

VITA

Glen L. Ritchie
Department of Plant and Soil Science
Texas Tech University
Lubbock, TX 79409-2122
806-632-5424 (cell)
806-834-4325 (work)
glen.ritchie@ttu.edu

EDUCATION:

1998 A.A.S. Ricks College (Now BYU-Idaho). Crop Science.
2000 B.S. Utah State University. Crop Science (Research Emphasis).
2003 M.S. Utah State University. Crop Physiology.
2007 Ph.D. University of Georgia. Crop Physiology.

PROFESSIONAL EXPERIENCE:

5/1995 – 5/1997	Volunteer missionary service in India, Thailand, and California
6/1997 – 9/1997	Field Research Intern, Idaho National Laboratory, Ashton, ID.
5/1998 – 8/1998	Crop Scouting Intern, Advanced Farming Services, Rexburg, ID.
5/1999 – 8/1999	Crop Scouting Intern, Advanced Farming Services, Rexburg, ID.
6/2000 – 8/2000	Production Intern, Deseret Farms Citrus, Ruskin, FL.
9/2000 – 3/2003	Graduate Research Assistant, Utah State University, Logan, UT.
9/2001 – 11/2003	Technical Support, Apogee Instruments, Logan, UT.
3/2003 – 8/2007	Research Professional II, University of Georgia, Tifton, GA.
8/2007 – 4/2011	Assistant Professor, Crop Physiology, University of Georgia, Tifton, GA.
4/2011 – 8/2015	Assistant Professor, Crop Physiology, Texas Tech/Texas A&M AgriLife Research, Lubbock, TX.
9/2015 – Present	Associate Professor, Crop Physiology, Texas Tech/Texas A&M AgriLife Research, Lubbock, TX.

LICENSES AND CERTIFICATIONS:

2006-2007. Certified Crop Advisor. American Society of Agronomy.
2012. USDA Radiation Safety Training Certified for CPN AmBe Soil Moisture Probes.
2012. USDA Radiation Safety and Hazardous Materials Transport Training Certified for Radioactive Materials: CPN AmBe Soil Moisture Probes.

INTERNATIONAL EXPERIENCE:

2013. Hosted Visiting Associate Professor from Turkey, Murat Tekhiner. Currently collaborating

on irrigation research together.

2013. Hosted Undergraduate Researcher from Mexico, Paulino Begnino Cruz.

2014. Invited presentation to Industrial Crop Institute of Hubei Academy of Agricultural Sciences. October 22, 2014.

2015. Hosted professors Guoping Wu and Lu Feng for 21 days to collaborate on crop maturity paper and discuss defoliation and harvest techniques.

2016. Invited collaboration tour for 14 days to discuss research opportunities in China and two presentations to Cotton Research Institute. 125 attendees.

2017. Invited speaker, University of Guelph Department of Plant Agriculture. 50 attendees.

2017. Outside Reviewer: PhD Defense, University of Guelph, Department of Plant Agriculture.

2017. Invited forum keynote speaker, Federation of Agriculture, Recife and Petrolina, Brazil. 400 attendees.

2018. Invited speaker, Cotton Research Institute, Anyang, China. 85 attendees.

2018. Invited speaker, Nanjing Agricultural University, Nanjing, China. 125 attendees.

2017-2018. Hosted visiting scientist, Youchang Zhang, from August 2017 to August 2018.

MEMBERSHIP IN PROFESSIONAL SOCIETIES:

American Society of Agronomy (2000 – Present)

Crop Science Society of America (2000 – Present)

Soil Science Society of America (2008 – Present)

HONORS AND AWARDS:

Honors: none

Awards:

2016 CASNR advising award, August, 2016.

2011 Outstanding Young Physiologist. Beltwide Cotton Conferences, January, 2012. Sponsored by Dow AgroSciences.

2005 ASA Outstanding Extension Publication: *Cotton Growth and Development*.

AREAS OF EXPERTISE:

1. Plant water relations.
2. Within-plant cotton spatial yield mapping and distribution.
3. Near-remote sensing and high throughput field phenotyping.
4. Cotton carbon partitioning in response to abiotic stress.

PATENTS: Total of 0.

FORMAL COURSES TAUGHT

University of Georgia

CRSS4325: Introduction to ArcGIS – 2008-2010

Texas Tech University

PSS3323-001 and PSS3323-D01: Crop Physiology – 2011-Present

PSS6323-001 and PSS6323-D01: Plant Water Relations – 2012-Present

PSS5329-001: Precision Agriculture – Even years 2014-2016

PSS5323-001 and PSS5323-D01: Environmental Crop Physiology – Odd years 2017-Present

PUBLICATIONS:

Books: total of 0

Refereed Book Chapters: total of 3

1. Klassen, S.P., G. Ritchie, J. Frantz, D. Pinnock and B. Bugbee. 2003. Real-time imaging of ground cover: Relationships with radiation capture, canopy photosynthesis, and daily growth rate. In: Digital Imaging and Spectral Techniques: Applications to Precision Agriculture and Crop Physiology. ASA Special Publication no. 66.
2. Loka, D.M., D.M. Oosterhuis, and G.L. Ritchie. 2011. Water-Deficit Stress in Cotton. Pp.37-72. Ed. D.M. Oosterhuis Stress Physiology in Cotton. The Cotton Foundation Reference Book Series #7. 159 p.
3. Ritchie, G., D. Rowland, and J.L. Snider. 2017. Irrigation timing and application methods for improving water use efficiency. In: Linking Physiology to Management. Ed. J.L. Snider and D.M. Oosterhuis. The Cotton Foundation Reference Book Series #9. 146 p.

Other Book Chapters: total of 1

1. Bauer, P., W. Faircloth, D. Rowland, and G.L. Ritchie. 2012. Water-Sensitivity of Cotton Growth Stages. In C. Perry and E. Barnes: Cotton Irrigation Management in Humid Regions. Cary, NC: Cotton, Inc.
<http://www.cottoninc.com/fiber/AgriculturalDisciplines/Engineering/Irrigation-Management/cotton-irrigation-web.pdf>

Books and Book Chapters Edited: total of 0

Refereed Journal Articles: total published, 28^{1,2}

Published:

1. Frantz, J.M., **G. Ritchie**, N.N. Cometti, J. Robinson and B. Bugbee. 2004. Exploring the

¹**Indicates my graduate students; *Indicates other graduate students

² My name is in bold

limits of crop productivity: beyond the limits of tipburn in lettuce. *Journal of the American Society for Horticultural Science* 129: 331-338.

2. **Ritchie, G.L.** and C.W. Bednarz. 2005. Estimating defoliation of two distinct cotton types using reflectance data. *J. Cotton Sci.* 9: 182-188.
3. Frantz, J.M., D.S. Pitchay, **G. Ritchie** and H. Zhu. 2005. Identifying Common Reflectance Properties in Diverse Ornamental Species to Nondestructively Determine Nitrogen Status. *HortScience* 40: 1060-1061.
4. *Whitaker, J.R., *C.I. Mills, C.W. Bednarz and **G.L. Ritchie**. 2008. Cotton Subsurface Drip and Overhead Irrigation Efficiency, Maturity, Yield, and Quality [electronic resource]. *Agron. J.* 100: 1763-1768. doi:http://dx.doi.org/10.2134/agronj2008.0036.
5. **Ritchie, G.L.**, D.G. Sullivan, C.D. Perry, J.W. Hook, and C.W. Bednarz. 2008. Preparation of a Low-Cost Digital Camera System for Remote Sensing. *Applied Engineering in Agriculture* 24: 885-894.
6. *Mills, C.I., C.W. Bednarz, **G.L. Ritchie**, and *J.R. Whitaker. 2008. Yield, quality, and fruit distribution in Bollgard/Roundup Ready and Bollgard II/Roundup Ready Flex Cottons. *Crop Sci* 100: 35-41.
7. **Ritchie, G.L.**, *J.R. Whitaker, C.W. Bednarz, and J.E. Hook. 2009. Subsurface drip and overhead irrigation: A comparison of plant boll distribution in upland cotton. *Agron J* 101: 1336-1344.
8. **Ritchie, G.L.**, D.K. Sullivan, W.K. Vencill, C.W. Bednarz, and J.E. Hook. 2010. Sensitivities of Normalized Difference Vegetation Index and a green/red ratio index to cotton ground cover fraction. *Crop Sci* 50: 1000-1010.
9. **Ritchie, G.L.**, *J.R. Whitaker, and G.D. Collins. 2011. Effect of Sample Size on Cotton Plant Mapping Analysis and Results. *J. Cotton Sci.* 15: 224-232
10. Li, C., A. Knowlton, S. Brown, and **G. Ritchie**. 2011. A comparative study of a microgin with a lab gin stand and commercial gins in southeast United States. *Applied Engineering in Agriculture* 27: 167-175.
11. *Wettasinghe, R.C., M. Zabet-Hoghaddam, **G.L. Ritchie**, and D.L. Auld. 2013. Relative quantitation of ricin in *Ricinus Communis* seeds by image Processing. *Industrial Crops and Products* 50: 654-660.
12. **Snowden, M.C., **G.L. Ritchie**, and T.L. Thompson. 2013. Water use efficiency and irrigation response of cotton cultivars on subsurface drip in West Texas. *J. Cotton Sci.* 17: 1-9. *Invited Article*.
13. **Snowden, C., **G. Ritchie**, *J. Cave, W. Keeling, and N. Rajan. 2013. Multiple

Irrigation Levels Affect Boll Distribution, Yield, and Fiber Micronaire in Cotton. *Agron. J.* 105: 1536-1544. doi:10.2134/agronj2013.0084.

