

## FUGEN DOU

Associate Professor of Soil Fertility and Nutrient Management  
Texas A&M AgriLife Research Center at Beaumont, Texas

### Education/Training

2005 PhD Soil Science, Texas A&M University  
2000 MS Plant Nutrition and Soil Science, Chinese Academy of Agriculture Sciences  
1993 BS Soil Science and Agricultural Chemistry, Zhejiang University (Formal Zhejiang Agricultural University)

### Positions and Employment

2009- Assistant/Associate Professor, Soil and Crop Sciences, Texas A&M University  
2007-2009 Postdoctoral Research Associate, Department of Plant Science, University of California, Davis  
2005-2007 Postdoctoral Research Associate; International Arctic Research Center, University of Alaska at Fairbanks  
2000-2005 Research Assistant; Department of Soil and Crop Sciences, Texas A&M University  
1993-2000 Research Assistant; Institute of Soil and Fertilizer, Chinese Academy of Agricultural Sciences, Beijing, China

### Program Overview

My research focuses on improving nutrient management in agro-ecosystems using an integrated approach of laboratory analysis, field trial, and modeling to maintain and improve natural resource management. Improving nitrogen use efficiency and determining its interactions with environmental and management factors are the primary goal of my research program. Also, soil carbon sequestration is another important aspect of my research.

### Significant 5 Year Accomplishments

Research: Acquired \$2,293,985 of which \$884,371 went to my research program. Demonstrated that rice variety selection and nitrogen application had significant effects on first (main) and second (ratoon) crop production, grain yield, and milling quality. Compared with inbreds, hybrids had higher grain yield in both first and second crop production with less nitrogen application. Also, identified the best nitrogen rate for the ratoon crop production in Texas. Conducted biomass sorghum production simulation using the DayCent model revealing that management practices including residue return rate, nitrogen fertilization, and tillage impacted biomass production, soil organic C, and greenhouse gases (CO<sub>2</sub> and N<sub>2</sub>O) emissions. Predicting the long-term effect of biomass sorghum production on soil organic C. Our study indicated that the biogeochemical model, DayCent, can reasonably simulate the main effects of residue return on soil C turnovers, while may underestimate residue return impacts on N<sub>2</sub>O emissions, mainly due to underestimation of the residue return effects on soil water content and soil temperature. Showed that winter cover crop, soil amendment, and variety selection impacted organic rice production. More greenhouse gas emitted with winter cover crop received soil amendment compared with the control under fallow without soil amendment addition.

Teaching: Supervised 3 postdoctoral research associates, 4 international visiting scholars, 1 PhD student, and 1 MS students, and 4 undergraduate research projects.

## **Publications**

### ***Ten most recent publications (21 total)***

1. Dou, F., J.P. Wight, L.T. Wilson, J. Storlien, and F. Hons. 2014. Simulation of biomass yield and soil organic carbon under bioenergy sorghum production. *Plos One* 9(12): e115598. doi:10.1371/journal.pone.0115598.
2. Dou, F., F. Hons, A. Wright, T. Boutton, and X. Yu. 2014. Soil carbon sequestration in sorghum cropping systems: Evidence from stable isotopes and aggregate-size fractionation. *Soil Science* 179:68-74.
3. Segoli, M., S. De Gryze, F. Dou, J. Lee, W.M. Post, K. Denef, and J. Six. 2013. AggModel: A soil organic matter model with measurable pools for use in incubation studies. *Ecological Modelling* 263: 1-9.
4. Dou, F., F. Hons, W. R. Ocumpaugh, J. C. Read, M. A. Hussey, and J. P. Muir. 2013. Soil organic carbon pools under switchgrass grown as a bioenergy crop compared to other conventional crops. *Pedosphere* 23: 409-416.
5. Trostle, C.L., L. Tarpley, F. Turner, and F. Dou. 2011. Soil ammonium diffusion constraints contribute to large differences in N supply to rice in the Southern U.S. *Communications in Soil Science and Plant Analysis* 42:1898-1904.
6. Ping, C.L., G. Michaelson, L. Guo, T. Jorgenson, M. Kanevskiy, Y. Shur, F. Dou, and J. Liang. 2011. Soil carbon and material fluxes across the eroding Alaska Beaufort Sea coastline. *JGR-Biogeosciences* (doi:10.1029/2010JG001588, 2011).
7. Dou, F., X. Yu, C.L. Ping, G. Michaelson, L. Guo, and T. Jorgeson. 2010. Spatial variation of tundra soil organic carbon along the coastline of northern Alaska. *Geoderma* 154:328-335.
8. Xu, C., L. Guo, F. Dou, and C.L. Ping. 2009. Potential DOC production from size fractionated Arctic tundra soils. *Cold Regions Science and Technology* 55:141-150.
9. Dou, F., C.L. Ping, L. Guo, and T. Jorgeson. 2008. Estimating the impact of seawater on the production of soil water-extractable organic carbon during coastal erosion. *Journal of Environmental Quality* 37:2368-2374.
10. Dou, F., A.L. Wright, and F.M. Hons. 2008. Sensitivity of labile soil organic carbon to tillage in wheat-based cropping systems. *Soil Science Society of America Journal* 72:1445-1453.

## **Professional Experience**

- Advised/co-advised 7 postdoctoral research associates/visiting scholars, 1 PhD students, and 1 MS students.
- Authored/co-authored 21 peer-reviewed journal articles, 9 conference proceedings, 46 editor reviewed technical reports, and 52 scientific abstracts/presentations.
- Acquired \$3,640,085 of which \$1,136,715 went to my research program.
- Organized 4 workshops of organic rice production.
- Reviewers of USDA-SARE grant proposals (4 times).