

Prof. Alberto Agnelli
Settore scientifico disciplinare AGR/14 Pedologia
Macrosettore 07/E1

Campo di specializzazione: Pedologia e chimica del suolo.

Principali aree di ricerca: Dinamiche del C nel suolo e loro studio tramite analisi chimiche, biologiche, spettroscopiche e isotopiche (^{13}C , ^{14}C , ^{15}N); ruolo della sostanza organica nella pedogenesi; feedback suolo-microrganismi-pianta; rizosfera di specie naturali e coltivate; destino del DNA extracellulare nel suolo; ruolo dello scheletro del suolo (frazione > 2 mm) nella nutrizione delle piante; mineralogia del suolo; processi pedogenetici e biogeochimici in ecosistemi estremi.

L'attività di ricerca del Prof. Agnelli rientra nei seguenti settori ERC:
PE 10-12 Sedimentology, soil science, palaeontology, earth evolution
PE 10-9 Biogeochemistry, biogeochemical cycles, environmental chemistry
PE10-4 Terrestrial ecology, land cover change
LS 9-4 Plant sciences (including crop production, plant breeding, agroecology, soil biology)

Membro delle seguenti società scientifiche:
Società Italiana di Pedologia (SIPe)
Società Italiana di Scienza del Suolo (SISS)
International Humic Substances Society (IHSS)
Soil Science Society of America (SSSA)
European Society for Soil Conservation (ESSC)

Senior Associate Editor per la rivista Geoderma (Elsevier)
Membro dell'Editorial Board della rivista PEDOSPHERE (Elsevier)

Referee per le seguenti riviste scientifiche internazionali:
Arid Land Research and Management
Biogeochemistry
Environmental Monitoring and Assessment
Fresenius Environmental Bulletin
Geoderma
Journal of Plant Nutrition and Soil Science
Pedosphere
Soil Biology & Biochemistry
Soil Science Society Journal of America
Waste Management Research

Pubblicazioni

- De Feudis, M., Cardelli, V., Massaccesi, L., Trumbore, S.E., Vittori Antisari, L., Cocco, S., Corti, G., Agnelli, A. 2019. Small altitudinal change and rhizosphere affect the SOM light fractions but not the heavy fraction in European beech forest soil. *Catena* 181, 104091.
- Massaccesi, L., Cartoni Mancinelli, A., Mattioli, S., De Feudis, M., Castellini, C., Dal Bosco, A., Marongiu, L., Agnelli, A. 2019. Geese reared in vineyard: soil, grass and animals interaction. *Animals* 9, 179.
- Mocali, S. Agnelli, A., Mengoni, A., Chiellini, C., Donato Alessi, G., Corti, G., Massaccesi, L., De Feudis, M., Cocco, S., Cardelli, V. 2019. Exploring the links between bacterial communities and magnetic susceptibility in bulk soil and rhizosphere of beech (*Fagus sylvatica* L.). *Applied Soil Ecology* 138, 69-79.
- Cardelli, V., De Feudis, M., Fornasier, F., Massaccesi, L., Cocco, S., Agnelli, A., Weindorf, D.C., Corti, G. 2019. Changes of topsoil under *Fagus sylvatica* along a small latitudinal-altitudinal gradient. *Geoderma* 344 164–178.
- Corti, G., Agnelli, A., Cocco, S., Cardelli, V., Masse, J., Courchesne, F. 2019. Soil affects throughfall and stemflow under Turkey oak (*Quercus cerris* L.). *Geoderma* 333, 43–56.
- Corti, G., Agnelli, A., Cocco, S., Cardelli, V., Masse, J., Courchesne, F. 2018. Data on soil physicochemical properties and chemical composition of rainfall and of throughfall and stemflow generated by Turkey oak trees (*Quercus cerris* L.) in acid and sub-alkaline soils. *Data in Brief*, <https://doi.org/10.1016/j.dib.2018.08.050>.
- Massaccesi, L., De Feudis, M., Agnelli, A.E., Nasini, L, Regni, L., D'Ascoli, R., Castaldi, S., Proietti, P., Agnelli, A. 2018. Organic carbon pools and storage in the soil of olive groves of different age. *European Journal of Soil Science* 69, 843-855.
- Vittori Antisari, L., Agnelli, A., Corti, C., Falsone, G., Ferronato, C., Marinari, S., Vianello, G. 2018. Modern and ancient pedogenesis as revealed by holocene fire - northern Apennines, Italy. *Quaternary International* 467, 264–276.

