Julio Isidro Sánchez, PhD.

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Github Web: https://github.com/TheRocinante-lab

Current position

Currently, I am working as a **Senor Beatriz Galindo distinguished researcher at the Centre for Plant Biotechnology and Genomics- Technical University of Madrid.**

Areas of specialization

Genomic assisted breeding • Cereals • Plant improvement • Quantitative genetics • Statistical genomics • Plant Biology

Appointments held

2020-Current	Senior Beatriz Galindo position, CBGP-UPM.
2015-2020	Lecturer Professor, UCD.
Jan2015-Jun15	Postdoctoral Fellow at Cornell University, USA.
2011-2012	Postdoctoral Fellow for the Natural Sciences and Engineering Research Council of Canada (NSERC).
2009-2011	Postdoctoral Fellow at SPARC Centre in Saskatchewa, Canada.
2007-2008	Technician Researcher at CSIC, Armilla, Granada, Spain.
2003-2007	Doctorate Studies, University of Granada.

Education

2017	Professional teaching certificate and the certificate of Continuing Professional Development from
2015	University College Dublin. MSc in Plant Breeding, Cornell University (USA).
2008	PhD in Crop Physiology, University of Granada (Spain).
2005	MSc in Agrobiology, University of Granada (Spain).
2001	MSc in Biology Bachelor degree, University of Seville (Spain).

Research granted projects

2022-2025 **Spanish Grant: Proyectos de Generación de Conocimiento 2021**. *Mejora asistida por genómica para la agricultura sostenible: Un enfoque de referencia: PID2021-123718OB-I00. €127K.*

2022-2026 **Spanish Grant: UPM-PhD Plan Propio-PREDOC-21-GCCS6G-62-2B65BK**. Machine learning approaches applied to genomic assisted breeding. *€74K.*

2022-2022 **Spanish Grant: Industrial Doctorate**. *Aplicación de herramientas de mejora asistida por genómica al programa de mejora de girasol de Syngenta. €25K.*

2021-2024 **Spanish Grant: Strategics Lines**. *WheatRes. Identification of new sources of horizontal resistance to septoria and rust in durum wheat. PLEC2021-007930. €190K.*

2021-2023 **Spanish Grant: Research and Development Madrid**. *Breeding tools to harness yield productivity by applying genomic selection. €144K.*

2019-2024 **H2020-European Grant**. *Next generation variety testing for improved cropping on European farmland (Innovar). €319K.* Deputy WP leader of WP2. Tasks on WP2, WP3, WP4 and WP7.

2020-until now **Spanish Grant: Oat PanGenome**. Consortium to generate a pan-genome for hexaploid oat. *€36K.* Member of the consortium and responsible of the whole genome sequencing of the variety OT380.

2020-until now **Spanish Grant: Svevo Platinum genome**. Member of the Platinium Svevo international Consortium to improve the sequencing of the reference durum wheat variety Svevo. *€10K.*

2020-2023 **Interreg-European Grant**. *Healthy Oats – innovation in oat product development.* UCD, IBERS, Swansea University and Teagasc. €2 million. Project Coordinator. Julio Isidro Sanchez and Fiona Doohan.

2019-2023 **Spanish Grant**. Improving the accuracy and efficiency of selection for complex traits in wheat breeding for Mediterranean environments through MAS and GS ($PID2019-109089RB-C32-TRENDING\_Wheat$). *€165K.* P.I. Jose Miguel Soriano. Role: Writing the GS implementation approach to the breeding program.

2019-2022 **European Grant**. WheatSustain. Knowledge-driven genomic predictions for sustainable disease resistance in wheat. *€174K.* PI. Work Package 1. Julio Isidro-Sánchez.

2017-2022 **Irish Grant**. *CONSUS: Crop Optimisation through Sensing, Understanding & Visualisation. €4 millions.* PI. Prof. Gregory OHare. My role in this project was as a Funded Investigator for PhD *€96K.*

2017-2022 **Irish Grant**. *Oats for the future: deciphering potential of host resistance and RNAi to minimise mycotoxin contamination under present and future climate scenarios. €87K.* PI. Fiona Doohan, Julio Isidro-Sánchez, Naresh Magan, Ángel Medina.

