

Curriculum Vitae et Studiorum

Nicola Pecchioni

September 2024

1. Personal information

Name and Surname: Nicola Pecchioni

Citizenship: Italian

Source	URL
Google Scholar	https://scholar.google.com/citations?hl=it&user=TCWEhdAAAAAJ
Research Gate	https://www.researchgate.net/profile/Nicola-Pecchioni
Scopus	https://www.scopus.com/authid/detail.uri?authorId=55887704500
Web of Science	https://www.webofscience.com/wos/author/record/610580

2. Current position

Director – Research Centre for Cereal and Industrial Crops of CREA (Council for Agricultural Research and Economics)

(On temporary leave) Associate Professor of Agronomy and Crop Science – Department of Life Science – University of Modena and Reggio Emilia

3. Education

1992 - 1994

Specialization in Plant Biotechnology, Faculty of Agricultural Sciences, University of Pisa (50/50 *cum laude*)

1984 - 1990

Degree in Agricultural Science, Faculty of Agricultural Sciences, Catholic University of the Sacred Heart in Piacenza, Italy (110/110 *cum laude*)

1979 - 1984

Diploma in Classical High School "G. Pascoli" of Albenga (SV), Italy (60/60)

4. Career

from July 1st, 2017- to date

CREA - Council for Agricultural Research and Economics

Director - Research Centre for Cereal and Industrial Crops

from November 2nd, 2014-to April 30th, 2017

CREA - Council for Agricultural Research and Economics

Director – Research Centre for Cereal Research

from June 3rd, 2014-to July 31st, 2014

Università di Modena e Reggio Emilia

Acting Director - Department of Life Sciences

from February 2014

National Scientific Habilitation as Full Professor in Agricultural Genetics (AGR/07)

from Jan 1st, 2014-to June 2nd 2014
Università di Modena e Reggio Emilia
Deputy Director - Department of Life Sciences

from Dec 31st, 2002-to present (currently on leave)
Università di Modena e Reggio Emilia
Associate Professor - Department of Life Sciences

from Aug 21st, 1996-to Dec 30th, 2002
Istituto Sperimentale per la Cerealicoltura, sezione di Fiorenzuola d'Arda (PC)
Researcher

5. Teaching activity

The main teaching activities of Nicola Pecchioni are at University of Modena and Reggio Emilia.

2003-2014 Teaching activity at University of Modena and Reggio Emilia

The courses have been held within the Bachelor Degrees in Agricultural Plant Biotechnology, Agricultural Sciences and Technologies, Grapevine science and oenology, Agricultural and Food Sciences and Technologies; and within the Master Degrees in Plant Biotechnology, Innovative Plant Production, and Agro-environmental Sciences and Biotechnology.

1. Agronomy and Herbaceous Crops (academic years 2002/2003 to 2006/2007) - 40 hours;
2. Agronomy module and responsibility of the Agronomy and Organic Agriculture integrated course (academic years 2005/2006 to 2009/2010) - 48-hour module;
3. QTL Analysis module and Genome analysis within the Bioinformatics course (academic year 2006/2007) - 8-hour module;
4. Seed Biology, Production and Technology (academic years 2002/2003 to 2005/2006 and 2008/2009 to 2011/2012) - 20 hours;
5. Biotechnology of Herbaceous Species (academic years 2002/2003 to 2004/2005) - 40 hours;
6. Innovative Herbaceous Crops (academic years 2005/2006 to 2008/2009) - 40 hours;
7. Innovative Herbaceous Crops and Bioenergy (academic years 2009/2010 to 2010/2011) - 84 hours;
8. Agricultural Genetics (academic years 2002/2003 to 2005/2006) - 70 hours;
9. Agronomy (academic year 2011/2012 to 2013/2014) - 40 hours.
10. Cereal production module in the integrated course Technology of cereal derivatives (academic years 2011/2012 and 2012/2013) - 16 hours.
11. Biotechnology of Herbaceous Species module and responsibility of the Integrated Course 'Plant Productions' (academic years 2006/2007 to 2009/2010) - 40-hour module;
12. Biotechnology of Herbaceous Species (academic years 2010/2011 to 2012/2013) - 32 hours;
13. Crop Plant Biotechnology (in english. Academic year 2013/2014) - 48 hours.

