

CURRICULUM VITAE

Family Name: FRANCAVIGLIA First Name: Rosa

Place and date of Birth: Rome, July 1, 1953

Nationality: Italian

Civil Status: Married

Scientific education

Master Degree in Biological Sciences, University “La Sapienza”, Rome, Italy (1976)

Present Position:

Senior researcher at the Council for Agricultural Research and Economics (CREA), Research Centre for Agriculture and Environment (CREA-AA), Via della Navicella 2-4, 00184 Rome, Italy. Phone +39 06 7005413 Fax +39 06 700 5711 e-mail rosa.francaviglia@crea.gov.it, www.entecra.it

Scientific trainings:

Research fellowship in soil science and agronomy at CRA: 1974-1981.

Biological Systems Engineering Department, Washington State University, Pullman, USA, 1998, training on CropSyst simulation model, Prof. Claudio Stocke.

Blackland Research and Extension Center, Temple, Texas, USA, 2007, training on WinEpic simulation model, Prof. Wyatte Harman, Dr. Jimmy Williams.

Rothamsted Research, Harpenden, Herts, UK, 2010, training on RothC, Prof. Andy Whitmore, Dr. Kevin Coleman.

Tutorships

José Luis Vicente-Vicente, PhD student (2016), Universidad de Jaén, Spain. “Soil carbon sequestration rates under Mediterranean woody crops using recommended management practices”.

Azam Soleimani, PhD student (2016), Tarbiat Modares University, Iran. “Simulating Soil Organic Carbon Storage Affected by Natural Forest Land Cover Change and Climate Change with RothC model (case study: Darab Kola-Sari)”.

Sana Boubheziz, PhD student (2017), Badji-Mokhtar University, Algeria. “Spatiotemporal characterization of carbon stocks of three types of vegetation formations of northeastern Algeria”.

Main research fields:

Effect of climate change on agriculture; Carbon sink and agricultural soils; Cropping systems and simulation models; Conservation agriculture; Soil quality indicators; Agro-environmental evaluations; Bioenergy crops.

Main research projects:

DIVERFARMING, Crop diversification and low-input farming across Europe: from practitioners’ engagement and ecosystems services to increased revenues and value chain organisation. H2020 funded Project 728003-2. Topic: RUR-06-2016 “Crop diversification systems for the delivery of food, feed, industrial products and ecosystems services - from farm benefits to value-chain organisation”. Type of action: RIA (2017-2021). Role: Participant.

CN-MIP, “C and N Models Intercomparison and Improvement to assess management options for GHG mitigation in agrosystems worldwide” FACCE-JPI (2014-2016). Role: Participant.

MONACO, National Project on Cross-compliance Monitoring, covering the European Standards of

Good Agricultural and Environmental Condition (GAEC). Role: coordinator Research Unit.

SOILSINK, Ministry of University and Research, Climate change and agro-forestry systems: impacts on soil carbon sink and microbial diversity. Role: national coordinator.

SIAS, agreement ISPRA-ARSSA, Indicatori di erosione e sostanza organica del suolo per la Regione Abruzzo (2009). Role: coordinator.

SIAS, agreement ISPRA, Indicatori di erosione e sostanza organica del suolo per la Regione Umbria (2012-2014). Role: coordinator.

REACT, Rivisitazione e validazione di conoscenze tradizionali per la conservazione del suolo nelle aree cerealicole lucane”, bando misura 124 del PSR Basilicata 2007-2013. Role: coordinator Research Unit. (2014-2015).

EFFICOND, Agricultural Research Council, Agro-environmental indicators and cross-compliance to maintain soils in good agricultural and environmental conditions. Role: participant.

BASUCO, Ministry of Agricultural, Food and Forestry Policies, Soil data-base of the EFFICOND project. Role: coordinator Research Unit.

ANFIBIO, Ministry of Agricultural, Food and Forestry Policies, Data-base of physical, fertility and biological diversity parameters of the Italian soils. Role: participant.