2019-2022 **Irish Grant**. Developing multi-use barley to improve the organic Irish market. Irish Research Council. *€96K.* PI. Julio Isidro-Sánchez.

2018-2020 **European Grant**. Effect of soil water content on seedling emergence in small grain cereals. European Plant Phenotyping Network EPPN. PI. Julio Isidro-Sánchez.

2016 **Irish Grant**. *PICS: Physiology Infrastructure for Crop Stress. €295K.* PI. Julio Isidro-Sánchez.

2015-2019 **Canadian Grant.** *Canadian Triticum Applied Genomics (CTAG).* Design of genomic selection program. ($10 million).

2012-2017 **Canadian Grant.** *Improving Wheat Productivity under Conditions of Abiotic Stress. A proposed project as part of the National Research Council Wheat Flagship Program and the Canadian Wheat Improvement Consortium. $ 14 million.* Postdoctoral Project.

2009-2011 **European Grant.** *Identification and selection of traits that maximize biomass production as well as enhance the efficiency of biomass conversion by novel processes are critical for the viability of biorefineries. AGRNEX2008N0475.* Postdoctoral Project.

2002-2006 **European Grant.** *Improving durum wheat for water use efficiency and yield stability through physiological and molecular approaches (IDuWUE). ICFPN502A3PR03 (ICA3NCTN2002N10085). €963K.* Member of the Research team of this project.

2006-2009 **Spanish Grant.** *Nuevas vias para mejorar la adaptacion del trigo duro, Triticum turgidum L.Var.Durum a ambientes mediterraneos. AGL2006-09226-C02-02- 02/AGR. €45K.* Member of the Research team

of this project.

2005-2008 **Spanish Grant.** *Fisiología del tritórdeo en condiciones mediterráneas: enfoque multidisciplinary para una colaboración transmediterránea azahar.* AGL2005-07257- C04-04. *€28K*. Member of the Research team of this project.

2003-2008 **Spanish Grant**. Aproximación multidisciplinary al incremento de la eficacia en la mejora del trigo duro: Integración de técnicas ecofisiológicas y moleculares. AGL2002-04285-C03-02. *€65K*. PhD project.

Publications & Science Outreach

Journal articles

2023 Fernández-Gónzalez, Haquin B, Combes E, Bernard K, Allard A, **Isidro y Sánchez, J**. Dissecting the Complex Genetic Basis of Pre and Post-harvest Traits in Vitis vinifera L. using Genome-Wide Association Studies. Submitted in *Plant Methods*. **IF: 5.1**.

2023 Garcia-Abadillo J, Barba P, Sosa-Zuniga V, Lozano R, Fanelli H, Garcia-Rojas M, Salazar E, **Isidro y Sánchez, J**. Dissecting the Complex Genetic Basis of Pre and Post-harvest Traits in *Vitis vinifera L.* using Genome-Wide Association Studies. Submitted with minor revisions in *Horticultural research*. **IF: 8.6**.

2023 Akdemir, D.; Somo, M.; Isidro-Sanchéz, J. An Expectation- Maximization Algorithm for Combining a Sample of Partially Overlapping Covariance Matrices. *Axioms 2023,12,161*. https://doi.org/10.3390/axioms12020161 **IF: 2.6 Q2**

2022 Garcia-Abadillo J, Morales L, Buerstmayr H, Michel S, Lillemo M, Holzapfel J, Hartl L, Akdemir D, Carvalho HF and Isidro-Sánchez J. Alternative scoring methods of fusarium head blight resistance for genomic assisted breeding. *Front. Plant Sci.* 13:1057914. doi: 10.3389/fpls.2022.1057914 **IF: 6.627 Q1**

2022 Fernández-Gónzalez, J, Akdemir, D, Isidro y Sánchez J. A comparison of methods for training population optimization in genomic selection. https://doi.org/10.1007/s00122-023-04265-6. **IF: 5.574. Q1**

2022 Shahinnia1 F, **Isidro y Sánchez, J** et al. Genome-wide association study and genomic prediction of resistance to stripe rust in current Central and Northern European winter wheat germplasm. *Theoretical and applied Genetics. https://doi.org/10.1007/s00122-022-04202-z* **IF: 5.574. Q1**.

