Curriculum vitae et studiorum

Marcello DONATELLI

place of birth: Buenos Aires (Argentina), February 25, 1957
citizenship: Italian

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Position

2017-present Director of the Research Centre Agriculture and Environment, Council for Agricultural Research and Economics, Bologna/Firenze/Roma/Bari
2016-2017 Acting Director of the Research Centre for Agrobiology and Pedology, Council for Agricultural Research and Economics, Firenze.
2013-2017 Director of the Research Centre for Industrial Crops, Council for Agricultural Research and Economics, Bologna.
2007-2012 Seconded National Expert to the Joint Research Centre of the European Commission, Ispra (VA), Italy.
2001-present Director of Research. Research Institute for Industrial Crops (CRA-CIN), Italian Ministry of Agriculture, Bologna, Italy
1997-2000 Senior Researcher. Research Institute for Industrial Crops (ISCI), Italian Ministry of Agriculture, Bologna, Italy.
1985-1997 Tenured Researcher. Research Institute for Agronomic Research (ISA), Italian Ministry of Agriculture, Modena, Italy.
1982-1985 Associate Researcher. Research Institute for Cereals (ISC), Italian Ministry of Agriculture, Rome, Italy.

Education

1982 Doctor in Agricultural Sciences *cum laude*, at the University of Perugia, Italy. Major in Crop Production, minor in Agricultural Engineering. Dissertation title: "Growth analysis of different genotypes of grain sorghum".

Sabbaticals / Secondments

2007-2012 Joint Research Centre, European Commission
1999(3 months) FAO – SDRN Rome, Italy
1997(5 months) Washington State Univ., Crops and Soils Dep., Pullman, WA, USA
1992(5 months) Washington State Univ., Bio. Systems Engineering Dep., Pullman, WA, USA
1987(12 months) Kansas state Univ., Agronomy Dep., Manhattan, KS, USA

Appointments – Titles

2016 Evaluator for the national system for research evaluation, VQR.
2016 Consultant for LEI, Wageningen, The Netherlands, on modular modelling.
2015-present Member of the Board of Professors, Dep of Agriculture, Nutrition and Environment, University of Catania.
2015 Co-Leader of the Pests and Diseases Modelling Intercomparison Team, AgMIP
2014 Full professor of Agronomy, ASN - National Scientific Qualification
2014 Delegation leader food security, Italy-USA bilateral res. agreement, Washington DC, USA
2013-2016 Deputy coordinator of the 7th Framework Research Project MODEXTREME
2012 Expert evaluator of COST action FP0603
2010-2017 Associate Editor of Environmental Modelling and Software
2009 Consultant for the World Bank, Agriculture and Rural Development for research project on climate change and agriculture in Latin America.
2009 Expert evaluator of research projects of the 7th Framework Research Program of the European Commission, DG Research, call KBBE-2009-3.
2006-2007 Member of the Editorial Board of European Journal of Agronomy
2005-2007 Board member of the EU Integrated Project SEAMLESS
2004 Consultant to develop a software for GMO sampling, Joint Research Center of the European Commission
2003-2007 Member of the Editorial Board of Agricultural Systems
2002-2009 Executive Secretary of the European Society for Agronomy
2002-2006, 2016-present Member of the Board of the Italian Society for Agronomy

1996-2002 Chairman of the division "Agroclimatology and Agronomic Modelling" of ESA (European Society of Agronomy).
1997 Teaching Assistant, Washington State University.
1992 Adjunct faculty, Dep. Bio. Syst. Engineering, Washington State University, Pullman, USA.
1991-1993 Acting Director, Research Station of ISA, Ministry of Agriculture, Modena, Italy

Advisor in PhD programs

PhD 2017 Getachew Belete, "Integrating models on the web: applications for socio-environmental studies", Dept. Geo-information processing, University of Twente, Olanda.
PhD 2012 Simone Bregaglio, "Definition and implementation of plant disease simulation models in interaction with crop models, aiming at forecasting the impact of climate change scenarios on crop production", Università di Milano, Italia
PhD 2011 Jerôme Dury, "The cropping-plan decision-making: a farm level modelling and simulation approach", INRA Tolosa, Francia
PhD 2003 Hatem Belhouchette, "Evaluation de la durabilite de succession culturales a l'echelle d'un perimetre irrigue en Tunisie: Utilisation conjointe d'un modele de culture (CropSyst), d'un sig et d'un modele bio-economique", Ecole Nazionale Superieur Agronomique de Montpellier, Francia
PhD 2001 Huib Hengsdijk, "Formalizing agro-ecological knowledge for future-oriented land use studies", Wageningen University,Wageningen, Olanda