14. **Simao, F.R., **G.L. Ritchie**, and C.W. Bednarz. 2013. Cotton Physiological Parameters Affected by Episodic Irrigation Interruption. *Journal of Agricultural Science and Technology A* 3: 443-454.
15. **Snowden, M.C., **G.L. Ritchie**, **F.R. Simao, and J.P. Bordovsky. 2014. Timing of Episodic Drought Can Be Critical in Cotton. *Agron. J.* 106: 452-458. doi:10.2134/agronj2013.0325.
16. *Oswalt, J.S., *J.M. Rieff, *L.S. Severino, D.L. Auld, C.W. Bednarz, and **G.L. Ritchie**. 2014. Plant Height and Seed Yield of Castor (*Ricinus communis* L.) sprayed with growth retardants and harvest aid chemicals. *Industrial Crops and Products* 61: 272-277.
17. *Mittal, A., S.S. Gampala, **G.L. Ritchie**, P. Payton, J.J. Burke, and C.D. Rock. 2014. Related to ABA-Insensitive3 (ABI3)/Viviparous1 and AtABI5 transcription factor coexpression in cotton enhances drought stress adaptation. *Plant Biotechnology Journal* 12: 578-589.
18. *Feng, L., *G. Mathis, **G. Ritchie**, Y. Han, Y. Li, G. Wang, et al. 2014. Optimizing Irrigation and Plant Density for Improved Cotton Yield and Fiber Quality. *Agron. J.* 101: 1111-1118.
19. *Muharam, F.M., K. Bronson, S. Maas, and **G.L. Ritchie**. 2014. Inter-relationships of cotton plant height, canopy width, ground cover, and plant nitrogen status indicators. *Field Crops Research*. 169: 58-69.
20. Attia, A., N. Rajan, **G. Ritchie**, S. Cui, A. Ibrahim, D. Hays, Q. Xue, and J. Wilborn. (2015). Yield, quality, and spectral reflectance responses of cotton under subsurface drip irrigation. *Agronomy Journal* 107: 1355-1364. [3]
21. Bordovsky, J. P., Mustian, J. T., **Ritchie, G. L.**, and Lewis, K. L. (2015). Cotton Irrigation Timing with Variable Seasonal Irrigation Capacities in the Texas South Plains. *Applied Engineering in Agriculture*, 31(6), 883-897. [2]
22. *Mittal, A., Jiang, Y., **Ritchie, G. L.**, Burke, J. J., and Rock, C. D. (2015). AtRAV1 and AtRAV2 overexpression in cotton increases fiber length differentially under drought stress and delays flowering. *Plant Science*, 241, 78-95. [5]
23. **Sharma, B., **Ritchie, G. L.**, & Rajan, N. (2015). Near-Remote Green: Red Perpendicular Vegetation Index Ground Cover Fraction Estimation in Cotton. *Crop Science*, 55(5), 2252-2261. [3]
24. **Sharma, B. and **Ritchie, G. L.** (2015). High-Throughput Phenotyping of Cotton in Multiple Irrigation Environments. *Crop Science*, 55(2), 958-969. [3]

25. **Sharma, B., Mills, C. I., Snowden, C., and **Ritchie, G. L.** (2015). Contribution of Boll Mass and Boll Number to Irrigated Cotton Yield. *Agronomy Journal*, 107(5), 1845-1853. [3]
26. **Schaefer, C., B. Nichols, G. Collins, J. Whitaker, C. Bednarz, C. Main, and **G.L. Ritchie.** (2017). Cotton maturity determination through vertical mapping. *Crop Science*, 57:1-9. [3]
27. *Schaefer, C., J. Bordovsky, K. Lewis, and G.L. Ritchie. (2018). Effects of irrigation timing and rate on cotton boll production in LEPA-irrigated cotton. *Agronomy Journal*, Accepted January 19, 2018. [3]
28. Auxiliadora Casterad, M., J. Herrero, Jesús A. Betrán, and Glen Ritchie. (2018). Sensor-based assessment of soil salinity during transition from flood to sprinkler irrigation. *Sensors*. Accepted, January 20, 2018.
29. Witt, T., M. Ulloa, M. Pelletier, M.G. Mendu, and G.L. Ritchie. (2018). Exploring ethyl methanesulfonate (EMS) treated cotton (*Gossypium hirsutum* L.) to improve drought tolerance. *Euphytica* 214(7): 123
30. Pham, H.M., H. Kebede, G. Ritchie, N. Trolinder, and R.J. Wright. (2018). Alternative oxidase (AOX) over-expression improves cell expansion and elongation in cotton seedling exposed to cool temperatures. *Theoretical and Applied Genetics*. 131:1-12.
31. Witt, T., M. Pelletier, V. Mendu, M. Ulloa, and G. Ritchie. Effect of Ethyl MethaneSulfonate (EMS) on cotton (*Gossypium hirsutum* L.) fiber quality. *Journal Cotton Science*. In Press: Accepted for Publication 10/18/18

Proceedings:

Refereed (invited): 0

Refereed (volunteered): 1

1. Vellidis, G., B. Ortiz, G. Ritchie, A. Peristeropoulos, C. Perry and K. Rucker. 2009. Using GreenSeeker® to drive variable rate application of plant growth regulators and defoliant on cotton. In: van Henten, E.J., D. Goense, and C. Lokhorst (Eds.), *Precision Agriculture '09 – Proceedings of the 7th European Conference on Precision Agriculture (7ECPA)*, Wageningen, the Netherlands, pp. 55-7.

Non-refereed (invited): 2

1. Whitaker, J.R., G.D. Collins, and G.L. Ritchie. 2012. Utilizing Boll Production and Distribution to More Effectively Understand Performance of Cotton Varieties in Georgia. *Proceedings Beltwide Cotton Conferences*. Orlando, FL. Jan. 5-7.
2. Bauer, P.J., D.L. Rowland, W.H. Faircloth, and G.L. Ritchie. 2012. Most Water-Sensitive Growth Stages for Cotton. *Proceedings Beltwide Cotton Conferences*. Orlando, FL. Jan.

5-7. p. 12.

Other Conference Proceedings (37):

1. Ritchie, G.L., V.P. Rasmussen, D.L. Wright, B. Bugbee, and D. Grant. 2002. Using Spectral Imaging to Quantify Plant Growth and Stress Responses. The 5th Annual National Wheat Industry Research Forum Conference Proceedings, Disney's Coronado Springs Resort, Orlando, Florida. Jan. 17.
2. Ritchie, G.L., C.I. Mills, J.R. Whitaker, and C.W. Bednarz. 2005. Scheduling irrigation with aerial imagery and soil moisture monitoring. Proceedings 2005 Beltwide Cotton Conferences, New Orleans, LA. Jan. 4-7.
3. Ritchie, G.L., C.I. Mills, J.R. Whitaker, R.L. Millings, and C.W. Bednarz. 2006. Cries for help: Growth and spectral characteristics of cotton approaching water deficit. Proceedings 2006 Beltwide Cotton Conferences, San Antonio, TX. Jan. 3-6.
4. Ritchie, G.L., C.W. Bednarz, and C.I. Mills. 2009. In-season yield dynamics in two cotton varieties in the Southeast. Proceedings 2009 Beltwide Cotton Conferences, Jan. 4-7.
5. Ritchie, G.L., J.R. Whitaker, W. Davis, L. Sexton, and J. Ford. 2010. Cotton mapping: past, present, and future. Proceedings 2010 Beltwide Cotton Conferences, New Orleans, LA. Jan. 5-8.
6. Ritchie, G.L., C. Main, J. Whitaker, G.D. Collins, and R. Nichols. 2012. Determining Cultivar Maturity Characteristics in the Southwest, Midsouth, and Southeast. Proceedings Beltwide Cotton Conferences. Orlando, FL. Jan. 5-7.
7. *Sharma, B. and G.L. Ritchie. 2012. Growth and Yield Distribution Habits of Cotton Cultivars under 9 Irrigation Regimes. Proceedings Beltwide Cotton Conferences. Orlando, FL. Jan. 5-7.
8. *Simao, F.R., G.L. Ritchie, and C.W. Bednarz. 2012. Effects of Episodic Drought Stress on Gas Exchange in West Texas Cotton. Proceedings Beltwide Cotton Conferences. Orlando, FL. Jan. 5-7.
9. *Snowden, M.C., G.L. Ritchie, and T. Thompson. 2012. WUE and Irrigation Response of Cotton Cultivars Grown on Sub-Surface Drip in West Texas. Proceedings Beltwide Cotton Conferences. Orlando, FL. Jan. 5-7.
10. *Reeves, H.R. and G.L. Ritchie. 2012. Effects of Irrigation Termination Date on Cotton Yield and Fiber Quality. Proceedings Beltwide Cotton Conferences. Orlando, FL. Jan. 5-7.
11. *Simao, F.R., G. Ritchie, and C. Bednarz. The Effect of Episodic Drought Stress on Yield and Fiber Quality of Cotton Cultivars in West Texas. 2012. Proceedings Beltwide Cotton Conferences. Orlando, FL. Jan. 5-7.
12. *Witt, T.W., *C.N. Thompson, *B.R. Hendon, G.L. Ritchie, and D.L. Auld. 2013. The perils of April planted cotton the Texas High Plains. 2013 Proceedings Beltwide Cotton Conferences, San Antonio, TX. January 7-10.

