

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

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

Dr. Jessup's program utilizes breeding methods (molecular, cytogenetic, and classical) to develop and deploy improved perennial grasses as: biofuels, turfgrasses, forages, ornamentals, phytoremediators, renewable construction materials and bioproducts. Novel feedstocks relevant to the proposed project have included sterile, perennial feedstocks with high biomass accumulation both aboveground (forage:biofuel) and belowground (carbon 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.

1997-1999 Teaching Assistant, Texas A&M University, College Station, TX.

Technology Disclosures

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: Columbusgrass (2011)

TAMU 3378: Napiergrass (2011)

Courses Taught

Intellectual Prop. in Plant Sci. (SCSC 640): 1 section/yr

Recreational Turfgrass (SCSC 302): 6 sections/yr

Professional Activities

1997- , Crop Science Society of America, Member; 2012- National Association of Plant Breeders, Member; 2010- AgroCrop Science Journal, Associate Editor; 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

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)

Publications

Dowling, C.D., Burson, B.L., Malinouski, D., Heitholt, J.J., Mason, R.E., Jessup, R.W. 2018.

Expression of *apetala 2* (*AP2*) and rare cold inducible (*RCI2*) homologs in overwintering rhizomes of Napiergrass (*Pennisetum purpureum* Schumach.). *Plant Gene* (accepted—in revision).

Centeno, C.C., Jessup, R.W., Shen, X., Stelly, D.M., Hatch, S.L., Burson, B.L., Hodnett, G.L.

2018. Application of qPCR for the Verification of Pearl Millet-Napiergrass Hybrids (POACEAE *Pennisetum glaucum* [L.] R. BR X POACEAE *Pennisetum purpureum* SCHUMACH.). *Appl. Plant Sci.* (accepted—in revision).

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.

Sharma, S., Rajan, N., Cui, S., Maas, S., Casey, K., Ale, S., Jessup, R. 2018. 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.

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.
- Burson, B.L., Actkinson, J., Jessup, R.W., Hussey, M.A. 2012. Ploidy determination of buffel grass accessions in the USDA National Plant Germplasm System collection by flow cytometry. *South African Journal of Botany*. 79:91-95.
- Jessup, R.W., Renganayaki, K., Burson, B.L., Howard, A.N., Giliberto, B., Engelke, M.C., Genovesi, A.D., Reinert, J.A., Kamps, T.L., Schulze, S., Paterson, A.H. 2011. Genetic mapping of fall armyworm resistance in zoysiagrass. *Crop Sci.* 51 (4): 1774-1783. doi:10.2135/cropsci2010.09.0553.
- Jessup, R.W. 2009. Development and status of dedicated energy crops in the United States. *Vitro Cell. Dev. Biol. Plant* 45(3): 282–290.

- Genovesi, A.D., Jessup, R.W., Engelke, M.C., Burson, B.L. 2009. Interploid St. Augustinegrass [*Stenotaphrum secundatum* (Walt.)] hybrids recovered by embryo rescue. *Vitro Cell. Dev. Biol. Plant* 45(6): 659–666.
- Venuto, B.C., Croughan, S.S., Pitman, W.D., Jessup, R.W., Renganayaki, K., Burson, B.L. 2007. Variation among hexaploid *Paspalum dilatatum* regenerants from tissue culture. *Aust. J. Exp. Ag.* 47: 1109-1116.
- Renganayaki, K., Jessup, R.W., Burson, B.L., Hussey, M.A., Read, J.C. 2005. Identification of male-specific AFLPs in dioecious Texas bluegrass. *Crop Sci.* 45:2529-2539.
- Bowers, J. E., Abbey, C., Anderson, S., Chang, C., Draye, X., Hoppe, A. H., Jessup, R. W., Lemke, C., Lennington, 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.
- Jessup, R. W., Burson, B. L., Burow, G. B., Wang, Y. W., Chang, C., Li, Z., Paterson, A. H., Hussey, M. A. 2003. Segmental allotetraploidy and allelic interactions in buffelgrass (*Pennisetum ciliare* (L.) Link syn. *Cenchrus ciliaris* L.) as revealed by genome mapping. *Genome.* 46: 2, 304-313.
- Jessup, R. W., Burson, B. L., Burow, G. B., Wang, Y. W., Chang, C., Li, Z., Paterson, A. H., Hussey, M. A. 2002. Disomic inheritance, suppressed recombination, and allelic interactions govern apospory in buffelgrass as revealed by genome mapping. *Crop Science.* 42: 5, 1688-1694.