

Russell W. Jessup

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Education and Training

2005	Ph.D.	Texas A&M University	Plant Breeding
1999	M.S.	Texas A&M University	Plant Breeding
1997	B.S.	Texas A&M University	Plant & Env. Soil Sci.

Research and Professional Experience

2020- Associate Professor of Industrial Hemp & Perennial Grass Breeding, Texas AgriLife Research, Department of Soil and Crop Sciences, Texas A&M University.

Initiate and develop industrial hemp breeding efforts, including novel inbred lines & derived single-cross F₁ hybrids, sterile triploids, Type V cannabinoid-free lines, a public germplasm collection (Hemp Conversion Program: <https://www.linkedin.com/groups/13955733/>), and handheld phenotyping tools.

2016-2020 Associate Professor of Perennial Grass Breeding, Texas AgriLife Research, Department of Soil and Crop Sciences, Texas A&M University.

Utilization of molecular, cytogenetic, and classical breeding methods to develop improved perennial grasses as biofuels, turfgrasses, forages, ornamentals, phytoremediators, and renewable bioproducts with high biomass accumulation both aboveground (grain:forage:biofuel) and belowground (C sequestration).

2009-2016 Assistant Professor of Perennial Grass Breeding, Texas AgriLife Research, Department of Soil and Crop Sciences, Texas A&M University.

2007-2009 Plant Breeder: AL Bioenergy Farm Director, Mendel Biotechnology, Biofuel Feedstock Development.

2005-2007: Post-Doctoral Research Geneticist, USDA-ARS, College Station, TX.

2002-2005 Research Associate, Texas A&M University, College Station, TX.

1999-2002 Research Assistant, Texas A&M University, College Station, TX.

Technology Disclosures

TAMU 5449: Napiergrass (2020)

TAMU 4804: St. Augustinegrass (2017)

TAMU 4496: Pearl Millet (2016)

TAMU 4036: Sorghum (2014)

TAMU 1109: Zoysiagrass (2013)

TAMU 1104: Zoysiagrass (2013)

TAMU 3361: Sorghum (2013)
TAMU 3625: Pearl Millet-Napiergrass (2012)
TAMU 3626: Napiergrass (2012)
TAMU 3624: Kinggrass (2012)
TAMU 3377: Sorghum (2011)
TAMU 3378: Napiergrass (2011)

Courses Taught

Intellectual Prop. in Plant Sci. (SCSC 640): 1 section/yr
Recreational Turfgrass (SCSC 302): 3 sections/yr
Renewable Plant Bioproducts (SCSC 489): 1 section/yr

Professional Activities

1997- , Crop Science Society of America, Member; 2012- National Association of Plant Breeders, Member; 2012- Advances in Crop Science & Technology Journal, Associate Editor; 2013- Journal of Plant Registrations, Associate Editor; 2012- NRCS: ETPMC Technical Committee, Member; 2013- Molecular & Environmental Plant Sciences IDP, Exec. Committee Member; 2009- ATMentors, Member; 2009- Aggie Veterans Mentor, Mentor; 2010-2014 Student Research Week, Judge; 2009-2012 SCSC Curriculum Review Committee, Member; 2013- AOSCA: American Org. Seed Cert. Ag., Review Committee; 2017- Maroon & White Mentor; 2021- Journal of Agricultural Science and Agrotechnology; 2021- Current Nutraceuticals

Professional Honors and Awards

2013, Soil & Crop Sciences Special Achievement Award Teaching; 2004, Gamma Sigma Delta honor society of agriculture, Texas A&M Chapter; 1997, Texas Seed Trade Association Scholarship; 1989, State of Texas Valedictorian Scholarship; 1989, Angelo State University Scholarship

Professional Memberships

American Society of Agronomy (1999-present)
National Association of Plant Breeders (2011-present)
Gamma Sigma Delta (1999-present)
Council of Undergraduate Research (2009-present)

Selected Publications

Chavarria, M., Wherley, B., Jessup, R., & Chandra, A. (2021). Physiological responses to salinity among warm-season turfgrasses of contrasting salinity tolerance. *JOURNAL OF AGRONOMY AND CROP SCIENCE*, 207(4), 669–678.