Since November 2014, since on leave to assume the positions of Director of CREA, I was no longer allowed to maintain curricular or optional courses; however, I was allowed to held a seminar for the teaching of doctoral students of the STEBA Doctorate (Food and Agricultural Science, Technology and Biotechnology) of the University of Modena and Reggio Emilia.

2022 - 2023 Doctoral teaching activity at STEBA (Food and Agricultural Science, Technology and Biotechnology) doctorate of University of Modena and Reggio Emilia

Seminar entitled "Speed and Precision for present and future Plant Breeding", within the teaching program of the STEBA doctorate of the Department of Life Sciences of the University of Modena and Reggio Emilia , 4 hours, on 24.06.2022;

The same lesson (4 hrs.) September 28, 2023, for doctoral students of the last three cycles.

Teaching to foreign doctoral students

- Huazhong Agricultural University of Wuhan, Hubei Province (China) in December 2007, guest prof. Longqing Chen. On the occasion of a scientific visit, I was invited to give a mini-course in three lessons for PhD students on the genomics of cold resistance in cereals, and on assisted breeding;
- University of Pannonia, Georgikon Faculty of Agriculture of Keszthely (Hungary) from 15 to 18 April 2009, guest prof. Zoltan Alfoldi. During a scientific visit I kept a 8-hour short course for PhD students: "Molecular breeding: theory and applications".
- Huazhong Agricultural University of Wuhan, Hubei Province (China) in May 2012, guest prof. Longqing Chen. On the occasion of a scientific visit I was invited to hold a seminar for PhD students on the regulation of flowering and climatic adaptation of cereals.

Organization of courses

- organizer of S.I.G.A (Italian Society for Agricultural Genetics) Course. "Principles of genetic improvement and prospects for application to the plant, animal and microbial sector", Salsomaggiore Terme 11-14 May 2010. Aimed at PhD students, research fellows and public and private breeders. Co-directed with Dr. Valeria Terzi;
- organizer of S.I.G.A. course "Bioinformatics applied to Agricultural Genomics", Salsomaggiore Terme 11-15 April 2011. Aimed at PhD students, research fellows and researchers. Co-directed with Dr. Valeria Terzi;
- organizer of S.I.G.A. course "Advanced methods of plant breeding and prospects for food production". Salsomaggiore terme, 15-18 May 2012. Aimed at PhD students, research fellows and public and private breeders. Co-directed with Dr. Valeria Terzi.

Teaching in extra-university courses and university teaching under contract

- Laboratory classes at the electrophoretic techniques course organized from 21 to 24 January 1991 at the Fiorenzuola d'Arda section of the ISC;
- Professor of Botany and Agronomy from June to September 1997 in the postgraduate specialization course "Specialist in the recovery and conservation of the environment and the territory" at EnAIP Liguria;
- Professor in the Bio-Rad course "Molecular Biology: use of molecular markers in plants", aimed at researchers and PhD students of the University of Pavia, at the laboratory of the Fiorenzuola Section of the ISC, in July and October 1998;
- Contract professor at the Faculty of Agriculture of the University of Modena in Reggio Emilia for the teaching of "Seed Biology, Production and Technology" in the academic years 2000/01 and 2001/02;
- Lecturer at the post-graduate professional training course "Expert in GMO traceability techniques", in September 2001, at the "V. Tadini" Experimental Company - Gariga di Podenzano (PC);
- Contract professor at the Faculty of Agriculture of the University of Modena in Reggio Emilia for the teaching of "Biotechnology of herbaceous crops" in the academic year 2001/02;
- Lecturer at the post-graduate training course for "Expert in the protection of innovation and industrial property", in 2006, at the IFOA of Modena;
- Teacher of "Selection Strategies and Genetic Improvement Methods in Autogamous Plants" in the context of the refresher course for young breeders and public and private researchers organized by S.I.G.A.: "Genetic Improvement of Cultivated Plants: Principles and Perspectives", Monsampolo (AP) 25-30 May 2008;
- Lecturer at the Advancements in Seed Biology course for breeders, technicians, agronomists and scientists, "Semi e Sementi Conoscenze di base per ricerche ed applicazioni di livello avanzato", organized by the Italian Society of Agronomy (SIA), Bologna, January 22-26 2018;
- Lecturer at the International Master in Plant Genetics, Genomics and Breeding (23rd edition), at CIHEAM - Istituto Agronomico Mediterraneo de Zaragoza, Spain, Case study: Winter cereals (4 h), May 31, June 1, 2021;
- Lecturer at the International Master in Plant Genetics, Genomics and Breeding (24rd edition), at CIHEAM - Istituto Agronomico Mediterraneo de Zaragoza, Spain, Case study: Winter cereals (4 h), April 29-30, 2024;

