

BIOLOGICAL SKETCH JOSE LUIS ARAUS

(a) Professional Preparation

Undergraduate Institution(s)	Major	Degree & Year
University of Barcelona, Spain	Biology	B.Sc. 1978
Catalonian Polytechnic University, Spain	Agronomy	B.Sc. 1982
Graduate Institution(s)	Major	Degree & Year
University of Barcelona, Spain	Plant Physiology	M.Sc. 1981
University of Barcelona, Spain	Plant Physiology	PhD 1983

(b) Appointments (last 4 years)

2009- 2010 Consultant, Maize Physiologist. CIMMYT, Mexico

2009-Editorial Board, *Functional Plant Biology*.

1993- present Full Professor, Plant Physiology, (Catedrático de Fisiología Vegetal) Universidad de Barcelona, Spain

2006-2008 Principal Scientist, Maize Physiologist. International Wheat and Maize Improvement Center (CIMMYT), Mexico

2005-2007 Responsible for Agriculture-Plant Physiology at Spanish Agency for Research Evaluation (ANEP)

(c) Research lines

Photosynthetic C and N metabolism, abiotic stresses and productivity in cereals

Development of ecophysiological traits and tools to use in breeding programs

Paleoreconstruction of the agricultural conditions in the antiquity

H index (from Google Scholar) = 30

(d) Funded projects (last 4 years)

1. 2010-2013. Mejora del trigo duro para las condiciones mediterráneas presentes y futuras. AGL2010-20180 (subprograma AGR). IP: José Luis Araus. Presupuesto concedido: 242.000 euros
2. 2011-2013. Breeding to Optimise Chinese Agriculture (OPTICHINA1). FP7 Cooperation, Comissió Europea - DG Recerca. Proposal 266045 "OPTICHINA". Import UB: 165.614 €. Coordinador for the whole Project and at the IP UB: José Luis Araus (under contract negotiation)
1. 2009-2013.: **Grupo de Investigación Consolidado: "Ecofisiología de cultivos mediterráneos". SGR2009-00327.** Agència de Gestió d'ajuts Universitaris i de Recerca (AGAUR) – Generalitat de Catalunya. IP: Jose Luis Araus
2. 2009-2010. **Mejora de la adaptacion y calidad del trigo duro a las condiciones mediterraneas presentes y futuras: bases fisiologicas y moleculares.** AGL2009-13539-C02-01 Funding source CICYT, Spanish Government. Coordinator and IP at CIMMYT: José Luis Araus.
3. 2009-2012. **Isotopos estables en cultivos: del fraccionamiento isotopico a la aplicacion paleoclimatica.** CGL2009-13079-C02-02. Funding source CICYT, Spanish Government.
4. 2009-2012. **Origins and spread of Agriculture in the South-western Mediterranean region** (AGRIWESTMED). European Research Council. Proposal number 230561 (2009-2012). IP at the UB: José Luis Araus.
5. 2009-2011. **Mitigar el efecto de altas temperaturas en la productividad de maíz.** FONTAGRO. Banco Interamericano de Desarrollo (2009-2011). LEG/SGO/FTG-1806150-08. IP at CIMMYT: José Luis Araus.
6. 2009-2011. **Precision phenotyping for improving drought stress tolerant maize in southern Asia and eastern Africa.** Bundesministerium für Wirtschaftliche Zusammenarbeit und

