

## Stephen Pearce *Curriculum vitae*

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Department of Soil and Crop Sciences,  
Colorado State University,  
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Nationality: British

### Employment

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- January 2016 to present** Assistant Professor, Department of Soil and Crop Sciences, Colorado State University, Fort Collins, CO, USA
- September 2012 to January 2016** HHMI Research Associate, Prof. Jorge Dubcovsky's laboratory, UC Davis, USA.
- October 2009 to September 2012** Postdoctoral Researcher, Prof. Jorge Dubcovsky's laboratory, UC Davis, USA.
- November 2003 to August 2004** Assistant Plant Virologist, Central Science Laboratory, York, UK.

### Education

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- 2009** PhD, "Understanding the roles of green revolution genes in wheat". University of Bristol - based in Prof. Peter Hedden's laboratory, Rothamsted Research, UK.
- 2005** MSc (Distinction), Plant biotechnology for emerging economies, University of Sussex, UK.
- 2003** BSc, Genetics, University of Leeds, UK.

### Peer-reviewed publications

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Kuzay S., Xu Y., Zhang J., Katz A., **Pearce S.**, Su Z., Fraser M., Anderson J., Brown-Guedira G., DeWitt N., Haugrud A., Faris J.D., Akhunov E., Bai G., Dubcovsky J. (2019) Identification of a candidate gene for a QTL for spikelet number per spike on wheat chromosome arm 7AL by high-resolution genetic mapping. *Theoretical and Applied Genetics* <https://doi.org/10.1007/s00122-019-03382-5>

- de Haro L.H., Arellano S.M., Novák O., Feil R., Dumón A.D., Mattio M.F., Tarkowská D., Llauger G., Strnad M., Lunn J.E., **Pearce S.**, Figueroa C.M., and del Vas M. 2019. Mal de Río Cuarto virus infection causes hormone imbalance and sugar accumulation in wheat leaves. *BMC Plant Biology* 19:112.
- Mo Y., Vanzetti L.S., Hale I., Spagnolo E.J., Guidobaldi F., Al-Oboudi J., Odle N., **Pearce S.**, Helguera M. and Dubcovsky J. 2018. Identification and characterization of *Rht25*, a locus on chromosome arm 6AS affecting wheat plant height, heading time, and spike development. *Theoretical Applied Genetics* 131:2021-2035.
- Mo Y., Howell T., Vasquez-Gross H., de Haro L.A., Dubcovsky J., **Pearce S.** 2017. Mapping causal mutations by exome sequencing in a wheat TILLING population: a tall mutant case study. *Molecular Genetics and Genomics* 293:463-477.
- Moretti M.L., Alárcon-Reverte R., **Pearce S.**, Morran S. and Hanson B.D. 2017. Transcriptome of putative tonoplast transporters in response to glyphosate and paraquat stress in *Conyza bonariensis* and *Conyza canadensis* and selection of reference genes for qRT-PCR. *PLoS ONE* 12:e0180794.
- Pearce S.**, Shaw L.M., Lin H., Cotter J.D., Li C. and Dubcovsky J. 2017. Night-break experiments shed light on the *PHOTOPERIOD1*-mediated flowering. *Plant Physiology* 174:1139-1150.
- Tabbita F., **Pearce S.**, and Barneix A.J. 2017. Breeding for increased grain protein and micronutrient content in wheat: Ten years of the *GPC-B1* gene. *Journal of Cereal Science* 73:183-191.
- Pearce S.**, Kippes N., Chen A., Debernardi J.M. and Dubcovsky J. 2016. RNA-seq studies using wheat PHYTOCHROME B and PHYTOCHROME C mutants reveal shared and specific functions in the regulation of flowering and shade-avoidance pathways. *BMC Plant Biology* 16:141.
- Pearce S.**, Vazquez-Gross H., Herin S.Y., Hane D., Wang Y., Gu Y.Q. and Dubcovsky J. 2015. WheatExp: An RNA-seq expression database for polyploid wheat. *BMC Plant Biology* 15:299.
- Pearce S.**, Huttly A.K., Prosser I. M., Li Y., Vaughan S. P., Gallova B., Patil A., Coghill J.A., Dubcovsky J., Hedden P. and Phillips A.L. 2015. Heterologous expression and transcript analysis of gibberellin biosynthetic genes of grasses reveals novel functionality in the *GA3ox* family. *BMC Plant Biology* 15:130.
- Pearce S.**, Tabbita F., Cantu C., Buffalo V., Avni R., Vazquez-Gross H., Zhao R., Conley C.J., Distelfeld A. and Dubcovsky J., 2014. Regulation of Zn and Fe transporters by the *GPC1* gene during early wheat monocarpic senescence. *BMC Plant Biology* 14:368.
- Nitcher R., **Pearce S.**, Tranquilli G. and Dubcovsky J., 2014. Effect of the Hope *FT-B1* allele on wheat heading time and yield components. *Journal of Heredity* 105: 666-675.
- Lv B., Nitcher R., Han X., Wang S., Ni F., Li K., **Pearce S.**, Wu J., Dubcovsky J. and Fu D., 2014. Characterization of *FLOWERING LOCUS T1* (*FT1*) gene in *Brachypodium* and wheat. *PLoS ONE* 9: e94171.