6. Supervision/tutoring of students and visiting fellows/scientists

Results obtained in the training of young researchers

A peculiarity of my scientific career is the success with which I helped growing professionally, and motivated to research a significant number of young people, who came under my supervision in over twenty

years. In summary, this number of young researchers, are still active in scientific research, in Universities and Research Institutions in Italy and also abroad, as a significant percentage of the total number of students followed in their thesis work, post specialization - bachelor's and doctorate. Others are employed as breeders in private seed companies (M. Barbieri and L. Laviano). The names of the young researchers, the positions held and the current research locations, together with the period of supervision, have been reported in the following Table:

Former student	Tutoring received	Years	Present position
Domenico Rau	MSc thesis	1996-1997	Associate professor, University of Sassari
Matteo Busconi	MSc thesis	1999-2000	Associate professor, University of Piacenza
Enrico Francia	MSc thesis and PhD	1999-2000 and 2002-2004	Associate professor, University of Modena and Reggio Emilia
Laura Arru	Post-graduate Specialization	2000-2001	Researcher, University of Modena and Reggio Emilia
Alessandro Tondelli	BSc thesis and MSc thesis	2001-2002 and 2003-2004	Senior Researcher CREA
Delfina Barabaschi	PhD	2004-2006	Researcher CREA
Giovanni Laidò	MSc thesis and PhD	2003-2004 and 2005-2008	Researcher CREA
Justyna Anna Milc	PhD	2006-2009	Technologist (Cat.D) University of Modena and Reggio Emilia
Alessio Aprile	BSc thesis and MSc thesis	2001-2002 and 2003-2004	Associate professor, University of Salento
Filippo Bassi	MSc thesis	2008-2009	Senior Durum Wheat Breeder, ICARDA
Andrea Visioni	Tesi di Dottorato	2008-2011	Barley Breeder, ICARDA
Domenico Ronga	MSc thesis and PhD	2008-2009 and 2009-2012	Associate professor, University of Salerno
Davide Guerra	MSc thesis	2003-2004	Researcher CREA
Luca Edoardo Braglia	MSc thesis	2005-2006	Researcher CNR-IBBA
Marcello Catellani	MSc thesis	2005-2006	Researcher ENEA
Davide Giovanardi	MSc thesis	2005-2006	Researcher (tipo B), University of Modena and Reggio Emilia
Laura Righetti	PhD	2008-2011	Researcher CREA

Although it cannot be formally named as a school, the number of them cannot be due only to chance; also my ability to introduce young people to the demanding mission of research, and to motivate them in choosing of a profession that is primarily pursued out of passion for the search for knowledge, must have had a role.