ECOTAPES, Agricultural Research Council, Coordinator research unit on the Eutrophic dynamics at the soil-water interface and salinization (Lake Fogliano, Pontine reclamation area).

BIOSEGEN, Ministry of Agricultural, Food and Forestry Policies, New processes for the production of second generation biofuels, coordinator research unit on Cardoon and the production of ligno-cellulosic biomass for energetic purposes.

SUOLO, Ministry of Agricultural, Food and Forestry Policies. Role: coordinator Research Unit Soil quality to preserve global soil fertility.

PANDA, Ministry of Agricultural, Food and Forestry Policies, Sustainable agriculture and protection of the environment. Role: coordinator Research Units on Cropping systems simulation models (water, nitrogen and pesticides); Climate change and water management.

Selected publications (since 2011)

<http://orcid.org/0000-0002-4362-5428>

SCOPUS Author ID: 6603626812, Documents: 46. Citations: 444 total citations by 377 documents. h-index: 14

Farina R., Seddaiu G., Orsini R., Steglich E., Roggero P.P., Francaviglia R. 2011. Soil carbon dynamics and crop productivity as influenced by climate change in a rain-fed cereal system under contrasting tillage using EPIC. *Soil and Tillage Research* 112 (1): 36-46.

Dell'Abate, M.T., Bazzoffi, P., Ciancaglini, A., Francaviglia, R., Galeffi, C., Napoli, R., Neri, U., Pennelli, B. Effectiveness of the GAEC cross-compliance standard ploughing in good soil moisture conditions in soil structure protection (2011) *Italian Journal of Agronomy*, 6 (SUPL.1), pp. 74-82.

Marchetti A., Piccini C., Santucci S., Chiuchiarelli I., Francaviglia R. 2011. Simulation of soil types in Teramo province (Central Italy) with terrain parameters and remote sensing data. *Catena* 85(3): 267–273.

Marchetti A., Piccini C., Francaviglia R., Mabit L. 2012. Spatial Distribution of Soil Organic Matter Using Geostatistics: A Key Indicator to Assess Soil Degradation Status in Central Italy. *Pedosphere* 22(2): 230-242.

Francaviglia R., Coleman K., Whitmore A.P., Doro L., Urracci G., Rubino M., Ledda L. 2012. Changes in soil organic carbon and climate change – Application of the RothC model in agro-silvo-pastoral Mediterranean systems. *Agricultural Systems* 112: 48-54.

Piccini C., Marchetti A., Farina R., Francaviglia R. 2012. Application of indicator kriging to evaluate the probability of exceeding nitrate contamination thresholds. *International Journal of Environmental Research* 6(4): 853-862.

Piccini, C., Marchetti, A., Francaviglia, R. 2014. Estimation of soil organic matter by geostatistical methods: Use of auxiliary information in agricultural and environmental assessment. *Ecological Indicators* 36: 301-314.

Francaviglia, R., Benedetti, A., Doro, L., Madrau, S., Ledda, L. 2014. Influence of land use on soil quality and stratification ratios under agro-silvo-pastoral Mediterranean management systems. *Agriculture Ecosystems and Environment* 183: 86-92.

Francaviglia R., Renzi G., Riviaccio R., Marchetti A., Piccini C. 2014. Spatial Analysis and Prediction of Soil Organic Carbon in Friuli Venezia Giulia Region (Northern Italy). *Geoinfor Geostat: An Overview* 2:3. <http://dx.doi.org/10.4172/2327-4581.1000124>.

Muñoz-Rojas M., Doro L., Ledda L., Francaviglia R. 2015. Application of CarboSOIL model to predict the effects of climate change on soil organic carbon stocks in agro-silvo-pastoral Mediterranean management systems. *Agriculture Ecosystems and Environment* 202: 8-16.

Sabia, E., Claps, S., Napolitano, F., Annicchiarico, G., Bruno, A., Francaviglia, R., Sepe, L., Aleandri, R. In vivo digestibility of two different forage species inoculated with arbuscular mycorrhiza in Mediterranean red goats (2015) *Small Ruminant Research*, 123 (1), pp. 83-87.