13. Raper, T.B., D.M. Oosterhuis, E.B. Barnes, P. Andrade-Sanchez, P.J. Bauer, G.L. Ritchie, D.L. Rowland, and J.L. Snider. 2013. Regional evaluation of wireless soil moisture sensor systems and advanced irrigation scheduling technologies to optimize water use efficiency. 2013 Proceedings Beltwide Cotton Conferences, San Antonio, TX. January 7-10.
14. Rajan, N., S.J. Maas, and G.L. Ritchie. 2013. Field evaluation of a remote sensing based irrigation scheduling tool. 2013 Proceedings Beltwide Cotton Conferences, San Antonio, TX. January 7-10.
15. *Pilon, C., D.M. Oosterhuis, D. Loka, and G.L. Ritchie. 2013. Effect of water-deficit stress during squaring on the physiology of reproductive development. 2013 Proceedings Beltwide Cotton Conferences, San Antonio, TX. January 7-10.
16. **Simao, F.R., G. Ritchie, C.W. Bednarz, and J. Johnson. 2013. Irrigation management and episodic drought effects on the profitability and yield of cotton cultivars in West Texas. 2013 Proceedings Beltwide Cotton Conferences, San Antonio, TX. January 7-10.
17. Ritchie, G.L., **B. Sharma, **F. Simao, **T. Painter, **C. Schaefer, **J. Sherman, G. Collins, and J.R. Whitaker. Cotton water relations in the Texas High Plains and the Southeast. 2013 Proceedings Beltwide Cotton Conferences, San Antonio, TX. January 7-10.
18. Ritchie, G.L. 2013. Importance of leaves to boll development and impact of premature defoliation on yield. 2013 Proceedings Beltwide Cotton Conferences, San Antonio, TX. January 7-10.
19. *Attia, A., N. Rajan, G.L. Ritchie, A. Ibrahim, D. Hays, and Q. Xue. 2015. Effects of varying irrigation on yield, quality, and spectral reflectance of cotton. Proc. Beltwide Cotton Conferences. Jan. 5-7, San Antonio, TX.
20. *Foster, N.M., J.E. Woodward, and G.L. Ritchie. Identifying nematode management zones within the field: Utility of electrical conductivity, aerial imaging, and yield monitors. Proc. Beltwide Cotton Conferences. Jan. 5-7, San Antonio, TX.
21. *Gregory, R.A., J.K. Dever, G.L. Ritchie, and P.A. Dotray. 2015. Visual field screening strategy for purity and seed quality in conventional breeding nurseries. Proc. Beltwide Cotton Conferences. Jan. 5-7, San Antonio, TX.
22. Lewis, K.L., J.J. Burke, **T. Witt, and G.L. Ritchie. 2015. Nutrient uptake by cotton in relation to irrigation frequency. Proc. Beltwide Cotton Conferences. Jan. 5-7, San Antonio, TX.
23. *Meeks, C., J. Snider, W.M. Porter, G. Vellidis, G. Collins, G.L. Ritchie, and S. Culpepper. Assessing the utility of RGB photography from an unmanned aerial vehicle and chlorophyll a fluorescence for detecting water-induced differences in canopy development and yield in cotton. Proc. Beltwide Cotton Conferences. Jan. 5-7, San Antonio, TX.

24. Ritchie, G.L. 2015. Rate and timing in a declining water environment. Beltwide Cotton Conference Consultants Session. Proc. Beltwide Cotton Conferences. Jan. 5-7, San Antonio, TX.
25. Speed, T. and G.L. Ritchie. 2015. Canopy temperature relationships with cotton growth and fruiting. Proc. Beltwide Cotton Conferences. Jan. 5-7, San Antonio, TX.
26. **Witt, T., G.L. Ritchie, D. Auld, D. Mishra, M. Ulloa, J.J. Burke, and T. Zoz. 2015. Boll distribution and plant architecture of 14 commercial cultivars under five different irrigation regimes. Proc. Beltwide Cotton Conferences. Jan. 5-7, San Antonio, TX.
27. *Meeks, C., J.L. Snider, W.M. Porter, G. Vellidis, S. Culpepper, G. Ritchie, G.D. Collins, G. Rains, and G. Hawkins. 2016. Assessing an Unmanned Aerial System Equipped for Aerial RGB Photography Collection and Chlorophyll a Fluorescence for Detecting Water-Induced Differences in Canopy Development and Yield in Cotton. Proc. Beltwide Cotton Conferences. Jan. 4-6, New Orleans, LA.
28. **Obenhaus, L. and G. Ritchie. 2016. Cotton yield phenotyping. Proc. Beltwide Cotton Conferences. Jan. 4-6, New Orleans, LA.
29. Carvalho, H., C.J. Fernandez, J.T. Cothren, J.C. Correa, G. Ritchie, N. Rajan, and M. Krifa. 2016. Effects of moderate water stress on four commercial cultivars. Proc. Beltwide Cotton Conferences. Jan. 4-6, New Orleans, LA.
30. Witt, T., M. Ulloa, D. Auld, R. Schwartz, G. Ritchie, M. Pelletier, and J. Burke. Water use, yield, and fiber quality differences of diverse cotton (*Gossypium* spp.) genotypes. Proc. Beltwide Cotton Conferences. Jan. 4-6, New Orleans, LA.
31. **Obenhaus, L. and G. Ritchie. 2016. Cotton yield phenotyping. Proc. Beltwide Cotton Conferences. Jan. 4-6, New Orleans, LA. *Volunteered*
32. Carvalho, H., C.J. Fernandez, J.T. Cothren, J.C. Correa, G. Ritchie, N. Rajan, and M. Krifa. 2016. Effects of moderate water stress on four commercial cultivars. Proc. Beltwide Cotton Conferences. Jan. 4-6, New Orleans, LA. *Volunteered*
33. Witt, T., M. Ulloa, D. Auld, R. Schwartz, G. Ritchie, M. Pelletier, and J. Burke. 2016. Water use, yield, and fiber quality differences of diverse cotton (*Gossypium* spp.) genotypes. Proc. Beltwide Cotton Conferences. Jan. 4-6, New Orleans, LA. *Volunteered*
34. *Meeks, C., J.L. Snider, W.M. Porter, G. Vellidis, S. Culpepper, G. Ritchie, G.D. Collins, G. Rains, and G. Hawkins. 2017. Aerial Evaluation of Software Based Image Conversion for Low Cost Plant Health Monitoring. Proc. Beltwide Cotton Conferences. Jan. 3-5, Dallas, TX.
35. **Schaefer, C., J. Bordovsky, G. Ritchie, and K. Lewis. 2017. Effects of Irrigation Timing and Rate on Cotton Boll Production in West Texas. Proc. Beltwide Cotton

Conferences. Jan. 3-5, Dallas, TX.

36. **Witt, Travis, Mauricio Ulloa, Venugopal Mendu, Matthew Pelletier, and Glen Ritchie. 2017. Identifying and Breeding Drought Tolerant Cottons (*Gossypium* spp.) Treated with EMS-Mutant Agent on the Texas High Plains. Proc. Beltwide Cotton Conferences. Jan. 3-5, Dallas, TX.
37. Schwartz, R., **T. Witt, M. Ulloa, G. Ritchie, D. Auld, R. Baumhardt, P. Colaizzi, M. Pelletier, and J. Burke. 2017. Water use, canopy temperature, lint yield, and fiber quality response of six upland cotton cultivars to water stress. Proc. Beltwide Cotton Conferences. Jan. 3-5, Dallas, TX.
- 38.

Extension Publications (1)

1. Ritchie, G., P. Jost, C. Bednarz, and S.M. Brown. 2004. Cotton growth and development. The University of Georgia College of Agricultural and Environmental Sciences Cooperative Extension Service. 25 p.

Abstracts: total of 97 (all abstracts were also presented at national/international scientific meetings)

2011-2018 (66)

1. Oswalt, J.S., D.L. Auld, Craig W. Bednarz, and G. Ritchie. 2011. Effects of Plant Growth Regulators on Castor (*Ricinus communis* L.) development and seed yield production on the Texas High Plains. Johnson, B.L. and Berti, M.T. Eds. (2011), 23rd Annual AAIC Meeting- 2011 Challenges and Opportunities for Industrial Crops. Fargo, ND.
2. Meeks, C., G. Collins, and G. Ritchie. 2011. The utility of Stance™ for managing growth of new earlier maturing cultivars in Georgia. ASA International Annual Meetings. San Antonio, TX. Oct. 17.
3. Ritchie, G.L. Smoothing as a method for data analysis in cotton within-plant boll mapping. 2011. ASA International Annual Meetings. San Antonio, TX. Oct. 17.
4. *Simao, F., T. Thompson, C. Bednarz, and G. Ritchie. 2011. Water stress influence on irrigated cotton yield during the 2010 season in West Texas. ASA International Annual Meetings. San Antonio, TX. Oct. 17.
5. *Snowden, M.C., T. Thompson, J. Graham, and G. Ritchie. 2011. Water use efficiency of twelve cotton cultivars in the Texas High Plains. ASA International Annual Meetings. San Antonio, TX. Oct. 17.
6. *Reeves, H., C.W. Bednarz, D.L. Auld, and G. Ritchie. 2011. Improving Fiber Maturity Using Irrigation Termination on the Texas High Plains. ASA International Annual Meetings. San Antonio, TX. Oct. 17.
7. *Painter, T., C.W. Bednarz, D.L. Auld, and G. Ritchie. 2011. Development of a Plant-Based Method for Cotton Cultivar Maturity Classification. ASA International Annual

Meetings. San Antonio, TX. Oct. 17.

8. *Simao, F.R., G.L. Ritchie, and C.W. Bednarz. 2012. Irrigation and Episodic Drought Management for Cotton Cultivars in West Texas. ASA, CSSA, and SSSA International Annual Meetings. Cincinnati, OH. Oct. 21-24.
9. Ritchie, G.L., *M.C. Snowden, *F.R. Simao and *B. Sharma. 2012. Cultivar by Irrigation Interactions on Cotton Boll Distribution. ASA, CSSA, and SSSA International Annual Meetings. Cincinnati, OH. Oct. 21-24.
10. *Sharma, B., G.L. Ritchie, S. Maas, and E. Hequet. 2012. Monitoring in-Season Growth of Cotton Cultivars under Multiple Irrigation Regimes Using Remote Sensing. ASA, CSSA, and SSSA International Annual Meetings. Cincinnati, OH. Oct. 21-24.
11. Ritchie, G.L., C. Main, J. Whitaker, G.D. Collins, and R. Nichols. 2012. Determining Cultivar Maturity Characteristics in the Southwest, Midsouth, and Southeast. Beltwide Cotton Conferences. Orlando, FL. Jan. 5th.
12. *Sharma, B. and G.L. Ritchie. 2012. Growth and Yield Distribution Habits of Cotton Cultivars under 9 Irrigation Regimes. Beltwide Cotton Conferences. Orlando, FL. Jan. 5th.
13. *Simao, F.R., G.L. Ritchie, and C.W. Bednarz. 2012. Effects of Episodic Drought Stress on Gas Exchange in West Texas Cotton. Beltwide Cotton Conferences. Orlando, FL. Jan. 5th.
14. *Thompson, C.N., D.L. Auld, G.L. Ritchie, and J.S. Oswalt. 2012. Impact on fatty acid composition on germination in cotton seed. Beltwide Cotton Conferences. Orlando, FL. Jan. 5th.
15. Whitaker, J.R., G.D. Collins, and G.L. Ritchie. 2012. Utilizing Boll Production and Distribution to More Effectively Understand Performance of Cotton Varieties in Georgia. Beltwide Cotton Conferences. Orlando, FL. Jan. 5th.
16. *Snowden, M.C., G.L. Ritchie, and T. Thompson. 2012. WUE and Irrigation Response of Cotton Cultivars Grown on Sub-Surface Drip in West Texas. Beltwide Cotton Conferences. Orlando, FL. Jan. 5th.
17. *Reeves, H.R. and G.L. Ritchie. 2012. Effects of Irrigation Termination Date on Cotton Yield and Fiber Quality. Beltwide Cotton Conferences. Orlando, FL. Jan. 5th.
18. *Simao, F.R., G. Ritchie, and C. Bednarz. The Effect of Episodic Drought Stress on Yield and Fiber Quality of Cotton Cultivars in West Texas. 2012. Beltwide Cotton Conferences. Orlando, FL. Jan. 5th.
19. Meeks, C.D., J.R. Whitaker, G.L. Ritchie, and G.D. Collins. 2012. Defining Optimal Irrigation Strategies for Cotton Using Sub-Surface Drip and Overhead Irrigation Systems in Georgia. Beltwide Cotton Conferences. Orlando, FL. Jan. 5th.
20. *Painter, T.B., G.L. Ritchie, C.W. Bednarz, and D.L. Auld. 2012. Development of a plant-based method for cotton cultivar maturity classification. Beltwide Cotton Conferences. Orlando, FL. Jan. 5th.