Cocco, S., Cardelli, V., Bigaran, F., Massaccesi, L., Agnelli, A., Weindorf, D.C., Ping, C-L. Michaelson, G.J., Corti, G. 2018. Latitudinal transect relationship between soil organic horizons and permafrost depth in Alaska. *Applied Soil Ecology* 123, 588-596.

De Feudis, M., Cardelli, V., Massaccesi, L., Lagomarsino, A., Fornasier, F., Westphalen, D.J., Cocco, S., Corti, G., Agnelli, A. 2017. Influence of altitude on biochemical properties of European beech (*Fagus sylvatica* L.) forest soils. *Forests* 8, 213.

De Feudis, M., Cardelli, V., Massaccesi, L., Hofmann, D., Berns, A.E., Bol, R., Cocco, S., Corti, G., Agnelli, A. 2017. Altitude affects the quality of the water-extractable organic matter (WEOM) from rhizosphere and bulk soil in European beech forests. *Geoderma* 302, 6-13.

Cardelli, V., Stefania Cocco, S., Agnelli, A., Nardi, S., Pizzeghello, D., Fernández Sanjurjo, M.J., Corti, G. 2017. Chemical and biochemical properties of soils developed from different lithologies in northwestern Spain (Galicia). *Forests* 8, 135.

Ricci, A., Massaccesi, L., Pezzolla, D., Corti, G., Agnelli, A., Gigliotti, G., 2017. Multi-approach characterization of organic sediment produced by an anaerobic digestion plant fed with pig slurry and stored for a long term in a lagoon. *Journal of Hazardous Materials* 330, 29-35.

Regni., L, Nasini, L., Ilarioni, L., Brunori, A., Massaccesi, L., Agnelli, A., Proietti P., 2017. Long term amendment with fresh and composted solid olive mill waste on olive grove affects carbon sequestration by prunings, fruits and soil. *Frontiers in Plant Science* 7, 2042.

Agnelli, A, Cocco, S., Massaccesi, L., Courchesne, F., Ugolini, F.C., Corti, G., 2017. Features of skeleton water-extractable fines from different acidic soils. *Geoderma* 289, 82-96.

Cardelli, V., Weindorf, D.C., Chakraborty, S., Li, B., De Feudis, M., Cocco, S., Agnelli, A., Choudhury, A., Ray, D.P., Corti, G., 2017. Soil organic horizon characterization via advanced proximal sensors. *Geoderma* 288, 130-142.

De Feudis, M., Cardelli, V., Massaccesi, L., Bol, R., Willbold, S., Cocco, S., Corti, G., Agnelli, A., 2016. Effect of beech (*Fagus sylvatica* L.) rhizosphere

on phosphorous availability in soils at different altitudes (central Italy). *Geoderma* 276, 53-63.

Lagomarsino, A., Ferrara, R.M., Agnelli, A.E., Linquist, B., Adviento-Borbe, M.A.A., Agnelli, A., Gavina G., Ravaglia S., 2016. Alternate wetting and drying of rice reduced CH₄ emissions but triggered N₂O peaks in a clayey soil of central Italy. *Pedosphere* 26, 533-548.

Agnelli, A., Massaccesi, L., De Feudis, M., Cocco, S., Courchesne, F., Corti, G. 2016. Holm oak (*Quercus ilex* L.) rhizosphere affects limestone-derived soil under a multi-centennial forest. *Plant and Soil* 400, 297-314.

Pizzeghello, D., Cocco, S., Francioso, O., Ferrari, E., Cardinali, A., Nardi, S., Agnelli, A., Corti, G. 2015. Snow vole (*Chionomys nivalis* Martins) affects the redistribution of soil organic matter and hormone-like activity in the alpine ecosystem: ecological implications. *Ecological Evolution* 5, 4542-4554.

Massaccesi, L., Benucci, G.M.N., Gigliotti, G., Cocco, S., Corti, G., Agnelli, A. 2015. Rhizosphere effect of three plant species of environment under periglacial conditions (Majella Massif, central Italy). *Soil Biology & Biochemistry* 89, 184-195.

Cocco, S., Brecciaroli, G., Agnelli, A., Weindorf, D., Corti, G. 2015. Soil genesis and evolution on calanchi (badland-like landform) of central Italy. *Geomorphology* 248, 33-46.