Awards

2014 Medallist and Fellow of the Environmental Modelling and Software Society: http://www.iemss.org/society/index.php/21-awards/262-2014-iemss-awards

Research activity

Activity focuses on modelling of biophysical systems, with the target of developing innovative tools to evaluate management options with respect to both production and system externalities. Most of model development has been in the area of agro-meteorology, crop growth, and cropping systems. Developer or co-developer of the software at: http://agsys.cra-cin.it/tools, and leader of the development of the BioMA platform https://en.wikipedia.org/wiki/BioMA, http://www.biomamodelling.org. Biophysical models model have also been used with global circulation models outputs to estimate the impact of climate change scenarios on crop production and disease infections. Another field of activity has regarded statistical methodologies. Fluent programming in C# - .NET. Prior to becoming Director of the Research Center, in the last 15 years I was coordinator of groups of 3-8 researchers, also with the role of tutor for post-doc associates.

International lectures

2016: Lecturer, ENDURE Project, Course for post-graduate students, Volterra, Italy. *Linking disease-crops models; modular models for biophysical simulation.*
2007: Lecturer AGRIDEMA project, Vienna, Austria, *Modelling cropping systems via the CropSyst model.*
2006: Lecturer, University of Buenos Aires, Argentina. Course for post-graduate students: *Modelling cropping systems via the CropSyst model*
1999: Lecturer, Ankara Technical University, Turkey. Course for post-graduate students: *The CropSyst model*
1997: Teaching Assistant Washignton State University, Crop ans Soils Department, Pullman, WA, USA: *Environmental Biophysics*
1997-2001: Lecturer, Institut Agronomique Mediterraneen (IAMM) Montpellier, France. Course for post-graduate students: *The CropSyst model*

Editorial activities

*Agricultural Systems Modelling and Software, - Part I (***2014***) and II* (**2015**). Holzworth D.P., Snow V., Janssen S., Athanasiadis I.N., Donatelli M., Hoogenboom G., White J.W., Thorburn P., Environmental Modelling and Software, 62 and 63.

Field-Farm Scale Design and Improvement – Farming Systems Design, **2007.** M. Donatelli, J.Hatfield, A.E Rizzoli (Editors), Catania, Italy, 252 pp

Farm-Regional Scale and Development – Farming Systems Design, **2007.** M. Donatelli, J.Hatfield, A.E Rizzoli (Editors), Catania, Italy, 212 pp

Modelling Cropping Systems: Science, Software and Applications. **2003**. M.K.Van Ittersum, M. Donatelli (Editors). European Journal of Agronomy, Elsevier, Olanda, 196 pp.

Process Simulation and Application of Cropping Systems Models. **2002**. M. Donatelli, M. Bindi, J.R. Porter, M.K. Van Ittersum (Editors). European Journal of Agronomy, Elsevier, Olanda, 185 pp.

2nd International Symposium on Modelling Cropping Systems. **2001**. In M. Bindi, M. Donatelli, J. Porter, M.K. Van Ittersum (Editors). Proceedings, IBiMet, Firenze, 232 pp.

Developing Sustainable Agricultural Production Systems: Agronomic Approaches at Different Levels of Scale. **2000**. M.K. Van Ittersum, M. Donatelli, M. Lacko-Bartosova (Editors) European Journal of Agronomy, Elsevier, Olanda, 195 pp.

1st International Symposium on Modelling Cropping Systems. **1999**. In M. Donatelli, C. Stockle, F. Villalobos, J. M. Villar Mir (Editors). Proceedings, Universitat de Lleida, Lleida, Spagna, 300 pp.

Publications

Monographs and book chapters

Donatelli M., Confalonieri R. **2011**. Biophysical Models for Cropping System Simulation. In: G. Flichman (ed.), Bio-Economic Models applied to Agricultural Systems, Springer, 59-84.

