

***Curriculum Vitae***  
**Clay H. Sneller**

The Ohio State University – OARDC, Department of Horticulture and Crop Science  
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**Education:**

Ph. D. - Plant Breeding and Genetics, Michigan State University, 1991  
M.S. - Plant Breeding and Genetics, Michigan State University, 1987  
B.S. - Agronomy/Plant Protection, The Ohio State University, 1978

**Professional Experience:**

Associate Chair. Dept. Horticulture and Crop Science, OARDC, The Ohio State University, August 2005-present  
Associate Professor, Dept. Horticulture and Crop Science, OARDC, The Ohio State University, Feb. 2001-present  
Associate Professor of Agronomy, University of Arkansas, July 1997 to Jan. 2001  
Assistant Professor of Agronomy, University of Arkansas, April 1991 to June 1997

**Awards and Honors**

- Received Fulbright Fellowship to teach in Austria, 2/21-12-6/2012.
- Chosen by OARDC in 2007 to participate in Lead21 leadership development program
- Awarded OECD Fellowship in 2006 to travel to University of Adelaide to study association analyses in plant genetics.
- Lead author on paper selected as outstanding paper in C-8 division of Crop Science for 2002 (Crop Sci. 42:642-647.).
- Sole author of paper selected as outstanding paper in C-8 division of Crop Science for 2003. (Crop Sci. 43:409-414.)
- Co-author on paper selected as most outstanding paper in Weed Science in 2001 by the Weed Science Society of America (Weed Sci. 49:468-576).

**Relevant Publications and Projects (by topic, date)**

***Genomewide Analyses***

A. Hoffstetter, A Cabrera, J-L. Jannink, and C. Sneller. 2013. Genome wide selection for complex traits in soft winter wheat.  
A. Hoffstetter, A Cabrera, and C. Sneller. 2012. Identification of QTL for FHB, yield, and quality in SRWW  
Cabrera, A. Sneller, C, N Smith, M Guttieri, and E Souza. 2011. Association analysis of soft wheat quality. In preparation for submission to Crop Sci.  
Sneller, C, B Massman, and K Smith. 2011. Family-Based association analysis in a breeding population. In preparation for submission to Molecular Breeding

- Guedira, M, G. Brown-Guedira, D. Van Sanford, C. Sneller, E. Souza, and D. Marshall. 2010. Distribution of *Rht* genes in modern and historic winter wheat cultivars from the eastern and central USA. *Crop Sci.* doi: 10.2135/cropsci2009.10.0626
- Sneller, C.H., D. Mather, and S. Crepieux. 2009. Analytical approaches and populations types for finding and utilizing QTL in complex plant populations. *Crop Sci.* 49:363-380.