Pezzolla, D., Marconi, G., Turchetti, B., Zadra, C., Agnelli, A., Veronesi, F., Onofri, A., Benucci, G.M.N., Buzzini, P., Albertini, E., Gigliotti, G. 2015. Influence of exogenous organic matter on prokaryotic and eukaryotic microbiota in an agricultural soil. A multidisciplinary approach. *Soil Biology & Biochemistry* 82, 9-20.

Hannachi, N., Cocco, S., Fornasier, F., Agnelli, A., Brecciaroli, G., Massaccesi, L., Weindorf, D., Corti, G. 2015. Effects of cultivation on chemical and biochemical properties of dryland soils from southern Tunisia. *Agriculture, Ecosystems and Environment* 199, 249-260.

Massaccesi, L., Agnelli, A., Bardgett, R.D., Ostle, N., Wilby, A., Orwin, K.H. 2015. Impact of plant species evenness, dominant species identity and

- spatial arrangement on the structure and functioning of soil microbial communities in a model grassland. *Oecologia* 177, 747-759.
- Agnelli, A., Bol, R., Trumbore, S.E., Dixon, L., Cocco, S., Corti, G. 2014. Carbon and nitrogen in soil and vine roots in harrowed and grass-covered vineyards. *Agriculture, Ecosystems and Environment* 193, 70–82.
- Corti, G., Cocco, S., Brecciaroli, G., Agnelli A., Seddaiu, G. 2013. Italian Soil Management from Antiquity to Nowadays. In Costantini E.A.C. and Dazzi C. (Eds.), *The soils of Italy*. World Soils Book Series, Springer Netherlands, Dordrecht. pp 247-293.
- Seddaiu, G., Porcu, G., Ledda, L., Roggero, P.P., Agnelli, A., Corti, G. 2013. Soil organic matter content and composition as influenced by soil management in a semi-arid Mediterranean agro-silvo-pastoral system. *Agriculture, Ecosystems and Environment* 167, 1-11.
- Pezzolla, D., Gizzi, S., Zadra, C., Agnelli, A., Roscini, L., Gigliotti G. 2013. Changes in the Composition of Soil Dissolved Organic Matter After Application of Poultry Manure. In Xu J., Wu J., He Y. (Eds.), *Functions of Natural Organic Matter in Changing Environment*. Springer Netherlands, Dordrecht. pp. 451-454.
- Corti, G., Cocco, S., Brecciaroli, G., Agnelli A., Seddaiu, G. 2013. Italian Soil Management from Antiquity to Nowadays. In Costantini E.A.C. and Dazzi C. (Eds.), *The soils of Italy*. World Soils Book Series, Springer Netherlands, Dordrecht. pp 247-293.
- Vischetti, C., Coppola, L., Monaci, E., Mincarelli, L., Casucci, C., Taffi, M., Agnelli, A. 2013. Effect of different fractions of organic carbon on adsorption of metalaxyl in waste organic substrates and soils. *Fresenius Environmental Bulletin* 22, 200-206.
- Cocco S., Agnelli A., Gobran, G., Corti, G. 2012. Modifications induced by the roots of *Erica arborea* L. to create a suitable environment in soils developed from alkaline and fine-textured marine sediments. *Plant and Soil* 368, 297-313.

- Brecciaroli, G., Cocco, S., Agnelli, A., Courchesne, F., Corti, G. 2012. From rainfall to throughfall in a close-to-sea vineyard. *Science of the Total Environment* 438, 174–188.
- Stanchi, S., Freppaz, M., Agnelli, A., Reinsch, T., Zanini, E. 2012. Properties, best management practices and conservation of terraced soils in Southern Europe (from Mediterranean areas to the Alps): a review. *Quaternary International* 265, 90-100.
- Corti, G., Cocco, S., Basili, M., Cioci, C., Warburton, J., Agnelli A. 2012. Soil formation in kettle holes from high altitudes in central Apennines, Italy. *Geoderma* 170, 280-294.
- Corti, G., Cavallo, E., Cocco, S., Biddoccu, M., Brecciaroli, G., Agnelli, A. 2011. Evaluation of Erosion Intensity and Some of Its Consequences in Vineyards from Two Hilly Environments Under a Mediterranean Type of Climate, Italy. In Godone D. and Stanchi S. (Eds.), *Soil Erosion Issues in Agriculture*. InTech Publisher. pp. 113-160. ISBN: 978-953-307-435-1.
- Fernández Sanjurjo M.J., Corti G., Agnelli A. 2011. Genesis and role of the skeleton water-extractable fines in volcanic soils. *Soil Science Society of America Journal* 75, 1019-1031.
- Vischetti, C., Corti, G., Monaci, E., Cocco, S., Coppola, L., Agnelli, A. 2010. Pesticide adsorption and degradation in fine earth and rock fragments of two soils of different origin. *Geoderma* 154, 348-352.
- Celi, L. Rosso, F., Freppaz, M., Agnelli, A., Zanini, E. 2010. Soil organic matter characteristics in a sporadic permafrost-affected environment (Creux du Van, CH). *Arctic, Antarctic and Alpine Research* 42, 1-8.
- Ceccherini, M.T., Ascher, J., Agnelli, A., Borgogni, F., Nannipieri, P., Pietramellara, G. 2009. Experimental discrimination and molecular characterization of the extracellular soil DNA fraction. *Antonie van Leeuwenhoek Journal of General and Molecular Microbiology* 96, 653-657.
- Ascher, J., Ceccherini, M.T., Agnelli, A., Borgogni, F., Guerri, G., Nannipieri, P., Pantani, O.L, Pietramellara, G. 2009. Sequential extraction and genetic fingerprinting of a forest soil metagenome. *Applied Soil Ecology* 42, 176-181.