Supervision of students

Since the beginning of my career, from the early '90s, I have been supervisor or co-supervisor of 30 bachelor, 27 master students, 1 post-graduate specialization student, and 19 PhD students. More specifically I have been the supervisor of Bachelor and Master Theses, Post-graduate Specialization, PhD Theses in Italy and Spain, and a number of Post-doctoral fellows (here not reported for brevity). My efforts were devoted to give a excellent quality service.

MSc thesis (old legal system)

AY 1996/1997

Domenico Rau, a.y. 1996/97, Degree in Agricultural Sciences, Faculty of Agriculture of the University of Sassari, supervisors Dr. G. Attene and Dr. N. Pecchioni;

AY 1999/2000

Matteo Busconi, academic year 1999/00, Degree in Biological Sciences, Faculty of Sciences MM.FF.NN. from the University of Parma, supervisors Prof. S. Ottonello and Dr. N. Pecchioni;
Enrico Francia, academic year 1999/00, Degree in Biological Sciences, Faculty of Sciences MM.FF.NN. from the University of Parma, supervisors Prof. S. Ottonello and Dr. N. Pecchioni;
AY 2002/2003
Riccardo Gandolfi, Degree thesis in Biological Sciences - (Faculty of MM.FF.NN. Sciences of the University of Parma; Co-supervisor);

BSc thesis

Academic Year (AY) 2001/2002

Supervisor of 5 BSc theses in Agricultural Plant Biotechnology (Faculty of Agriculture of the University of Modena and Reggio Emilia) - Alessio Aprile, Alessandra Caffagni, Giorgia Carletti, Giovanni Laidò, Gianluca Telera;

Co-supervisor of BSc thesis in Biotechnology (Faculty of Science MM.FF.NN. of the University of Parma) - Alessandro Tondelli;

AY 2002/2003

Supervisor of 2 BSc theses in Agricultural Plant Biotechnology (Faculty of Agriculture of the University of Modena and Reggio Emilia) - Jacopo Michele Giannotti, Lara Campani;

AY 2003/2004

Supervisor of 2 BSc theses in Agricultural Plant Biotechnology (Faculty of Agriculture of the University of Modena and Reggio Emilia) - Simone Pavarotti, Valentina Farinelli;

AY 2004/2005

Supervisor of 3 BSc theses in Agricultural Plant Biotechnology (Faculty of Agriculture of the University of Modena and Reggio Emilia) - Valeria Aramini, Davide Giovanardi, Sara Santini;

Supervisor of 2 BSc theses in Agricultural Sciences and Technologies (Faculty of Agriculture of the University of Modena and Reggio Emilia) - Marco Charalambopoulos, Stefano Giovannini;

Co-supervisor of 1 BSc thesis in Computer Engineering (Faculty of Engineering, Modena branch of the University of Modena and Reggio Emilia) - Salvatore Curia.

AY 2005/2006

Supervisor of 1 BSc thesis in Agricultural Sciences and Technologies (Faculty of Agriculture of the University of Modena and Reggio Emilia) - Marco Denti;

· Supervisor of 1 BSc thesis in Agricultural Plant Biotechnology (Faculty of Agriculture of the University of Modena and Reggio Emilia) - Massimo Bondioli;

AY 2006/2007

Supervisor of 1 BSc thesis in Agricultural Sciences and Technologies (Faculty of Agriculture of the University of Modena and Reggio Emilia) - Andrea Bellucci;

AY 2007/2008

Supervisor of 1 BSc thesis in Agricultural Sciences and Technologies (Faculty of Agriculture of the University of Modena and Reggio Emilia) - Francesca Tomiselli;

Supervisor of 1 BSc thesis in Biotechnology (Faculty of Biosciences and Biotechnology of the University of Modena and Reggio Emilia) - Laura Fontanili;

AY 2010/2011

Supervisor of 1 BSc thesis in Biotechnology (Faculty of Biosciences and Biotechnology of the University of Modena and Reggio Emilia) - Enrico Colaci;

Supervisor of 2 BSc theses in Agricultural Sciences and Technologies (Faculty of Agriculture of the University of Modena and Reggio Emilia) - Michele Bertoletti and Roberto Provoli;