### ***Population Structure and Genetic Diversity***

- A. Cabrera, C, Sneller, N. Smith, and E Souza. 2012. Populations structure and linkage disequilibrium in Eastern US Soft red Winter Wheat. In preparation for submission to *Crop Sci.*
- J. Bensom, G. Brown-Guedira, JP Murphy, and C Sneller. 2012. Population Structure, Linkage Disequilibrium, and Genetic Diversity in Soft Winter Wheat Enriched for Fusarium Head Blight Resistance. *Crop Science* (in review)
- Sneller, C.H., R.L. Nelson, T. Carter Jr., Z. Cui. 2005. Genetic Diversity in Crop Improvement: The Soybean Experience. *In: Genetic and Production Innovations in Field Crop Technology: New Developments in Theory and Practice* (ed: Manjit Kang) Hawthorne Press, Inc. (also in *Jour. Crop Improvement* 14:103-144)
- Carter, T.E. Jr. , C.H. Sneller, R.L. Nelson, and Z. Cui. 2004. Genetic Diversity in Soybean, *In Soybean Monograph*, American Society of Agronomy
- Sneller, C.H. 2003. Impact of transgenic genotypes and subdivision on diversity within elite North American soybean. *Crop Sci.* 43:409-414.
- Vaughn, L.K., B.V. Otis, A.M. Prazak, C.A. Conaway, C.H. Sneller, J.M. Chandler, W.D. Park. 2001. Is all red rice found in commercial rice really *Oryza sativa*? *Weed Sci.* 49:468-576.
- Reyna, N., and C.H. Sneller. 2001. Evaluation of marker-assisted introgression of diverse yield genes in soybean. *Crop Sci.* 41:1317-1321
- Cornelius, B., and C.H. Sneller. 2002. Yield and molecular diversity of soybean lines derived from crosses of northern and southern elite parents. *Crop Sci.* 42:642-647.
- Rutledge, J., R. Talbert, and C.H. Sneller. 2000. RAPD analysis of genetic variation among resistant and susceptible *Echinochloa crus-galli* in Arkansas. *Weed Sci.* 48:669-674
- Kisha, T., J.M. Hoyt, J. Miles, B.W. Diers, and C.H. Sneller. 1998. Genetic diversity in elite and plant introduction soybean germplasm. *Crop Sci.* 38:1669-1680.
- Sneller, C.H., J. Miles, and J.M. Hoyt. 1997. Agronomic performance of soybean plant introduction and their genetic similarity to elite lines. *Crop Sci.* 37:1595-1600
- Kisha, T., C.H. Sneller, and B.W. Diers. 1997. Relationship between genetic distance among parents and genetic variance in populations of soybean. *Crop Sci.* 37:1317-1325
- Sneller, C.H. 1994. Pedigree analysis of elite soybeans. *Crop Sci.* 34:1515-1522.

### ***Fusarium Head Blight***

- Sneller, J-L Jannink, M Sorrells. 2013. Genome wide analysis of resistance to Fusarium Head Blight.
- Sneller, J-L Jannink, M Sorrells. 2013. Association analysis of resistance to Fusarium Head Blight.
- A. Cabrera, L. Harris, P Paul, and C Sneller. 2013. Expression of wheat genes possible associated with resistance to toxin accumulation from *Fusarium graminearum*.

- Guttieri, M, L Harris, P Paul, and C Sneller. 2011. Expression of *Fusarium graminearum* genes in wheat lines with and without resistance to toxin accumulation. In preparation for submission to Molecular Phytopathology
- Sneller, CH, M Guttieri, P Paul, G Broders, and R Jackwood. 2011. Variation for resistance to kernel infection and toxin accumulation in wheat lines infected with *Fusarium graminearum*. Phytopathology (In press)
- Sneller, C, P Paul, and M Guttieri. 2010. Characterization of resistance to Fusarium Head Blight in an Eastern US soft red winter wheat population. *Crop Science* 50:123-133.
- Li, C. P Paul, M Guttieri, L Madden, C Sneller, C. 2009. A PCR-based approach to characterizing resistance responses of soft red winter wheat cultivars to *Fusarium graminearum* infection. Phytopathology. Vol. 99, no. 6, Suppl. S: S72-S73.
- Odenbach, K, M Guttieri, C Sneller, L Madden, L, and P Paul. 2009. Association between post-anthesis infection and deoxynivalenol accumulation in grain from spikes without visual symptoms of Fusarium head blight. Phytopathology. Vol. 99, no. 6, Suppl. S: S96.