2021 Rio S, Akdemir D, Carvalho T, **Isidro y Sánchez, J**. "Assessment of genomic prediction reliability and optimization of experimental designs in multi-environment trials". *Theoretical and applied Genetics. https://doi.org/10.1007/s00122-021-03972-2.* **IF: 5.574. Q1**.

2021 **Isidro y Sánchez, J** and Deniz Akdemir. "Training set optimization for sparse phenotyping in genomic selection" *Frontier in Plant Science. 12:715910. doi: 10.3389/fpls.2021.715910.* **IF: 6.627. Q1**.

2021 Simon Rio, Luis Gallego-Sánchez, Gracia Montilla-Bascón, Francisco J. Canales, **Isidro y Sánchez, J** and Elena Prats. "Genomic prediction and training set optimization in a structured Mediterranean oat population". *Theoretical and applied Genetics, 134, 3595–3609. https://doi.org/10.1007/s00122-021-03916-w.* **IF: 5.574. Q1**.

2021 Hilmarsson, H.S, Rio, S, **Isidro y Sánchez, J**. "Genotype by Environment Interaction Analysis of Agronomic Spring Barley Traits in Iceland Using AMMI, Factorial Regression Model and Linear Mixed Model". *Agronomy Journal 2021, 11, 499.* **IF: 2.650. Q2**.

2021 Akdemir D, Rio. S and **Isidro y Sánchez Julio**. "TrainSel: an R package for selection of training populations". *Frontiers in Genetics, section Statistical Genetics and Methodology.* 12, p.607. **IF: 4.772. Q1**.

2020 **Isidro-Sánchez, J**., D'Arcy Cusack, K., Verheecke-Vaessen, C., Kahla, A., Bekele, W., Doohan, F., Magan, N. and Medina, A., 2020. "Genome-wide association mapping of Fusarium langsethiae infection and mycotoxin accumulation in oat (Avena sativa L.)". Plant Genome, 13(2), p.e20023. **IF:**

4.089. Q2.

2020 Deniz Akdemir, Ron Knox and **Isidro-Sánchez Julio**. "Combining Partially Overlapping Multi-Omics Data in Databases Using Relationship Matrices". *Frontiers in Plant Science, 11:947.* **IF: 5.754. Q1**.

2019 Deniz Akdemir and **Isidro-Sánchez Julio**. "Design of training populations for genomic prediction", *Scientific Report.* 9: 1446. **IF: 3.998. Q1**.

2019 Gul, A., Diepenbrock, et.al and **Isidro-Sánchez J**. "Mark E. Sorrells: Plant Breeder, Geneticist, Innovator, Mentor", *Plant Breeding Reviews* 42: 1-38. **IF: 1.662. Q1**.

2019 Deniz Akdemir, William Beavis, Roberto Fritsche-Neto, Asheesh K.Singh, **Isidro-Sánchez J**. "Multi-objective optimized genomic breeding strategies for sustainable food improvement", *Heredity* 27: 1. **IF: 3.436. Q1**.

2018 Kumar S, Knox R, Asheesh K.Singh, Depauw Ron, Campbell Heather, **Isidro-Sánchez J** et al. "High-Density Genetic Mapping of a Major QTL for Resistance to Multiple Races of Loose Smut in a Tetraploid Wheat Cross", *Plos One*13:2. **IF: 2.776. Q2**.

2017 **Isidro-Sánchez J**, Ben Perry, Asheesh K. Singh, Hong Wang, Ronald M. DePauw et al. "Effects of Seeding Rate on Durum Crop Production and Physiological Responses", *Agronomy Journal.* 109:1981-1990. **IF: 1.897 Q2**.

2017 Akdemir D, Jannink JL, **Isidro-Sánchez J**. "Locally Epistatic Models for Genome-wide Prediction and Association by Importance Sampling", *Genetics Selection Evolution* 109:1981-1990. **IF: 3.743. Q1**.

