Gustavo Slafer

Professor Investigador (ICREA)

Personal Information

Position: Professor Investigador (ICREA)

Area of expertise: Agronomia

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University degrees

· PhD, University of Melbourne, Australia
· MSc, Universidad de Buenos Aires, Argentina
· Ing.Agr., Univ. Nacional de La Plata, Argentina

Previous activities

· 1985 – 2003: Docent i investigador de la Càtedra de Cereals de la Facultat d'Agronomia de la Universidad de Buenos Aires (Argentina). Els últims càrrecs en la Facultat (UBA) van ser: Professor Associat de la Càtedra de Cerealicultura. Professor de l'Escola de Graduats. Director del Programa de Producció Vegetal. Coordinador del Programa d'Actualizació d'Ecofisiología de Cultius.
· 1995 – 2003: Investigador Científic del CONICET (Consejo Nacional de Investigaciones Científicas y Técnicas

d e A r g e n t i n a .
· 2003 – 2004: Investigador Ramón y Cajal del Departament de Producció Vegetal i Ciència Forestal de la UdL.
· 2004 – actualitat: Professor d'Investigació d'ICREA Institució Catalana de Recerca i Estudis Avançats), Universitat de Lleida, Departament de Producció Vegetal i Ciència Forestals.

Research

Improvements in crop performance in terms of both productivity and efficiency of resource-use will remain to be a major objective of agronomy and naturally, then, a focal aim of any breeding or agronomic decision-making program. The eminently empirical approach of trial-and-error used in both cereal breeding (mostly selecting for yield per se) and crop management design (mostly determining the yield responses to particular practices) has been successful in the past to rise yields but unsuccessful in avoiding environmental risks, frequently associated with productivity. There is a growing consensus that to increase the likelihood to regain the rate of productivity gains achieved by cereal breeders/agronomists until now, but with a more friendly interaction with the natural environment and the prevention of contamination of soils, air and water, it may be needed to reach an analytical approach for understanding the fundamental physiology of the crop and apply elements from this discipline in both breeding and management improvements proposed. In addition, improving our knowledge of the physiological bases of crop performance under field conditions would also help (i) breeding programs in facilitating the use of molecular biology to improve yield potential of grain crops, and in reducing the size, and then the costs, of modern breeding programmes; and (ii) agronomy programs by increasing the efficiency in the use of resources and then in developing techniques requiring lower levels of resources used more efficiently and being thus more environmentally friendly, whilst still improving performance. These sorts of improvements (that crop physiology of cereals may help breeding and agronomy -collectively and interactively- to achieve), are expected to bring about a simultaneous enhancements of both productivity and sustainability.

Teaching

· APLICACIONS BIOTECNOLÒGIQUES PER A LA MILLORA DE LA PRODUCTIVITAT DELS CULTIUS	Grau en Biotecnologia
· WRITING AND PUBLISHING A SCIENTIFIC PAPER	Màster Universitari Erasmus Mundus MEDFOR

Recent Publications

.- Ochagavia, H., Prieto, P., Savin, R., Griffiths, S., Slafer, G.A. 2017. Duration of developmental phases, and dynamics of leaf appearance and tillering, as affected by source and doses of photoperiod insensitivity alleles in wheat under field conditions. Field Crops Research, **214**: 45-55.

.- Zhu, C., Farré, G., Zanga, D., Lloveras, J., Michelena, A., Ferrio, J.P., Voltas, J., **Slafer, G.**, Savin, R., Albajes, R., Eizaguirre, M., Lopez, C., Cantero-Martínez, C., Díaz-Gómez, J., Nogareda, C., Moreno, J.A., Angulo, E., Estany, J., Pena, R.N., Tor, M., Portero-Otin, M., Eritja, N., Arjó, G., Serrano, J.C.E., Matias-Guiu, X., Twyman, R.M., Sandmann, G., Capell, T., Christou, P. 2017. High-carotenoid maize: development of plant biotechnology prototypes for human and animal health and nutrition. Phytochemistry Reviews, in press.

.- Kiss, T; Dixon, L.E.; Soltesz, A.; Bányai, J.; Mayer, M.; Balla, K.; Allard, V.; Galiba, G.; **Slafer, G.**; Griffiths, S.; Veisz, O.; Karsai, I. 2017. Effects of ambient temperature in association with photoperiod on phenology and on the expressions of major plant developmental genes in wheat (*Triticum aestivum* L.). Plant, Cell & Environment, **40**:1629-1642.

