

Matteo Dell'Acqua

Current Position **Assistant Professor in Agricultural Genetics (Ricercatore Universitario Tipo B)**
Scuola Superiore Sant'Anna, Pisa, Italy

- Genetics and quantitative genetics on crops (S.S.D. AGR/07)

National Scientific Qualification Associate Professor in Crop Genetics (S.S.D. AGR/07)
Associate Professor in Genetics (S.S.D. BIO/18)

WORK EXPERIENCE

October 2017–2018 **Assistant Professor in Agricultural Genetics (Ricercatore Universitario Tipo A)**
Scuola Superiore Sant'Anna, Pisa, Italy

- Genetics and quantitative genetics on crops (S.S.D. AGR/07)

June 2016–May 2017 **Post-doc fellow, Genetics**

Scuola Superiore Sant'Anna, Pisa, Italy

Research title: "Application of landscape genomics approaches to study natural populations of *Triticum urartu* and *T. dicoccooides* across the Fertile Crescent" (Applicazione di approcci di landscape genomics per lo studio di popolazioni naturali di *Triticum urartu* e di *Triticum dicoccooides* nella Mezzaluna Fertile)

June 2015–May 2016 **Post-doc fellow, Genetics**

Scuola Superiore Sant'Anna, Pisa, Italy

Agricultural genetics of minor cereal grains within the regional project PRINCE: Pasta e pRodotti da forno toscani per soggetti con INtolleranze al glutine e CELiachi

June 2014–May 2015 **Post-doc fellow, Genetics**

Scuola Superiore Sant'Anna, Pisa, Italy

Genetics and quantitative genetics on crops

EDUCATION AND TRAINING

June 2014 **PhD in Agrobiodiversity - Marks 100/100 cum laude**

Scuola Superiore Sant'Anna, Pisa, Italy

- Dissertation title: "New strategies to QTL discovery and fine mapping: starting over from diversity"
Skills acquired: Quantitative genetics, landscape genomics, statistical models for QTL mapping, data management, statistical analysis, scientific writing.

July 2010 **MSc in Biodiversity and Evolution - Marks 110/110 cum laude**

University of Milan, Milan (Italy)

- Thesis title: "Genetic and ecological study of *Themeda triandra* along a migratory route of Kenyan nomadic populations". Skills acquired: molecular tools to study plant population diversity, evolution, population genetics, molecular ecology, landscape genetics.

PERSONAL SKILLS

Mother tongue(s) Italian

Other language(s)

UNDERSTANDING	SPEAKING	WRITING

	Listening	Reading	Spoken interaction	Spoken production	
English	C2	C2	C2	C2	C2
TOEFL ibt					
French	B1	B1	A2	A2	A1

Digital competence	SELF-ASSESSMENT				
	Information processing	Communication	Content creation	Safety	Problem solving
	Proficient user	Proficient user	Proficient user	Proficient user	Proficient user

Job-related skills

Main field of research: Development of forward genetics, data-driven approaches to support crop breeding with a focus on smallholder farming systems. Expertise in genetics, population genomics, and quantitative genetics. Responsible of several lines of research, including:

- Use of genomic and transcriptomic data to describe the diversity and relations within collections of plant genetic resource, to map quantitative trait loci (QTL) and conduct genome wide association studies (GWAS).
- Development and analysis of multi-parental mapping populations and fine mapping of QTL with haplotype reconstruction and transcriptomics.
- Development of analytical methods to combine genomics with climate science and socioeconomic approaches to improve resilience of cropping systems and food security in emerging countries.

Informatic skills: Proficient user of Unix, Windows, MacOS operating systems and related software. System administrator of a bioinformatics server for genomic data analysis in the Genetics Lab at the Scuola Superiore Sant'Anna. Informatics skills include:

- Use of bash and command line scripting for the management and analysis of big data (e.g., genomic sequencing data).
- Proficient scripting in R language for statistical data analysis and plot production. Construction of analysis pipelines based on the integration of bash scripting and R language.
- Expert use of geographic information systems (GIS) and computer-based cartography.

Communication skills: Good communication skills gained through participation to several international congresses as invited speaker. Extensive drafting and participation to international research projects, including in a role of leadership. Writing of scientific articles for international, peer-reviewed Journals.