- Entwicklung (BMZ). Germany. Project 08.7860.3-001.00. Contract 81109046. Coordinator and IP at CIMMYT: José Luis Araus.
7. 2006-2009 **Mejora de la adaptación y calidad del trigo duro a las condiciones mediterráneas: bases fisiológicas y moleculares**. AGL-2006-13541-C02-0. Funding source. Spanish Government. Coordinator and Scientific Responsible at the UB: José Luis Araus.
 8. 2005-2009. **Improving the yield stability of Durum wheat under Mediterranean conditions (OPTIWHEAT)**. INCO Specific Targeted Research or Innovation Project no. 015460. 6th FP. Directorate General of Research, European Commission. Scientific Responsible at the UB: José Luis Araus/ Jordi Bort.
 9. 2005-2009. **Mediterranean Dialogue on Integrated Water Management (MELIA)**. INCO Coordination Action 517612. 6th FP. Directorate General of Research, European Commission. Scientific Responsible at the UB: José Luis Araus/ Jordi Bort/.
 10. 2006-2008. **Diez mil años de interacción clima – agricultura en el mediterráneo. Inferencias basadas en el análisis de restos arqueológicos agrícolas**. CGL2005-08175-C02-01/BOS. Spanish Government. Coordinator and Scientific Responsible at the UB: José Luis Araus
 11. 2005-2006. **Improving water use efficiency in Mediterranean agriculture: what limits the adoption of new technologies (WUEMED)**. INCO Specific Support Action no. 515941. 6th FP. Directorate General of Research, European Commission. Scientific Responsible at the UB: José Luis Araus.
 12. 2004-2008. **Improvement of native perennial forage plants for sustainability of Mediterranean farming systems (PERMED)**. Contract Number INCO-CT-2004-5091406th FP. Directorate General of Research, European Commission.
 13. 2004-2008. **Exploiting the wheat genome to optimise water use in Mediterranean ecosystem (TRITIMED)**. Contract Number INCO-CT-2004-509136. Funding Source: 6th FP. Directorate General of Research, European Commission.
 14. 2004-2008. **Management improvements of WUE and NUE of Mediterranean strategic crops - wheat and barley (WATNITMED)**. Contract Number INCO-CT-2004-509107. 6th FP. Directorate General of Research, European Commission.

Scientific Record: H Index (ISI web knowledge) = 25; (Google Scholar) = 31

(e) Publications – Journals: total of 130; Last 4 years:

1. **Cabrera-Bosquet, L., Molero, G., Stellacci, A.M., Bort, J., Nogués, S., and Araus, J.L.** 2010. NDVI as a potential tool for predicting biomass, plant nitrogen content and growth in wheat genotypes subjected to different water and nitrogen conditions Cereal Research Communications (in press)
2. **Yousfi, S., Serret, M.D., Voltas, J., Araus, J.L.** 2010. Effect of salinity and water stress during the reproductive stage on growth, ion concentrations, $\Delta^{13}\text{C}$ and $\delta^{15}\text{N}$ of durum wheat and related amphiploids. Journal of Experimental Botany (in press, 14 printed pages).
3. **Araus, J.L., Cabrera-Bosquet, LL., Sánchez, C.** 2010. Is heterosis in maize mediated through better water use? New Phytologist 187: 392–406
1. **Yousfi, S., Serret, M.D., Voltas, J., Araus, J.L.** 2010. Effect of salinity and water stress during the reproductive stage on growth, ion concentrations, $\Delta^{13}\text{C}$ and $\delta^{15}\text{N}$ of durum wheat and related amphiploids. Journal of Experimental Botany (en premsa).
2. **Araus, J.L., Cabrera-Bosquet, LL., Sánchez, C.** 2010. Is heterosis in maize mediated through better water use? New Phytologist (15 printed pages)
3. **Aranjuelo, I, Cabrera-Bosquet, C., Mottaleb, S.A, Araus, J.L., Nogués, S.** 2009. $^{13}\text{C}/^{12}\text{C}$ isotope labeling applied to carbon allocation study in cereals exposed to water stress. Rapid Communications in Mass Spectrometry (in press).
4. **Cabrera-Bosquet, L., Sánchez C., Araus J.L.** 2009. How yield relates to ash content, $\Delta^{13}\text{C}$ and $\Delta^{18}\text{O}$ in maize grown under different water regimes. Annals of Botany 104: 1207–1216,

