



GERARDO RUBIO

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Education

Postdoctoral Scholar, Dept. Horticulture, Penn State University, USA. (1997-2000).

Doctor Agricultural Sciences (1997) University of Buenos Aires. Thesis: Plant and soil responses to waterlogging in Pampean grasslands.

B.S. Agronomy, Agricultural-Engineer (1986) University of Buenos Aires.

Areas of expertise

Soil-plant relationship - Soil fertility – Agricultural systems.

Experience in Academic Institutions

Full Professor Soil Fertility and Fertilizers - School of Agriculture - University of Buenos Aires (2023-)
Latinoamerican Soil Science Society (President 2009-2012)
Argentinean Soil Science Society (Treasurer 2002-2003; Vice-president 2003-2007; President: 2007-2011; board member 2011-2016)
Institute of Agricultural and Environmental Biosciences (UBA CONICET) (Director) 2014-)

Refereed publications in ISI indexed journals

Total 67

- 68 Russi D, Gutierrez Boem F, Rubio G. 2024. Note on the unparallel vertical distribution of nitrate and sulfate in Mollisols. Accepted in Soil Sci. Soc. Am.
- 67 Santa-María GE, Lavres J, Rubio G. 2023. The concept of mineral plant nutrient in the light of evolution. Plant Science 334: 111747.
- 66 Manenti, L., Garcia, F.O., Rubio, G. 2023. Resilience of maize, wheat and soybean cropping systems as affected by fertilization: analysis of a long-term field network. Agronomy Journal 115: 2017–2029.

- 65 Kehoe, E., Rubio, G., Salvagiotti, F. 2022. Contribution of different sources and origins of nitrogen in above- and below-ground structures to the partial nitrogen balance in soybean. *Plant and Soil* 477: 405-422.
- 64 Casali, L, Herrera JM, Rubio G. 2022. Resilient soybean and maize production under a varying climate in the semi-arid and sub-humid Chaco. *European Journal of Agronomy* 135, 126463.
- 63 Correndo A., Rubio G, Garcia FO. Ciampitti, IA. 2021 Subsoil-potassium depletion accounts for the nutrient budget in high-potassium agricultural soils. Accepted in *Scientific Reports*.
- 62 Pinto, P., Rubio, G., Gutiérrez, F., Sawchik J., Arana S., Piñeiro G. 2021 Variable root:shoot ratios and plant nitrogen concentrations discourage using just aboveground biomass to select legume service crops. Aceptado en *Plant Soil* <https://doi.org/10.1007/s11104-021-04916-x>
- 61 Casali, L, Herrera JM, Rubio G. 2021. Modelling maize and soybean responses to climatic change and soil degradation in a region of South America. *Agronomy Journal* 113:1381–1393