ADDITIONAL INFORMATION

Scientific Publications

Mclean-Rodriguez D, ..., Dell'Acqua M (2021) Genetic diversity and selection signatures in maize landraces compared across 50 years of in situ and ex situ conservation. *Heredity*, *in press*

Occelli M, Mantino A, Regaglini G, Dell'Acqua M, ..., Nuvolari A (2021) Traditional knowledge affects soil management ability of smallholder farmers in marginal areas. *Agronomy for Sustainable Development*, 41, Article number: 9

Wodleyohannes AB, ..., Dell'Acqua M (2020) Current and projected eco-geographic adaptation and phenotypic diversity of Ethiopian teff (*Eragrostis teff*) across its cultivation range. *Agriculture, Ecosystems and Environment*, 300, 107020

Talini RF, Brandolini A, ..., Dell'Acqua M (2020) Genome wide association study of agronomic and quality traits in a world collection of the wild wheat relative *Triticum urartu*. *The Plant Journal* 02(3):555-568

Kidane YG, Gesesse CA, ..., Dell'Acqua M (2019) A large nested association mapping population for breeding and quantitative trait locus mapping in Ethiopian durum wheat. *Plant Biotechnology Journal* 17 (7) 1380-1393

Mclean Rodriguez FD, Camacho-Villa TC, ..., Dell'Acqua M, Costich DE (2019). The abandonment of maize landraces over the last 50 years in Morelos, Mexico: a tracing study using a multi-level perspective. *Agriculture and Human Values*, 1-18

van Etten J, se Sousa K, ..., Dell'Acqua M, ..., Steinke J (2019). Crop variety management for climate adaptation supported by citizen science. *Proceedings of the National Academy of Sciences*

- Sciences 116 (10), 4194-4199
- Fiore MC, Mercati F, ..., Dell'Acqua M, ..., Sunseri F (2019) High-throughput genotype, morphology, and quality traits evaluation for the assessment of genetic diversity of wheat landraces from Sicily. *Plants*, 8(5), 116
- Lazzaro M, Barberi P, Dell'Acqua M, ..., Vaccino P (2019) Unraveling diversity in wheat competitive ability traits can improve integrated weed management. *Agronomy for Sustainable Development*, 39(1), 6
- Septiani P, Lanubile A, ..., Dell'Acqua M, Marocco A (2019) Unravelling the genetic basis of fusarium seedling rot resistance in the MAGIC maize population: Novel targets for breeding. *Scientific Reports*, 9(1), 5665
- Brunazzi A, Scaglione D, ..., Dell'Acqua M (2018) Molecular Diversity and Landscape Genomics of the Crop Wild Relative *Triticum urartu* Across the Fertile Crescent. *The Plant Journal*, doi: 10.1111/tj.13888
- Kidane YG, Mancini C, ..., Dell'Acqua M (2017) Genome Wide Association Study to Identify the Genetic Base of Smallholder Farmer Preferences of Durum Wheat Traits. *Frontiers in Plant Sciences*, doi: 10.3389/fpls.2017.01230
- Mancini C, Kidane YG, ..., Dell'Acqua M (2017) Joining smallholder farmers' traditional knowledge with metric traits to select better varieties of Ethiopian wheat, doi: 10.1038/s41598-017-07628-4
- Pierik ME, Dell'Acqua M, Confalonieri R, Bocchi S, Gomasasca S (2016) Designing ecological corridors in a fragmented landscape: A fuzzy approach to circuit connectivity analysis. *Ecological Indicators*, doi:10.1016/j.ecolind.2016.03.032
- Mengistu DK, Kidane YG, ..., Dell'Acqua M (2016) High-density molecular characterization and association mapping in Ethiopian durum wheat landraces reveals high diversity and potential for wheat breeding. *Plant Biotechnology Journal*, doi:10.1111/pbi.12538
- Baute J, Herman D, Coppens F, ..., Dell'Acqua M, ..., Inzè D (2015) Combined large-scale phenotyping and transcriptomics in maize reveals a robust growth regulatory network. *Plant Physiology*, 2016, 170(3), 1848-1867
- Dell'Acqua M, Gatti DM, Pea G, ..., Pè ME. (2015) Genetic properties of the MAGIC maize population: a new platform for high definition QTL mapping in *Zea mays*. *Genome Biology* 16 (1)
- Baute J, Herman D, Coppens F, ..., Dell'Acqua M, ..., Inzè D (2015) Correlation analysis of the transcriptome of growing leaves with mature leaf parameters in a maize RIL population. *Genome Biology* 16 (1)
- Dell'Acqua M, Zuccolo A, Tuna M, Gianfranceschi L, Pè ME (2014) Targeting environmental adaptation in the monocot model *Brachypodium distachyon*: a multi-faceted approach. *BMC Genomics* 15:801
- Dell'Acqua M, Fricano A, ..., Bocchi S (2014) Genome scan of Kenyan *Themeda triandra* populations by AFLP markers reveals a complex genetic structure and hints for ongoing environmental selection. *South African Journal of Botany*, 92, 28-38
- Dell'Acqua M, Gomasasca S, Porro A, Bocchi S (2013) A tropical grass resource for pasture improvement and landscape management: *Themeda triandra* Forssk. *Grass and Forage Science* 68(2), 205-215