5. **Cabrera-Bosquet, L., Sanchez, C., Araus, J.L.** 2009 Oxygen isotope enrichment ($\Delta^{18}\text{O}$) reflects yield potential and drought resistance in maize. *Plant Cell & Environment*. 32, 1487–1499
6. **Xu Y., Skinner D.J. Wu H, Palacios-Rojas N, Araus, J.L., Yan, J. Gao S., Warburton M.L., Crouch J.H.** 2009. Review Article: Advances in Maize Genomics and Their Value for Enhancing Genetic Gains from Breeding. *International Journal of Plant Genomics*, Article ID 957602, 30 pages doi:10.1155/2009/957602
7. **Cabrera-Bosquet, L., Albrizio, R., Araus, J.L., Nogués S.** 2009. On the photosynthetic capacity of field-grown durum wheat under different N availabilities: a comparative study from leaf to canopy. *Environmental & Experimental Botany* 67: 145–152.
8. **Yousfi, S., Serret, M. D., and Araus, J. L.** 2009. Shoot $\delta^{15}\text{N}$ gives a better reflection than ion concentration or $\Delta^{13}\text{C}$ of genotypic differences in the response of durum wheat to salinity. *Functional Plant Biology* 36, 1–12.
9. **Cabrera-Bosquet, L., Molero G., Nogués S., Araus, J.L.** 2009. Water and nitrogen conditions affect the relationships of $\Delta^{13}\text{C}$ and $\Delta^{18}\text{O}$ with gas exchange and growth in durum wheat. *Journal Experimental Botany* 60, 1633–1644,
10. **Aguilera M., Araus J.L., Voltas J., Rodriguez-Ariza M.O., Molina F., Rovira N., Buxó R., Ferrio J.P.** 2008. Stable carbon and nitrogen isotopes and quality traits of fossil cereal grains provide clues on sustainability at the beginnings of Mediterranean agriculture. *Rapid Communications in Mass Spectrometry* 22:1653-1663.
11. **Bernard, S.M., Blom Møller A.L., Dionisio G., Kichey T., Jahn T.P., Dubois F., Baudo M., Lopes M.S., Tercé-Laforgue T., Foyer, C.H., Parry M., Forde B.G., Araus J.L., Hirel, B., Schjoerring J. K., Habash D.Z.** 2008. Gene expression, cellular localisation and function of glutamine synthetase isozymes in wheat (*Triticum aestivum* L.). *Plant Molecular Biology* 67: 87-105.
12. **Pswarayi A., van Eeuwijk F., Ceccarelli S., Grando S., Comadran J., Russell J.R., Stanca A.M., Francia E., Pecchioni N., Akar T., Al-Yassin A., Benbelkacem A., Choumane W., Karrou M., Ouabbou H., Bort J., Araus J.L., Molina-Cano J.L., Thomas W.T.B., Romagosa I.** 2008. Barley adaptation and improvement in the Mediterranean basin. *Plant Breeding* 127: 554-560.
13. **Maccaferri M., Sanguineti M.C., Corneti S., Araus J.L., Ben Salem M., Bort J., DeAmbrogio E., Garcia del Moral L., Demontis A., El-Ahmed A., Elouafi I., Maalouf F., Machlab H., Martos V., Nachit M.N., Nserallah N., Ouabbou H., Royo C., Slama A., Villegas D., Tuberosa R.** 2008. Quantitative Trait Loci for Grain Yield and Adaptation of Durum Wheat (*Triticum durum* Desf.) Across a Wide Range of Water Availability. *Genetics* 178: 489-511.
14. **Serret M.D., Ortiz-Monasterio I., Pardo A. Araus J.L.** 2008 The effect of urea fertilization and genotype on yield, NUE, $\delta^{15}\text{N}$ and $\delta^{13}\text{C}$ in wheat. *Annals of Applied Biology* 153: 243-257.
15. **Araus, J.L., Slafer, G.A., Royo, C., Serret, M.D.** 2008. Breeding for Yield Potential and Stress Adaptation in Cereals. *Critical Reviews in Plant Science*, 27:1–36,.
16. **Voltas, J., Ferrio, J.P., Alonso, N., Araus, J.L.** 2008. Stable carbon isotopes in archaeobotanical remains and palaeoclimate. *Contributions to Science* 4: 21-31.
17. **Ferrio, J.P., Voltas, J., Buxó, R., Rovira, N., Aguilera, M., Bort, J., Serret, M.D., Araus, J.L.** 2008. Sustainability of the early Mediterranean Agriculture. *Options Méditerranéennes, Series A (Water Culture and Water Conflict in the Mediterranean Area)* 83:17-23
18. **Caldelas C., Iglesia-Turiño S., Araus, J.L., Bort J., Febrero A.** 2009. Physiological responses of *Eichhornia crassipes* [Mart.] Solms to the combined exposure to excess nutrients and Hg. *Brazilian Journal of Plant Physiology* 21: 01-12

