conditions."[18] Further research has clearly shown that organic agriculture can yield equal to or greater than conventional systems, particularly in developing countries that are slated to be most affected by climate change impacts.[19]

As climate change legislation is discussed in Congress, we encourage the Committee on Energy and Commerce and the Subcommittee on Energy and Environment to incorporate provisions that address the key role of agriculture in climate change. Alternatives like organic production and practices are a viable option for farmers in developing countries and also offer additional benefits for our nation's many small family farms, which have a clear role to play in GHG mitigation.

Thank you for your consideration and we look forward to working with you to help enact comprehensive and progressive climate change legislation that will transition our economy to a more sustainable future.

Sincerely,

Andrew Kimbrell, Executive Director
Center for Food Safety

Meredith Niles, National Coordinator
Cool Foods Campaign

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[1] U.S. Environmental Protection Agency (2009). Inventory of U.S. greenhouse gas emissions and sinks: 1990-2007. Draft for public review, Agriculture. p. 1. Available at: http://www.epa.gov/climatechange/emissions/downloads09/Agriculture.pdf

[2] U.S. Environmental Protection Agency (2009). Inventory of U.S. greenhouse gas emissions and sinks: 1990-2007. Draft for public review, Executive Summary. Available at: http://www.epa.gov/climatechange/emissions/downloads09/ExecutiveSummary.pdf

[3] Bernstein et al. (2007) Climate Change 2007:Synthesis Report- Summary for Policy Makers. Intergovernmental Panel on Climate Change. p. 5.

[4] Bellarby, J., Foereid, B., Hastings, A., & Smith, P. (2008). Cool Farming: Climate impacts of agriculture and mitigation potential. Greenpeace International. p. 5.

[5] Pimentel, D., Williamson, S., Alexander, C.E., Gonzalex-Pagan, O., Kontak, C., & Mulkey, S.E. (2008). Reducing Energy Inputs in the US Food System. *Hum Ecol. 36*:459-471.

[6] Food and Agriculture Organization, FertiStat: Fertilizer Use by Crop Statistics, Available at: http://www.fao.org/ag/agl/fertistat/fst_fubc1_en.asp?country=USA&commodity=%25&year=%25&search=Search+%21 (last visited Nov. 12, 2008).

[7] Pimentel, et. al (2008). *See also* U.S. General Accounting Office, Agricultural Pesticides: Management Improvements Needed to Further Promote Integrated Pest Management (2001). Available at

http://www.gao.gov/new.items/d01815.pdf (noting that chemical pesticides account for three-fourths of pesticides used in the United States)

[8] Heller, M.C.; Keoleian, G.A. (2000). Life Cycle-Based Sustainability Indicators for Assessment of the U.S. Food System. Center for Sustainable Systems, University of Michigan. Report No. CSS00-04.

[9] US EPA (2009) Executive Summary, p. 6.

[10] U.S. Environmental Protection Agency, Inventory of U.S. Greenhouse Gas Emissions and Sinks: U.S. 1990-2006 6-19 (2008). Available at: http://www.epa.gov/climatechange/emissions/downloads/08_CR.pdf

[11] Ziesemer, J. (2007). Energy Use in Organic Food Systems. Food and Agriculture Organization of the United Nations, p. 4. Available at: http://www.fao.org/docs/eims/upload/233069/energy-use-oa.pdf (last visited Nov. 13, 2008).

[12] Pimentel, D. et al., (2005). Environmental, Energetic, and Economic Comparisons of Organic and Conventional Farming Systems *BioScience 55* (7): 575 Available at: http://www.ce.cmu.edu/~gdrg/readings/2007/02/20/Pimental_EnvironmentalEnergeticAndEconomicComparisonsOfOrganicAndConventionalFarmingSystems.pdf (last visited Nov. 13, 2008) [hereinafter Pimentel et al., (2005)]

[13] Pelletier, N., Arsenault, N., & Tyedmers, P. (2008). Scenario Modeling Potential Eco-Efficiency Gains from a Transition to Organic Agriculture: Life Cycle Perspectives on Canadian Canola, Corn, Soy, and Wheat Production. *Environmental Management 42*: 989-1001.

[14] Comis, D. (2007). No Shortcuts in Checking Soil Health. *Agric. Research*, July 2007, p. 4. Available at: http://www.ars.usda.gov/is/AR/archive/jul07/soil0707.pdf (last visited Nov. 13, 2008).

[15] Pimentel et al., (2005) p. 577.

[16] *See, e.g.*, Khan, S.A. et al. (2007). The Myth of Nitrogen Fertilization for Soil Carbon Sequestration, *Journal of Environmental Quality 36*: 1821-1823; Marriott, E.E. & Wander, M. M. (2006). Total and Labile Soil Organic Matter in Organic and Conventional Farming Systems. *Soil Sci. Soc. Am. J. 70*: 950-954 Available at: http://soil.scijournals.org/cgi/reprint/70/3/950 (last visited Nov. 13, 2008); Fliessbach, A. & Mader, P. (2000). Microbial Biomass and Size-Density Fractions Differ Between Soils of Organic and Conventional Agricultural Systems. *Soil Biology & Biochemistry 32*:757-766 Available at: http://www.fibl.org/archiv/pdf/fliessbach-maeder-2000-biomass.pdf (last visited Nov. 13, 2008); *and* Robertson, G. P. et al., (2000). Greenhouse Gases in Intensive Agriculture: Contributions of Individual Gases to the Radiative Forcing of the Atmosphere. *Science 289:*1922-1924 **A**vailable at: http://weedeco.msu.montana.edu/Issues/science289_1922_900.pdf (last visited Nov. 13, 2008).

[17] Battisti D.S., & Naylor, R.L. (2009). Historical Warnings of Future Food Insecurity with Unprecedented Seasonal Heat. *Science 323*: 240-244.

[18] Organic Agriculture and Food Security in Africa. (2008). United Nationas Conference on Trade and Development and United Nations Environment Programme Capacity-building Task Force on Trade, Environment and Development. p. x.

[19] Badgley, C., Moghtader, J., Quintero E., Zakem, E., Chappell, J.M., Aviles-Vazquez, K., Samulon, A., & Perfecto, I. (2007). Organic agriculture and the global food supply. *Renewable Agriculture and Food Systems 22*:86-108.