Selected Contributions to National and International Conferences

- Invited speaker at the CIMMYT Global Wheat Program Weekly Virtual Meeting, Mexico, June 2021
- Selected speaker at the SIGA Young Meeting, IT, July 2020
- Invited speaker at the MAGIC meeting, Cambridge, UK, July 2019.
- Poster presentation at the 2018 Maize Conference in St Malo, France, Mar 2018. "eQTL mapping and genome wide association study for maize leaf traits using markers derived by RNA sequencing of two RIL populations", by Miculan M et al.
- Poster presentation at the XLI SIGA congress, Pisa, Italy, Sep 2016. "A large nested association mapping (NAM) population for breeding and QTL mapping in Ethiopian durum wheat", by Kidane et al.
- Oral presentation at the International Wheat Genome Sequencing (IWGS) Wheat Genetics Symposium, Tulln, Austria, April 2017. "Which wheat for smallholder Ethiopian farmers?"

quantitative genetics of traditional knowledge”, by Dell'Acqua M et al.

- Poster presentation at the fifth International Conference on Quantitative Genetics, Madison, WI, June 2016. “Quantitative exploration of Ethiopian durum wheat: joining genetics and social sciences to produce a better wheat through GWAS and a multiparental population design”, by Dell'Acqua M et al.
- Invited speaker at the “Genetics, Genomics and Sequencing” session at the MonoGram meeting 2016, Cambridge, UK, April 2016. “The MAGIC maize: a multiparental population for high-power and high-definition QTL mapping in *Zea mays*” (<https://www.niab.com/shop/civicrm/event/info?reset=1&id=2052>)
- Invited speaker at the QTL cloning session at the XXIV Plant and Animal Genomics conference, San Diego, CA, January 2016. “Speeding up QTL cloning in maize: power and prospects of the MAGIC maize population”
- Poster presentation at the Gordon Research Conference in Quantitative Genetics, Lucca, Italy, February 2015. “Genetic Properties of the MAGIC Maize Population: a New Platform for High Definition QTL mapping in *Zea mays*”, by Dell'Acqua M et al.
- 20+ more conferences attendances as speaker or poster presenter

Responsibility in International Research Projects

- H2020 CAPITALISE (years 2020-2026, Total budget €8.57M)– Scientific responsible for Scuola Superiore Sant'Anna and work package leader
- H2020 Focus-AFRICA (years 2020-2024 Total budget €6.97M)– Scientific responsible for Scuola Superiore Sant'Anna and case study leader
- Advisory board member for the UKRI - Future Leader Fellowship project “Transcriptional Regulation of Resilience to Photo-Inhibition Under Chilling Conditions in Maize” led by Dr. Wanne Kromdijk (Cambridge University)