AY 2011/2012

Supervisor of 1 BSc thesis in Biology (Faculty of Biosciences and Biotechnology of the University of Modena and Reggio Emilia) - Denise Bertuzzi;

Supervisor of 1 BSc thesis in Agricultural Sciences and Technologies (Faculty of Agriculture of the University of Modena and Reggio Emilia) - Matteo Freddi;

Supervisor of 1 BSc thesis in Agricultural and Food Sciences and Technologies (Faculty of Agriculture of the University of Modena and Reggio Emilia) - Lucia Lancellotti;

AY 2012/2013

Supervisor of 1 BSc thesis in Agricultural and Food Sciences and Technologies (Faculty of Agriculture of the University of Modena and Reggio Emilia) - Michele Gianaroli;

AY 2013/2014

Co-supervisor of 2 BSc theses in Agricultural and Food Sciences and Technologies (Faculty of Agriculture of the University of Modena and Reggio Emilia) - Matteo Nironi and Paolo Pizzocheri;

MSc thesis (new legal system)

AY 2003/2004

Supervisor of 3 MSc theses in Plant Biotechnology (Faculty of Agriculture of the University of Modena and Reggio Emilia) - Alessio Aprile, Giovanni Laidò, Alessandra Caffagni;

Co-supervisor of 1 MSc thesis in Industrial Biotechnology (Faculty of Science MM.FF.NN. of the University of Parma) - Alessandro Tondelli.

AY 2004/2005

Supervisor of 6 MSc theses in Plant Biotechnology (Faculty of Agriculture of the University of Modena and Reggio Emilia) - Giorgia Albertazzi, Mirko Barbieri, Lara Campani, Davide Guerra, Agostina Iannibelli, Andrea Visioni;

Co-supervisor of 1 MSc thesis in Computer Engineering (Faculty of Engineering at the Modena branch of the University of Modena and Reggio Emilia) - Antonio Sala.

AY 2005/2006

Supervisor of 3 MSc theses in Plant Biotechnology (Faculty of Agriculture of the University of Modena and Reggio Emilia) - Luca Edoardo Braglia, Marcello Catellani, Giuseppe Rodio;

AY 2006/2007

Supervisor of 1 MSc thesis in Plant Biotechnology (Faculty of Agriculture of the University of Modena and Reggio Emilia) - Sara Santini;

Supervisor of 1 MSc thesis in Pharmaceutical Biotechnology (Faculty of Biosciences and Biotechnology of the University of Modena and Reggio Emilia) - Fabrizia Panico;

AY 2007/2008

Supervisor of 1 MSc thesis in Plant Biotechnology (Faculty of Agriculture of the University of Modena and Reggio Emilia) - Davide Giovanardi;

AY 2008/2009

Supervisor of 1 MSc thesis in Plant Biotechnology (Faculty of Agriculture of the University of Modena and Reggio Emilia) - Filippo Bassi;

Supervisor of 1 MSc thesis in Innovative Plant Production (Faculty of Agriculture of the University of Modena and Reggio Emilia) - Domenico Ronga;

Supervisor of 1 MSc thesis in Innovative Plant Production (Faculty of Agriculture of the University of Modena and Reggio Emilia) - Simone Bevilacqua.

AY 2009/2010

Supervisor of 1 MSc thesis in Innovative Plant Production (Faculty of Agriculture of the University of Modena and Reggio Emilia) - Valeria Aramini.

AY 2010/2011

Supervisor of 1 MSc thesis in Agro-environmental Sciences and Biotechnology (Faculty of Agriculture of the University of Modena and Reggio Emilia) - Serena Borciani.

AY 2012/2013

Supervisor of 1 MSc thesis in Agro-environmental Sciences and Biotechnology (Faculty of Agriculture of the University of Modena and Reggio Emilia) - Davide Malavasi.