Bazzoffi, P., Francaviglia, R., Neri, U., Napoli, R., Marchetti, A., Falcucci, M., Pennelli, B., Simonetti, G., Barchetti, A., Migliore, M., Fedrizzi, M., Guerrieri, M., Pagano, M., Puri, D., Sperandio, G., Ventrella, D. Environmental effectiveness of GAEC cross-compliance Standard 1.1a (temporary ditches) and 1.2g (permanent grass cover of set-aside) in reducing soil erosion and economic evaluation of the competitiveness gap for farmers (2015) *Italian Journal of Agronomy*, 10, DOI: 10.4081/ija.2015.10.s1.710.

- Borrelli, L., Farina, R., Carroni, A.M., Ruda, P., Salis, M., Bazzoffi, P., Carnevale, S., Rocchini, A., Virzì, N., Intrigliolo, F., Palumbo, M., Cambrea, M., Platania, A., Sciacca, F., Licciardello, S., Troccoli, A., Russo, M., Speroni, M., Cabassi, G., Degano, L., Fuccella, R., Francaviglia, R., Neri, U., Falcucci, M., Simonetti, G., Masetti, O., Renzi, G., Ventrella, D., Vonella, V.A., Giglio, L., Fornaro, F., Leogrande, R., Vitti, C., Mastrangelo, M., Montemurro, F., Fiore, A., Diacono, M., Furlan, L., Chiarini, F., Fracasso, F., Sartori, E., Barbieri, A., Fagotto, F., Fedrizzi, M., Sperandio, G., Pagano, M., Fanigliulo, R., Guerrieri, M., Puri, D., Colauzzi, M. Environmental effectiveness of GAEC cross-compliance standard 2.2 “Maintaining the level of soil organic matter through crop rotation” and economic evaluation of the competitiveness gap for farmers (2015) *Italian Journal of Agronomy*, 10, DOI: 10.4081/ija.2015.10.s1.689.
- Francaviglia, R., Carroni, A.M., Ruda, P., Salis, M., Bazzoffi, P., Carnevale, S., Rocchini, A., Troccoli, A., Russo, M., Speroni, M., Borrelli, L., Cabassi, G., Neri, U., Napoli, R., Falcucci, M., Pennelli, B., Simonetti, G., Migliore, M., Piccini, C., Ventrella, D., Vonella, A.V., Giglio, L., Fornaro, F., Castellini, M., Modugno, F., Montemurro, F., Fiore, A., Diacono, M., Furlan, L., Chiarini, F., Colauzzi, M., Barbieri, A., Fagotto, F., Fedrizzi, M., Fanigliulo, R., Pagano, M., Sperandio, G., Guerrieri, M., Puri, D. Environmental effectiveness of GAEC cross-compliance standard 3.1 “Ploughing in good soil moisture conditions” and economic evaluation of the competitiveness gap for farmers (2015) *Italian Journal of Agronomy*, 10, art. no. 695.
- Gumiero, B., Boz, B., Lagomarsino, A., Bazzoffi, P., Napoli, R., Montemurro, F., Borrelli, L., Francaviglia, R., Carnevale, S., Rocchini, A., Agnelli, A.E., Fiore, A., Cabassi, G., Pennelli, B., Moretti, G., Gasparini, A., Pipitone, G., Sansone, L. Effectiveness of the cross-compliance standard 5.2 ‘buffer strips’ on protecting freshwater against diffuse nitrogen pollution (2015) *Italian Journal of Agronomy*, 10, art. no. 772.
