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## EDUCATION

Ph.D., 2000, University of Nebraska-Lincoln, Nebraska, Plant Breeding and Genetics (Minor in Biometry).  
M.Sc., 1996, University of Nebraska-Lincoln, Nebraska, Plant Breeding and Genetics.  
B.S., 1990, Juan Misael Saracho Bolivian University, Tarija, Bolivia, Agronomy.

## PROFESSIONAL HISTORY

2020 - Assistant Professor, Small Grains and Oil Seed Crops Specialist,  
Department of Soil and Crop Sciences, Texas A&M University, College Station, TX.  
2019 - 2020: Private Consultant, Global Clean Energy Holdings (GCEH).  
2017 - 2019: Research Associate, Montana State University.  
2012 - 2016: Wheat TILLing Research Lead, Targeted Growth, Inc/Northern Seed, LLC.  
2011 - 2012: Director of Research and Development, Sustainable Oils, LLC.  
2006 - 2011: Senior Plant Breeder, Barkley Ag. Enterprises, LLC/ Sustainable Oils, LLC.  
2002 - 2006: Postdoctoral Research Scientist, Northwestern Agricultural Research Center - Montana  
State University, Kalispell, MT.

## MAJOR PROFESSIONAL ACCOMPLISHMENTS

Positioning Camelina (*Camelina Sativa*) as a biofuel feedstock crop for the USA. For that I implemented an aggressive applied breeding strategy for the development of superior camelina cultivars to be used as feedstocks for biodiesel production in the USA, which required the definition of clear and attainable target breeding goals, appropriate breeding methods, and the identification of testing environments using novel statistical techniques. I am the patent holder of three superior camelina varieties with unique attributes. I also contributed to the development of a sound management protocol for commercial production of camelina and got actively involved in the process of transferring this technology to the farm.

Adapting unique statistical methods for agricultural research. I introduced the use of linear structural modelling, a statistical technique originally conceived to uncover cause-effect relationships among events in the field of social sciences, for assessing crop-weed interactions using a mechanistic system approach. This was the first time this technique was applied to the field of crop sciences, as it has been recognized in the scientific literature (Kozak, M., Kang, M.S. 2006. Note on modern path analysis in application to crop science. *Commun. Biometry Crop Sci.* 1 (1), 32-34.)

Also, I developed a statistical approach to assess the feasibility of indirect selection using the concept of qualitative (cross-over) genotype-by-environment interaction.

Use of TILLing, a gene-editing tool, for yield enhancement in wheat. I was involved in attaining the proof of concept of the use of gene knock-outs involved in the cell division process in the plant on yield in spring wheat, I defined target mutant and deleterious mutant effects associated with gene knock-outs

based on solid assumptions followed by the development of statistical protocols for their correct estimation. To my knowledge this constituted one of the first attempts in using TILLing, a gene-editing tool, for yield improvement in a commercial crop.

## PATENTS

**Guillen-Portal Fernando.** (2012). Camelina sativa Variety 'SO-40'. U.S. Plant Patent No. US 8,319,020 B2. Available at

<https://patentimages.storage.googleapis.com/a1/62/b8/0d7f8edf8849be/US8319020.pdf>

**Guillen-Portal Fernando.** (2012). Camelina sativa Variety 'SO-50'. U.S. Plant Patent No. US 8,319,021 B2. Available at

<https://patentimages.storage.googleapis.com/7f/54/95/e4f9fc4a84f134/US8319021.pdf>

**Guillen-Portal Fernando.** (2012). Camelina sativa Variety 'SO-60'. U.S. Plant Patent No. US 8,324,458 B2. Available at

<https://patentimages.storage.googleapis.com/4e/0b/2e/2d61a548413bd0/US8324458.pdf>

## RELEVANT PUBLICATIONS

### *Peer-reviewed Scientific Journals*

S. P. Lanning, J. M. Martin, R. N. Stougaard, **F. R. Guillen-Portal**, N. K. Blake, J. D. Sherman, A. M. Robbins, K. D. Kephart, P. Lamb, G. R. Carlson, M. Pumphrey, and L. E. Talbert. 2012. Evaluation of Near-Isogenic Lines for Three Height-Reducing Genes in Hard Red Spring Wheat. *Crop Sci.* 52:1145-1152.

