

CURTIS B. ADAMS

Assistant Professor of Crop Science

Dept. of Soil and Crop Sciences, Texas A&M AgriLife Research

curtis.adams@ag.tamu.edu; 940-552-9941 ex. 230; 11708 Hwy. 70 South, Vernon, TX 76384

Education/Training

2013 PhD Crop Physiology, Utah State University
2009 MS Plant Science, Utah State University
2007 BS Crop Science, Utah State University

Positions and Employment

2015- Assistant Professor; Soil and Crop Sciences; Texas A&M AgriLife Research at Vernon
2014-2015 Postdoctoral Research Associate; Agronomy; University of Florida
2010-2013 Graduate Research Assistant; Plants, Soils, and Climate; Utah State University
2008-2009 Graduate Research Assistant; Plants, Soils, and Climate; Utah State University

Research Program Overview

In the research efforts I direct in my lab, we utilize the tools and principles of crop physiology, crop ecology, and agronomy to implement diverse research projects. The overarching goal of my work is to generate new knowledge and improved understanding of whole-plant, crop, and cropping system functions and applying that understanding to make improvements in crop profitability and environmental impact. Several topics are of particular interest, including: plant and crop responses to stress; improving nutrient retention and cycling in cropping systems; effective use of water; root system biology; and diversifying cropping systems to enhance ecosystem services and improve economic stability in rural communities. The research program outputs are both applied and more basic, with regional and broader relevance.

Significant 5 Year Accomplishments

Acquired \$460,685 in research funding over my career at Texas A&M AgriLife and the University of Florida, including \$64,318 directly to my program so far. Demonstrated yield enhancement and associated changes in crop physiology in grain sorghum through targeted deficit irrigation. Reviewed and synthesized literature datasets on nitrogen responses and uptake of sweet sorghum, for sustainable management of biofuel systems of the crop. Published a novel and expanded conceptual model on polymer-coated fertilizer release mechanisms. Delivered improved recommendations to NASA and the Russian Federal Space Agency for nutritional management of the LADA plant growth system on the International Space Station. Provided broad characterization of diverse lipid production responses of oleaginous algae to nitrogen deficiency. Identified synergism between reduced substrate levels of Na and Si and elevated lipids in a marine diatom for improved biofuel production. Since 2013, authored 9 peer-reviewed publications that have been cited 130 times collectively. Developed curriculum and instructed one semester of the Alternative Cropping Systems (AGR 4212) undergraduate course at the University of Florida.

Publications

1. Liang, Xi, Y. Liu, J. Chen, **C. Adams**. 2017. Late-season photosynthetic rate and senescence were associated with grain yield in winter wheat of diverse origins. *Journal of Agronomy and Crop Science*. *Accepted*.
2. **Adams, C.**, J. Erickson. 2017. Yield enhancement by short-term imposition of severe water deficit in the vegetative growth stage of grain sorghum. *Journal of Agronomy and Crop Science*. *Accepted*.
3. **Adams, C.**, J. Erickson, M. Singh. 2015. Investigation and synthesis of sweet sorghum crop responses to nitrogen and potassium fertilization. *Field Crops Research* 178: 1-7.

4. **Adams, C.,** J. Erickson, M. Singh, D. Campbell, J.P. Rebolledo. 2015. Effects of row spacing and population density on yield of sweet sorghum: Applications for harvesting as billets. *Agronomy Journal* 107:1831-1836.
5. **Adams, C.,** A. Jacobson, B. Bugbee. 2014. Ceramic aggregate sorption and desorption chemistry: Implications for use as a component of soilless media. *Journal of Plant Nutrition* 37: 1345-1357.
6. **Adams, C.,** B. Bugbee. 2014. Nitrogen retention and partitioning at the initiation of lipid accumulation in nitrogen deficient algae. *Journal of Phycology* 50: 356-365.
7. **Adams, C.,** B. Bugbee. 2014. Enhancing lipid production of the marine diatom *Chaetoceros gracilis*: Synergistic interactions of sodium chloride and silicon. *Journal of Applied Phycology* 26: 1351-1357.
8. **Adams, C.,** J. Frantz, B. Bugbee. 2013. Macro- and micronutrient-release characteristics of three polymer-coated fertilizers: Theory and measurements. *Journal of Plant Nutrition and Soil Science* 176:76-88.
9. **Adams, C.,** V. Godfrey, B. Wahlen, L. Seefeldt, B. Bugbee. 2013. Understanding precision nitrogen stress to optimize the growth and lipid content tradeoff in oleaginous green microalgae. *Bioresource Technology* 131:188-194.

Select Professional Experience

1. Acquired \$460,685 in research funding, \$64,318 directly to my program
2. Author of 9 peer-reviewed journal articles and 13 scientific abstracts/presentations
3. Associate Editor, *Agronomy Journal*, 2017 to present
4. Panel Proposal Reviewer, NSF-INFEWS Program, Washington DC, 2016
5. Student and Postdoc Service: Postdoc Advisor (1), MS Graduate Advisor (1), MS Graduate Committee Member (1), Undergraduate Advisor/Mentor (8)
6. Member, Crop Science Society of America and American Society of Agronomy, 2014 to present
7. Instructor, Alternative Cropping Systems (AGR 4212), University of Florida, Spring 2015
8. Ad-hoc reviewer for 8 scientific journals