### ***Wheat Quality***

- Sneller, C. A. Cabrera, E. Souza, M. Guttieri, and M. Sorrells. 2012. Mapping QTL for wheat quality in four biparental populations. In preparation.
- Souza, E., M. Guttieri, A Sturbaum, C Sneller. 2011. Nutritional Profile of Whole Grain Soft Wheat Flour. *Cereal Chem.* (in press)
- Souza, C Sneller, MJ Guttieri, A Sturbaum, C Griffey, M Sorrells, H Ohm, and D Van Sanford. 2011. Basis for Selecting Soft Wheat for End-Use Quality *Crop Science* (in press)
- Smith, N., E. Souza, M. Guttieri, M. Sorrells, and C. Sneller. 2011. Identification and Validation of QTL for Grain Quality Traits in a Cross of Soft Wheat Cultivars Pioneer Brand 25R26 and Foster. *Crop Sci.* 51:1424-1436
- Guttieri, M., EJ Souza, and C. Sneller. 2011. Laboratory Milling Method for Whole Grain Soft Wheat Flour Evaluation. *Cereal Chem* 88:1-5
- Souza, E, M Guttieri, and C Sneller. 2011. Selecting Soft Wheat Genotypes for Whole Grain Cookies. *Crop Sci.* 51:189–197
- Guttieri, M, C Sneller, E Souza. 2008. Nonstarch Polysaccharides in Wheat Flour Wire-Cut Cookie Making. *J Agricultural and Food Chemistry* 56:10927-10932.

### ***Other***

- Costa, Jose M.; Bockelman, Harold E.; Brown-Guedira, Gina; Cambron, Sue E.; Chen, Xianming; Cooper, Aaron; Cowger, Christina; Dong, Yanghong; Grybauskas, Arvydas; Jin, Yue; Kolmer, James; Murphy, J. Paul; Sneller, Clay; Souza, Edward. 2010. [Registration of the Soft Red Winter Wheat Germplasm Md01w233-06-1 Resistant to Fusarium Head Blight](#). *Journal of Plant Registrations*. Vol. 4, no. 3. : 255-260.
- Hall, M. D.; Tucker, D.; Griffey, C. A.; Liu, S.; Sneller, C.; Guttieri, M.; Van Sanford, D.; Costa, J.; Marshall, D.; Brown-Guedira, G. L. 2010. [Registration of Usg 3209/jaypee Wheat Recombinant Inbred Line Mapping Population](#). *Journal of Plant Registrations*. Vol. 4, no. 2. : 159-162.

- Charlson, D, S Bhatnagar, C. King, J Ray, C Sneller, TE Carter Jr, and L Purcell. 2009. Polygenic inheritance of canopy wilting in soybean [glycine max (l.) Merr.]. *Theoretical and Applied Genetics*. 119: 587-594.
- Sinclair, T.R., L.C. Purcell, A. King, C.H. Sneller, P. Chen and V. Vadez. 2006. Drought tolerance and yield increase of soybean resulting from improved symbiotic N<sub>2</sub> fixation. *Field Crops Research* 101:68-71.
- Sneller, C.H., R.L. Nelson, T. Carter Jr., Z. Cui. 2005. Genetic Diversity in Crop Improvement: The Soybean Experience. *In: Genetic and Production Innovations in Field Crop Technology: New Developments in Theory and Practice* (ed: Manjit Kang) Hawthorne Press, Inc. (also in *Jour. Crop Improvement* 14:103-144)
- Sinclair, T.R., L. Purcell, and C.H. Sneller. 2004. Crop transformations and the challenge to increase yield potential. *Trends Plant Sci.* 9:70-75.
- Reyna, N., Cornelious, B., G. Shannon, and C.H. Sneller. 2003. Evaluation of a soybean QTL conferring tolerance to soil waterlogging in southern genetic backgrounds and environments. *Crop Sci.* 43:2077-2082
- Ishibashi, T. G. Shannon, and C.H. Sneller. 2003. Soybean phenology and yield potential in the Ultra-short season production system. *Agron. Jour.* 95:1082-1087

### **Variety or Germplasm Release**

I have lead or cooperated on the release of ten wheat, 17 soybean, and 1 oat cultivars or germplasm lines.

