Daniel Packer, PhD

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Summary: Professional and academic background in applied plant breeding, agriculture, & natural resources. Developing a career emphasizing crop variety improvement and the conservation and use of germplasm diversity.

Education:
Ph.D., Plant Breeding, **Texas A&M University**, College Station, Texas, 2011
M.S., Plant Breeding, **Texas A&M University**, College Station, Texas, 2007
B.S., Plant Biology, **Brigham Young University**, Provo, Utah, 2005
GIS & Remote Sensing coursework, **Texas State University**, San Marcos, TX 2015

Research and Employment:

Postdoctoral Research Associate, Washington State Univ., Pullman, WA. 2016 - Present. (Supervisor: Dr. Kevin Murphy) *Establishment of a Chenopodium quinoa breeding program for the Pacific Northwest and the evaluation of introduced quinoa germplasm for adaptation to Pacific Northwest agricultural systems.*

- Design, establishment, and management of quinoa multi-environment yield trials
- Design, establishment, and management of quinoa breeding nurseries
- Agronomic characterization of introduced quinoa germplasm
- Phenotypic selection of new experimental lines from segregating populations and landraces
- Establishment of a seed processing and inventory system
- Logistical support for purchasing laboratory NIR and XRF analytical equipment
- Training of graduate students in field plant breeding methods
- Data analysis and management using Microsoft Excel and JMP 13.1
- Operation of agricultural field equipment for crop establishment and management

Sorghum Breeder, Ceres Inc., College Station, TX and Puerto Vallarta, MX. 2011-2013. *Management of a phenotypic plant breeding program developing Sorghum hybrids for bioenergy applications.*

- Design, establishment, and management of *Sorghum* breeding nurseries in Texas & Mexico
- Phenotypic selection and advancement of hybrid parental lines from segregating populations
- Testcross evaluation of hybrid parental lines for agronomic and physiological traits
- Creation of new breeding populations based on hybrid performance data
- Creation of new male-sterile parental lines within cytoplasmic male sterility systems
- Hybrid and parental line seed production
- Agronomic data collection (days to mid-anthesis, disease scores, etc.)
- Validation of marker-assisted selection methods for stem sugar accumulation
- Data analysis and management using PRISM and Microsoft Excel
- Direct management of two research assistants and seasonal labor crews in Texas and Mexico

Doctoral, Texas A&M Univ., 2007-2011. (Advisor: Dr. William L. Rooney) *Dissertation title: High-biomass Sorghums for biofuels production.*

- Phenotyping of *Sorghum* accessions from the USDA National Plant Germplasm System for photoperiod-sensitivity and biomass production
- Measurement of biomass yields and heterosis of experimental biomass *Sorghum* hybrids in multi-environment yield trials
- Evaluation of a molecular marker-assisted selection system to predict the photoperiod-sensitivity of experimental *Sorghum* lines in hybrid combinations
- Characterization of genotype x environment interactions of *Sorghum* cell wall compositional traits using Near-Infrared Spectroscopy data
- Data management and statistical analyses with SAS 9.1 and Microsoft Excel

Masters, Texas A&M Univ., 2005-2007. (Advisor: Dr. William L. Rooney) *Thesis title: Comparing the performance of F1 testers vs. their inbred line parents in evaluating experimental sorghum R and B lines in testcrosses*

- Accuracy comparisons of F1 testers vs. inbred line testers for identifying superior experimental lines in testcross hybrids within multi-environment yield trials
- Efficiency comparisons of F1 testers vs. inbred line testers in identifying superior experimental lines in testcross hybrids within multi-environment yield trials
- Data management and statistical analyses using SAS 9.1 and Microsoft Excel

Undergraduate*:* Plant Genetics Laboratory, Brigham Young Univ., 2004-2005 (advisor: Dr. Eric Jellen)

- Collection & taxonomic identification of *Chenopodium* species for future cytogenetic analysis
- Performed basic molecular genetics lab techniques (DNA extraction, PCR, etc.)

Publications and Presentations:

Packer D., Murphy K., Walters H., Peterson A. Preliminary evaluations of Quinoa (*Chenopodium quinoa* Willd.) varieties and populations for grain yield in the Pacific Northwest, USA. Presentation and poster at: 2017 Joint Annual Meeting of the ASA-CSSA-SSSA. 22-25 Oct. 2017. Tampa, FL.

Packer D., Rooney W.L. (2014) High-parent heterosis for biomass yield in photoperiod-sensitive sorghum hybrids. Field Crops Res. 167: 153-158.

Packer D., Rooney W.L. (2011) A comparison of inbred line and F1 testers for evaluating sorghum experimental lines in testcrosses. Field Crops Res. 123: 47-50.

Hodnett, G. L., Hale, A. L., **Packer, D.**, Stelly, D. M., Da Silva, J., & Rooney, W. L. (2010) Elimination of a reproductive barrier facilitates intergeneric hybridization of *Sorghum bicolor* and *Saccharum*. Crop Sci. 50: 1188-1195.

Olson, S. N., Ritter, K., Rooney, W., Kemanian, A., McCarl, B. A., Zhang, Y., Hall, S., **Packer, D**. and Mullet, J. (2012) High biomass yield energy sorghum: developing a genetic model for C4 grass bioenergy crops. Biofuels, Bioprod. Bioref. 6: 640–655.

Packer D., Rooney W.L. Heterosis for biomass yield in photoperiod-sensitive hybrid sorghums. Poster presented at: 2009 Joint Annual Meeting of the ASA-CSSA-SSSA. 1-5 Nov. 2009. Pittsburgh, PA

Packer D., Rooney W.L. Utility of passport data from plant germplasm collections for selecting germplasm accessions for use in breeding nurseries. Poster presented at: 2008 Joint Annual Meeting of the ASA-CSSA-SSSA. 5-9 Oct. 2008. Houston, TX

Internships

- *Natural Resources Conservation Service* (U.S. Department of Agriculture), Kendall Co. TX, 2003 and Bexar Co. TX, 2001
- *Desert Security Farms*, Blythe, California USA, 2002
- *South Valley Farms*, Wasco, California USA, 2000

Language Skills:
Complete Spanish fluency

Professional Affiliations:
Crop Science Society of America
National Association of Plant Breeders

Professional References:

Dr. Kevin Murphy
Associate Professor
Specialty Crop Breeding and Agronomy
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