21. **Sharma, B. and G.L. Ritchie. 2013. Interaction of cotton boll distribution and fiber quality under multiple irrigation levels. Paper 232-7. ASA, CSSA, & SSSA International Annual Meetings. Tampa, FL. Nov. 3-6.
22. Ritchie, G.L., **C. Schaefer, **B. Sharma, and **F.R. Simao. 2013. Persistent vs episodic drought in cotton: Are we seeing the whole picture? Paper 102-8. ASA, CSSA, & SSSA International Annual Meetings. Tampa, FL. Nov. 3-6.
23. *Attia, A., N. Rajan, G.L. Ritchie, A.M.H. Ibrahim, D.B. Hays, and Q. Xue. Identifying drought tolerant cotton cultivars using spectral reflectance and canopy temperature. Paper 67-1. ASA, CSSA, & SSSA International Annual Meetings. Tampa, FL. Nov. 3-6.
24. Raper, T.B., D.M. Oosterhuis, E.M. Barnes, P.J. Bauer, P.A. Sanchez, J.L. Snider, and G.L. Ritchie. Development of a drought-stress quantifying index in cotton variety trials. Paper 151-3. ASA, CSSA, & SSSA International Annual Meetings. Tampa, FL. Nov. 3-6.
25. *Attia, A. S.S. Nair, N. Rajan, G.L. Ritchie, A.M.H. Ibrahim, P.B. DeLaune, D.B. Hays, and Q. Xue. 2013. Modeling cotton growth and yield response to different irrigation management using Cotton2K. Paper 334-9. ASA, CSSA, & SSSA International Annual Meetings. Tampa, FL. Nov. 3-6.
26. Oliver, C.T., G.L. Ritchie, D. Auld, J.K. Dever, and J.M. Rieff. 2013. Lint yield and yield components of cotton cultivars from four decades when grown under three water regimes. 2013 Beltwide Cotton Conferences, San Antonio, TX. January 7-10.
27. *Witt, T.W., *C.N. Thompson, *B.R. Hendon, G.L. Ritchie, and D.L. Auld. 2013. The perils of April planted cotton the Texas High Plains. 2013 Beltwide Cotton Conferences, San Antonio, TX. January 7-10.
28. **Sherman, J. and G. Ritchie. 2013. In-season cotton growth of four cultivars under different irrigation regimes. 2013 Beltwide Cotton Conferences, San Antonio, TX. January 7-10.
29. **Schaefer, C., M. Kelley, and G.L. Ritchie. 2013. Effects of irrigation and environment on cotton growth, maturity, yield, and fiber quality in West Texas producer fields. 2013 Beltwide Cotton Conferences, San Antonio, TX. January 7-10.
30. Auld, D.L., C.L. Trostle, S.V. Angadi, D.P. Malinowski, G. Ritchie, S.J. Mass, N. Rajan, T.D. Miller, D.D. Baltensperger, R.K. Imel, B.R. Hendon, L.C. Davis, and *T.W. Witt. 2013. A New Generation of Desert Crops for the Lower Great Plains of the U.S. Desert Technology 11. San Antonio, TX. Nov. 21.
31. *Hendon, B.R., D.L. Auld, E. Bechere, G.L. Ritchie, and E.F. Hequet. 2013. Stabilizing a naked seed mutant in upland cotton. 2013 Beltwide Cotton Conferences, San Antonio, TX. January 7-10.
32. Raper, T.B., D.M. Oosterhuis, E.B. Barnes, P. Andrade-Sanchez, P.J. Bauer, G.L. Ritchie, D.L. Rowland, and J.L. Snider. 2013. Regional evaluation of wireless soil moisture sensor systems and advanced irrigation scheduling technologies to optimize water use efficiency. 2013 Beltwide Cotton Conferences, San Antonio, TX. January 7-10.

33. Rajan, N., S.J. Maas, and G.L. Ritchie. 2013. Field evaluation of a remote sensing based irrigation scheduling tool. 2013 Beltwide Cotton Conferences, San Antonio, TX. January 7-10.
34. *Pilon, C., D.M. Oosterhuis, D. Loka, and G.L. Ritchie. 2013. Effect of water-deficit stress during squaring on the physiology of reproductive development. 2013 Beltwide Cotton Conferences, San Antonio, TX. January 7-10.
35. *Meeks, C.D., J.R. Whitaker, J.L. Snider, G. Ritchie, C.D. Perry, and G.D. Collins. Optimizing Irrigation Practices for Cotton Using Sub-Surface Drip and Overhead Irrigation Systems in Georgia. 2013 Beltwide Cotton Conferences, San Antonio, TX. January 7-10.
36. **Simao, F.R., G. Ritchie, C.W. Bednarz, and J. Johnson. 2013. Irrigation management and episodic drought effects on the profitability and yield of cotton cultivars in West Texas. 2013 Beltwide Cotton Conferences, San Antonio, TX. January 7-10.
37. Ritchie, G.L., **B. Sharma, **F. Simao, **T. Painter, **C. Schaefer, **J. Sherman, G. Collins, and J.R. Whitaker. Cotton water relations in the Texas High Plains and the Southeast. 2013 Beltwide Cotton Conferences, San Antonio, TX. January 7-10.
38. Ritchie, G.L. 2013. Importance of leaves to boll development and impact of premature defoliation on yield. 2013 Beltwide Cotton Conferences, San Antonio, TX. January 7-10.
39. *Pilon, C., D.M. Oosterhuis, G.L. Ritchie, and E.A.P. Oliveira. 2014. Osmotic adjustment in commercial cotton cultivars under drought stress. 2014 Beltwide Cotton Conferences, New Orleans, LA January 6-8.
40. **Sharma, B. and G.L. Ritchie. 2014. Ground cover fraction from green and red channels of a digital camera. 2014 Beltwide Cotton Conferences, New Orleans, LA January 6-8.
41. *Attia, A., N. Rajan, and G. Ritchie. 2014. Deficit irrigation and tillage effects on lint yield and profitability of four cotton cultivars in the Texas Rolling Plains. 2014 Beltwide Cotton Conferences, New Orleans, LA January 6-8.
42. Bordovsky, J., G.L. Ritchie, and M. Kelley. 2014. Cotton yield response to variable irrigation capacity in the Texas High Plains. 2014 Beltwide Cotton Conferences, New Orleans, LA January 6-8.
43. *Hendon, B.R., M. Ulloa, J.J. Burke, G.L. Ritchie, *R.K. Imel, and D.L. Auld. 2014. Identification of elite upland germplasm with tolerance to reduced irrigation rates from the RBTN. 2014 Beltwide Cotton Conferences, New Orleans, LA January 6-8.
44. **Witt, T., M. Ulloa, J.J. Burke, G.L. Ritchie, L. Davis, and D.L. Auld. 2014. Identification of commercial cultivars for the Texas High Plains with drought tolerance or improved response to water deficits. 2014 Beltwide Cotton Conferences, New Orleans, LA January 6-8.
45. Ritchie, G.L., **B. Sharma, **C. Schaefer, G.D. Collins, J.R. Whitaker, C.L. Main, and R.L. Nichols. 2014. Revisiting the maturity paradigm in cotton. 2014 Beltwide Cotton Conferences, New Orleans, LA January 6-8.
46. **Schaefer, C. and G.L. Ritchie. 2015. Timing of episodic drought on West Texas cotton