- Salis, M., Sepe, L., Francaviglia, R., Fedrizzi, M., Bazzoffi, P., Claps, S., Pitzalis, M., Lilliu, M., Ruda, P., Sabia, E., Bruno, A., Rufrano, D., Dell’Abate, M.T., Alianello, A., Velocchia, M., Masetti, O., Renzi, G., Fanigliulo, R., Pagano, M., Sperandio, G., Guerrieri, M., Puri, D., Carroni, A.M. Environmental effectiveness of GAEC cross-compliance standard 4.1 (b, c) ‘protection of permanent pasture land’ and economic evaluation of the competitiveness gap for farmers (2015) *Italian Journal of Agronomy*, 10, DOI: 10.4081/ija.2015.10.s1.714.
- Sepe, L., Salis, M., Francaviglia, R., Fedrizzi, M., Carroni, A.M., Sabia, E., Bruno, A., Rufrano, D., Ruda, P., Dell’Abate, M.T., Alianello, A., Velocchia, M., Masetti, O., Renzi, G., Fanigliulo, R., Pagano, M., Sperandio, G., Guerrieri, M., Puri, D., Claps, S. Environmental effectiveness of the cross compliance standard 4.6 ‘minimum livestock stocking rates and/or appropriate regimens’ (2015) *Italian Journal of Agronomy*, 10, DOI: 10.4081/ija.2015.10.s1.715.
- Ventrella, D., Virzì, N., Intrigliolo, F., Palumbo, M., Cambrea, M., Platania, A., Sciacca, F., Licciardello, S., Troccoli, A., Russo, M., Francaviglia, R., Neri, U., Falcucci, M., Simonetti, G., Masetti, O., Renzi, G., Speroni, M., Borrelli, L., Cabassi, G., Degano, L., Fuccella, R., Savi, F., Tagliabue, P., Fedrizzi, M., Fanigliulo, R., Pagano, M., Sperandio, G., Guerrieri, M., Puri, D., Montemurro, F., Vonella, V.A., Giglio, L., Fornaro, F., Castellini, M., Leogrande, R., Vitti, C., Mastrangelo, M., Fiore, A., Diacono, M., Furlan, L., Chiarini, F., Colauzzi, M., Fracasso, F., Sartori, E., Barbieri, A., Fagotto, F., Bazzoffi, P. Environmental effectiveness of GAEC cross-compliance standard 2.1 ‘Maintaining the level of soil organic matter through management of stubble and crop residues’ and economic evaluation of the competitiveness gap for farmers (2015) *Italian Journal of Agronomy*, 10, DOI: 10.4081/ija.2015.10.s1.697.
- Francaviglia, R., Bruno, A., Falcucci, M., Farina, R., Renzi, G., Russo, D.E., Sepe, L., Neri, U. Yields and quality of *Cynara cardunculus* L. wild and cultivated cardoon genotypes. A case study from a marginal land in Central Italy (2016) *European Journal of Agronomy*, 72, pp. 10-19.
- Di Bene, C., Marchetti, A., Francaviglia, R., Farina, R. Soil organic carbon dynamics in typical durum wheat-based crop rotations of southern Italy (2016) *Italian Journal of Agronomy*, 11 (4), pp. 209-216.