.- Ferrante, A., Cartelle, J., Savin, R. & **Slafer, G.A.** 2017. Yield determination, interplay between major components and yield stability in a traditional and a contemporary wheat across a wide range of environments. Field Crops Research, **203**:114-127.

.- Zanga, D., Capell, T., **Slafer, G.A.**, Christou, P. & Savin, R. 2016. A carotenogenic mini-pathway introduced into white corn does not affect development or agronomic performance. Scientific Reports, 6: 38288; doi: 10.1038/srep38288

.- Gabaldón-Leal, C., Webber, H., Otegui, M.E., **Slafer, G.A.**, Ordoñez, R.A., Gaiser, T., Lorite, I.J., Ruiz-Ramos, M. & Ewert, F. 2016. Modelling the impact of heat stress on maize yield formation. Field Crops Research,**198** :226-237.

.- Marti, J. Araus, J.L. & **Slafer, G.A.** 2016. Sink-strength determines differences in performance between bread and durum wheat. Field Crops Research, **198**:101-111.

.- González-Navarro, O., Griffiths, S., Molero, G., Reynolds, M.P. & **Slafer, G.A.** 2016. Variation in developmental patterns among elite wheat lines and relationships with yield, yield components and spike fertility. Field Crops Research, **196**:294-304.

.- Guo, Z., **Slafer, G.A.**, Schnurbusch, T.2016. Genetic variation for spike fertility traits and ovary size in distal florets affects floret and grain survival rate of wheat. Journal of Experimental Botany, **67**: 4221–4230.

.- Kowalski, A., Gooding, M., Ferrante, A., **Slafer, G.A.**, Orford, S., Gasperini, D., Griffiths, S. 2016.Agronomic assessment of the wheat semi-dwarfing gene Rht8 in contrasting nitrogen treatments and water regimes. Field Crops Research, **191**:150-160.

.- Elía, M., Savin, R., **Slafer, G.A.** 2016.Fruiting efficiency in wheat: physiological aspects and genetic variation among modern cultivars. Field Crops Research, **191**:83-90.

.- Elazab, A., Ordoñez, R.A., Savin, R., **Slafer, G.A.**, Araus, J.L. 2016. Detecting interactive effects of N fertilization and heat stress on maize productivity by remote sensing techniques. European Journal of Agronomy, **73**:11-24.

.- Savin, R. **Slafer, G.A.**, Cossani, C.M., Abeledo, L.G. & Sadras, V.O. 2015. Cereal yield in Mediterranean type environments: challenging the paradigms on terminal drought, the adaptability of barley vs wheat and the role of nitrogen fertilization. In: "*Crop Physiology: Applications for Genetic Improvement and Agronomy*" (V.O Sadras and D.F. Calderini, Eds), ISBN 978-0-12-417104-6, Elsevier Inc, Amsterdam, pp. 141-158

.- Slafer, G.A., Kantolic, A.G., Appendino, M.L., Tranquilli, G., Miralles, D.J., & Savin, R. 2015. Genetic and environmental effects on crop development determining adaptation and yield. In: "*Crop Physiology: Applications for Genetic Improvement and Agronomy*" (V.O Sadras and D.F. Calderini, Eds), ISBN 978-0-12-417104-6, Elsevier Inc, Amsterdam, pp. 285-319

.- Ordoñez, R.A., Savin, R., Cossani, C.M. & **Slafer, G.A.**2015.Yield response to heat stress as affected by nitrogen availability in maize. Field Crops Research, **183**:184-203.

.- **Slafer, G.A.,** Elía, M., Savin, R., García, G.A., Terrile, I.I., Ferrante, A., Miralles, D.J. & González, F.G. 2015. Fruiting efficiency: an alternative trait to further rise wheat yield. Food and Energy Security, **4**:92-109.

.- Ferrante, A., Savin, R. & **Slafer, G.A.** 2015. Relationship between fruiting efficiency and grain weight in durum wheat. Field Crops Research, **177**:109-116.

.- Ordoñez, R.A., Savin, R. & **Slafer, G.A.**2015. Genetic variation in the critical specific leaf nitrogen maximising yield among modern maize hybrids. Field Crops Research, **172**:99-105.

.- González-Navarro, O., Griffiths, S., Molero, G., Reynolds, M.P. & **Slafer, G.A.**2015. Dynamics of floret development determining differences in spike fertility in an elite population of wheat. Field Crops Research, **172** :21–31.

Marti, J., Savin, R. & **Slafer, G.A.** 2015.Bread Wheat yield as affected by length of exposure to waterlogging during stem elongation. Journal of Agronomy and Crop Science, **201**:473-486.