- cultivars. ASA/CSSA/SSSA Annual Meeting, Minneapolis, MN, 15-18 Nov.
47. **Obenhaus, L. and G.L. Ritchie. 2015. Phenotyping cotton in a water regression analysis. ASA/CSSA/SSSA Annual Meeting, Minneapolis, MN, 15-18 Nov.
 48. Ritchie, G.L. and **C. Schaefer. 2015. Cotton irrigation management based on soil moisture and phenotyping. ASA/CSSA/SSSA Annual Meeting, Minneapolis, MN, 15-18 Nov.
 49. *Meeks, C., J. Snider, W.M. Porter, G. Vellidis, S. Culpepper, G.L. Ritchie, G. Collins, G. Rains, and G. Hawkins. 2015. Assessing the utility of RGB photography from an unmanned aerial vehicle. ASA/CSSA/SSSA Annual Meeting, Minneapolis, MN, 15-18 Nov.
 50. **Witt, T., M. Ulloa, D. Auld, G. Ritchie, and J. Burke. 2015. Breeding implications of boll distribution responses to water stress deficits in upland cotton (*Gossypium hirsutum* L.). ASA/CSSA/SSSA Annual Meeting, Minneapolis, MN, 15-18 Nov.
 51. **Dube, N., G.L. Ritchie, H. Sari-Sarraf, and B. Bryant. 2016. 3D reconstruction and characterization of high-through phenotyping data for analyzing growth and development. ASA/CSSA/SSSA 2016 Meeting. Nov. 6-9, Phoenix, AZ. *Volunteered*
 52. **House, K., **N. Macha, J. Burke, **C. Schaefer, K. Lewis, and G.L. Ritchie. 2016. Balancing tillage, irrigation, and planting in intercropped cotton and sorghum. ASA/CSSA/SSSA 2016 Meeting. Nov. 6-9, Phoenix, AZ. *Volunteered*
 53. De Souza, E., G.L. Ritchie, R.P. Soratto, and N. Berger. 2016. Irrigated cotton response to nitrogen sources and rates in the Southern High Plains of Texas. ASA/CSSA/SSSA 2016 Meeting. Nov. 6-9, Phoenix, AZ. *Volunteered*
 54. Singh, S., G.L. Ritchie, **C. Thompson, **C. Schaefer, and **N. Dube. 2016. Plants and other soil moisture sensors in cotton. ASA/CSSA/SSSA 2016 Meeting. Nov. 6-9, Phoenix, AZ. *Invited*
 55. **Schaefer, C. and G.L. Ritchie. 2016. Effects of irrigation timing and rate on cotton boll production in West Texas. ASA/CSSA/SSSA 2016 Meeting. Nov. 6-9, Phoenix, AZ. *Volunteered*
 56. *Meeks, C., J.L. Snider, W.M. Porter, G. Vellidis, S. Culpepper, G. Ritchie, G.D. Collins, G. Rains, and G. Hawkins. 2017. Aerial Evaluation of Software Based Image Conversion for Low Cost Plant Health Monitoring. Proc. Beltwide Cotton Conferences. Jan. 3-5, Dallas, TX. *Volunteered*.
 57. **Schaefer, C., J. Bordovsky, G. Ritchie, and K. Lewis. 2017. Effects of Irrigation Timing and Rate on Cotton Boll Production in West Texas. Proc. Beltwide Cotton Conferences. Jan. 3-5, Dallas, TX. *Volunteered*.
 58. **Witt, Travis, Mauricio Ulloa, Venugopal Mendu, Matthew Pelletier, and Glen Ritchie. 2017. Identifying and Breeding Drought Tolerant Cottons (*Gossypium* spp.) Treated with EMS-Mutant Agent on the Texas High Plains. Proc. Beltwide Cotton Conferences. Jan. 3-5, Dallas, TX. *Volunteered*.
 59. Schwartz, R., **T. Witt, M. Ulloa, G. Ritchie, D. Auld, R. Baumhardt, P. Colaizzi, M.

Pelletier, and J. Burke. 2017. Water use, canopy temperature, lint yield, and fiber quality response of six upland cotton cultivars to water stress. Proc. Beltwide Cotton Conferences. Jan. 3-5, Dallas, TX. *Volunteered*.

60. Ritchie, G. 2017. Outside the Box vs Out of the Box: Agronomic Research in the Information Age. University of Guelph Dept. of Plant Agriculture, Guelph, Ontario, Canada. *Invited*
61. Ritchie, G. 2017. Water Use Efficiency and Irrigation in Texas and the São Francisco Valley. Sebrae and Faepe, Recife, Brazil. *Invited*.
62. Ritchie, G. 2017. Water Use Efficiency and Irrigation in Texas and the São Francisco Valley. Sebrae and Faepe, Petrolina, Brazil. *Invited*.
63. **Dube, N. and G.L. Ritchie. 2017. 'High Throughput' yield components of cotton. ASA/CSSA/SSSA 2017 Meeting. October 22-25, Tampa, FL. *Volunteered*
64. Ritchie, G.L., **N. Dube, and **I. Pabuayon. 2017. Revisiting low-tech in high throughput phenotyping. ASA/CSSA/SSSA 2017 Meeting. October 22-25, Tampa, FL. *Volunteered*
65. **Pabuayon, I., S. Singh, and G.L. Ritchie. 2017. Productivity of drought-tolerant alternative crops subjected to water-limiting conditions in West Texas. ASA/CSSA/SSSA 2017 Meeting. October 22-25, Tampa, FL. *Volunteered*
66. *Meeks, C., J.L. Snider, W.M. Porter, G. Ritchie, G. Rains, and G.L. Hawkins. 2017. Aerial evaluation of software based image conversion for low cost plant health monitoring. ASA/CSSA/SSSA 2017 Meeting. October 22-25, Tampa, FL. *Volunteered*

2001 – 2010 (23 pre-hire)

1. Ritchie, G.L., D. Wright, B. Bugbee, V.P. Rasmussen, and D. Dallon. 2002. Wheat Stress and Reflectance. 2002 Annual Meetings ASA/CSSA/SSSA, Indianapolis, Indiana. Nov. 10-14.
2. Ritchie, G.L., V.P. Rasmussen, D.L. Wright, B. Bugbee, and D. Grant. 2002. Using Spectral Imaging to Quantify Plant Growth and Stress Responses. The 5th Annual National Wheat Industry Research Forum Conference Proceedings, Disney's Coronado Springs Resort, Orlando, Florida. Jan. 17.
3. Ritchie, G.L., and C.W. Bednarz. 2004. Soil, leaf, and spectral indicators of impending water stress. 2004 Beltwide Cotton Conferences, San Antonio, TX. Jan. 5-9.
4. Ritchie, G.L., C.I. Mills, J.R. Whitaker, and C.W. Bednarz. 2005. Scheduling irrigation with aerial imagery and soil moisture monitoring. 2005 Beltwide Cotton Conferences, New Orleans, LA. Jan. 4-7
5. Ritchie, G.L. and C.W. Bednarz. 2005. Cotton planting density and yield distribution. Southeast Cotton Training Workshop, Memphis, TN. Nov. 1-2.
6. Ritchie, G.L. 2005. The influence of water on crop growth and development. Stripling

Irrigation Research Park Teachers Workshop, Camilla, GA. June 8.

7. Ritchie, G.L., C.I. Mills, J.R. Whitaker, and C.W. Bednarz. 2005. Cries for help: Growth and spectral characteristics of cotton approaching water deficit. 2005 Annual Meetings ASA/CSSA/SSSA, Salt Lake City, UT. Nov. 6-10.
8. Ritchie, G.L., C.I. Mills, J.R. Whitaker, R.L. Millings, and C.W. Bednarz. 2006. Cries for help: Growth and spectral characteristics of cotton approaching water deficit. 2006 Beltwide Cotton Conferences, San Antonio, TX. Jan. 3-6.
9. Ritchie, G.L. and C.W. Bednarz. 2006. Estimating cotton defoliation with reflectance indices. 2006 Annual Meetings ASA/CSSA/SSSA, Indianapolis, IN. Nov. 12-16.
10. Ritchie, G.L. and C.W. Bednarz. 2007. Calibration of Consumer Digital Cameras to Remotely Sense Cotton Growth. 2007 Annual Meetings ASA/CSSA/SSSA, New Orleans, LA. Nov. 5-8.
11. Ritchie, G.L., J.E. Hook, D.G. Sullivan, and C.D. Perry. 2007. Remote sensing for cotton irrigation. 2007 Annual Meetings ASA/CSSA/SSSA, New Orleans, LA. Nov. 4-8.
12. Ritchie, G.L., C.W. Bednarz, and C.I. Mills. 2008. In-season yield dynamics in two cotton varieties in the Southeast. 2008 Annual Meetings ASA/CSSA/SSSA, Houston, TX. Oct. 5-9.
13. Ritchie, G.L., C.W. Bednarz, and C.I. Mills. 2009. In-season yield dynamics in two cotton varieties in the Southeast. 2009 Beltwide Cotton Conferences, Jan. 4-7.
14. Ritchie, G.L., W. Davis, D. Heath, and L. Sexton. 2009. Yield dynamics of current cotton varieties in the Southeast. 2009 Annual Meetings ASA/CSSA/SSSA, Pittsburgh, PA. Oct. 30-Nov. 5.
15. Vellidis, G., G. Ritchie, H. Savelle, and S. Villagran. 2010. Evaluating the feasibility of variable rate application of nitrogen in Georgia. 2010 Beltwide Cotton Conferences, New Orleans, LA. Jan. 5-8.
16. Ritchie, G.L., L. Sexton, W. Davis, and J. Turner. 2010. Dry Mepiquat chloride: a comparison with current PGRs. 2010 Beltwide Cotton Conferences, New Orleans, LA. Jan. 5-8.
17. Smith, A.R., W.D. Shurley, G.L. Ritchie, and C.D. Perry. 2010. An economic analysis of irrigation and tillage for cotton in Southwest Georgia. 2010 Beltwide Cotton Conferences, New Orleans, LA. Jan. 5-8.
18. Vellidis, G., H. Savelle, S. Villagran, and G. Ritchie. 2010. Using GreenSeeker to drive variable rate application of plant growth regulators and defoliant on cotton. 2010 Beltwide Cotton Conferences, New Orleans, LA. Jan. 5-8.

19. Whitaker, J.R., G. Ritchie, and G. Collins. 2010. An in-depth look at new cotton cultivars. 2010 Beltwide Cotton Conferences, New Orleans, LA. Jan. 5-8.
20. Main, C.L., K.L. Edmiston, G.L. Ritchie, J.C. Faircloth, S.M. Brown, A.R. Parker, S.W. Fuchs, and M. McPherson. 2010. Cotton Fruiting Endurance – Determination of maturity over two irrigation regimes. 2010 Beltwide Cotton Conferences, New Orleans, LA. Jan. 5-8.
21. Ritchie, G.L., J.R. Whitaker, W. Davis, L. Sexton, and J. Ford. 2010. Cotton mapping: past, present, and future. 2010 Beltwide Cotton Conferences, New Orleans, LA. Jan. 5-8.
22. Ritchie, G.L., W. Davis, L. Sexton, and J. Ford. 2010. Ascertaining in-season growth habits of cotton using end-of-season plant mapping. Southern Branch ASA Meetings, Orlando, FL. Feb. 7-8.
23. Ritchie, G.L., L. Sexton, and J.C. Majeski. 2010. Yield dynamics of commercial cotton cultivars: A southeast perspective. 2010 Annual Meetings ASA/CSSA/SSSA, Long Beach, CA Oct. 31-Nov. 4.

