

Edward S. Buckler

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A. Education:

University of Virginia	Biology and Archaeology	BA(w/ Honors)	1992
University of Missouri	Biological Sciences	PhD	1997
North Carolina State Univ.	Statistical Genetics	Postdoc	1997-1998

B. Appointments:

1998-Present USDA-ARS Research Geneticist
1998-2003 Assistant Professor, Department of Genetics, North Carolina State University
2003-2009 Adjunct Associate Professor, Plant Breeding, Cornell University
2009-Present Adjunct Professor, Plant Breeding, Cornell University

C. Publications Related:

Remington, D. L., J. Thornsberry, Y. Matsuoka, L. Wilson, S. Rinehart-Whitt, J. Doebley, S. Kresovich, M. M. Goodman, and E. S. Buckler. 2001. Structure of linkage disequilibrium and phenotypic associations in the maize genome. *Proc. Nat. Acad. Sci. USA* **98**:11479-11484.

Yu, J., Pressoir, G., Briggs, W.H., Bi, I.V., Yamasaki, M., Doebley, J.F., McMullen, M.D., Gaut, B.S., Holland, J.B., Kresovich, S., and Buckler, E.S. 2006. A Unified Mixed-Model Method for Association Mapping Accounting for Multiple Levels of Relatedness. *Nature Genetics* **38**:203-208.

Gore, M.A., Wright, M.H., Ersoz, E.S., Bouffard, P., Szekeres, E.S., Jarvie, T.P., Hurwitz, B.L., Narechania, A., Harkins, T.T., Grills, G.S., Ware, D.H., and Buckler, E.S. 2009. Large-Scale Discovery of Gene-Enriched SNPs. *The Plant Genome* **2**, 121-133.

McMullen MD, Kresovich S, Villeda HS, Bradbury P, Li H, Sun Q, Flint-Garcia S, Thornsberry J, Acharya C, Bottoms C, Brown P, Browne C, Eller M, Guill K, Harjes C, Kroon D, Lepak N, Mitchell SE, Peterson B, Pressoir G, Romero S, Oropeza Rosas M, Salvo S, Yates H, Hanson M, Jones E, Smith S, Glaubitz JC, Goodman M, Ware D, Holland JB, Buckler ES 2009. Genetic properties of the maize nested association mapping population. *Science* **325**: 737-40.

Gore MA, Chia J-M, Elshire RJ, Sun Q, Ersoz ES, Hurwitz BL, Peiffer JA, McMullen MD, Grills GS, Ross-Ibarra J, Ware DH, Buckler ES (2009) A first generation haplotype map of maize. *Science* Accepted

Other Publications:

Thornsberry, J.M., M.M. Goodman, J. Doebley, S. Kresovich, D. Nielsen, and E. S. Buckler. 2001. *Dwarf8* polymorphisms associate with variation in flowering time. *Nature Genetics*. **28**: 286-289.

Flint-Garcia, S.A., A.-C. Thuillet, J.M. Yu, G. Pressoir, S.M. Romero, S.E. Mitchell, J. Doebley, S. Kresovich, M.M. Goodman, and E.S. Buckler. 2005. Maize association population: a high resolution platform for QTL dissection. *Plant Journal* **44**: 1054-1064.

Bradbury, P.J., Zhang, Z., Kroon, D.E., Casstevens, T.M., Ramdoss, Y., and Buckler, E.S. 2007. TASSEL: Software for association mapping of complex traits in diverse samples. *Bioinformatics*. **23**: 2633-2635.

Harjes, C.E., Rocheford, T., Sowinski, S., Williams, M., Kandanis, C.B., Brutnell, T., Wurtzel, E., Yan, J., and Buckler, E.S. 2008. Natural genetic variation in lycopene epsilon cyclase can enhance provitamin a biofortification of maize. *Science* **319**: 330-333.

Buckler ES, Holland JB, Bradbury PJ, Acharya CB, Brown PJ, Browne C, Ersoz E, Flint-Garcia S, Garcia A, Glaubitz JC, Goodman MM, Harjes C, Guill K, Kroon DE, Larsson S, Lepak NK, Li H, Mitchell SE, Pressoir G, Peiffer JA, Rosas MO, Rocheford TR, Romay MC, Romero S, Salvo S, Sanchez Villeda H, da Silva HS, Sun Q, Tian F, Upadyayula N, Ware D, Yates H, Yu J, Zhang Z, Kresovich S, McMullen MD 2009. The genetic architecture of maize flowering time. *Science* **325**: 714-8.

D. Synergistic Activities:

1. Developing database aware software and analysis approaches for association and joint linkage-association mapping. Currently, TASSEL analyses molecular diversity and carries out a wide range of association and molecular quantitative genetic analyses.
2. Involved in designing the bioinformatics architecture for sharing and storing diversity data. As a co-PI on the Gramene project and co-lead on a iPlant project, we have developed a diversity schema, middleware, and query tools to share basic diversity data (both genotypic and phenotypic).