Post-graduate specialization thesis

Laura Arru, a.y. 2000/01, Institute of Plant and Microorganism Biology, Faculty of Agriculture of the University of Milan, "Study of the resistance of barley to helminthosporiosis"; speakers Prof. M. Sari-Gorla and Dr. N. Pecchioni, vote 50/50 cum laude;

Supervision of doctoral students (PhD candidates) in Italian universities

None of the supervised students failed in defending his/her thesis.

XVII CYCLE

- Co-supervisor of 1 doctoral thesis in Plant Biology, Faculty of SS.MM.FF.NN. of the University of Milan, "Study of frost tolerance and acclimation related traits in the 'Nure x Tremois' genetic system", Enrico Francia (Supervisor Prof. C. Soave);

XIX CYCLE

- Supervisor of 1 doctoral thesis in Agricultural Sciences and Biotechnology, of the Department of Agricultural and Food Sciences of the University of Modena and Reggio Emilia, "Survey of molecular diversity at nud locus in barley", Delfina Barabaschi (Co-supervisor Prof. A.M. Stanca);

- Supervisor of 1 doctoral thesis in Agricultural Sciences and Biotechnology, of the Department of Agricultural and Food Sciences of the University of Modena and Reggio Emilia, "Genomics applied to the genetic improvement of beans", Francesca del Bianco (Co -supervisor Dr. A. Carboni);

XX CYCLE

- Co-supervisor of 1 doctoral thesis in Plant Biology, Department of Evolutionary and Functional Biology of the University of Parma, "Study of malting quality and frost tolerance in the winter x spring 'Nure x Tremois' doubled haploid population and development of a marker-assisted selection programme", Giovanni Laidò (Supervisor Prof.L. Sanità Di Toppi, Co-supervisor Prof. A.M. Stanca);

XXI CYCLE

· Supervisor of 1 doctoral thesis in Agricultural Sciences and Biotechnology of the Department of Agricultural and Food Sciences of the University of Modena and Reggio Emilia, "Transcriptome analysis of the grapevine response to bois noir phytoplasma using microarray technology", Giorgia Albertazzi (Co-supervisor Prof. E. Stefani);

· Supervisor of 1 doctoral thesis in Agricultural Sciences and Biotechnology of the Department of Agricultural and Food Sciences of the University of Modena and Reggio Emilia, "Functional genomics analysis of Tomato-Pyrenochaeta lycopersici interaction", Justyna Anna Milc (Co- supervisor Dr. A. Infantino);

· Co-supervisor of 1 doctoral thesis in Molecular Biotechnology of the Catholic University of Milan, Piacenza branch, "The genetics of leaf rust resistance in the model grass *Brachypodium distachyon* L.", Mirko Barbieri (Supervisor Prof. C Fogher).

XXII CYCLE

· Supervisor of 1 doctoral thesis in PhD SCHOOL OF AGRI-FOOD SCIENCES, TECHNOLOGIES AND BIOTECHNOLOGIES of the Department of Agricultural and Food Sciences of the University of Modena and Reggio Emilia, "Genetic improvement of *Hibiscus rosa-sinensis* L", Gianluca Braglia (Co-supervisor Dr. A. Mercuri);

XXIII CYCLE

· Supervisor of 1 doctoral thesis in PhD SCHOOL OF AGRI-FOOD SCIENCES, TECHNOLOGIES AND BIOTECHNOLOGIES of the Department of Agricultural and Food Sciences of the University of Modena and Reggio Emilia, "Molecular genetic diversity and domestication of the cultivated apple (*Malus × domestica* Borkh.)", Diego Micheletti (Co-supervisor Dr. S. Salvi);

XXIV CYCLE

· Supervisor of 1 doctoral thesis in PhD SCHOOL OF AGRI-FOOD SCIENCES, TECHNOLOGIES AND BIOTECHNOLOGIES of the Department of Agricultural and Food Sciences of the University of Modena and Reggio Emilia, "Apple response to *Erwinia amylovora* infection: transcriptome profiling and HrpWEa protein interaction", Laura Righetti (Co-supervisor Dr. M. Malnoy);