Invited Abstracts (4):

1. Ritchie, G.L., D. Wright, V.P. Rasmussen, S. Klassen, and B. Bugbee. 2001. Imaging canopies to detect stress using a portable spectrometer. 2001 Annual Meetings ASA/CSSA/SSSA, Charlotte, NC. Oct. 21-25.
2. Bauer, P.J., D.L. Rowland, W.H. Faircloth, and G.L. Ritchie. 2012. Most Water-Sensitive Growth Stages for Cotton. Beltwide Cotton Conferences. Orlando, FL. Jan. 5.
3. Whitaker, J.R., G.D. Collins, G.L. Ritchie, and C. Meeks. 2013. Subsurface Drip and Overhead Irrigation Efficiency, Maturity, Yield and Quality. Beltwide Cotton Conferences. Orlando, FL. Jan. 5.
4. Ritchie, G.L. 2013. Importance of leaves to boll development and impact of premature defoliation on yield. 2013 Proceedings Beltwide Cotton Conferences, San Antonio, TX. January 7-10.
5. Ritchie, G.L. 2015. Rate and timing in a declining water environment. Beltwide Cotton Conferences Consultant's Session, San Antonio, TX. 5 Jan.
6. Ritchie, G., **C. Schaefer, and **L. Obenhaus. Yield dynamics in limited water environments. ASA/CSSA/SSA Meetings 16 Nov. 2015.
7. Singh, S., G.L. Ritchie, **C. Thompson, **C. Schaefer, and **N. Dube. 2016. Plants and other soil moisture sensors in cotton. ASA/CSSA/SSSA 2016 Meeting. Nov. 6-9, Phoenix, AZ. *Invited*

Technical Reports: total of 3 (pre-hire)

1. Ritchie, G.L., C.W. Bednarz, and L. Sexton. 2007. Remote Sensing in Irrigation Management. 2007 Georgia Research-Extension Report. UGA-CPES Research-Extension Publication No. 3. Ed. S. Culpepper.
2. Ritchie, G.L., C.W. Bednarz, and L. Sexton. 2009. Remote Sensing in Irrigation Management. 2007 Georgia Research-Extension Report. UGA-CPES Research-Extension Publication No. 5. Ed. D, Shurley.
3. Ritchie, G.L. and L. Sexton. 2010. Effects of Water Stress on Boll Distribution in Cotton. 2010 Georgia Research-Extension Report. UGA-CPES Research-Extension Publication No. 7. Ed. G. Ritchie.

Other publications and media (popular press) total of 5:

1. Ritchie, G.L., C.W. Bednarz, P.H. Jost, S.M. Brown, and A.J. Ciha. 2008. Cotton growth and development. Iowa State University Crop Advisor Institute Module.
<http://www.cai.iastate.edu/developerreview/moduleupdates/cotton/index.html>
2. Ritchie, G.L., J.R. Whitaker, C.W. Bednarz, and J.E. Hook. 2010. Comparing the effects of subsurface drip and overhead irrigation on boll distribution in cotton. Continuing education self-study course. *Crops and Soils*. May-June 2010. Pp. 26-30.
<https://www.agronomy.org/publications/crops-and-soils/archive>
3. Wireless is Limitless: Climate Adaptive Farming. 2013. CTIA Wireless Association.
<https://www.youtube.com/watch?v=pldvLV0xjmg>
4. Ritchie, G. 2014. Cotton Response to Stress. APS Crop Protection and Management Collection: Focus on Cotton.
<http://www.plantmanagementnetwork.org/edcenter/seminars/cotton/CottonResponse/>
5. Fundamental Plant Processes. 2014. Ed. CEV Multimedia.
<https://www.youtube.com/watch?v=rXbhlFXEgWw&feature=youtu.be>

PRESENTATIONS AND LECTURES: total of 89 (13 listed below plus all 76 listed in volunteered and invited abstracts above which were presented at national/international scientific meetings). Those listed below were presented for college-level courses, invited seminar presentations, and local or state meetings.

1. Ritchie, G.L. 2003. Looking at the Big Picture with Remote Sensing. Stripling Irrigation Research Park Extension Agent Meeting, Camilla, GA. Aug. 20, 2003
2. Ritchie, G.L., C.W. Bednarz, P. Jost, and S.M. Brown. 2003. Cotton Growth Stage and Water Relations. Georgia Cotton Production Workshop, Statesboro, GA. Dec. 12, 2003
3. Ritchie, G.L. and C.W. Bednarz. 2005. Cotton planting density and yield distribution. Southeast Cotton Training Workshop, Memphis, TN. Nov. 1-2, 2005
4. Ritchie, G.L. 2005. The influence of water on crop growth and development. Stripling

Irrigation Research Park Teachers Workshop, Camilla, GA. June 8, 2005

5. Ritchie, G.L. 2011. Cotton and Corn Irrigation Management under Overhead Irrigation and on Drip. Raleigh, NC, Nov. 30 – 2 hour presentation to 200 growers
6. Ritchie, G.L. 2011. Cotton Irrigation Management. North Carolina Ag Consultants Conference. Raleigh, NC Nov. 29 – 1 hour presentation to 40 crop consultants
7. Ritchie, G.L. 2012. Interaction of Cultivar and Irrigation. Quaker Farm Field Day, August 25, 2012.
8. Ritchie, G.L. 2013. Boll Distribution and Water Deficit. TX/LA/OK Physiology Meetings, Austin, TX. Feb. 4-6, 2012.
9. Ritchie, G.L. April 10, 2012. “Plant Hormones and Growth Regulators”. Guest lecture, Advanced Principles of Weed Science.
10. Ritchie, G.L. and B. Sharma. 2013. Advancements in Water Deficit Research in Cotton. TX/LA/OK Physiology Meetings, Austin, TX. Feb. 5-7, 2013.
11. Ritchie, G.L. and B. Sharma. 2014. Additional Advancements in Water Deficit Research in Cotton. TX/LA/OK Physiology Meetings, San Angelo, TX. Feb. 6-7, 2014.
12. Ritchie, G.L. 2015. Water Use Efficiency and Phenotype. TAWC Water College. 20 Jan. 2015.
13. Ritchie, G.L. and C. Schaefer. 2015. Phenotyping for Water Deficit Research in Cotton. TX/LA/OK Physiology Meetings, Austin, TX. Feb. 4-5, 2015.
14. Ritchie, G.L. Water deficit stress research in Texas, United States. Cotton Research Institute, Henan, China. 19 July, 2016. 45 participants. Invited.
15. Ritchie, G.L. Physiology of cotton water deficit stress. Field Crops Research Institute, Hubei. 20 July, 2016. 50 participants. Invited.
16. Ritchie, G.L. Plant Growth Regulators. Guest lecture for Scott Longing.
17. Ritchie, G.L. Plant Water Relations. Guest lectures for Brendan Kelly.

GRADUATE STUDENT COMMITTEES:

Completed: 23

Chaired: total of 11

M.S.

1. Heath Reeves. Completed in 2012. Irrigation termination timing and effects on cotton yield and fiber quality.

2. M. Chase Snowden. Completed in 2012. Boll distribution and fiber quality of West Texas cotton under four irrigation levels.
3. Tyler Painter. Completed in 2012. A novel method of determining cotton maturity.
4. Curtis Schaefer. Completed in 2013. Cotton maturity over diverse environments.
5. Luke Obenhaus. Completed in 2016. Cotton maturity and irrigation interactions.
6. Sanchez, Jacobo. Completed May, 2017. Selection of elite sorghum germplasm based on physiological characters.
7. Ryan Gregory. Successfully defended October, 2017. Sub-lethal doses of glyphosate to select for non-traited cotton in organic systems.

Ph.D.

1. Fulvio R. Simao. Completed in 2013. Irrigation and episodic drought management for West Texas cotton cultivars.
2. Bablu Sharma. Completed in 2014. Measuring and modeling cotton growth using high throughput sensors.
3. Curtis Schaefer. Completed in 2017. Short-term episodic stress and growth factors in cotton and sorghum.
4. Travis Witt. Successfully defended, October 2017. EMS-treated cotton mutant selection for drought tolerance.

Co-Chaired: total of 7

1. Rieff, Jacob. M.S. 2011. Harvest Aids to Optimize Mechanical Harvest of Castor. Plant and Soil Science. Texas Tech University. Co-Chair with Dr. Dick Auld.
2. Meeks, Kevin. M.S. 2012. Developing salt tolerance in Safflower. Plant and Soil Science. Texas Tech University. Co-Chair with Dr. Dick Auld.
3. Kimberly Vining. M.S. 2012. Cotton Mutants with Divergent Fiber Quality Characteristics. Co-Chair with Dr. Dick Auld and Dr. Robert Wright.
4. Bralie Hendon. 2012. M.S. Stabilization of the Naked Seeded Trait in Cotton (*Gossypium hirsutum* L.). Co-Chair with Dr. Dick Auld.
5. Corey Thompson. M.S. 2013. Improving Cool Temperature Establishment in Cotton by Modifying the Fatty Acid Composition. Co-Chair with Dr. Dick Auld.

6. Cameron Oliver. M.S. 2014. Comparison of Cotton Yield Components under Three Irrigation Regimes. Co-Chair with Dr. Dick Auld.
7. Travis Witt. M.S. 2014. Performance of Five Castor (*Ricinus communis* L.) Genotypes in Geographically Diverse Environments of North America. Co-Chair with Dr. Dick Auld.

Committee member of: total of 10:

1. Zachary Hinds. M.S. 2012. Molecular Marker Analysis of Safflower. Dr. Dick Auld Chair.
2. Justin Cave. M.S. 2012. Water use efficiency under multiple irrigation regimes. Dr. Peter Dotray Chair.
3. Calvin Meeks, M.S. 2013. Water use efficiency and boll distribution of cotton under subsurface drip, surface drip, and overhead irrigation. Drs. John Snider and Guy Collins chairs. University of Georgia.
4. Melissa Muharam. Ph.D. 2012. Nitrogen nutrition estimation of cotton using leaf greenness and ground cover. Dr. Stephan Maas Chair.
5. Sanaz Safian. Ph.D. 2014. Estimation Crop Water Deficit Using ground cover and thermal band of medium-resolution multispectral satellite imagery. Dr. Stephan Maas Chair.
6. Brendan Kelly. Ph.D. 2014. Multivariate analysis of fiber properties and their relation to yarn properties. Eric Hequet Chair.
7. Cassandra Plank. Ph.D. 2014. Effect of light environment on methoxypyrazine content of cabernet sauvignon. Ed Hellman and Thayne Montague co-chairs.
8. Cristiane Pilon. PhD 2015. Effect of water-deficit stress during squaring on the physiology of reproductive development. University of Arkansas. Derrick Oosterhuis chair.
9. Asher, Scott. PhD May, 2016. Vertical Mobility, Soil Adsorption, and Cotton Tolerance to Three Protoporphyrinogen Oxidase (PPO) Inhibiting Herbicides in Three West Texas Soils. Plant and Soil Sciences. Peter Dotray chair.
10. Merchant, Rand. PhD August, 2016. Identification and control of glyphosate-resistant Palmer amaranth in West Texas. Plant and Soil Sciences. Peter Dotray chair.
11. Baxter, Lisa. PhD May, 2017. "Novel Grazing Management Strategies for the Southern High Plains". Plant and Soil Sciences. Chuck West Chair.