19. **Lopes M., Araus J.L.** 2008. Comparative genomic and physiological analysis of nutrient response to NH_4^+ , $\text{NH}_4^+:\text{NO}_3^-$ and NO_3^- in barley seedlings. *Physiologia Plantarum* 134: 134-150.
20. **Araus, J. L., Blum, A., Nguyen, H. T., Parry, M. A. J., Tuberosa, R.** 2007. Preface. Special Issue: Integrated approaches to sustain and improve plant production under drought stress. *Journal Experimental Botany* 58: iv.
21. **Araus J.L., Ferrio J.P., Buxó R., Voltas J.** 2007. The historical perspective of dryland agriculture: Lessons learned from 10,000 years of wheat cultivation. *Journal of Experimental Botany* 58:131-145.
22. **Tambussi E.A., Bort J., Nogués S., Guiamet J.J., Araus J.L.** 2007. The photosynthetic role of ears in C3 cereals: metabolism, water use efficiency and contribution to grain yield. *Critical Reviews on Plant Science* 26:1-16.
23. **Tambussi E.A., Bort J., Araus J.L.** 2007. Water use efficiency in C3 cereals under Mediterranean conditions: a review of physiological aspects. *Annals of Applied Biology* 150 307–321.
24. **Casadesus J. Kaya Y., Bort, J., Nachit M.M., Araus J.L. S. Amor, G. Ferrazzano, F. Maalouf, M. Maccaferri, V. Martos, H. Ouabbou and D. Villegas** 2007. Vegetation indices derived from conventional digital cameras as selection criteria for wheat breeding in water-limited environments. *Annals of Applied Biology* 150: 227-236
25. **Ferrio J.P., Mateo M.A., Bort J., Abdalla O., Voltas J., Araus J.L.** 2007. Relationships of grain $\delta^{13}\text{C}$ and $\delta^{18}\text{O}$ with wheat phenology and yield under water-limited conditions. *Annals of Applied Biology* 150: 207-215.
26. **Marti J, Bort J., Slafer G., Araus J.L.** 2007. Can wheat yield be assessed by early measurements of NDVI? *Annals of Applied Biology* 150: 253-257.
27. **Tuberosa R., Giuliani S., Parry M.A.J., Araus J.L.** 2007. Improving water use efficiency in Mediterranean agriculture: what limits the adoption of new technologies? *Annals of Applied Biology* 150, 157–162.
28. **Comadran, J., Russell, J.R., van Eeuwijk, F.A., Ceccarelli, S., Grando, S., Baum, M., Stanca, A.M., Pecchioni, N., Mastrangelo, A.M., Akar, T., Al-Yassin A., Benbelkacem A., Choumane W., Ouabbou H., Dahan R., Bort J., Araus J.L., Pswarayi A., Romagosa I., Hackett C.A., Thomas W.T.B.** 2007. Mapping adaptation of barley to droughted environments. *Euphytica* 161: 35-45
29. **Cabrera-Bosquet L., Molero G., Bort J., Nogués S., Araus J.L.** 2007. The combined effect of constant water deficit and nitrogen supply on WUE, NUE and $\Delta^{13}\text{C}$ in durum wheat potted plants. *Annals of Applied Biology* 151: 277-289.
30. **Ferrio J.P., Arab G., Bort R., Buxó R., Molist M., Voltas J., Araus J.L.** 2007. Land use changes and crop productivity in early agriculture: comparison with current conditions in the mid-Euphrates valley. *Options Méditerranéennes, Séries B, N. 59:* 167-174.
31. **Lopes, M., Araus, J.L.** 2006. Nitrogen source and water regime effects on durum wheat photosynthesis, and stable carbon and nitrogen isotope composition. *Physiologia Plantarum* 126: 435-445.
32. **Lopes MS, Cortadellas N, Kichey T., Dubois F., Habash DZ, Araus J.L.** 2006. Wheat nitrogen metabolism during grain filling. Comparative role of glumes and the flag leaf. *Planta* 225: 165 – 181.
33. **Savin R., Prystupa P., Araus J.L.** 2006. Different source-sink relationships and nitrogen availabilities modifies hordein type in barley. *Journal of Cereal Science* 44: 113-116.