2016 Akdemir D, **Isidro-Sánchez J**. "Efficient Breeding by Genomic Mating", *Frontiers in Genetics* 7:210. **IF: 3.789. Q1**.

2015 **Isidro-Sánchez J**, Jannink JL, Akdemir D, Poland J, Heslot N, Sorrells ME. `https://link.springer.com/article/10.1007/s00122-014-2418-4.`"Training set optimization under population structure in genomic selection". *Theoretical and Applied Genetics* 128(1):145-58. **IF:3.900.Q1**.

2015 Akdemir D, **Isidro-Sánchez J**, Jannink J. "Optimization of genomic selection training populations with a genetic algorithm", *Genetics Selection Evolution* 47(1):38. **IF: 2.895. Q1**.

2012 **Isidro-Sánchez J**, Knox R, Singh A.K, Clarke F.R, Krishna P, DePauw R.M, Clarke, J.M, Somers D. "Brassinosteroid leaf unrolling QTL mapping in durum wheat" *Planta* 236(1):273-81. **IF: 3.347. Q1**.

2012 **Isidro-Sánchez J**,Knox R, Singh A.K, Clarke F.R, DePauw R.M, Clarke, J.M, Somers D. "Quantitative genetic analysis and mapping of leaf angle in durum wheat". *Planta* 236(6):1713-23. **IF: 3.347. Q1**.

2011 **Isidro-Sánchez J**, Alvaro F, Royo C, Villegas D, Miralles D, Garcıa del Moral,L. "Changes duration of developmental phases of durum wheat caused by breeding in Spain and Italy during the 20th century and its impact on yield". *Annals of Botany* 107(8):1355-66. **IF: 4.030. Q1**.

2008 Alvaro F, **Isidro-Sánchez J**, Villegas D, Garcia del Moral, L, Royo C. "Old and modern Italian and Spanish durum wheat varieties differ in spike components". *Field Crops Research.* **IF: 2.032. Q1**.

2008 Alvaro F, **Isidro-Sánchez J**, Villegas D, Garcia del Moral L, Royo C. "Breeding Effects on Grain Filling, Biomass partitioning and Remobilization in Mediterranean Durum Wheat". *Agronomy Journal.* **IF: 1.532 Q2**.

2007 Royo C, Alvaro F, Martos V, Ramdani A, **Isidro-Sánchez J**, Villegas D, Garcia del Moral , L. "Genetic changes in durum wheat yield components and associated traits in Italy and Spain during the 20th century". *Euphytica.* **IF: 1.050 Q2**.

Books

2022 **Isidro-Sánchez J**, Rio Simon, and Akdemir Deniz. Genomic selection in plants. *Book Chapter: "Hands on Training Optimization in Genomic Selection".* ISBN 9781032103501. CRC Press.

2020 **Isidro-Sánchez J**, Elena Prats, Catherine Howarth, Tim Langdon, Gracia Montilla-Bascón *Book*

Chapter: Genomic approaches for climate resilience breeding in Oats. In Genomic Designing of Climate-Smart Cereal Crops 2020 (pp. 133-169). Springer, Cham.

2017 **Isidro-Sánchez J**, Akdemir D, Montilla-Bascón, Gracia. *Book Chapter: Genome wide association analysis using R chapter in Oat*. Methods and Protocols. Springer.

2017 Montilla-Bascón, Gracia, Corey D. Broeckling, O. Hoekenga, E. Prats, M. Sorrells and **Isidro-Sánchez J**. *Book Chapter: Chromatographic methods to quantify nutritional components in oat*. Methods and Protocols. Springer.

2016 **Isidro-Sánchez J**, Akdemir D, Burke J. *Book Chapter 32: "Genomic Selection"*. The World Wheat Book, Volume III, Lavoisier, Paris.

Presentation and talks

2022 From Seed to Pasta IV Conference 26-29 Oct 2022 Bolonia (Italy). Program: https://bit.ly/3UmKLRp. Website: https://www.fromseedtopasta.com/. **Invited Speaker**.

2022 11th International Oat Conference, Perth, Australia. Program: https://bit.ly/3WwB1FU. Website: https://www.internationaloat.com. Genome-wide association mapping of Fusarium langsethiae infection and mycotoxin accumulation in oat Assist. **Invited Speaker**.