12. Teveni, Pablo. PhD May, 2017. Characterizing Temporal Ecophysiology for Chemical Management of Huisache (*Acacia farnesiana* [L.] Willd.). Natural Resources. Robert Cox Chair.
13. Richard Roper, M.S. May, 017. "Evaluation of Management Options for Meloidogyne Incognita on the High Plains of Texas". Plant and Soil Sciences. Jason Woodward Chair.

In progress: 13

Chair: total of 7

M.S.

1. Drake, Tanner. Anticipated May, 2018. Contribution of in-season fruiting to end-of-season boll distribution.
2. Parsons, Hardy. Anticipated May, 2018. Cotton response to irrigation and nitrogen fertilizer.
3. Irish Pabuayon. Anticipated May, 2018. Alternative crops for water deficit stress.
4. Andrew Dunlap. Anticipated May, 2019. Soybean selection criteria in water-deficit West Texas agriculture.

Ph.D.

1. Reagan Anders. Anticipated completion date May, 2018. Planting density, water use efficiency, planting date, and carbohydrate partitioning.
2. Nothabo Dube. Anticipated Dec. 2018. High throughput phenotyping in cotton.
3. Thompson, Corey. Anticipated Dec. 2018. Quantitative analysis of cotton growth habits in breeding plots.

Committee member of: total of 6

Non-Thesis M.S. Students Advised (2):

1. Chris Belt. Spring, 2014.
2. Jon Sherman. Spring, 2014.
3. Adam Durham. Spring, 2015.

Non-Thesis M.S. Students in Progress (0):

TEACHING RESPONSIBILITIES:

1. PSS 3323: Crop Physiology (3 credits; 100% responsibility)
2. PSS 3323-D: Crop Physiology Distance (3 credits; 100% responsibility)
3. PSS 6323: Plant Water Relations (3 credits; 100% responsibility)
4. PSS 6323-D: Plant Water Relations Distance (3 credits; 100% responsibility)
5. PSS 5323: Environmental Crop Physiology (3 credits; 50% responsibility)

Other Teaching Responsibilities:

2006, 2008, 2010

Fall (University of Georgia) CRSS 4050: GIS Applications in Agriculture. Total of 36 students

Coach of TTU Agronomy Quiz Bowl Team – 2011-2014

2011

1. PSS 6000: Master's Thesis. Total 9 students.
2. PSS 7000: Research. Total 4 students.

2012

1. PSS 6000: Master's Thesis. Total 4 students.
2. PSS 7000: Research. Total 5 students.
3. PSS 8000: Doctor's Dissertation. Total 2 students.
4. PSS 4000: Undergraduate Internship. Total 2 students.
5. PSS 4001: Undergraduate Special Problems: Experimental Design. 1 student.
6. PSS 5001: Graduate Special Problems: Experimental Design. 9 students.

2013

1. PSS 7000: Research. 7 students.
2. PSS 6000: Master's Thesis. 2 students.
3. PSS 5001: Problems in Plant and Soil Science. 2 students.
4. PSS 8000: Doctor's Dissertation. 1 student.

2014

1. PSS 7000: Research. 5 students.
2. PSS 8000: Doctor's Dissertation. 1 student.

2015

1. PSS 4001: Undergraduate Problems - 2 students
2. PSS 6000: Master's Thesis 4 students
3. PSS 7000: Research 5 students
4. PSS 6001: Special Problems 8 students

2016

1. PSS 3323: Crop Physiology (3 credits; 100% responsibility) – 39 students
2. PSS 3323-D: Crop Physiology Distance (3 credits; 100% responsibility) – 20 students
3. PSS 6323: Plant Water Relations (3 credits; 100% responsibility) – 17 students
4. PSS 6323-D: Plant Water Relations Distance (3 credits; 100% responsibility) – 8 students
5. PSS 5329: Precision Agriculture (3 credits; 50% responsibility) – 17 students

GRANTS AND AWARDS:

Total funded at Texas Tech \$3,000,048 (My portion of total amount is \$1,106,000).

Total funded at Texas A&M AgriLife Research Station \$330,000 (My portion: \$135,000)
Total grant-in-aid and in-kind gifts \$223,000 (My portion: \$223,000)

2011

1. PI. 2011-2012. Cotton Water Use Trial (Service Order No. 11). Monsanto Company. Total \$148,646. My portion of total \$148,646. ORS Proposal Number 102116.
2. PI. 2011-2012. Development of a Plant-based Method for Cotton Cultivar Maturity Classification. Cotton Inc. Core Funding. Total \$125,000. My portion of total \$50,000. ORS Proposal Number 105347.

2012

1. PI. 2012-2014. An Integrated Approach to Enhance Water Use and Drought Tolerance in Texas Cotton Production. Total amount funded \$255,000 (multi-institutional). My portion of total \$53,750. ORS Proposal Number 105895
2. PI. 2012. Irrigation Termination for Improved Fiber Maturity on the Texas High Plains. Cotton Inc.-TX State Support Committee. Total \$20,000. ORS Proposal Number 103601.
3. PI. 2012-2013. Monsanto Regulated Research CY403-407. Monsanto Company. Total \$163,524. ORS Proposal Number 106187.
4. Co-PI. New Water Management Technologies to Sustain Rural Economies. USDA. Total \$455,145. My portion of total \$27,308.70. ORS Proposal Number 104032
5. Co-PI. Supplement: Production and field testing of transgenic cotton that expresses transcription factors for enhanced seed traits and productivity under drought stress. Total \$50,000. My portion of total \$7500. ORS Proposal Number 104469

2013

1. PI. 2013-2014. New Water Management Technologies to Sustain Rural Economies. USDA OAP Program. Total \$341,672. My portion of total \$54,667.52. ORS Proposal Number 106550.

2014

1. PI. 2014. USDA-ARS RSA Acquisition of Goods and Services – Ritchie. USDA-ARS. Total \$8000. My portion of total \$8000.

2015

1. Ballou et al. Improving water productivity and new water management technologies to sustain rural economies. USDA-ARS #A00-1370. \$289,000. Ritchie share \$23,000.
2. Ritchie, G. Research Agreement 2015. USDA-ARS #A15-0169. \$25,000. Ritchie share \$25,000.
3. Ritchie, G. Amendment 2 to the University Testing Agreement. Bayer CropScience #A15-0224. \$12,000. Ritchie share \$12,000.

4. Ritchie, G., Rajan, N., and Fernandez, C. An integrated approach to enhance water use efficiency in cotton. #A15-0125. \$70,000. Ritchie share \$17,500.
5. Ritchie, G. Acquisition of goods and services. USDA-ARS #A16-0047. \$42,100. Ritchie share \$42,100
6. Ritchie, G. BASF humectant testing contract. BASF #A15-0180. \$10,000. Ritchie share \$10,000.
7. Ritchie, G. WS3FE Protocol 2015. DOW AgroSciences #A15-0152. \$26,100. Ritchie share \$26,100.
8. Ritchie, G.L. and Sari-Sarraf, H. Field Phenotyping of Cotton. Bayer CropScience Project Revolution. 3 yr, \$476,000. Ritchie share \$238,000.
9. Ritchie, G., E. Hequet, and N. Abidi. Improving TTU cotton research infrastructures. Bayer CropScience Project Revolution. 3 yr, \$540,000. Ritchie share \$180,000.

2017

1. Ritchie, G.L. Acquisition of goods and services. USDA Agricultural Research Service. \$7831.
2. Ritchie, G.L. Acquisition of goods and services. USDA Agricultural Research Service. \$10,000.
3. Ritchie, G.L. USDA 58-3096-7-017 Ulloa. USDA Agricultural Research Service. \$7000.
4. Ritchie, G.L. Equinom Field Agreement. \$13,500
5. Singh, S. and Ritchie, G.L. Alternative Crops. HPUWD. \$22,791.00. A17-0201-003
6. Ritchie, G.L. and Sari-Sarraf, H. Field Phenotyping of Cotton. Bayer CropScience Project Revolution. 3 yr, \$476,000. Ritchie share \$238,000. Yr. 2
7. Ritchie, G., E. Hequet, and N. Abidi. Improving TTU cotton research infrastructures. Bayer CropScience Project Revolution. 3 yr, \$540,000. Ritchie share \$180,000. Yr. 2

2018

8. Ritchie, G.L. Assist in evaluations of drought stress and disease resistance tolerance research of selected cotton germplasm. USDA Agricultural Research Service. \$28,373.00. A18-0214-001
9. Ritchie, G.L. 2018 Indigo Work Order 18-01: WUE and NUE of Treated Cotton Indigo Ag Inc. \$60,684.80. A18-0182-001.
10. Ritchie, G.L. Indigo Research Project 2017-18. Indigo Ag Inc. \$30,241.64. A18-0172-001
11. Slaughter, L., K. Lewis, and G.L. Ritchie. Potential Use and Efficacy of Beneficial Microorganisms to Enhance Cotton Productivity and Soil Health in the Texas Southern High Plains. Cotton Incorporated. \$10,000.00. A18-0091-002
12. Young, J. and G.L. Ritchie. Enhancing Water Conservation through Remote Sensing Technology on Golf Courses. USGA-Green Research Section. \$95,618.00. A18-0087-001.
13. Ritchie, G.L. and Sari-Sarraf, H. Field Phenotyping of Cotton. Bayer CropScience

- Project Revolution. 3 yr, \$476,000. Ritchie share \$238,000. Yr. 3
14. Ritchie, G., E. Hequet, and N. Abidi. Improving TTU cotton research infrastructures. Bayer CropScience Project Revolution. 3 yr, \$540,000. Ritchie share \$180,000. Yr. 3

Additional Grants through Texas A&M AgriLife Appointment

1. PI. 2012-2013. Monsanto Regression WUE Trials. Total \$30,000. My portion of total \$30,000.
2. PI. 2013. BASF Product Testing Agreement. BASF. Total \$11,000. My portion of total \$11,000.
3. PI. 2014. Americot Restricted Technology Research. Americot, Inc. Total \$36,000. My portion of total \$36,000.
4. Co-PI. 2014-2015. USDA Water Conservation Grant. My portion of total \$20,000.
5. Co-PI. 2014-15. Cotton crop risk in changing environments: interaction of drought stress and early season arthropod pests. USDA-NIFA-AFRI. Total \$243,000. My portion of total \$48,000.