- 60 Peralta, G, Taboada, M., Kantolic, A., Rubio G. 2020. Topsoil hardening: effects on soybean root architecture and water extraction patterns. *J Soil Sci Pl Nutr* 20: 2182-2194
- 59 Caffaro MM, KB Balestrasse, G Rubio. 2020. Adsorption to soils and biochemical characterization of commercial phytases. *Soil* 6:153-162.
- 58 Vega Jara, L, FH Gutierrez Boem, FO Garcia. M Boxler, G Rubio. 2020. Long-term fertilization does not affect soil C:N:S or the proportion between labile/non-labile fractions in Mollisols. *Soil Science Society of America Journal* 84: 798-810
- 57 Casali, L, Rubio G, Herrera JM. 2018. Drought and temperature limit tropical and temperate maize hybrids differently in a subtropical region. *Agronomy for Sustainable Development*. 38: 49-61.
- 56 Sucunza, FA, FH Gutierrez Boem, FO Garcia. M Boxler, G Rubio. 2018. Long-term phosphorus fertilization of wheat, soybean and maize on Mollisols: Soil test trends, critical levels and balances. *European Journal of Agronomy*. 96:87-95.
- 55 Herrera JM, Buchi L, Rubio G, Torres-Guerrero C, Wendling M, Stamp P, Pellet D. 2017. Root decomposition at high and low N supply throughout a crop rotation *European Journal of Agronomy* 84: 105-112.
- 54 Varela MF, Barraco M, Gili, A, Taboada, MA, Rubio, G. 2017. Biomass decomposition and phosphorus release from residues of cover crops under no-tillage. *Agronomy Journal* 109: 317-326.
- 53 Cabello, MJ, FH Gutierrez Boem, CE Quintero, G Rubio. 2016. Soil characteristics involved in phosphorus sorption in Mollisols. *Soil Science Society of America Journal* 80: 1585-1590
- 52 Herrera JM, G Rubio, L Levy Haner, J A. Delgado, CA. Lucho-Constantino, S Islas-Valdez, D Pellet. 2016. Emerging and established technologies to increase nitrogen use efficiency of cereals. *Agronomy* 6: 1-25. ISSN 2073-4395
- 51 Fernandez, MC, Rubio G. 2015. Root morphological traits related to phosphorus-uptake efficiency of soybean, sunflower, and maize. *Journal of Plant Nutrition and Soil Science* 178, 807–815
- 50 Belinque, H; Pucheu N; Kerber, N; Rubio G. 2015. Utilization of organic phosphorus sources by oilseed rape, sunflower and soybean. *Journal of Plant Nutrition and Soil Science* 178, 339-344.
- 49 Varela, MF, C M Scianca, MA Taboada, G Rubio. 2014. Cover crop effects on soybean residue decomposition and P release in no-tillage systems of Argentina. *Soil & Tillage Research* 143: 59-66