2022 11th International Oat Conference, Perth, Australia. Program: https://bit.ly/3WwB1FU. Website: https://www.internationaloat.com. Genomic prediction and training set optimization in a structured Mediterranean oat population. **Invited Speaker**.

2022 XVIIIth Eucarpia Biometrics in Plant Breeding Conference. 21-23 Sep 2022. Gif-sur-Yvette (France) https://eucarpiabiom22.sciencesconf.org/resource/page/id/2. **Invited Speaker**.

2020 XVIIIth Monogram network meeting. The James Hutton Institute. "Adventures in multi-omics i: combining heterogeneous datasets via relationship matrices. 28-30 April. **Invited Speaker**.

2019 II Simposio Español de fisiología y mejora de cereales. Córdoba, 6-7 Marzo. **Poster and Talk**. http://sefimec.csic.es/.

2019 Instituto de Investigación y Tecnologías agroalimentarias (IRTA) , Lleida. Genomic assisted breeding for crop improvement. **Invited Seminar Speaker**. 18-July-2019.

2019 Invited seminar speaker at the University of Galway. Genomic selection: a tool for crop improvement. **Invited Seminar Speaker**. https://twitter.com/PABC_Galway/status/1095460889807998976.

2018 Irish Cereals Improvement Network. March 7, 2018. Cereal Research and Breeding for Resistance. GWAS in wheat. **Invited Speaker**.

2018 Plant and Animal Genome XVI Conference. January 13-17, 2018. Multi-Objective Optimized Breeding Strategies. Akdemir D, Beavis W, Singh A, Fristsche-Nieto R, **Isidro-Sánchez J**. https://pag.confex.com/pag/xxvi/meetingapp.cgi/Paper/29030. Poster.

2017 Monogram network meeting. University of Bristol. 2017. 2-4 July. Selection of training population set in genomic selection using STPGA. **Invited Speaker**. https://monogram.ac.uk

2016 The 10th International Oat Conference. 11-15-July 2016. How should I select the individuals of my training population to make selection in GS? **Invited Speaker**. http://oats2016.org/files/29739_farexpo_program.pdf

2015 Plant and Animal Genome XXII Conference. January 10-14, 2015. Optimization of Training Population Under Population Structure in Genomic Selection. **Isidro J**, Jannink JL, Akdemir D., Poland J, Heslot N, Sorrells M. Poster.

2014 2st Canadian Wheat Symposium. June 8, 2014 - June 11, 2014. Saskatoon SK. Field evaluation of a collection of wheat lines for performance under irrigated and rain-fed conditions in the semi-arid region of Saskatchewan Yong H, Knox R, DePauw R, Wang H, Cuthbert R, Clarke F, Singh, **Isidro J**, Cutler A, Selvaraj G. Poster.

2014 Cereals for Food, Feed and Fuel – Challenge for Global Improvement. Eucarpia 2014. Environmental effects on the estimation of yield genetic gains of Mediterranean durum wheat. Joan Subira, Fanny Alvaro, Luis F. García del Moral, **Julio Isidro**, Conxita Royo. ITMI Joint Confer-

ence Wernigerode, Germany, June 29 – July 4, 2014.

2013 Plant and Animal Genome XXI Conference. January 12-16, 2013. Quantitative trait loci for chlorophyll content in durum wheat. **Isidro J**, Knox R, Singh A.K., Clarke F, DePauw R, Clarke J, Somers D. Poster.

2012 Plant and Animal Genome XV Conference. January 10-18, 2012. Identification of genomic regions determining the grain quality and agronomic characters in durum wheat. S. Kumar, R. E. Knox, **J. Isidro**, Y. Ruan, R. D. Cuthbert, C. J. Pozniak, A. NDiaye, B. Meyer, S. Berraies, A. K. Singh. Poster.

2012 Plant and Animal Genome XX Conference. 14-18 January 2012 The relationship of leaf angle and brassinosteroid response loci in durum wheat. **Isidro J**, Knox R, Singh A.K., Clarke F, DePauw R, Clarke J, Somers D. Poster.