- Cuniglio, R., Corti, G., Agnelli, A. 2009. Rock fragments evolution and nutrients release in vineyard soils developed on a thinly layered limestone (Tuscany, Italy). *Geoderma* 148, 375-383.
- Cioci C., Corti G., Agnelli A., Cocco S. 2008. Role of the altitude on the organic matter preservation in soils under a secondary prairie on the Majella massif (Italy). *Agrochimica* 52, 313-324.
- Agnelli, A., Celi, L., Corti, G., Condello, L. 2008. Organic matter stabilization in soil aggregates and rock fragments as revealed by low-temperature ashing (LTA) oxidation. *Soil Biology & Biochemistry* 40, 1379-1389.
- Viti, C., Quaranta, D., De Philippis, R., Corti, G., Agnelli, A., Cuniglio, R., Giovannetti. L. 2008. Characterizing cultivable soil microbial communities from copper fungicide-amended olive orchard and vineyard soils. *World Journal of Microbiology and Biotechnology* 24, 309-318.
- Freppaz, M., Agnelli, A., Drusi, B., Stanchi, S., Galliani, C., Revel Chion, V., Zanini, E. 2008. Soil quality and fertility: studies in the Valle d'Aosta. In: Fontanari E. and Patassini D. (Eds.), *Terraced landscape in the Alps - Project in progress*. Marsilio Editor, Venice. pp. 37-39.
- Freppaz, M., Agnelli, A., Drusi, B., Stanchi, S., Galliani, C., Revel Chion, V., Zanini, E. 2008. Productive and environmental problems of the terraced areas in the Alpine space. In: Scaramellini G. and Varotto M. (Eds.), *Terraced landscape in the Alps - Atlas*. Marsilio Editor, Venice. pp. 61-67.
- Agnelli, A.E., Corti, G., Agnelli, A., Del Carlo, P., Coltell, M., Ugolini, F.C. 2007. Features of some paleosols on the flanks of Etna volcano (Italy) and their origin. *Geoderma* 142, 112-126.
- Agnelli, A., Ascher, J., Corti, G., Ceccherini, M.T. Pietramellara, G. Nannipieri, P. 2007. Purification and isotopic signatures ($d^{13}C$, $d^{15}N$, $D^{14}C$) of soil extracellular DNA. *Biology and Fertility of Soil* 44, 353-361.
- Corti, G., Ricci, F., Coniglio, R. and Agnelli A. 2007. Influence of soil factors on esca infection in a vineyard soil developed on Pliocene deposits. Tuscany, Italy. *Communication in Soil Science and Plant Analysis* 38, 661-678.
- D'Acqui, L.P., Sparvoli, E., Agnelli, A. e Santi C. 2005. Soil and organic wastes: transformation of olive oil mill waste water and clay particle aggregation.