- 48 Gargaglione V; P L Peri, G Rubio.. 2014. Tree-grass interactions for N in *Nothofagus antarctica* silvopastoral systems: Evidence of facilitation from trees to underneath grasses. *Agroforestry Systems*. 88:779–790
- 47 Rubio G, FH Gutierrez Boem, MC Fernandez 2013 Severe phosphorus stress affects sunflower and maize but not soybean root to shoot allometry. *Agronomy J*. 105: 1283-1288.
- 46 Gargaglione V, Peri P, Rubio G. 2013. Partición de nutrientes en árboles de *Nothofagus antarctica* creciendo en un gradiente de calidades de sitio en Patagonia Sur. *Bosque* 34: 291-302.
- 45 Yaryura, PM; Cerdón, G; León, M; Kerber, N;Pucheu, N; Lagorio, M G; Rubio, G; Vivanco, J. Garcia A. 2013. Assessment of the role of fluorescent root and 1 seed exudates in crop plants. *J. Plant Nutrition* 36: 811-824
- 44 Caffaro MM., JM Vivanco, J Botto, G Rubio. 2013. Root architecture of *Arabidopsis* is affected by competition with neighbouring plants. *Plant Growth Regulation*. 70:141 -147. ISSN: 0167-6903
- 43 Rubio G, MA Taboada. 2013 Arbol de decisión para diagnosticar la capacidad productiva de suelos de la región pampeana. *Ciencia del Suelo* 31:235-243
- 42 Rubio G, Faggioli V, Scheiner JD, Gutiérrez-Boem FH 2012. Rhizosphere phosphorus depletion by three crops differing in their phosphorus critical levels. 2012. *Journal of Plant Nutrition and Soil Science*. 175: 810-817. ISSN: 1436-8730.
- 41 Rimski-Korsakov H, Rubio G, Lavado. 2012. Fate of the nitrogen from fertilizers in field-grown maize. *Nutrient Cycling in Agroecosystems* 93:253–263
- 40 Russi, D., F.H. Gutierrez Boem, P. Prystupa & G. Rubio. 2012. Interlaboratory and intralaboratory testing comparison of soil sulfate analysis in Mollisols of the Pampas. *Communications in Soil Science and Plant Analysis*, 43: 2535-2543.
- 39 Ciampitti, I.A., Picone, L.I., Rubio, G. and García, F.O., 2011. Pathways of Phosphorous Fraction Dynamics in Field Crop Rotations of the Pampas of Argentina. *Soil Sci. Soc. Am. J*, 75: 3: 918-926 ISSN: 0361-5995
- 38 Fernández M.C., Gutierrez Boem F.H., Rubio G. 2011 Effect of indigenous mycorrhizal colonization on phosphorus-acquisition efficiency in soybean and sunflower. *Journal of Plant Nutrition and Soil Science*. 64:241-249
- 37 Ciampitti, IA, FO Garcia, LE Piccone, Rubio G. 2011 Soil Carbon and Phosphorus Pools in Field Crop Rotations in Pampean Soils of Argentina. *Soil Sci. Soc. Am. J.* 75: 616-625. ISSN: 0361-5995
- 36 Ciampitti, IA, LE Piccone, FO Garcia. Rubio G. 2011 Phosphorus Budget and Soil Extractable Dynamics in Field Crop Rotations in Mollisols. *Soil Sci. Soc. Am. J.*75: 131-142. ISSN: 0361-5995
- 35 Caffaro MM., JM Vivanco, FH Gutierrez Boem, G Rubio. 2011. The effect of root exudates on root architecture in *Arabidopsis thaliana*. *Plant Growth Regulation* 64: 241-249. ISSN: 0167-6903
- 34 Gutiérrez Boem, F.H., G. Rubio & D. Barbero. 2011. Soil phosphorus extracted by Bray-1 and Mehlich-3 soil tests as affected by the soil:solution ratio in Mollisols. *Communications in Soil Science and Plant Analysis* 42:220–230, ISSN: 0010-3624
- 33 Varela MF, PL Fernández, G Rubio, MA Taboada. 2011. Cultivos de cobertura que mejoran la estabilidad estructural pero no la macroporosidad de un suelo franco – limoso. *CienciadelSuelo* 29: 99-106. ISSN 0326-3169
- 32 Gargaglione V, Peri P, Rubio G. 2010. Allometric relations for biomass partitioning of *Nothofagus antarctica* trees of different crown classes growing in a site quality gradient *Forest Ecology and Management* 259: 1118-1126. ISSN 0378-1127