Dihé P., Frysinger S., Güttler R., Schlobinski S., Petronzio L., Denzer R., Nešić S., Lobo T., Schimak G., Hřebíček J., Donatelli M. **2011.** An Architecture for the Semantic Enhancement of Environmental Resources. IFIP Advances in Information and Communication Technology, vol 359, 372-384.

Donatellli M., G. Russell, A.E Rizzoli, et al. **2010.** A component-based framework for simulating agricultural production and externalities. In: Environmental and agricultural modelling: Integrated approaches for policy impact assessment, F.Brouwer and M. van Ittersum editors, Springer, 63-108.

Rizzoli A.E., G. Leavesley, J.C. Ascough II, R.M. Argent , I.N. Athanasiadis, V. Brilhante, F.H.A. Claeys, O. David, M. Donatelli i, P. Gijsbers, D. Havlik, A. Kassahun, P. Krause **2008.** Environmental modelling, software and decision support - state of the art and new perspectives Elsevier 101-119

Donatelli M., M. Acutis, A. Nemés, H. Wosten, **2004.** Integrated Indices for Pedotransfer Evaluation Pedotransfer Functions, Pacepsky and Rawls Eds. Elsevier 363-390

Donatelli M., G. Bellocchi, G. Fila, C. Maestrini, **2002** Uso avanzato di MS Excel, Istituto Sperimentale per le Colture Industriali, Bologna, 92 pp.

Danuso F., M. Donatelli, **2002**. La simulazione dei sistemi colturali. In: Verso un approccio integrato allo studio dei sistemi colturali, E. Bonari e P. Ceccon Ed., FrancoAngeli Editore, 46 pp.

Donatelli M., P. Annicchiarico **1998.** Nota sull'analisi di dati sperimentali in agricoltura con il sistema SAS - Seconda Edizione, Istituti Sperimentali per le Colture Industriali e per le Colture Foraggere, Bologna e Lodi, 268 pp,

Donatelli M. **1995** Sistemi Integrati nella gestione delle colture. Istituto Sperimentale Agronomico, Modena, 119 pp

Donatelli M., P. Annicchiarico **1990.** Nota sull'analisi di dati sperimentali in agricoltura con il sistema SAS, Istituti Sperimentali Agronomico e per le Colture Foraggere, Modena e Lodi, 220 pp

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International, peer reviewed:
Donatelli M., Magarey R.D., Bregaglio S., Willocquet L., Whish J.P.M., Savary S., **2017**. Modelling the impacts of pests and diseases on agricultural systems. Agricultural Systems. http://www.sciencedirect.com/science/article/pii/S0308521X1730104X

Duveiller G., Donatelli M., Fumagalli D., Zucchini A., Baruth B., **2015**. A dataset of future daily weather data for crop modelling over Europe derived from climate change scenarios. Theoretical and Applied Climatology http://link.springer.com/article/10.1007/s00704-015-1650-4

Donatelli M., Srivastava, A.K., Duveiller G., Niemeyer S., Fumagalli D. **2015**. Climate change impact and potential adaptation strategies under alternate realizations of climate scenarios for three major crops in Europe. Environmental Research Letters, http://iopscience.iop.org/1748-9326/10/7/075005/article

Bregaglio, S., Donatelli, M., **2015**. A set of components for the simulation of plant airborne diseases. Environmental Modelling and Software, 72: 426-444. http://www.sciencedirect.com/science/article/pii/S1364815215001589

Paleari L., Cappelli G., Bregaglio S., Acutis M., Donatelli M., Sacchi G., Lupotto E., Boschetti M., Manfron G., Confalonieri R., **2015**. District specific, in silico evaluation of rice ideotypes improved for resistance/tolerance traits to biotic and abiotic stressors under climate change scenarios. Climatic Change, 661-675. http://link.springer.com/article/10.1007%2Fs10584-015-1457-4

Holzworth D.P., Snow V., Janssen S., Athanasiadis I.N., Donatelli M., Hoogenboom G., White J.W., Thorburn P., **2015**. Agricultural production systems modelling and software: Current status and future prospects, Environmental Modelling & Software, 276-286. http://www.sciencedirect.com/science/article/pii/S1364815214003703

Donatelli M., Bregaglio S., Confalonieri R., De Mascellis R., Acutis M. **2014**. A generic framework for evaluating hybrid models by reuse and composition – A case study on soil temperature simulation. Environmental Modelling & Software, volume 62, 478-486. http://dx.doi.org/10.1016/j.envsoft.2014.04.011

