



NUTRIENT MANAGEMENT

Drawdown Technical Assessment References

Ahlgren, S., Baky, A., Bernesson, Nordberg, A., Norén, O., & Hansson, P. (2012, November 27). Consequential Life Cycle Assessment of Nitrogen Fertilisers Based on Biomass – a Swedish Perspective. *Insciences Journal*, 80–101. doi:10.5640/insc.020480.

AQUASTAT Database Query Results. Retrieved September 26, 2016 from <http://www.fao.org/nr/water/aquastat/data/query/results.html>.

Brentrup, F., Küsters, J., Lammel, L., Barraclough, P., & Kuhlmann, H. (2004, February). Environmental Impact Assessment of Agricultural Production Systems Using the Life Cycle Assessment (LCA) Methodology II. The Application to N Fertilizer Use in Winter Wheat Production Systems. *European Journal of Agronomy* 20, no. 3, 265–79. doi:10.1016/S1161-0301(03)00039-X.

Chantigny, M. H., Rochette, P., Angers, D.A., Bittman, S., Buckley, K., Massé, D., Bélanger, G., Eriksen-Hamel, N., & Marc-Olivier Gasser. (2010, October). Soil Nitrous Oxide Emissions Following Band-Incorporation of Fertilizer Nitrogen and Swine Manure. *Journal of Environmental Quality* 39, no. 5, 1545–53.

Drury, C. F., W. D. Reynolds, X. M. Yang, N. B. McLaughlin, T. W. Welacky, W. Calder, and C. A. Grant. (2012). Nitrogen Source, Application Time, and Tillage Effects on Soil Nitrous Oxide Emissions and Corn Grain Yields. *Soil Science Society of America Journal* 76, no. 4, 1268. doi:10.2136/sssaj2011.0249.

Ehmke, T. (2012). The 4 Rs of Nutrient Management. *Crops and Soils Magazine*.

Engel, R., Liang, D.L., Wallander, R., & Bembenek, A. (2010). Influence of Urea Fertilizer Placement on Nitrous Oxide Production from a Silt Loam Soil. *Journal of Environment Quality* 39, no. 1, 115. doi:10.2134/jeq2009.0130.

FAO Statistical Service online, retrieved April 25, 2017, <http://www.fao.org/faostat/en/#data/GB>

Gagnon, B., Noura Ziadi, N., Rochette, P., Chantigny, M.H., & Angers, D.A. (2011). Fertilizer source influenced nitrous oxide emissions from a clay soil under corn. *Soil Science Society of America Journal* 75, no. 2, 595. doi:10.2136/sssaj2010.0212.

Lal, R. (2004, September). Carbon emission from farm operations. *Environment International* 30, no. 7, 981–90. doi:10.1016/j.envint.2004.03.005.

Licker, R., Johnston, M., Foley, J.A., Barford, C., Kucharik, C.J., Monfreda, C., & Ramankutty, N. (2010, November 1). Mind the gap: How do climate and agricultural management explain the 'yield gap' of croplands around the world? *Global Ecology and Biogeography* 19, no. 6, 769–82. doi:10.1111/j.1466-8238.2010.00563.x.

Metz, B. (2007). *Climate change 2007: mitigation of climate change*. Retrieved April 25, 2017, from <https://www.ipcc.ch/pdf/assessment-report/ar4/wg3/ar4-wg3-chapter8.pdf>, figure 8.9.

Millar, N., Robertson, G.P., Grace, P.R., Gehl, R.J., & Hoben, J.P. (2010, February). Nitrogen fertilizer management for nitrous oxide (n₂o) mitigation in intensive corn (maize) production: an emissions reduction protocol. *Mitigation and Adaptation Strategies for Global Change* 15, no. 2, 185–204. doi:10.1007/s11027-010-9212-7.

Napier, T L, and T. Bridges. (2002, August). Adoption of conservation production systems in two Ohio watersheds: a comparative study. *Journal of Soil and Water Conservation* 57, no. 4, 229–35.

Nutrient Management: Nitrate Vulnerable Zones. Retrieved October 21, 2016 from <https://www.gov.uk/guidance/nutrient-management-nitrate-vulnerable-zones>.