- 31 Rubio G, Gutierrez Boem F.H. and Lavado R.S 2010. Responses of C3 and C4 grasses to application and nitrogen and phosphorus fertilizer at two dates in the spring. *Grass and Forage Science*. 65, 102–109 ISSN 0142-5242
- 30 Fernández M.C., Belinque H., Gutierrez Boem F.H. and Rubio G 2009. Compared phosphorus efficiency in soybean, sunflower and maize. *J Plant Nutrition*. 32: 2027 — 2043. ISSN 0190-4167
- 29 Yaryura, P., Cordon, G., Leon, M., Kerber, N., Pucheu, N., Rubio, G., Garcia, A, Lagorio, M. G. 2009. Effect of phosphorus deficiency on reflectance and chlorophyll fluorescence of cotyledons of oilseed rape (*Brassica napus* L). *Journal of Agronomy and Crop Science* 195: 186-196 ISSN: 9312250.
- 28 Rimski-Korsakov H, Rubio G, Lavado RS. 2009. Effect of the water stress in maize crop production and N-fertilizer fate. *Journal of Plant Nutrition*.32, 565-578 0190-4167.
- 27 Rubio G, MJ Cabello, FH. Gutiérrez Boem, E. Munaro. 2008. Estimating available soil P increases after P additions in Mollisols. *Soil Science Soc. Amer. J.* 72:1721-1727 ISSN: 0361-5995
- 26 Ciarlo E., M. E. Conti, N. Bartoloni, G. Rubio. 2008. Soil N₂O emissions and N₂O/ (N₂O + N₂) ratio as affected by different fertilization practices and soil moisture. *Biology and Fertility of Soils* 44: 991-995. ISSN: 0178-2762
- 25 Rubio G., Lynch JP. 2007. Compensation among root classes of *Phaseolus vulgaris* L. *Plant and Soil* 290: 307-321. ISSN 0032-079X
- 24 Ciarlo E., M. E. Conti, N. Bartoloni, G. Rubio. 2007. The effect of moisture on nitrous oxide emissions from soil the the N₂O / (N₂O+N₂) ratio under laboratory conditions. *Biology and Fertility of Soils* 43: 675-681. ISSN: 0178-2762
- 23 Rubio, G, JD. Scheiner, MA Taboada, RS. Lavado. 2007. Distribución de nitrógeno, fósforo y azufre en un cultivo de colza: efectos sobre el ciclado de nutrientes. *Ciencia del Suelo* 25: 189-194 ISSN 0326-3169
- 22 Liao H., X. Yan, G. Rubio, S. Beebe, M.H. Blair and J P. Lynch. 2004. Genetic mapping of basal root gravitropism and phosphorus acquisition efficiency in common bean. *Functional Plant Biology* 31: 959-970 ISSN: 1445-4408
- 21 Rubio G., A. Sorgonà, J.P. Lynch. 2004. Spatial mapping of phosphorus influx in bean root systems using digital autoradiography. *Journal of Experimental Botany* 55: 2269-2280 ISSN: 0022-0957
- 20 Rimski-Korsakov H., G. Rubio, R.S. Lavado. 2004. Potential nitrate losses under different agricultural practices in the pampean region, Argentina.. *Agricultural Water Management* 65-83-94. ISSN: 0378-3774
- 19 Civeira G, Faure; RS Lavado, G Rubio. 2003. Pulsos de lixiviación de nitratos en suelos destinados a céspedes. *Ciencia del Suelo* 21: 71-73. ISSN 0326-3169
- 18 Rubio G., J. Zhu, J.P. Lynch. 2003. A critical test of the two prevailing theories of plant response to nutrient availability. *American Journal of Botany* 90:143-152. ISSN: 0002-9122
- 17 Rubio G., H. Liao, X. Yan, J. P. Lynch. 2003. Topsoil foraging and its role in plant competitiveness for phosphorus in common bean. *Crop Science* 43, 598-607 SSN 0011-183X.
- 16 Rubio G., T. Walk, Z. Ge, X. Yan, H. Liao, J.P. Lynch. 2001. Root gravitropism and belowground competition among neighboring plants: a modeling approach. *Annals Botany* 88:929-940. ISSN: 0305-7364
- 15 Taboada M.A., R.S. Lavado, G. Rubio, D.J. Cosentino. 2001. Soil volumetric changes in natric soils caused by air entrapment following seasonal ponding and water table rises. *Geoderma* 101: 49-64. ISSN 0016-7061

