

CURTIS B. ADAMS

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Education/Training

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

Positions & Employment

2015- Assistant Professor; Soil and Crop Sciences; Texas A&M AgriLife Research
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 Cropping Systems and Physiology research program at Texas A&M AgriLife Research – Vernon, we are focused on making knowledge advancements in agriculture that result in higher crop profitability, reduced environmental impact, and resource security. Crops are studied at the systems level to understand how they interact with environmental and management factors over the course of time. The physiology of crop plants is explored at the whole-plant level to better understand their functional traits in the context of stress and under varied management. Root system biology, nitrogen fertility, crop stress responses, and cropping system diversity are topics of particular interest. Focus crops include food, fiber, and other bio-based product crops.

Most Significant Research & Academic Accomplishments

Acquired \$1,487,702 in research funding at Texas A&M AgriLife Research and the University of Florida, including \$676,835 directly to my research program. Demonstrated yield enhancement and associated changes in crop physiology in grain sorghum through targeted, vegetative stage water deficit. Through experimentation and quantitative data analysis of relevant literature, better characterized nitrogen uptake and production responses of sweet sorghum, for sustainable biofuel systems management. 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 green 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 11 peer-reviewed publications that have been cited more than 180 times collectively. Developed curriculum and instructed one semester of the Alternative Cropping Systems (AGR 4212) undergraduate course at the University of Florida.

Publications

1. Thapa, S., C. Adams, C. Trostle. 2018. Root nodulation in guar: Effects of soils, Rhizobium inoculants, and guar varieties in a controlled environment. *Under Review*.
2. Adams, C., S. Thapa, Y. Fan, S. Park. 2018. Agronomic and economic effects of two enhanced-efficiency fertilizer technologies on Southern Great Plains winter wheat. *Agronomy Journal* 110:1-6.
3. 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* 204:1-12.

4. **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* 203:307-314.
5. **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.
6. **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.
7. **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.
8. **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.
9. **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.
10. **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.
11. **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 Synergistic Activities & Service

1. Research program support by USDA-NIFA, Texas Wheat Producers Board and Association, Cotton Incorporated, Texas Grain Sorghum Board, and private industry
2. Author of 11 peer-reviewed journal articles, 19 abstracts/presentations at national scientific meetings, and 9 presentations at regional scientific and research-user meetings
3. Associate Editor, *Agronomy Journal*, 2017 to present
4. Student and Postdoc Service: Postdoc Advisor (1), Ph.D. Graduate Advisor (1), M.S. Graduate Advisor (2), M.S. Graduate Committee Member (1), Undergraduate Advisor/Mentor (8)
5. Panel Proposal Reviewer, NSF-INFEWS Program, Washington DC, 2016
6. Member, Crop Science Society of America, 2014 to present
7. Member, American Society of Agronomy, 2014 to present
8. Ad-hoc reviewer for 13 scientific journals
9. Community and professional service, including science presentations at regional schools, judging scientific posters and science fair projects, moderating scientific conference sessions, and fulfilling academic committee assignments