34. **Ferrio J.P., Alonso N., López J.B., Araus J.L., Voltas J.** 2006. Carbon isotope composition of fossil charcoal reveals aridity changes in the NW Mediterranean Basin. *Global Change Biology* 12: 1-14.
35. **Ferrio J.P., Alonso N., Voltas J. Araus J.L.** 2006. Grain weight changes over time in ancient cereal crops: potential roles of climate and genetic improvement. *Journal of Cereal science* 44: 323–332.
36. **Maccaferri, M, Sanguineti, M. C.; Natoli, V.; Araus, J. L.; Ben Salem, M.; Bort, J.2; Chenaoui, C.; De Ambrogio, E.; Garcia del Moral, L.F.; De Montis, A.; El-Ahmed, A.; Maalouf, F.; Machlab, H.; Moragues, M.; Motawaj, J.; Nachit, M.; Naserallah, N.; Ouabbou, H.; Royo, C.; Tuberosa, R.** 2006: A panel of elite accessions of durum wheat (*Triticum durum* Desf.) suitable for association mapping studies. *Plant Genetic Resources* 4: 79-85.
37. **Ferrio J.P., Voltas J., Buxó R., Araus J.L.** 2006. Isótopos estables aplicados al estudio de los sistemas paleoagrícolas mediterráneos. *Ecosistemas*. 2006/1 (URL: http://www.revistaecosistemas.net/articulo.asp?Id=394&Id_Categoria=2&tipo=portada) (electronic journal).
38. **Iglesia-Turiño S., Febrero A., Jáuregui O., Caldelas C., Araus J.L., Bort J.** 2006. Detection and quantification of unbound Phytochelatin 2 (PC2) in plant extracts of *Brassica napus* growing with different levels of mercury. *Plant Physiology* 142: 742-749.

Publications: Book chapters: total 52

(f) Thesis advisor: 12 PhD Thesis (11) and 8 Master Thesis directed.

(g) Synergistic Activities

- 1.Regular consultancy in China on physiological avenues to increase yield potential in wheat and maize. In relation with this activity in 2007 I was awarded with the Yellow River Friendship Prize (from the People's Government of Henan Province, China) and in 2008 with **the China Friendship Award**, the highest recognition given by the Chinese Government of for any contribution of foreign experts to the development of China in the Scientific, Technological and Social Areas.
- 2.Member of the International Scientific Committee of Interdrought II (Rome 2005) and Interdrought III (Shanghai 2006).
- 3.Evaluation of research and academic merits for different Spanish (ANEP, ANECA), Latin American (FONCyT and FONDECYT), British (BBSRC, The University of Nottingham), US (Bilateral US-Israel) and European (Direction General of Research, European Union) Agencies