Porter, N. T., Burson, B. L., Washburn, J. D., Klein, R. R., & Jessup, R. W. (2021). Cytogenetics and fertility of an induced tetraploid Sorghum bicolor x S. propinquum hybrid. *CROP SCIENCE*, 61(3), 1881–1889.

Pokhrel, P., Rajan, N., Jifon, J., Rooney, W., Jessup, R., da, S., Jorge, ... Attia, A. (2021). Evaluation of the DSSAT-CANEGRO model for simulating the growth of energy cane (*Saccharum* spp.), a biofuel feedstock crop. *CROP SCIENCE*.

- Maity, A., Singh, V., Jessup, R., & Bagavathiannan, M. (2021). Seed traits correlate with herbicide resistance in Italian ryegrass (*Lolium perenne* ssp. *multiflorum*). *Pest Management Science*, 77(6), 2756–2765.
- Foster, T.L., Baldi, H.D., Shen, S., Burson, B.L., Klein, R.R., Murray, S.C., and Jessup, R.W. 2020. Development of Novel Perennial *Sorghum bicolor* x *S. propinquum* Hybrids. *Crop Sci.* DOI: 10.1002/csc2.20136
- Aiosa, M., Neely, C.B., Morgan, C.L., Jessup, R.W., Olson, V.C., Smith, G.R., & Rouquette, F.M. (2020). Cowpeas used as summer cover crop for forage rye. *Agrosystems, Geosciences & Environment*, 3(1). <https://doi.org/10.1002/agg2.20057>
- Baldi, H.D., Foster, T.L., Shen, X., Feagley, S.E., Smeins, F.E., Hays, D.B., Jessup, R.W. 2020. Characterization of novel torrefied biomass and biochar amendments. *Agricultural Sci.* 11: 157-177. DOI: 10.4236/as.2020.112010
- Xu, Y., Porter, N., Foster, J.L., Muir, J.P., Schwab, P., Burson, B.L., Jessup, R.W. 2020. Silica production across candidate lignocellulosic biorefinery feedstocks. *Agronomy*. 10, 82; doi:10.3390/agronomy10010082
- Shen, X., Foster, T.L., Baldi, H.D., Dobрева, I., Hays, D.B., Burson, B.L., Tabien, R., Jessup, R.W. 2019. Quantification of Soil Organic Carbon in Biochar Amended Soil Using Ground Penetrating Radar (GPR). *Remote Sens.* 11, 2874; doi:10.3390/rs11232874
- Foster, J.L., Thomas-Moen, M.E., McCuiston, K.C., Redmon, L.A., Jessup, R.W. 2019. Potential of ensiling Sorghum without grain pretreated with enzymes or bacterial inoculants. *Crop Sci.* 59:2258–2263.
- Sharma, S., Rajan, N., Cui, S., Maas, S., Casey, K., Ale, S., Jessup, R. 2019. Carbon and evapotranspiration dynamics of a non-native perennial grass with biofuel potential in the southern U.S. Great Plains. *Agric. Forest Meteorol.* 269: 285–293.
- Xu, Y., Foster, J.L., Muir, J.P., Burson, B.L., Jessup, R.W. 2018. Succinic acid production across candidate lignocellulosic biorefinery feedstocks. *American J. Plant Sci.* 9: 2141-2153.
- Jessup, R.W., Klein, R.R., Burson, B.L., Murray, S.C., Washburn, J.D., Heitholt, J.J., Foster, J.L. 2017. Registration of Perennial *Sorghum bicolor* × *S. propinquum* Line PSH12TX09. *Journal of Plant Registrations* 11:76–79.
- Dowling, C.D., Burson, B.L., Jessup, R. 2017. Impediments to Hybridization between Napiergrass (*Pennisetum purpureum* Schum.) and different *Pennisetum* Species. *Crop Sci.* 56:2043–2050.
- Sharma, S., Rajan, N., Cui, S., Casey, K., Ale, S., Jessup, R., Maas, S. 2017. Seasonal variability of evapotranspiration and carbon exchanges over a biomass sorghum field in the Southern U.S. Great Plains. *Biomass & Bioenergy* 105:392-401.
- Jessup, R.W., Burson, B.L., Foster, J.L., Heitholt, J.J. 2017. Registration of Seed Sterile, Perennial Sorghum spp. [*Sorghum bicolor* (L.) Moench x *S. halepense* (L.) Pers.] Hybrid ‘PSH09TX15’. *Journal of Plant Registrations* 11:320–323.
- Genovesi, A.D., Jessup, R.W., Burson, B.L., Engelke, M.C., Chandra, A. 2017. Interspecific Hybrids between Pembagrass (*Stenotaphrum dimidiatum*) and St. Augustinegrass (*S. secundatum*) *Crop Sci.* 57:2819–2827.
- Burson, B.L., Renganayaki, K., Dowling, C.D., Hinze, L.L., Jessup, R.W. 2015. Genetic diversity among pentaploid buffelgrass accessions. *Crop Science* 55:1637–1645.