Manici L .M., Bregaglio S., Fumagalli D., Donatelli M. **2014**. Modelling soil borne fungal pathogens of arable crops under climate change. International Journal of Biometeorology, 58, 10: 2071-2083. http://link.springer.com/article/10.1007%2Fs00484-014-0808-6

Maiorano A., Cerrani I., Fumagalli D., Donatelli M., **2014**. New biological model to manage the impact of climate warming on maize corn borers. Agronomy for Sustainable Development, July 2014, Volume 34, Issue 3, 609-621. http://link.springer.com/article/10.1007%2Fs13593-013-0185-2

Maiorano A., Fanchini D., Donatelli M., **2014**. MIMYCS.Moisture, a process-based model of moisture content in developing maize kernels. European Journal of Agronomy, 59, 86–95. http://dx.doi.org/10.1016/j.eja.2014.05.011

Bojanowski, J.S., Donatelli M., Skidmore A.K., Vrieling A., **2013**. An auto-calibration procedure for empirical solar radiation models. Environmental Modelling and Software, 49:118-128. http://dx.doi.org/10.1016/j.envsoft.2013.08.002

Bregaglio, S.; Donatelli, M.; Confalonieri, R. **2013**. Fungal infections of rice, wheat, and grape in Europe in 2030–2050. Agronomy for Sustainable Development, 33: 4,767-776 http://link.springer.com/article/10.1007/s13593-013-0149-6

Maiorano, A., Bregaglio, S., Donatelli, M., Fumagalli, D., Zucchini, A. **2012**. Comparison of modelling approaches to simulate the phenology of the European corn borer under future climate scenarios. Ecol. Model. 245:65-74. http://dx.doi.org/10.1016/j.ecolmodel.2012.03.034

Bregaglio, S.; Cappelli, G.; Donatelli, M. **2012**. Evaluating the suitability of a generic fungal infection model for pest risk assessment studies. Ecological Modelling 247: 58-63 http://www.sciencedirect.com/science/article/pii/S0304380012004012

Bregaglio S., Donatelli M., Confalonieri R., Acutis M., Orlandini S. **2011**. Multi metric evaluation of leaf wetness models for large-area application of plant disease models. Agricultural and Forest Meteorology 151, 1163–1172. http://ac.els-cdn.com/S016819231100116X/1-s2.0-S016819231100116X-main.pdf?_tid=e0e20f30-b195-11e6-9378-00000aab0f02&acdnat=1479916976_003049f2213a02b050313a576b82cf24

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Bellocchi G., Rivington M., Donatelli M., Matthews K. **2010**. Validation of biophysical models: issues and methodologies. A review. Agronomy of Sustainable Development 1, 109-130. http://link.springer.com/article/10.1051/agro/2009001

Bregaglio S., Donatelli M., Confalonieri R., Acutis M., Orlandini S. **2010**. An integrated evaluation of thirteen modelling solutions for the generation of hourly values of air relative humidity. Theoretical and Applied Climatology, 102:429–438. http://link.springer.com/article/10.1007/s00704-010-0274-y

Confalonieri, R.; Bellocchi, G.; Bregaglio, S.; Donatelli, M.; Acutis, M. **2010**. Comparison of sensitivity analysis techniques: A case study with the rice model WARM. Ecological Modelling, 221, 16, 1897-1906 http://www.sciencedirect.com/science/article/pii/S0304380010002371

Confalonieri, R, Bellocchi, G., Donatelli, M. **2010**. A software component to compute agro-meteorological indicators. Environmental Modelling & Software, 25, 1485-1486 http://www.sciencedirect.com/science/article/pii/S1364815208002144

Donatelli, M.; Bellocchi, G.; Habyarimana, E.; Bregaglio, S.; Baruth, B. **2010**. AirTemperature, extensible software library to generate air temperature data. SRX Computer Science, 1-8 https://www.hindawi.com/archive/2010/812789/ref/

Semenov, M. A.; Donatelli, M; Stratonovitch, P.; Chatzidaki, E.; Baruth B. **2010**. ELPIS: a dataset of local-scale daily climate scenarios for Europe. Climate Research. 44: 3–15. http://www.int-res.com/articles/cr_oa/c044p003.pdf