Research-related activities

- Release of two durum wheat varieties for cultivation in Ethiopia, derived from selection of landraces accessions molecularly and phenotypically characterized by the research team (Mengistu et al 2016).
- Reviewer for international journals. Among others: Heredity, Crop Science, Molecular Breeding, Molecular Ecology, BMC Plant Biology, Plant Biotechnology Journal, G3, Frontiers in Plant Sciences, Theoretical and Applied Genetics, G3, The Plant Genome, Scientific Reports
- Visiting scientist at Kansas State University, May 2019 (Jesse Poland Lab).
- Visiting scientist at the Jackson Laboratory, Maine, USA, August-September 2014 (Gary Churchill Lab).
- International reviewer for the PhD project “Evaluation and development of statistical methods for the analysis of a Multiparent Advanced Generation Inter-cross (MAGIC) populations, with an application to wheat genetics and breeding” submitted to the Mathematical and Statistical Methods Group at Wageningen University, Netherlands, May 2016
- International member of the PhD evaluation commission at Ghent University, for the thesis of Dr. Xiaohuan Sun. Title: “Unraveling the molecular mechanisms controlling the transition between cell division and cell expansion during maize leaf development”, May 2016
- Diploma in the EU-promoted continuing educational course “Hostile Environment Awareness Training Course (HEAT)”, earned on the November 1st, 2013
- Member of the scientific committee of the scientific radio show “Le Oche”, hosted by Sylvie Coyaud on Radio Popolare

Teaching and Mentoring

- “Advanced Genomics” course to MSc students at the University of Pisa (since 2019/20)
- “Basic Statistics” and “Intermediate Statistics” courses to the PhD students in Agrobiodiversity at the Scuola Superiore Sant'Anna di Pisa (from 2017/18 to 2019/20)
- “R for Data Analysis in Agrobiodiversity” course to the PhD students in Agrobiodiversity at the Scuola Superiore Sant'Anna di Pisa (from 2018/19)
- “Principles of Agrobiodiversity” course to the PhD students in Agrobiodiversity at the Scuola Superiore Sant'Anna di Pisa (from 2019/20)
- Board member of the PhD Programme in Agrobiodiversity and the PhD Programme in Agrobiosciences at the Scuola Superiore Sant'Anna di Pisa
- Seminars on “Landscape genomics” and “Multiparental mapping populations methods” given to

undergraduate students and graduate students at the Scuola Superiore Sant'Anna di Pisa as part of the courses in Genetics and in Advanced Molecular Biology.

- Conduction of a 12-days course on geographic information systems (GIS) and cartography in the frame of a Senegal-Italian project on Rice agronomy. Ziguinchor, Senegal, 2012
- Annual GIS course for Legambiente Lombardia (<http://lombardia.legambiente.it/contenuti/territorio/legambiente-organizza-gis-tutti>)
- Mentoring activity for MSc and BSc thesis at Scuola Superiore Sant'Anna di Pisa, University of Milan, Catholic University of Piacenza.

Honours and Awards

- UNASA (Unione Nazionale delle Accademie italiane per le scienze applicate allo sviluppo dell'agricoltura, alla sicurezza alimentare e alla tutela ambientale) award for outstanding wheat publication, Lecce, Apr 2018
- Bologna International Award for Sustainability and Food, Bologna, Oct 2017
- Member of the SIGA (Società Italiana di Genetica Agraria; socio ordinario) since Sep 2017
- SIGA (Società Italiana di Genetica Agraria) award for best poster, LXI SIGA congress, Pisa, Sep 2017
- SIGA (Società Italiana di Genetica Agraria) award "Carlo Jucci" for best scientific publication, LX SIGA congress, Catania, Sept 2016
- Giovanni Spitali prize for PhD dissertations 2012-2014, Scuola Superiore Sant'Anna, Pisa, Sept 2016
- Milan EXPO award "Innovazioni per i sistemi agro-alimentari sostenibili", Milano, Oct 2015
- SIGA (Società Italiana di Genetica Agraria) award for young participants, 1st International Brachypodium Congress, Reggio Emilia, June 2013
- Award for best oral presentation, IX Incontro Dottorandi S.It.E (Società Italiana di Ecologia), Milano, April 2013
- S.i.T.E (Società Italiana di Ecologia) award "Roberto Marchetti" for best oral contribution, XX S.i.T.E congress, Roma, 2010

Il Sottoscritto Matteo Dell'Acqua, consapevole che le dichiarazioni false comportano l'applicazione delle sanzioni penali previste dall'art. 76 del D.P.R. 445/2000, dichiara che le informazioni riportate nel seguente curriculum vitae, corrispondono a verità.

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April 20th, 2021

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