- In:* Huang, P.M., Violante, A. Bollag, J.-M., Vityakon P. (eds.), *Soil Abiotic & Biotic Interactions and the Impact on the Ecosystem & Human Welfare*. Science Publisher, Inc. USA. pp. 73-86.
- Corti, G., Agnelli, A., Cuniglio, R., Fernández Sanjurjo, M., Cocco, S. 2005. Characteristics of rhizosphere soil from natural and agricultural environments. *In:* Huang P.M. and Gobran G.R (eds.), *Biogeochemistry of the trace elements in the rhizosphere*. Elsevier Science, Amsterdam. pp. 57-128.
- Certini, G., Agnelli, A., Corti, G., and Capperucci, A. 2004. Composition and mean residence time of molecular weight fractions of organic matter extracted from two soils under different forest species. *Biogeochemistry* 71: 299-316.
- Agnelli, A., Ascher J., Corti, G., Ceccherini, M.T., Nannipieri, P., Pietramellara, G. 2004. Distribution of microbial communities in a forest soil profile investigated by microbial biomass, soil respiration and DGGE of total and extracellular DNA. *Soil Biology & Biochemistry* 36: 859-868.
- Romani, A., Pinelli, P., Galardi, C., Corti, G., Agnelli, A., and Heimler, D. 2003. Flavonoids in leaves of black cabbage (*Brassica oleracea* var. *acephala* dc. subvar. *viridis* forma *serotina*) grown on different soils and at different elevations. *Italian Journal of Food Science* 15: 197-206.
- Certini, G., Corti, G., Agnelli, A., and Sanesi, G. 2003. Carbon dioxide efflux and concentrations in two soils under temperate forests. *Biology and Fertility of Soils* 37: 39-46.
- Agnelli, A., Celi, L., Degl'Innocenti, A., Corti, G., and Ugolini F.C. 2002. The changes with depth of humic and fulvic acids extracted from fine earth and rock fragments of a forest soil. *Soil Science* 167: 524-538.
- Corti, G., Ugolini, F.C., Agnelli, A., Certini, G., Cuniglio, R., Berna, F., and Sanjurjo Fernandez, M. 2002. The soil skeleton, a forgotten pool of carbon and nitrogen in soil. *European Journal of Soil Science* 53: 283-298.
- Agnelli, A., Trumbore, S.E., Corti, G., and Ugolini, F.C. 2002. The dynamics of organic matter in soil rock fragments investigated by ^{14}C dating and measurements of ^{13}C . *European Journal of Soil Science* 53: 147-159.

- Ugolini, F. C., Corti, G., Dufey, J.E., Agnelli, A. and Certini, G. 2001. Exchangeable Ca, Mg, and K of rock fragments and fine earth from sandstone and siltstone derived soils and their availability to grass. *Journal of Plant Nutrition and Soil Science* 164: 309-315.
- Corti, G., Agnelli, A., Certini, G. and Ugolini, F.C. 2001. The soil skeleton as a tool for disentangling pedogenetic history: a case study in Tuscany, central Italy. *Quaternary International* 78: 33-44.
- Agnelli, A., Ugolini, F.C., Corti, G., and Pietramellara, G.. 2001. Microbial biomass-C and basal respiration of fine earth and highly altered rock fragments of two forest soils. *Soil Biology & Biochemistry* 33: 613-620.
- Agnelli, A., Celi, L., Degl'Innocenti, A., Corti, G., and Ugolini, F.C. 2000. Chemical and spectroscopic characterization of the humic substances from sandstone derived rock fragments. *Soil Science* 165: 314-327.
- Berna, F., Corti, G., Ugolini, F.C., and Agnelli, A. 2000. Assessment of the role of rock fragments in the retention of cadmium and lead in irrigated arid stony soils. *Annali di Chimica* 90: 209-217.
- Corti, G., Agnelli, A. and Ugolini, F.C. 1999. A modified Kjeldahl procedure for determining strongly fixed NH_4^+ -N. *European Journal of Soil Science* 50: 523-534.
- Corti, G., Ugolini, F.C. and Agnelli, A. 1998. Classing the soil skeleton (greater than two millimeters): proposed approach and procedure. *Soil Science Society of America Journal* 62: 1620-1629.
- Certini G., Ugolini, F.C., Corti, G. and Agnelli A. 1998. Early stages of podzolization under Corsican pine (*Pinus nigra Arn. ssp. laricio*). *Geoderma*. 83: 103-125.
- Corti, G., Agnelli, A. and Ugolini, F.C. 1997. Release of Al by hydroxy-interlayered vermiculite & hydroxy-interlayered smectite during determination of cation exchange capacity in fine earth and rock fragments fractions. *European Journal of Soil Science* 48:249-262.
- Ugolini, F.C., Corti, G., Agnelli, A. and Piccardi, F. 1996. Mineralogical, physical and chemical properties of rock fragments in soil. *Soil Science* 161: 521-542.