2011 1st Congress of Cereal Biotechnology and Breeding. 24-27 May 2011, Szeged, Hungary. Brassinosteroid leaf unrolling QTL mapping in durum wheat. **Isidro J**, Knox R, Singh A.K, Clarke F, DePauw R, Krishna P, Somers D. Poster.

2011 12th International Symposium on Pre-Harvest Sprouting in Cereals. July 24-27, 2011. Red Deer, Alberta, Canada. Evaluation of methods of measurement of pre-harvest sprouting resistance in durum wheat. R.E. Knox, F.R. Clarke, J.M. Clarke, S. Fox, R.M. DePauw, A.K. Singh, **J.Isidro-Sánchez** . Oral presentation and poster.

2011 1st Canadian Wheat Symposium. November 30th-December 2nd, 2011. Winnipeg, Manitoba, Canada. Mapping quantitative trait loci for leaf angle in durum wheat. **Isidro J**, Knox R, Singh A.K., Clarke F, DePauw R, Clarke J, Somers D.Poster.

2011 1stCanadian Wheat Symposium November 30th-December 2nd, 2011. Winnipeg, Manitoba, Canada. Effects of plant density on durum crop production. Perry B, **Isidro J**, Singh A.K., Wang, H. , DePauw, R.M., Pozniak, C.J., Cuthbert, R.D., Beres, B.L., Johnson, E.N. Poster.

2007 Plant & Animal Genomes XV Conference. San Diego, CA. From 13 to 17 January 2007."Improvement of durum wheat adaptation to drought-Prone Mediterranean environments via association mapping using a mini-core germplasm collection". Maccaferri M., Sanguineti,V Natoli., Arauls J.L., Ben Salem M., Bort J.,De Ambrogio E., Demontis A., El-Ahmed A., Garcia del Moral L.F., **Isidro J**,Maalouf F., Martos V., Motawai J., Nachit M.M., Nserallah N., Ouabbou H., Rhouma S.,Royo C, Slama A.,Villegas D.,Tuberosa R. Poster.

2007 Plant & Animal Genomes XV Conference. From 13 to 17 January 2007. "QTLs for drought-related morpho-Physiological traits in a durum wheat population evaluated under a range of Mediterranean environments". Maccaferri M., Sanguineti, V Natoli., Arauls J.L., Ben Salem M., Bort J.,De Ambrogio E., Demontis A., El-Ahmed A., Garcia del Moral L.F., **Isidro J** ,Maalouf F., Martos V., Motawai J., Nachit M.M., Nserallah N.,Ouabbou H.,Rhouma S., Royo C., Slama A.,Villegas D., Tuberosa R. Poster.

2007 XVII Meeting of the Spanish Society of Plant Physiology (SEFV) Hispano-Luso XI Congress of Plant Physiology. Alcala de Henares, 18-21 September 2007."Evolucion del contenido de lisina durante el crecimiento del grano en variedades españolas antiguas, intermedias y modernas de trigo duro en ambiente mediterraneo". **Isidro-Sánchez J**, F. Alvaro, I. Fernandez-Figares, R. Rodriguez, C. Royo, L. F. Garcia del Moral. Poster.

2006 Plant Genomics European Meetings. Venic (Italy), From 11 to 14 October 2006."Identification of chromosome regions controlling drought-related traits in a durum wheat germplasm collection evaluated in the Mediterranean area under varying water regimes". Maccaferri M., Sanguineti MC, Natoli V, Arauls JL, Ben Salem M, Bort J, De Ambrogio E, Demontis A, El-Ahmed A, Garcia del Moral LF, **Isidro J**, Maalouf F, Martos V, Motawai J, Nachit M.M, Nserallah N, Ouabbou H, Rhouma S, Royo C, Slama A, Villegas D, Tuberosa R. Poster.

2006 Plant Genomics European Meetings. Venic (Italy), From 11 to 14 October 2006. "Identification of QTLs for drought-related traits in a durum wheat population evaluated in the Mediterranean area under varying water regimes". Maccaferri M., Sanguineti M. C., Natoli V., Arauls J.L., Ben Salem M., Bort J., De Ambrogio E., Demontis A., El-Ahmed A., Garcia del Moral L.F., **Isidro J**., Maalouf F.,Martos V., Motawai J., Nachit M.M., Nserallah N., Ouabbou H., Rhouma S., Royo C., Slama A.,

Villegas D., Tuberosa R. Poster.