**Guillen-Portal, F. R.,** R. N. Stougaard, Q. Xue, and K. M. Eskridge. 2006. Compensatory Mechanisms Associated with the Effect of Spring Wheat Seed Size on Wild Oat Competition. *Crop Sci.* 46:935-945.

**Guillen-Portal, F. R.,** W. K. Russell, K. M. Eskridge, D. D. Baltensperger, L. A. Nelson, N. E. D'Croz-Mason, and B. E. Johnson. 2004. Selection Environments for Maize in the U.S. Western High Plains. *Crop Sci.* 44: 1519-1526.

**Guillen-Portal, F. R.,** W. K. Russell, D. D. Baltensperger, K. M. Eskridge, N. E. D'Croz-Mason, and L. A. Nelson. 2003. Best Types of Maize Hybrids for the Western High Plains of the USA. *Crop Sci.* 43:2065-2070.

W. K. Russell, K. M. Eskridge, D. A. Travnicek, and **F. R. Guillen-Portal.** 2003. Clustering Environments to Minimize Change in Rank of Cultivars. *Crop Sci.* 2003 43: 858-864.

**Guillen-Portal, F. R.,** D. D. Baltensperger, L. A. Nelson, and G. Frickel. 2002. Assessment of Hard Red Winter Wheat F<sub>2</sub> and F<sub>3</sub> Hybrids for the Nebraska Panhandle. *Communications in Soil Science and Plant Analysis.* 35: 963-972.

### *Book Chapters*

Apaza-Gutierrez, V., A. Romero-Saravia, **F. R. Guillen-Portal**, D. D. Baltensperger. 2002. Response of Grain Amaranth Production to Density and Fertilization in Tarija, Bolivia. p. 107-109. *In* J. Janick and A. Whipkey (eds.) *Trends in New Crops and New Uses.* ASHS press, Alexandria, VA. Available at <http://www.hort.purdue.edu/newcrop/ncnu02/pdf/guillen-portal.pdf>.

**Guillen-Portal, F.R.,** D. D. Baltensperger, L. A. Nelson, N. D'Croz-Mason. 1999. Variability in 'Plainsman' Grain Amaranth. p. 184-189. *In* J. Janick (ed.) *Perspectives on New Crops and New Uses.* ASHS

Press. Alexandria, VA. Available at <http://www.hort.purdue.edu/newcrop/proceedings1999/v4-184.pdf>.

**Guillen-Portal F.R.**, D. D. Baltensperger, L .A. Nelson. 1999. Influence of Plant Population on Grain Yield and Agronomic Traits in Grain Amaranth. p. 190-195. *In* J. Janick (ed.) Perspectives on New Crops and New Uses. ASHS Press. Alexandria, VA. Available at <http://www.hort.purdue.edu/newcrop/proceedings1999/v4-190.pdf>.

#### *Conferences and magazines*

**Guillen Portal, F.R.** 1992a. Grain amaranth production at four locations within the Camacho River Basin. (*In Spanish*) *In*: Memorias II Simposio Nacional de Cultivos Estratégicos de Valor Alimenticio: Quinoa y Amarantos. April, 28–30, San Salvador de Jujuy, República Argentina.

**Guillen Portal, F.R.** 1992b. Perspectives for grain amaranth production in Tarija. (*In Spanish*) *In*: Revista Pro-Campo. Mag. Rural Dev. 1:12–14.

#### **RESEARCH GRANT AWARDS**

I generated \$1,045.000 in research grant awards from competitive private and state sources since 2007.

#### **HONORS AND AWARDS**

MONTANA STATE UNIVERSITY Milestone in Service Award, 5 years of service (2018).

PIONEER HI-BRED International Scholarship Award (1997 - 2000).

UNIVERSITY OF NEBRASKA-LINCOLN Graduate Assistantship Award (1996 - 1997).

FULBRIGHT/LASPAU International Scholarship Award (1994 - 1996).