Donatelli M., G. Bellocchi, E. Habyarimana, R. Confalonieri, F. Micale, **2009**. An extensible software library to generate wind data. Computers and Electronics in Agriculture, 2,165-170 http://www.sciencedirect.com/science/article/pii/S0168169909001549

Confalonieri R., Acutis M., Bellocchi G., Donatelli M. **2009**. Multi-metric evaluation of the model WARM, CropSyst, and WOFOST for rice. Ecological Modelling. 220, 1395-1410. http://www.sciencedirect.com/science/article/pii/S0304380009001495

Belhouchette H., Braudeau E., Hachicha M., Donatelli M., Mohtar R. H., Wery J. **2008.** Integrating spatial soil organization data with a regional agricultural management simulation model: a case study in northern Tunisia. American Society of Agricultural and Biological Engineers 51, 3: 1099-1109 https://elibrary.asabe.org/abstract.asp?aid=24512

Rizzoli A.E., Donatelli M., Athanasiadis I.N., Villa F., Huber D. **2008.** Semantic links in integrated frameworks. Mathematics and Computers in Simulation 78: 412-423 http://www.sciencedirect.com/science/article/pii/S0378475408000529

Van Ittersum M. K., Ewert F., Heckelei T., Olsson J. A., Andersen E., Bezlepkina I., Brouwer F., Donatelli M., Flichman G., Olsson L., Rizzoli A., van der Wal T., Wery J., Wien J. E., Wolf J.

2008. Integrated assessment of agricultural and environmental policies - A modular framework for the European Uninion (SEAMLESS) Agricultural Systems 96, 1-3, 150-165 http://www.seamless-ip.org/DVD_Consortium_SEAMLESS/6_Dissemination/SEAMLESS-overview-AGSY.pdf

Rivington M. , Matthews K.B., Bellocchi G., Buchan K., Stöckle C.O. , Donatelli M. **2007.** An integrated assessment approach to conduct analyses of climate change impacts on whole-farm systems Environmental Modelling Software 22, 2:202-210 http://www.sciencedirect.com/science/article/pii/S1364815205001805

Tubiello F. N., J. S. Amthor, K. Boote, M. Donatelli, W. Easterling, G. Fischer, R. Gifford, M. Howden, J. Reilly, C. Rosenzweig **2007.** Crop response to elevated CO2 and world food supply European Journal of Agronomy 26, 3:215-223 http://www.sciencedirect.com/science/article/pii/S1161030106001341

Carlini L., Bellocchi G., Donatelli M. **2006.** A Library to generate synthetic precipitation data. Agronomy Journal 98, 1312-1317 https://dl.sciencesocieties.org/publications/aj/abstracts/98/5/1312

Donatelli M., Bellocchi G., Carlini L. **2006.** Sharing knowledge via software components: models on reference evapotranspiration European. Journal of Agronomy 24, 186-192 http://www.sciencedirect.com/science/article/pii/S1161030105000754

Donatelli M., Carlini L., Bellocchi G. **2006.** A software component for estimating solar radiation Environmental Modelling and Software 21, 411-416 http://www.sciencedirect.com/science/article/pii/S1364815205000794

Donatelli M., F.K. Van Evert **2006.** Formalizing expert knowledge for agricultural management simulation: the AgroManagemnt software component. Fragmenta Agronomica. 11-1:271-272 http://www.narcis.nl/publication/RecordID/oai%3Alibrary.wur.nl%3Awurpubs%2F348504

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Donatelli M., Acutis M., Bellocchi G., Fila G. **2004.** New indices to quantify patterns of residuals produced by model estimates. Agronomy Journal 96, 631-645 https://dl.sciencesocieties.org/publications/aj/abstracts/96/3/0631

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Donatelli M., Stöckle C.O., Nelson R.L., Bellocchi G. **2003.** ET_CSDLL: A Dynamic Link Library for the Computation of Reference and Crop Evapotranspiration Agronomy Journal 95, 1334-1336 https://dl.sciencesocieties.org/publications/aj/abstracts/95/5/1334?access=0&view=pdf

Donatelli M., Bellocchi G. and Fontana F. **2003** RadEst 3.00: Software to estimate daily radiation data from commonly available meteorological variables European .J. Agronomy 18, 363-367 http://www.sciencedirect.com/science/article/pii/S1161030102001302