- Vicente-Vicente, J.L., García-Ruiz, R., Francaviglia, R., Aguilera, E., Smith, P. Soil carbon sequestration rates under Mediterranean woody crops using recommended management practices: A meta-analysis (2016) *Agriculture, Ecosystems and Environment*, 235, pp. 204-214.
- Francaviglia, R., Carroni, A.M., Bazzoffi, P., Troccoli, A., Borrelli, L., Napoli, R., Ventrella, D., Montemurro, F., Chiarini, F. Testing the effectiveness of the European cross-compliance standard 3.1 “ploughing in good soil moisture conditions” (2016) *International Journal of Environmental Research*, 10 (4), pp. 655-666.
- Neri, U., Pennelli, B., Simonetti, G., Francaviglia, R. Biomass partition and productive aptitude of wild and cultivated cardoon genotypes (*Cynara cardunculus* L.) in a marginal land of Central Italy (2017) *Industrial Crops and Products*, 95, pp. 191-201.
- Farina, R., Marchetti, A., Francaviglia, R., Napoli, R., Di Bene, C. Modeling regional soil C stocks and CO₂ emissions under Mediterranean cropping systems and soil types (2017) *Agriculture, Ecosystems and Environment*, 238, pp. 128-141.
- Francaviglia, R., Di Bene, C., Farina, R., Salvati, L. Soil organic carbon sequestration and tillage systems in the Mediterranean Basin: a data mining approach (2017) *Nutrient Cycling in Agroecosystems*, 107 (1), pp. 125-137.
- Francaviglia, R., Renzi, G., Ledda, L., Benedetti, A. Organic carbon pools and soil biological fertility are affected by land use intensity in Mediterranean ecosystems of Sardinia, Italy (2017) *Science of the Total Environment*, 599-600, pp. 789-796.
- Soleimani, A., Hosseini, S.M., Massah Bavani, A.R., Jafari, M., Francaviglia, R. Simulating soil organic carbon stock as affected by land cover change and climate change, Hyrcanian forests (northern Iran) (2017) *Science of the Total Environment*, 599-600, pp. 1646-1657.
- Brilli, L., Bechini, L., Bindi, M., Carozzi, M., Cavalli, D., Conant, R., Dorich, C.D., Doro, L., Ehrhardt, F., Farina, R., Ferrise, R., Fitton, N., Francaviglia, R., Grace, P., Iocola, I., Klumpp, K., Léonard, J., Martin, R., Massad, R.S., Recous, S., Seddaiu, G., Sharp, J., Smith, P., Smith, W.N., Soussana, J.-F., Bellocchi, G. Review and analysis of strengths and weaknesses of agro-ecosystem models for simulating C and N fluxes (2017) *Science of the Total Environment*, 598, pp. 445-470.
- Francaviglia, R., Renzi, G., Doro, L., Parras-Alcántara, L., Lozano-García, B., Ledda, L. Soil sampling approaches in Mediterranean agro-ecosystems. Influence on soil organic carbon stocks (2017) *Catena*, 158, pp. 113-120.
- Canfora, L., Salvati, L., Benedetti, A., Francaviglia, R. Is soil microbial diversity affected by soil and groundwater salinity? Evidences from a coastal system in central Italy (2017) *Environmental Monitoring and Assessment*, 189 (7), art. no. 319.
- Bleuler, M., Farina, R., Di Bene, C., Francaviglia, R., Napoli, R., Marchetti, A. Modelling the impacts of different carbon sources on the soil organic carbon stock and CO₂ emissions in the Foggia province (Southern Italy) (2017) *Agricultural Systems*, 157, pp. 258–268.
- Drury, C., Liebig, M., Angers, D., Cavigelli, M., Dechow, R., Farina, R., Francaviglia, R., Gollany, H., Janzen, H., Kätterer, T., Munkholm, L., Piñeiro, G., Rice, C., Roggero, P.P., Sainju, U. How Conservation Agriculture can mitigate greenhouse gas emissions and enhance soil carbon storage in croplands (2017). Global Research Alliance on Agricultural Greenhouse Gases, Croplands Research Group, Conservation Agriculture Network, 5 pp. (available at <https://globalresearchalliance.org/wp-content/uploads/2017/08/Conservation-Agriculture-Network-Brochure.pdf>).
- Farina, R., Di Bene, C., Piccini, C., Marchetti, A., Troccoli, A., Francaviglia, R. Do crop rotations improve the adaptation of agricultural systems to climate change? A modeling approach to predict the effect of

- durum wheat-based rotations on soil organic carbon and nitrogen (2018). Chapter 15. In: Soil Management and Climate Change. Effects on Organic Carbon, Nitrogen Dynamics, and Greenhouse Gas Emissions (Editors: Maria Munoz, Raúl Zornoza). Academic Press, 221-236. <http://dx.doi.org/10.1016/B978-0-12-812128-3.00015-X>.
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- Mishra, G., Jangir, A., Francaviglia, R. (2019). Modeling soil organic carbon dynamics under shifting cultivation and forests using RothC model. Ecological Modelling, 396, 33-41. <https://doi.org/10.1016/j.ecolmodel.2019.01.016>
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