Nutrient management planning & land treatment planning | agency of agriculture food & markets. Retrieved October 21, 2016 from <http://agriculture.vermont.gov/water-quality/farmer-assistance/nmp-ltp>.

Overview of Greenhouse Gases, Nitrous Oxide Emissions. Retrieved April 6, 2016 from <https://www3.epa.gov/climatechange/ghgemissions/gases/n2o.html>.

Reay, D. S., Davidson, E.A, Smith, K.A., Smith, P., Melillo, J.M., Dentener, F. & Crutzen, P.J. (2012, June) Global agriculture and nitrous oxide emissions. *Nature Climate Change* 2, no. 6, 410–16. doi:10.1038/nclimate1458.

Reduced use of nitrogen fertilizer — American carbon registry. Retrieved September 26, 2016 from <http://americancarbonregistry.org/resources/reduced-use-of-nitrogen-fertilizer>.

Robertson, G. P., & Vitousek, P.M. (2009, October 15). Nitrogen in agriculture: balancing the cost of an essential resource. *Annual Review of Environment and Resources* 34, no. 1, 97–125. doi:10.1146/annurev.environ.032108.105046.

Shcherbak, I., Millar, N. & Robertson, G.P. (2014, June 24). Global meta-analysis of the nonlinear response of soil nitrous oxide (n₂o) emissions to fertilizer nitrogen. *Proceedings of the National Academy of Sciences* 111, no. 25, 9199–9204. doi:10.1073/pnas.1322434111.

Skowrońska, M. & Filipek, T. (2014, January 1). Life Cycle Assessment of Fertilizers: A Review. *International Agrophysics* 28, no. 1 (January 1, 2014). doi:10.2478/intag-2013-0032.

Smith, L. E. D. & Siciliano, G. (2015, November 1). A comprehensive review of constraints to improved management of fertilizers in china and mitigation of diffuse water pollution from agriculture. *Agriculture, Ecosystems & Environment*, Sustainable intensification of China's agriculture: the key role of nutrient management and climate change mitigation and adaptation, 209, 15–25. doi:10.1016/j.agee.2015.02.016.

Stuart, D., R. L. Schewe, R.L., & McDermott, M. (2014, January). Reducing Nitrogen Fertilizer Application as a Climate Change Mitigation Strategy: Understanding Farmer Decision-Making and Potential Barriers to Change in the US. *Land Use Policy*, 36, 210–18. doi:10.1016/j.landusepol.2013.08.011.

Tenuta, M. & Beauchamp, E.G. (2003, November). Nitrous oxide production from granular nitrogen fertilizers applied to a silt loam. *Canadian Journal of Soil Science* 83, no. 5, 521–32.

UN-FAO. (2016). *2016: The State of Food and Agriculture*. Retrieved from <http://www.fao.org/3/a-i6030e.pdf>

UN-FAO. Fertilizers. Retrieved October 21, 2016 from <http://faostat.fao.org/beta/en/#data/RF/visualize>.

Venterea, R.T., Bijesh, M. & Dolan, M.S. (2011). Fertilizer source and tillage effects on yield-scaled nitrous oxide emissions in a corn cropping system. *Journal of Environment Quality* 40, no. 5, 1521. doi:10.2134/jeq2011.0039.

World Bank. (2015). Agricultural Nitrous Oxide Emissions (% of Total). Retrieved from <http://data.worldbank.org/indicator/EN.ATM.NOXE.AG.ZS/countries/1W?display=graph>.

Zebarth, B J., Rochette, P., Burton, D.L., & Price, M. (2008, May 1). Effect of fertilizer nitrogen management on n₂o emissions in commercial corn fields. *Canadian Journal of Soil Science* 88, no. 2, 189–95. doi:10.4141/CJSS06010.

Zhang, W., Dou, Z., He, P., Ju, X., Powlson, D., Chadwick, D., Norse, D., et al. (2013, May 21). New technologies reduce greenhouse gas emissions from nitrogenous fertilizer in china. *Proceedings of the National Academy of Sciences* 110, no. 21, 8375–80. doi:10.1073/pnas.1210447110.