- Zhu J., \***Pearce S.**, Burke A., See D.R., Skinner D.Z., Dubcovsky J. and Garland Campbell K., 2014. Copy number and haplotype variation at the *VRN-A1* and central *FR-A2* loci are associated with frost tolerance in hexaploid wheat. *Theoretical Applied Genetics* 127: 1183-1197. \*Joint-first author.
- Avni R., Zhao R., **Pearce S.**, Jun Y., Uauy C., Tabbita F., Fahima T., Slade A., Dubcovsky J. and Distelfeld A., 2014. Functional characterization of *GPC-1* genes in hexaploid wheat. *Planta* 239: 313-324.
- Pearce S.**, Vanzetti L. and Dubcovsky J., 2013. Exogenous gibberellins induce wheat spike development under short days only in the presence of *VRN1*. *Plant Physiology* 163: 1433-1445.
- Pearce S.**, Zhu J., Boldizsár A., Vágújfalvi A., Burke A., Garland-Campbell K., Galiba G. and Dubcovsky J., 2013. Large deletions in the *CBF* gene cluster at the *Fr-B2* locus are associated with reduced frost tolerance in wheat. *Theoretical Applied Genetics* 126: 2683-2697.
- Krasileva K.V., Buffalo V., Bailey P., **Pearce S.**, Ayling S., Tabbita F., Soria M., Wang S., IWGS Consortium, Akhunov E., Uauy C. and Dubcovsky J., 2013. Separating homeologs by phasing in the tetraploid wheat transcriptome. *Genome Biology* 14: R66.
- Distelfeld A., **Pearce S.**, Avni R., Scherer B., Uauy C., Piston F., Slade A., Zhao R. and Dubcovsky J., 2012. Divergent functions of orthologous NAC transcription factors in wheat and rice. *Plant Molecular Biology* 78: 515-24.
- Pearce S.**, Saville R., Vaughan S.P., Chandler P.M., Wilhelm E.P., Sparks C.A., Korolev A., Al-Kaff N., Boulton M.I., Phillips A.L., Hedden P., Nicholson P. and Thomas S.G., 2011. Molecular characterisation of *Rht-1* dwarfing genes in hexaploid wheat (*Triticum aestivum*). *Plant Physiology* 157: 1820-31.
- Cantu D., \***Pearce S.**, Distelfeld A., Christiansen M.W., Uauy C., Akhunov E., Fahima T. and Dubcovsky J., 2011. Effect of the down-regulation of the high *Grain Protein Content* (*GPC*) genes on the wheat transcriptome during monocarpic senescence. *BMC Genomics* 12: 492. \*Joint-first author.
- Dhillon T., \***Pearce S.**, Stockinger E.J., Distelfeld A., Li C., Knox A.K., Vashegyi I., Vágújfalvi A., Galiba G. and Dubcovsky J., 2010. Regulation of freezing tolerance and flowering in temperate cereals: the *VRN-1* connection. *Plant Physiology* 153: 1846-58. \*Joint-first author.
- Appleford N.E.J., Wilkinson M.D., Ma Q., Evans D.J., Stone M.C., **Pearce S.**, Powers S.J., Thomas S.G., Jones H.D., Phillips A.L., Hedden P. and Lenton J.R., 2007. Decreased shoot stature and grain alpha-amylase activity following ectopic expression of a gibberellin 2-oxidase gene in transgenic wheat. *Journal of Experimental Botany* 58: 3213-26.