XXV CYCLE

· Supervisor of 1 doctoral thesis in PhD SCHOOL OF AGRI-FOOD SCIENCES, TECHNOLOGIES AND BIOTECHNOLOGIES of the Department of Agricultural and Food Sciences of the University of Modena and Reggio Emilia: "Genetic analysis and preliminary mapping of resistance genes to root- -knot nematodes in *Phaseolus vulgaris* L.", Carla Busatto (Co-supervisor Dr. A. Carboni);

· Supervisor of 1 doctoral thesis in PhD SCHOOL OF AGRI-FOOD SCIENCES, TECHNOLOGIES AND BIOTECHNOLOGIES of the Department of Agricultural and Food Sciences of the University of Modena and Reggio Emilia: "Towards identification of a processing tomato ideotype suitable for low input cultivation", Domenico Ronga (Co-supervisors Dr. M. Zaccardelli and Dr. S. Lovelli);

· Co-supervisor of 1 doctoral thesis in the PhD SCHOOL OF AGRI-FOOD SCIENCES, TECHNOLOGIES AND BIOTECHNOLOGIES of the Department of Agricultural and Food Sciences of the University of Modena and Reggio Emilia: "Genomics of Stress Resistance in the Model Plant *Brachypodium distachyon*", Valentina Mazzamurro (Supervisor Dr. E. Francia);

· Co-supervisor of 1 doctoral thesis in DOCTORATE SCHOOL IN INFORMATION AND COMMUNICATION TECHNOLOGIES of the University of Modena and Reggio Emilia: "Information Integration for biological data sources", Abdul Rahman Dannaoui (Supervisor Prof. D. Beneventano).

XXVII CYCLE

- Supervisor of 1 PhD thesis SCHOOL OF AGRI-FOOD SCIENCES, TECHNOLOGIES AND BIOTECHNOLOGIES of the Department of Life Sciences of the University of Modena and Reggio Emilia:

"Identification and molecular mapping of loci responsible of bolting time in lettuce" , Massimiliano Beretta (Co-supervisor Dr. Enrico Belfanti - ISI Sementi);

- Supervisor of 1 PhD thesis SCHOOL OF AGRI-FOOD SCIENCES, TECHNOLOGIES AND BIOTECHNOLOGIES of the Department of Life Sciences of the University of Modena and Reggio Emilia: "Functional characterization of fire blight resistance in Malus fusca fine mapping, cloning and characterization of fire blight resistance genes from Malus fusca", Francis Ofere Emerewien (Co-supervisor Dr. Mickael Malnoy);

XXVIII CYCLE

- Supervisor of 1 PhD thesis SCHOOL OF AGRI-FOOD SCIENCES, TECHNOLOGIES AND BIOTECHNOLOGIES of the Department of Life Sciences of the University of Modena and Reggio Emilia: "Fine mapping of two QTLs for resistance to the leaf rust Puccinia brachypodii in the model grass Brachypodium distachyon (L.)", Luca Laviano (Co-supervisor Dr. Justyna Milc);

XXX CYCLE

- Supervisor of 1 PhD thesis SCHOOL OF AGRI-FOOD SCIENCES, TECHNOLOGIES AND BIOTECHNOLOGIES of the Department of Life Sciences of the University of Modena and Reggio Emilia: "Identification of common resistance loci of wheat to three rust species by GWAS and multi-location trials", Antonietta Saccomanno (Co-supervisor Dr. Giovanni Laidò);

XXXV CYCLE

- Co-supervisor of 1 PhD thesis in Management of Innovation in agro-food systems of the Mediterranean Region of the Department of Agricultural Sciences, Food, Natural Resources and Engineering of the University of Foggia: "Genomics-based breeding for Bread and Durum Wheat improvement", Paolo Vitale (Supervisor Dott. Pasquale De Vita);