E. Collaboration and Other Affiliations

i. Collaborators in past 48 months

C. Acharya (Cornell U.), S. Avraham (Cold Spring Harbor), L. Bai (Boyce Thompson Inst.), G. Bai (USDA-ARS), B. Batlazar (Univ. de Guadalajara), C. Bermudez Kandanis (U. Illinois), A. Bernardo (Kansas State Univ.), I. Bi Vroh (IITA), P. Bouffard (454 Life Sciences), R. Bowden (USDA-ARS), P. Bradbury (USDA-ARS), W. Briggs (U. of Wisconsin), P. Brown (Cornell U.), C. Browne (USDA-ARS), T. Brutnell (Boyce Thompson Inst.), R. Caldo (Iowa State Univ.), P. Canaran (Cold Spring Harbor), P. Casati (Stanford), T. Casstevens (Cornell U.), J. Chia (Cold Spring Harbor), H. da Silva (USDA-ARS), J. Doebley (U. Wisconsin), M. Eller (USDA-ARS), R. Elshire (Cornell U.), E. Ersoz (Cornell U.), E. Esch (U. Hannover), B. Faga (Cold Spring Harbor), P. Feng (Monsanto), S. Flint-Garcia (North Carolina State U.), M. Fogleman (Cornell U.), T. Fulton (Cornell U.), A. Garcia (U. Missouri), B. Gaut (U. California, Irvine), J. Glaubitz (U. of Wisconsin), M. Goodman (North Carolina State U.), M. Gore (Cornell U.), G. Grills (Cornell U.), K. Guill (USDA-ARS), M. Hanson (Illumina Inc.), C. Harjes (Monsanto), T. Harkins (Roche Diagnostics Corporation), C. Hebbard (Cornell U.), J. Heer (North Carolina State U.), O. Hoekenga (USDA/Cornell U.), R. Hogers (Keygene), J. Holland (USDA/N. Carolina State U.), S. Hu (Kansas State Univ.), B. Hurwitz (Cold Spring Harbor), P. Jaiswal (Cornell U.), T. Jarvie (454 Life Sciences), E. Jones (Pioneer Hi-Bred), R. Jung (Pioneer Hi-Bred), R. Jurkuta (U. of Wisconsin), M. Kirst (U. of Florida), L. Kochian (USDA/Cornell U.), S. Kresovich (Cornell U.), D. Kroon (Cornell U.), S. Larsson (Cornell U.), N. Lepak (Cornell U.), H. Li (Chinese Acad of Agri Science), C. Liang (Cold Spring Harbor), H. Ma (Kansas State Univ.), J. Maohringy (U. Hohenheim), K. Matias (U. Florida), H. Maurer (U. Hohenheim), S. McCouch (Cornell U.), M. McMullen (Univ. of Missouri), A. Melchinger (U. Hohenheim), S. Mitchell (Cornell U.), J. Ni (Cornell U.), D. Nielsen (North Carolina State U.), W. Pawlowski (Cornell U.), J. Peiffer (Cornell U.), J. Peleman (Keygene), B. Peterson (USDA-ARS), H. Piepho (U. Hohenheim), G. Pressoir (Cornell U.), G. Pressoir (Cornell U.), Y. Ramdoss (Cisco), K. Ratnapu (Cold Spring Harbor), L. Ren (Cold Spring Harbor), T. Rocheford (U. Illinois), M. Romay (Cornell U.), S. Romero (Cornell U.), M. Rosas (North Carolina State Univ.), J. Rose (Cornell U.), J. Ross-Ibarra (Univ. of California, Davis), J. Rucker (Univ. of Wisconsin), S. Salvo (USDA-ARS), J. Sanchez (U. Guadalajara), H. Sanchez Villeda (U. Missouri), S. Schmidt (Cold Spring Harbor), J. Smith (Pioneer Hi-Bred), S. Sowinski (Pioneer Hi-Bred), W. Spooner (Cold Spring Harbor), A. Stapleton (U. North Carolina, Wilmington), L. Stein (Cold Spring Harbor), N. Stevens (Cornell U.), B. Stich (U. Hohenheim), Q. Sun (Cornell U.), E. Szekeres (454 Life Sciences), J. Szymaniak (Cornell U.), G. Tanimoto (Affymetrix), J. Thornsberry (Northwest Missouri State Univ.), F. Tian (Cornell U.), R. Todhunter (Cornell U.), W. Tracy (U. of Wisconsin), M. Tuinstra (Purdue Univ.), N. Upadyayula, N. (U. Illinois), F. Utz (U. Hohenheim), R. Vallabhaneni (CUNY), M. van Eijk (Keygene), J. van Oeveren (Keygene), E. Verstege (Keygene), D. Vleck (USDA-ARS (Lincoln)), V. Walbot (Stanford), D. Ware (Cold Spring Harbor), A. Weber (Univ. of Wisconsin), S. Whitt (North Carolina State U.), M. Williams (Pioneer Hi-Bred), R. Wise (Iowa State Univ.), M. Wright (Cornell U.), E. Wurtzel (CUNY), J. Yan (CIMMYT), I. Yap (Cornell U.), H. Yates (Cornell U.), K. Youens-Clark (Cold Spring Harbor), J. Yu (Kansas State Univ.), Z. Zhang (Cornell U.), W. Zhao (Cold Spring Harbor), C. Zhu (Kansas State Univ.)

ii. Graduate and Postdoctoral Advisors

T. P. Holtsford (U. Missouri)

B. S. Weir (North Carolina State U.)

M. Purugganan (North Carolina State U.)

iii. Thesis advisor and postdoctoral sponsor

Beth K. Saft, Sherry Flint-Garcia, Jeff M. Thornsberry, David M. Remington, Larissa M. Wilson (North Carolina State U); Charles Chen, Elhan Ersoz, Amit Gur, Michael Gore, Carlos Harjes, Matias Kirst, Allison Krill, Sara Larsson, Sean Myles, Jason Pfeiffer, Feng Tian, Irie Vroh, Jianming Yu, Nengyi Zhang (Cornell Univ.)

I have sponsored 6 graduate students and 13 postdoctoral scholars over my 11 year career.