Research Grants from Previous Institution (\$416,100).

1. Ritchie, G.L. Jan. 2011-Dec. 2011. Georgia Cotton Commission. "Evaluating the Feasibility of Variable Rate Application of Nitrogen in Georgia." \$37,000
2. Ritchie, G.L. Jan. 2011-Dec. 2011. Cotton, Inc. "Irrigation Management using a portable hoop house system and Effects of Water Stress on Growth and Development of Multiple Cotton Varieties." \$55,000
3. Vellidis, G. and G.L. Ritchie. Jan. 2010-Dec. 2010. Georgia Cotton Commission. "Evaluating the Feasibility of Variable Rate Application of Nitrogen in Georgia." \$39,300
4. Ritchie, G. Jan 2010-Dec. 2010. Cotton, Inc. "Effects of Water Stress on Growth and Development of Multiple Cotton Varieties." \$55,000
5. Ritchie, G. Jan. 2010-Dec. 2010. Cotton, Inc. "Cotton Quality Sample Coordination." \$7500
6. Ritchie, G. Jan. 2010-Dec. 2010. Georgia Agricultural Commodity Commission for Cotton. "A novel screening method of water stress in multiple cotton varieties." \$37,000
7. Perry, C.D. and G.L. Ritchie Jan. 2010-Dec. 2010. Georgia Agricultural Commodity Commission for Cotton. "Evaluating Remote Sensing Tools to Monitor Cotton Response to Irrigation and Tillage Management." \$19,000
8. Ritchie, G. Jan. 2009-Dec. 2009. Georgia Agricultural Commodity Commission for Cotton. "Effects of Water Stress on Growth and Development of Multiple Cotton Varieties." \$34,000

9. Vellidis, G. and G.L. Ritchie. Jan. 2009-Dec. 2009. Georgia Cotton Commission. "Evaluating the Feasibility of Variable Rate Application of Nitrogen in Georgia." \$39,300
10. Ritchie, G. Jan. 2009-Dec. 2009. Georgia Agricultural Commodity Commission for Cotton project titled "Cotton Irrigation and Mepiquat Chloride Management Using Aerial Imagery." \$50,000
11. Ritchie, G. Jan. 2008-Dec. 2008. Georgia Agricultural Commodity Commission for Cotton project titled "Cotton Irrigation and Mepiquat Chloride Management Using Aerial Imagery." \$50,000
12. Ritchie, G. and S.M. Brown. Jan. 2007-Dec. 2007. Georgia Agricultural Commodity Commission for Cotton project titled "Cotton Irrigation and Defoliation Management Using Remote Sensing." \$48,000

Cash and Gifts-in-Kind:

1. FY 2012: \$70,000
 - a. P.I.: Ritchie, G.L. Bayer CropScience: \$36,000 (100%)
 - b. P.I.: Ritchie, G.L. Monsanto \$27,000 (100%)
 - c. P.I.: Ritchie, G.L. Nichino \$3000 (100%)
 - d. P.I.: Ritchie, G.L. Wilbur-Ellis \$4000 (100%)
2. FY 2013: \$10,000
 - a. P.I.: Ritchie, G.L. Bayer CropScience: \$7000 (100%)
 - b. P.I.: Ritchie, G.L. Monsanto: \$3000 (100%)
3. FY 2014: \$41,000
 - a. P.I.: Ritchie, G.L. Bayer CropScience: \$14,000 (100%)
 - b. P.I.: Ritchie, G.L. Monsanto: \$12,000 (100%)
 - c. P.I.: Ritchie, G.L. Wilbur-Ellis: \$4000 (100%)
 - d. P.I.: Ritchie, G.L. Agrium: \$3800 (100%)
 - e. P.I.: Ritchie, G.L. BASF: \$6200 (100%)
4. FY 2015: \$102,500
 - a. P.I.: Ritchie, G.L. Syngenta. \$35,000
 - b. P.I.: Ritchie, G.L. Bayer CropScience. \$25,000
 - c. P.I.: Ritchie, G.L. Dow WUE. \$15,000
 - d. P.I.: Ritchie, G.L. Nachurs: \$5500
 - e. P.I.: Ritchie, G.L. Ag Nutrition: \$3000
 - f. P.I.: Ritchie, G.L. Cotton sales: \$16,000
 - g. P.I.: Ritchie, G.L. Americot: \$3000
5. FY 2016: \$57,000
 - a. P.I.: Ritchie, G.L. Bayer CropScience. \$25,000
 - b. P.I.: Ritchie, G.L. Dow WUE. \$15,000
 - c. P.I.: Ritchie, G.L. Nachurs: \$5500
 - d. P.I.: Ritchie, G.L. Cotton sales: \$16,000
 - e. P.I.: Ritchie, G.L. Americot: \$3000

Not funded:

1. PI. 2012. Field testing of transgenic cotton that expresses transcription factors for enhanced seed traits and productivity under drought. Cotton Inc. Requested \$8905.35. Log number 104469.
2. PI. 2012. Analysis of cotton growth and water stress using traditional methods and new instrumentation. TX State Support Committee. Requested \$28,046. Log number 105370.
3. PI. 2012-2014. Mechanisms of drought resistance in exotic tetraploid cottons. USDA-NIFA. Requested \$484,047.
4. PI. 2014-2016. Antioxidant protection as a common mechanism of drought and high temperature tolerance in cotton. USDA-NIFA/Univ. Georgia. Requested \$81,521.
5. Co-PI. 2014-2016. Nutrient, carbon and moisture dynamics as affected by residue managements in multiple cropping systems in semi-arid and humid regions of the US. USDA-NIFA. Requested \$159,218.

SERVICE TO PROFESSIONAL ORGANIZATIONS

National:

1. Crop Science Society of America (member since 2001). 2010-present. C-2/C-4 joint graduate student oral competition coordinator.
2. Beltwide Cotton Conferences Physiology Steering Committee (2013-Present).
3. Beltwide Cotton Conferences Physiology Program Chair (2011).
4. Beltwide Cotton Conferences Physiology Program Co-Chair (2010).
5. Beltwide Cotton Conferences Physiology Program Graduate Student Oral and Poster Competition coordinator (2010).
6. Beltwide Cotton Conferences Physiology Program Graduate Student Oral Competition judge (2009).
7. Technical Editor, Crop Science. 2016-2018.
8. C-2 Crop Physiology Program Co-Chair 2017.
9. C-2 Crop Physiology Program Chair 2018.

OTHER PROFESSIONAL SERVICE:

1. Reviewer for the following peer-reviewed journals: Agronomy Journal, Crop Science, European Journal of Agronomy, Applied Engineering in Agriculture, and Journal of Cotton Science.
2. 2009-2010. Panelist for the Auburn Research Initiative Grant Program.
3. 2012, 2014. Reviewer for USDA Ogallala Aquifer Program Grants.

CONSULTING ACTIVITIES: N/A

SERVICE TO:

UNIVERSITY:

1. Graduate dean representative for three Ph.D. students in 2017.

COLLEGE (college of Agricultural Sciences and Natural Resources; CASNR):

1. 2011-2013. Member of CASNR Marketing Committee.
2. Member of CASNR Water Center.
3. Organized and conducted North America Colleges and Teachers of Agriculture (NACTA) crops competition. April 3-5, 2013. Competition consisted of agricultural math, general knowledge, and plant identification and brought 175 contestants from around the United States. With the help of my graduate students, I wrote and administered all of the tests. We also provided tours of a commercial gin and Bigham's Equipment for the contestants, with 55 attendees.
4. Texas Tech Representative SICNA Sorghum Meetings – 2013. Also conducted the graduate student oral presentation competition.

DEPARTMENT (Plant and Soil Sciences, PSS):

1. 2011-present. Agronomy Club Advisor.
2. 2011-present. Quaker Avenue Research Farm faculty coordinator.
3. 2012-present. ASA/CSSA/SSSA graduate recruitment booth coordinator.
4. 2012. Member of Soil Chemistry search committee.
5. 2012. Member of Turfgrass Physiology search committee.

PREVIOUS DEPARTMENTAL SERVICE

1. Committee Member. University of Georgia Micro-Gin Committee. 2008-2011
2. Web Manager. University of Georgia College of Agricultural and Environmental Sciences website (<http://commodities.caes.uga.edu/fieldcrops/cotton/>). 2008-2010.
3. University of Georgia GIFT Undergraduate research mentor. Cole Perry, 2008.
4. University of Georgia GIFT Undergraduate research mentor. Yi Huang, 2009, 2010.

COMMUNITY:

1. 2012-2017. Volunteer at South Plains Food Bank. Each year, I helped a group of volunteers to bag 50,000 lb. of potatoes, sort food cans, and organize for distribution at the food bank. In 2014, 4 of my graduate students participated.
2. 2013-2014. Member of Bennett Elementary PTA, Wolfforth, TX.
3. 2013-2014. Scoutmaster, Boy Scouts of America Troops 544 and 570, Lubbock, Texas.
4. 2014. Volunteer – South Plains Food Bank Orchard. Trimmed apple trees and removed frost-damaged fruit over two weekends.

INDUSTRY:

1. Member of Plains Cotton Growers Advisory Board, which meets twice a month throughout the cotton season and once a month during the winter.
2. Member of West Texas Ag Chemicals Steering Committee in charge of scholarships.