### **Recent Grants Received**

- Breeding barley and wheat for changing climates. USDA – NIFA \$25,000,000 (\$930,000 for Ohio), 2011-2015. Co-PI and member of executive committee
- Targeted breeding for high value traits for Ohio. Ohio Small Grains Marketing Board, \$62,225, 2010-11. PI
- Improved breeding for FHB resistance by advanced genetic and phenotypic characterization of soft winter wheat. United States Wheat and Barley Scan Initiative (USDA), \$31,000 2010-2011. PI
- Breeding FHB resistant wheat for Ohio. United States Wheat and Barley Scan Initiative (USDA), \$61,000 2010-2011. PI
- Coordinated evaluation of FHB resistance of advanced soft winter wheat lines and cultivars. United States Wheat and Barley Scan Initiative (USDA), \$20,000 2010-2011. PI
- Coordinated evaluation and utilization of marker-assisted selection. United States Wheat and Barley Scan Initiative (USDA), \$31,000 2010-2011. Co-PI
- Evaluating Genomic Selection in Applied Plant Breeding. USDA - AFRI. \$400,000 2009-2012. Co-PI with K Smith and J-L Jannink.
- Molecular mechanisms for low DON accumulation in soft winter wheat, United States Wheat and Barley Scan Initiative (USDA), \$10,318 (all) 2009-2010. PI
- QTL analysis of FHB resistance in three RIL populations. United States Wheat and Barley Scan Initiative (USDA), \$8159 (all) 2009-2010. PI
- Mapping QTL for Type I and II FHB resistance from CIMMYT germplasm derived from a synthetic hexaploid, United States Wheat and Barley Scan Initiative (USDA), \$10,000 (all) 2008-09. PI

Sources of variation for DON concentration in moderately resistant SRWW, United States Wheat and Barley Scan Initiative (USDA), \$47,000 (all) 2007-08.

Genetics of FHB resistance in soft red winter wheat, United States Wheat and Barley Scan Initiative (USDA), \$25,000 (all) 2006-07. PI

Coordinate Agricultural Program – Wheat, USDA NRI, 2006, \$5,000,000 (\$60,000). Co-PI

Commercialization of Multifunctional Germplasm, OARDC ABIG Program, 2006, \$55,000. PI

Expanding the utilization of Ohio grown wheat: Tortillas and more, Ohio Seed Improvement Association, \$17,000, 2005. PI

### **Graduate Students committees**

I have served on the Thesis/dissertation committee of 23 Masters students and 11 PhD students

### **Graduate students advised**

*M.S. Amber Hoffstetter* Title: Genome wide analysis of complex traits in soft winter wheat.

*PhD. Daniel Roberts* Title: Origin and use of *Viola tricolor* genetic resources

*M.S. Nathan Smith* Title: Mapping QTL for Soft Wheat Quality

*M.S. Rebecca Nolan* Title: Confirmation of QTL for Fusarium Head Blight Resistance

*Ph. D. Anju Gupta* Title: Host plant resistance genes to Fusarium Head Blight of Wheat: Sources, inheritance, and determination of genetic control

*Ph. D. Muhammad Akhter* Title: Yield, yield components, phenology, and selection efficiency in the early planted soybean production system

*Ph. D. Lora Kilgore-Norquest* Title: Value and selection for indeterminacy and aluminum tolerance to improve drought tolerance in soybean

*M.S. Joyce Hoyt* Title: Genetics of soybean resistance to Sudden Death Syndrome

*M.S. Brian Corneliu* Title: Association of genetic diversity and agronomic performance of lines derived from north x south crosses.

*M.S. Nathan Reyna* Title: Utility of marker-assisted selection to improve yield and flood tolerance.

*M.S. Tetsuaki Ishibishi* Title: Effect of maturity and planting date on yield and other traits.

### **Classes Taught**

Title: Genomic Selection, taught in Fall 2011: Teach graduate students the theory and application of genomic selection in animal and crop improvement.

Title: Mixed Models and Association Mapping, taught in 2008-2009: Teach graduate students the use of mixed models in genetic analyses and how they can be used in complex plant populations to identify genes.

Title: Plant Genetic Resources, taught from 2003-2010: Provide undergraduate students with an awareness of the role of genetics in the plant industry.

Title: Selection in Plant Breeding, Taught three times: Covers the basic of quantitative and selection theory with an emphasis on marker-assisted selection.

Titles: Crop and Soybean production. Taught 1991-1998: Provide basic crop production and physiology principles as they relate to soybean and other crops