## Teaching

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SOCR430 “Applications of Crop Biotechnology”. Co-taught with Dr. Pat Byrne, Fall 2016.

Invited lecturer: Class on “Vernalization and frost tolerance in wheat” as part of UC Davis graduate course PBI 293 “Post-harvest seminar series”, Spring 2013.

Invited lecturer: Class on “Gibberellins and the Green Revolution” as part of UC Davis graduate course HRT 298 “Horticulture and agronomy”, Fall 2012, 2013 and 2014.

Invited lecturer: Seminar on RNA-seq in “High-throughput sequence data analysis workshop” organized by the UC Davis Bioinformatics core, Fall 2014.

- PI on submitted grant “Developing Wheat Genome Editing Capacity at CSU”, Colorado Wheat Research Foundation.
- Co-PI on grant “Identification of new sources of genetic resistance to wheat streak mosaic virus” Colorado Wheat Research Foundation.

## Awards

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<b>2017</b>	Colorado Wheat Research Foundation: Developing wheat genome editing capacity at CSU. PI – Stephen Pearce. Co-PIs – Jennifer Cotter, Karl Ravet, Todd Gaines. \$23,094.
	Colorado Wheat Research Foundation: Identification of new sources of genetic resistance to wheat streak mosaic virus. PI – Kirk Broders. Co-PIs – Tessa Albrecht, Stephen Pearce. \$15,000.
<b>2016</b>	USDA/NIFA CAP grant: Validation, characterization and deployment of QTL for grain yield components in wheat. PI – Jorge Dubcovsky, Co-PIs (CSU), Stephen Pearce, Scott Haley, Pat Byrne, \$432,854.
<b>2015</b>	International Wheat Yield Partnership 1 <sup>st</sup> competitive call for proposals: Molecular dissection of spike yield components in wheat. PI – Cristobal Uauy, Co-PIs – Jorge Dubcovsky, Stephen Pearce, Karim Ammar, US\$2.3M.
<b>2014</b>	UC Davis Signature Research in Genomics Program. Named investigator “Novel applications of large-scale genomics in research” - US\$42,000.
<b>2009</b>	JSPS fellowship, Dr. Shinjiro Yamaguchi’s laboratory, RIKEN institute, Yokohama, Japan. I won but elected not to take up this fellowship.
<b>2006</b>	Biotechnology Young Entrepreneurs Scheme. My team won this nationwide competition to develop and market a fictional

biotechnology product, to teach commercialisation, patenting and business skills.

## **Presentations at international meetings**

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- 2017**                      **Crop Science Society of America Annual Meeting, Tampa, FL, USA**  
Talk: “Night-break experiments shed light on *PHOTOPERIOD1*-mediated flowering in wheat”
- 2016**                      **Donald Danforth Plant Science Center Fall Symposium, St. Louis, MO, USA**  
Talk: “Wheat functional genomics in the era of next generation sequencing.”
- Winter Wheat Workers Workshop, San Antonio, TX, USA.**  
Talk: “Wheat functional genomics in the era of next generation sequencing.”
- 2014**                      **HHMI Scientific meeting, Chevy Chase, MD, USA.**  
Poster: “The role of gibberellins in wheat spike development.”
- 2012**                      **PAG 2012, San Diego, CA, USA.**  
Poster: “Characterizing the effects of down-regulating the *GPC* genes on the wheat transcriptome during monocarpic senescence in wheat.”
- 2007**                      **19<sup>th</sup> IPGSA meeting, Puerto Vallarta, Mexico.**  
Poster: “Understanding the roles of green revolution genes in wheat.”
- 2006**                      **4<sup>th</sup> UK Small Grain Cereals Genetics and Genomics workshop, Cambridge, UK.**  
Poster: “Understanding the roles of green revolution genes in wheat.”