García, G.A., Serrago, R.A., González, F.G., **Slafer, G.A.**, Reynolds, M.P. & Miralles, D.J. 2014. Wheat grain number: identification of favourable physiological traits in an elite doubled-haploid population. Field Crops Research, **168**:126–134.

Abeledo, L.G., Savin, R. & **Slafer, G.A.** 2014. Leaf photosynthesis during grain filling under Mediterranean environments: are barley or traditional wheat more efficient than modern wheats? Journal of Agronomy and Crop Science, **200**:172-182.

Slafer, G.A., Savin, R. & Sadras, V.O. 2014. Coarse and fine regulation of wheat yield components in response to genotype and environment. Field Crops Research, **157**:71-83.

Hall, A.J., Savin, R. & **Slafer, G.A.** 2014. Is time to flowering in wheat and barley influenced by nitrogen? A critical appraisal of recent published reports. European Journal of Agronomy, **54**:40-46.

Marti, J. & **Slafer, G.A.** 2014. Bread and durum wheat yields under a wide range of environmental conditions. Field Crops Research, **156**:258-271.

Romagosa, I., Borràs-Gelonch, G., van Eeuwijk, F. & **Slafer, G.A.** 2013. Genotype by environment interaction and adaptation. In: "*Sustainable Food Production (selected entries from the Encylopedia of Sustainability Science and Technology)*" (P. Christou, R. Savin, B.A. Costa-Pierce, I. Miztal & B.A. Whitelaw, Eds.) ISBN 978-1-4614-5796-1, Springer, Germany, pp. 846-870

Albajes, R., Cantero-Martínez, C., Capell, T., Christou, P., Farre, A., Galceran, J., López-Gatius, F., Marin, S., Martín-Belloso, O., Motilva, M.J., Nogareda, C., Peman, J., Puy, J., Recasens, J., Romagosa, I., Romero, M.P., Sanchis, V., Savin, R., **Slafer, G.A.**, Soliva-Fortuny, R., Viñas, I., Voltas, J. 2013. Building bridges: an integrated strategy for sustainable food production throughout the value chain. Molecular Breeding, **32**:743–770.*

Kantolic, A.G., Peralta, G.E. & **Slafer, G.A.** 2013. Seed number responses to extended photoperiod and shading during reproductive stages in indeterminate soybean. European Journal of Agronomy, **51**: 91-100.

Serrago, R.A., Alzueta, I., Savin, R. & **Slafer, G.A.** 2013. Understanding grain yield responses to source-sink ratios during grain filling in wheat and barley under contrasting environments. Field Crops Research, **150**: 42–51.

Ferrante, A., Savin, R. & **Slafer, G.A.** 2013. Is floret primordia death triggered by floret development in durum wheat? Journal of Experimental Botany, **64**:2859-2869.

Ferrante, A., Savin, R. & **Slafer, G.A.** 2013. Floret development and grain setting differences between modern durum wheats under contrasting nitrogen availability. Journal of Experimental Botany, **64**:169-184.

Savin, R., **Slafer, G.A.** & Albrizio, R. 2012. Barley. In: "*Crop Yield Response to Water*". FAO IRRIGATION AND DRAINAGE PAPER 66 (P. Steduto, T.C. Hsiao, E. Fereres,D. Raes, Eds.), ISBN 978-92-5-107274-5, FAO, Rome, Italy, pp. 134-141

Pedro, A., Savin, R. & **Slafer, G.A.** 2012. Crop productivity as related to single-plant traits at key phenological stages in durum wheat. Field Crops Research, **138**:42-51.

Ferrante, A., Savin, R. & **Slafer, G.A.** 2012. Differences in yield physiology between modern, well adapted durum wheat cultivars grown under contrasting conditions. Field Crops Research, **136**:52-64.

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Estrada-Campuzano, G., Miralles, D.J. & **Slafer, G.A.** 2012. Differences in yield, biomass and their components between triticale and wheat grown under contrasting water and nitrogen environments. Field Crops Research, **128**:167-179.

Cossani, C.M., **Slafer, G.A.** & Savin, R. 2012. Nitrogen and water use efficiencies of wheat and barley under a Mediterranean environment in Catalonia. Field Crops Research, **128**:109-118.

Sadras, V.O. & **Slafer, G.A.** 2012. Environmental modulation of yield components in cereals: heritabilities reveal a hierarchy of phenotypic plasticities. Field Crops Research, **127**:215-224.

Per mes informació (Consultes GREC [http://webgrec.udl.cat/cgi-bin/DADREC/crgen.cgi?FONT=3&IDI=CAT&PID=367567&IDNC=201210161350170])