2006 Speaker in a regular cycle "Seminarios de Cereales" December 2006-Organizad by University of Buenos Aires, with the exposition of conference "Ecophysiological and molecular impact of the genetic improvement of durum wheat in Mediterranean conditions on yield formation and accumulation of amino acids and proteins ". **Oral Communication**.

2006 Eucarphia Lerida, 13-17 November 2006. "Environmental Determination of Amino Acid Composition in the Grain of Durum Wheat under Mediterranean Conditions" **J. Isidro**, Martos.V, Rharrabti.Y., Royo C., Garcia del Moral. Poster.

2006 Eucarphia Lérida Spain, 13-17 November 2006."Durum wheat productivity in sustainable mediterranean agro-ecosystems as related to yield components and morpho-physiological traits". Royo, Villegas, Alvaro, Moragues, Araus, Ben Salem, Bort, De Ambrosio, De Montisa, El hamed, Garcia del Moral, **J.Isidro**, Maalouf, Maccaferri, Martos V, Motawi, Nachit, Natoli, Nserallah, Ouabbou, Rhoumas, sanguinetti, Slama, Tuberosa. Poster.

2004 International Workshop Modelling quality traits and their genetic variability for Wheat. Clermont-Ferrand (Francia) From 18 to 21 July 2004. "Amino acid content in durum wheat genotypes as affected by water regime in southern Spain" Rharrabti, Y., Royo, C., Martos, V., **Isidro, J.**, García del Moral, L.F. Poster.

2004 II Congreso de Mejora Genética de Plantas, León 21 -24 September 2004. "Formación del rendimiento en trigo duro cultivado en dos ambientes con diferente régimen hídrico: uso del análisis por coeficientes de sendero" Rharrabti, Y.; Royo, C.; Martos, V.; **Isidro, J**.; Garcia del Moral, L.F. Poster .

Media Articles/Science outreach

2022 Hora 25-Cadena Ser. Semillas. http://bit.ly/3tc1viu.

2019 Participating on the Dublin Native Scientist - Promoting Science and Language Learning. https://www.nativescientist.com/about.

2019 Julio Isidro Sánchez. *Winter organic naked barley trial in co. Wexford.* Organic Matters magazine. Dublin. Ireland. http://www.irishorganicassociation.ie/about/organic-matters-magazine/.

2019 Punto de enlace - RTVE-Julio Isidro-Sánchez investiga en Irlanda la selección genética de los cultivos - Enero 2019 http://bit.ly/2QQePa6.

2018 Gestiona Radio. Investigadores por el mundo. http://bit.ly/2TlJKfZ.

Freely available language and environment for statistical computing and graphics: R packages

2021 TrainSel package in R. https://github.com/TheRocinante-lab/TrainSel.

2020 CovCombR package in R. https://cran.r-project.org/web/packages/CovCombR/CovCombR.pdf

2018 Genomic Mating package in R. https://cran.r-project.org/web/packages/GenomicMating/GenomicMating.pdf.

Peer Review work

2015-Current Nature, Crop Science, Euphytica, The Plant Genome, Irish Agricultural journal, Heredity, Theoretical Applied Genetics, Frontiers of Plant Science, Agronomy.

2018-Current Associated Editor of the section "Plant Breeding, Genetics and Genetic Resources" from the journal Spanish Journal of Agricultural Research.

Teaching

2020-Current

Genomic assisted breeding. Master in Computational Biology (Spain).

2020-Current Molecular markers and its application in plant breeding. Master in Biotecnology agroforestal (Spain).

2020-Current Breeding for Abiotic/Biotic and Quality traits. Master in Biotechnology applied to plant breeding (Spain).

2021-2022 International Centre for Advanced Mediterranean Agronomic Studies. CIHEAM, Zaragoza, Spain. Evaluation of Selection Strategies.

2015-2020 Introduction of Crop Science-CPSC10010 (Ireland).