- Dowling, C.D., Burson, B.L., Jessup, R.W. 2014. Marker-assisted verification of Kinggrass (*Pennisetum purpureum* Schumach. x *Pennisetum glaucum* [L.] R. Br.). *Plant Omics Journal* 7(2): 72-79.
- Thomas, M.E., Foster, J.L., McCuiston, K.C., Duncan, R.W., Redmon, L.A., Franks, A.M., Jessup, R.W. 2014. Inoculants to enhance the ruminal degradation of small grain forage. *Forage and Grazinglands* 12: DOI: 10.2134/FG-2014-0006-RS.
- Jessup, R.W. 2013. 'Seeded-Yet-Sterile' Perennial Biofuel Feedstocks. *Adv. Crop Sci. Tech.* 1(2): DOI: <http://dx.doi.org/10.4172/acst.1000e102>.
- Dowling, C.D., Burson, B.L., Foster, J.L., Tarpley, L., Jessup, R.W. 2013. Confirmation of Pearl Millet-Napiergrass Hybrids Using EST-derived Simple Sequence Repeat (SSR) Markers. *American Journal of Plant Sciences* 4: 1004-1012. DOI:10.4236/ajps.2013.45124.
- Washburn JD, Whitmire DK, Murray SC, Burson BL, Wickersham TA, Heitholt JJ, Jessup, R.W. 2013. Estimation of rhizome composition and overwintering ability in perennial *Sorghum* spp. using Near-Infrared Spectroscopy (NIRS). *Bioenerg. Res.* DOI: 10.1007/s12155-013-9305-8.
- Washburn, J.D., Murray, S.C., Burson, B.L., Klein, R.R., Jessup, R.W. 2013. Targeted mapping of QTL regions for rhizomatousness in chromosome SBI-01 and analysis of overwintering in a *Sorghum bicolor* x *S. propinquum* population. *Molecular Breeding*. *Mol Breeding* 31: 153-162. DOI: 10.1007/s11032-012-9778-8.
- Jessup, R.W., Whitmire, D.K., Burson, B.L. 2012. Molecular characterization of non-flowering perennial *Sorghum* spp. hybrids. *American Journal of Experimental Agriculture*. 2(1):9-20.
- Jessup, R.W. 2009. Development and status of dedicated energy crops in the United States. *Vitro Cell. Dev. Biol. Plant* 45(3): 282-290.
- Bowers, J. E., Abbey, C., Anderson, S., Chang, C., Draye, X., Hoppe, A. H., Jessup, R. W., Lemke, C., Lenington, J., Li, Z., Lin, Y. R., Liu, S. C., Luo, L. J., Marler, B. S., Ming, R., Mitchell, S. E., Qiang, D., Reischmann, K., Schulze, S. R., Skinner, D. N., Wang, Y. W., Kresovich, S., Schertz, K. F., Paterson, A. H. 2003. A high-density genetic recombination map of sequence-tagged sites for *Sorghum*, as a framework for comparative structural and evolutionary genomics of tropical grains and grasses. *Genetics*. 165: 1, 367-386.