- 14 Liao H., G. Rubio, X. Yan, A. Cao, K. M. Brown, J. P. Lynch. 2001. Effect of phosphorus availability on basal root shallowness in common bean. *Plant and Soil*: 232: 69-79 ISSN 0032-079X
- 13 Ge Z., G. Rubio, J. Lynch. 2000. The importance of root gravitropism for interroot competition and phosphorus acquisition efficiency: results from a geometric simulation model. *Plant and Soil*. 218: 159-171. ISSN 0032-079X
- 12 Rubio G., R.S. Lavado. 1999. Acquisition and allocation of resources in two waterlogging tolerant grasses. *New Phytologist*. 143: 539-546. ISSN: 0028-646X
- 11 Lavado, R.S., M.B. Rodríguez, J.D. Scheiner, M.A. Taboada, G. Rubio, R. Alvarez, M. Alconada, M.S. Zubillaga. 1998. Heavy metals in soils of Argentina: Comparison between urban and agricultural soils. *Communications in Soil Science and Plant Analysis* 29: 1913-1917. ISSN: 0010-3624
- 10 Taboada M.A., G. Rubio, R.S. Lavado. 1998. The deterioration of tall wheatgrass pastures on saline-sodic soils. *Journal of Range Management* 51:241-246. ISSN 0022-409X
- 9 Rubio G., M. Oesterheld, C.R. Alvarez, R.S. Lavado 1997. Mechanisms for the increase in phosphorus uptake of waterlogged plants: soil phosphorus availability, root morphology and uptake kinetics. *Oecologia* 112:150-155. ISSN: 0029-8549
- 8 Rubio G., M.A. Taboada, R. S. Lavado, H. Rimski-Korsakov, M.S. Zubillaga. 1997. Acumulación de biomasa, nitrógeno y fósforo en un pastizal natural fertilizado del norte de la Pampa Deprimida. *Ciencia del Suelo* 15: 48-50. ISSN 0326-3169
- 7 Rubio G, G. Casasola, R.S. Lavado. 1995. Adaptations and biomass production of two grasses in response to waterlogging and soil nutrient enrichment. *Oecologia* 102: 102-105. ISSN: 0029-8549
- 6 Rubio G., R.S. Lavado, A. Rendina, M. Bargiella, C. Porcelli, A. de Iorio. 1995. Waterlogging effects on organic phosphorus fractions in a toposequence of soils. *Wetlands* 15: 386-391. ISSN: 0277-5212
- 5 Rubio G., R.S. Lavado. 1994. Non-exchangeable ammonium behavior of a grassland soil of the Flooding Pampa under waterlogging. *Communications in Soil Science and Plant Analysis* 25: 2455-2465. ISSN: 0010-3624
- 4 Lavado R.S., G. Rubio, M. Alconada. 1993. Grazing as a cause for lime precipitation in a Natraqualf. *Communications in Soil Science and Plant Analysis*. 24: 1389-1395. ISSN: 0010-3624
- 3 Alconada M., O.E. Ansin, R.S. Lavado, V.A. Deregibus, G. Rubio, F.H. Gutierrez B. 1993. Effect of retention of run off water and grazing on soil and vegetation characteristics of a temperate humid grassland. *Agricultural Water Management* 23: 233-246. ISSN: 0378-3774
- 2 Lavado R.S., G. Rubio, M. Alconada. 1992. Grazing management and soil salinization in two pampean Natraqualfs. *Turrialba* 42: 500-508. ISSN 0041-4360
- 1 Rubio G, R.S. Lavado. 1990. Efectos de alternativas de manejo pasturil sobre la densidad aparente de un Natracualf. *Ciencia del Suelo* 8: 79-8+2. ISSN 0326-3169

Books

Rubio G, Lavado RS, Pereyra (eds) 2019. *The Soils of Argentina*. World Soils Book Series. Springer Int. Publ. ISBN 978-3-319-76851

Grad students

Total number of Doctoral degrees: 3 as director, 3 as co-director.

Total number of Master degrees: 5 as director, 2 as co-director

Number of doctoral theses that I currently manage: 3.

Number of doctoral theses or master's theses that you currently manage: 1

Current funding

Proyecto PIP CONICET 11220210100772CO 2022

Proyecto PICT-2019-02685

Proyecto UE CONICET 0136 2016

Proyecto UBACYT 2018-2020. 20020170100686BA.

Editorial activities

Plant and Soil. Member Consulting Board of Editors. contract number 53015036762012- (2011-)

Spanish Journal of Soil Science. Member Emerit Editorial Board (2010-)

Referee Crop Science, Ecologia Austral, Plant & Soil, Vegetatio, Plant Growth Regulation, Journal of Plant Nutrition and Soil Science, Seed Science Research, Soil Sci.Soc. Am. J., Physiologia Plantarum, Agronomy Journal, Ecological Applications, Ciencia del Suelo,

Ciencia del Suelo Editor (2007)