2015-2020 Introduction of Crop Science-CPSC10010 (Ireland).

2015-2020 Crop Breeding-CPSC30090 (Ireland).

2016-2020 Organic Agriculture-CPSC30050 (Ireland).

2015-2020 Fundamentals of Arable Crop Production-CPSC20090 (Ireland).

2016-2018 Emerging Crop Pathogens-CPSC30100 (Ireland).

2017-Current Agricultural Botany-HORT20002 (Ireland).

2017-2018 Plant Physiology Ecology-CPSC20040 (Ireland).

2017-2018 Current developments in Plant Biology-BOTN40200 (Ireland).

2017 Invited instructor at the Bioinformatics to advance wheat breeding course Bologna (Italy) 13-14 November 2017.

2015-Current Coordinator and Instructor of the international course on Genomic selection. www.gscourse.com.

2014-2015 Teaching assistant "Genetic improvement of Crop Plants". PBLR4030. Cornell University (USA).

2005-2007 Crop Physiology Lab instructor. Plant Physiology Department. Granada University.

Thesis supervisions

2017-2019 **Master of Research in Agriculture and Food Science student**. Kane D'Arcy Cusack. Title: *Association mapping analysis of hexaploit oat (Avena sativa) cultivars for resistante to Fusarium mycotoxins.*

2017-2019 **Master of Research in Agriculture and Food Science student**. Simone Pasqualin. Title: *The effect of rate and timing of nitrogen application on agronomic and quality traits of Eragrostis tef.*

2019-2022 **Ph.D. Student**. Eogan Curran. Title: Prediction of disease outbreaks based on wheat cultivars and diseases genomic data models.

2019-2022 **Ph.D. student**. Laura Paire. Developing multi-use barley to improve the organic Irish market

2020-2021 **Ms.C Student** Javier Fernández González. Title: Training optimization in genomic selection: A comparison of algorithms https://oa.upm.es/69610/

2020-2021 **Ms.C Student** Pablo Atienza. Title: Detección de variaciones en el número de copias en germoplasma de Zea mays adaptado a la altitud. https://oa.upm.es/69167/

2022-2026 **Ph.D. student**. Javier Fernández González *Genomic assisted breeding applied to Syngenta sunflower breeding program.*

2022-2026 **Ph.D. student**. Julián Garcia-Abadillo. *Machine learning approaches applied to genomic assisted breeding*

2023-2026 **Ph.D. student**. Stacy Rousse. *Genomic Assisted breeding for SUStainable agriculture: A benchmark approach*

Grants, honors & awards

2020 Senior Beatriz Galindo scholarship (Investigador Distinguido) to work at the Centre for Plant Biotechnology and Genomics starting on May 2020.

2020 Member and Vocal of the Agricultura Digitalizada y Sostenible para el Desarrollo de la Sociedad y la Bioeconomía whose objective is to address in an interdisciplinary way the scientific and technological challenges for sustainable agricultural production in the 21st century.

2018-Current	Vicepresident of the Spanish Research Society in Ireland Spanish Research Society in Ireland.
2012	Talentia Fellowship Program award scholarship by the Ministry for Innovation, Science and Enterprise in Andalusia, Spain.
2009	Professional scholarship award scholarship by the Ministry of Education and Science of Spain. Postdoctoral grant.
2003	Professional scholarship award scholarship by the Ministry of Education and Science of Spain. PhD. grant.

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Research and Development stays

1999-2001 Internal student of the Department of Microbiology of the University of Seville.

2004 One month stay at the University of Lleida in which I received training on the analysis of molecular markers AFLPs. Under the supervision of Conxita Royo Calpe.

2005 Stay to learn the near infrared spectroscopy technique in Córdoba, Spain, under the supervision of Professor Ana Garrido.

2005 Stay at the research center SPARC in Canada for the study and implementation of molecular markers in durum wheat within the framework of my doctoral thesis. Under the supervision of researcher Ron Knox.

2006 Three-month stay at the University of Buenos Aires under the framework of my doctoral thesis. Research topic: Apical development of durum wheat. Under the supervision of Professor Daniel Miralles.

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