Donatelli, M., J. Bolte, F. van Evert and W. Wang, **2003** Which software designs for evolution. In: van Ittersum M.K., Donatelli M. (Eds.), Modelling cropping systems: science, software and applications. European Journal of Agronomy 18, 187-197. http://www.sciencedirect.com/science/article/pii/S1161030102000953

Fila G., Bellocchi G., Acutis M., Donatelli M. **2003** Irene: a software to evaluate model performance. European J. Agronomy 18 369-372. http://www.sciencedirect.com/science/article/pii/S1161030102001296

Fila G., Bellocchi G., Donatelli M., Acutis M. **2003** IRENE_DLL: A class library for evaluating numerical estimates. Agronomy Journal 95 1330-1333. https://dl.sciencesocieties.org/publications/aj/abstracts/95/5/1330?access=0&view=pdf

Paoletti C., Donatelli M., Kay S. and Van den Eede G. **2003** Simulating kernel lot sampling: the effect of heterogeneity on the detection of GMO contaminations. Seed Science Technology 31, 629-638 http://www.ingentaconnect.com/contentone/ista/sst/2003/00000031/00000003/art00012?crawler=true

Stöckle C.O., Donatelli M. and Nelson R.L. **2003** CropSyst, a cropping systems simulation model European J. Agronomy 18, 289-307 http://www.sciencedirect.com/science/article/pii/S1161030102001090

Bellocchi G., Acutis M., Fila G., Donatelli M. **2002** An indicator of solar radiation model performance based on a fuzzy expert system Agronomy Journal 94, 1222-1233 https://dl.sciencesocieties.org/publications/aj/abstracts/94/6/1222

Donatelli M., van Ittersum M.K., Bindi M. and Porter J.R. **2002**. Modelling cropping systems - highlights of the symposium and preface to the special issue European J. Agronomy 18, 1-11 http://www.sciencedirect.com/science/article/pii/S1161030102001041

Meinke H., Baethgen W.E., Carberry P.S., Donatelli M., Hammer G.L., Selvaraju R. and Stöckle C.O. **2001** Increasing profits and reducing risks in crop production using participatory systems simulation approaches Agricultural Systems 70, 493-513 http://www.sciencedirect.com/science/article/pii/S0308521X01000579

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Tubiello N.F., Donatelli M., Rosenzweig C. and Stöckle C.O. **2000** Effects of climate change and elevated CO2 on cropping systems: model predictions at two Italian locations. European Journal for Agronomy 13, 179-189 http://www.sciencedirect.com/science/article/pii/S1161030100000733

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Stöckle C. O., M. Donatelli **1997** The CropSyst Model: A brief description. Rotation models for ecol. Farming Quantitative Approaches in Systems Analysis No. X. AB-DLO, P.O.Box 14, 6700 AA Wageningen, The Netherlands X:35-43 http://edepot.wur.nl/336046

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Donatelli M., Hammer G.L. and Vanderlip R.L. **1992** Genotype and water limitation effects on phenology, growth, and transpiration efficiency in grain sorghum. Crop Science 32, 781-786. https://dl.sciencesocieties.org/publications/cs/abstracts/32/3/CS0320030781

Reports to the European Commission

Donatelli M., S. Bregaglio, D. Fumagalli, B. Baruth, **2012**. Model framework for the assessment of EU climatic suitability for the establishment of organisms harmful to plants and plant products – CLIMPEST project (SLA/EFSA-JRC/2008/PLH/01). EFSA External Scientific Report, Supporting Publications 2012: EN-247. http://www.efsa.europa.eu/sites/default/files/scientific_output/files/main_documents/247e.pdf

Donatelli M., Duveiller G., Fumagalli D., Srivastava A., Zucchini A., Angileri V., Fasbender D., Loudjani P., Kay S., Juskevicius V., Toth T., Haastrup P., M'barek R., Espinosa M., Ciaian P., Niemeyer S. **2011** Assessing Agriculture Vulnerabilities for the design of Effective Measures for Adaption to Climate Change – AVEMAC project. http://mars.jrc.ec.europa.eu/mars/content/download/2677/13635/file/AVEMAC_FinalReport.pdf

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