XXXVII CYCLE

- Supervisor of 1 PhD student SCHOOL OF AGRI-FOOD SCIENCES, TECHNOLOGIES AND BIOTECHNOLOGIES of the Department of Life Sciences of the University of Modena and Reggio Emilia: "Genetic variation underlying the adaptation to the environment of maize", Helga Cassol;

- Supervisor of 1 PhD student SCHOOL OF AGRI-FOOD SCIENCES, TECHNOLOGIES AND BIOTECHNOLOGIES of the Department of Life Sciences of the University of Modena and Reggio Emilia: "Genetics and genetic improvement of plant root traits: extension of biodiversity, resilience to climate change and impact on food production and carbon sequestration in the soil", Lorenzo Sena (Co-supervisor Dott. Patrizia Vaccino);

XXXVIII CYCLE

- Supervisor of 1 PhD student SCHOOL OF AGRI-FOOD SCIENCES, TECHNOLOGIES AND BIOTECHNOLOGIES of the Department of Life Sciences of the University of Modena and Reggio Emilia: "Innovation in Durum Wheat Breeding", Nida Mushtaq;

- Supervisor of 1 PhD student SCHOOL OF AGRI-FOOD SCIENCES, TECHNOLOGIES AND BIOTECHNOLOGIES of the Department of Life Sciences of the University of Modena and Reggio Emilia: "Breeding and innovation in Medical Cannabis", Samuele Paganelli (Co-Supervisor Dott. Roberta Paris);

- Supervisor of 1 PhD student SCHOOL OF AGRI-FOOD SCIENCES, TECHNOLOGIES AND BIOTECHNOLOGIES of the Department of Life Sciences of the University of Modena and Reggio Emilia: "Study and exploitation of Brassicales plant species attracting honeybees and other pollinators, for providing and enhancing ecological services in agriculture", Matteo Carloni (Co-Supervisors Dott. Manuela Bagatta, Dott. Laura Bortolotti).

Supervision of doctoral students in foreign universities

AY 2011/2012

- Co-director of 1 doctoral thesis of the University of Lleida (E), entitled "Barley Adaptation to Stress Prone Environments", by Andrea Visioni (together with the co-directors Prof. I. Romagosa and Dr. J. Comadran);

Tutoring of foreign fellowship holders and scientists

- Dr. Balazs Toth, visiting fellow - Agricultural Research Institute of the Hungarian Academy of Sciences, Martonvásár (18/04-20/06 2001);

- Prof. Longqing Chen, visiting professor - Huazhong Agricultural University, Wuhan, China - scholarship holder of the Italian Cultural Institute of the Italian Embassy in Beijing, from October 2003 to August 2004;

- Dr. Taner Akar, visiting scientist - C.R.I.F.C. Central Research Institute for Field Crops, Ankara, Turkey - summer 2005;
- Dr. Sergio Atienza, visiting scientist - Departamento de Mejora Genetica of the IAS-CSIC of Cordoba (Spain) - from 12 to 26 May 2006;
- Dr. Nadjet Djeghdali-Benkherbache, visiting scientist - University Mohammed Boudiaf, M'sila, Algeria - July 2007;
- Tibor Kellos, visiting student - Agricultural Research Institute of the Hungarian Academy of Sciences, Martonvásár (5 November - 4 December 2007);
- Dr. Fayçal Bahlouli, visiting scientist - University Mohammed Boudiaf, M'sila, Algeria - 15-24 October 2008;
- Dr. Mohammed Mefti, visiting scientist - Ecole Nationale Supérieure Agronomique, Algiers, Algeria - 17-26 March 2009; December 2011, October 2013; December 2015 (at CREA-CER).
- Xiang Li Annual Research and Advanced Training Scholarship - Huazhong Agricultural University - 2010.
- Meltem Altunoz, visiting student, University of Ankara, Turkey, February 2014-June 2014.
- Shynar Anuarbek, Institute of Plant Biology and Biotechnology, Kazakhstan, November 2015- December 2015;
- Soumia Benchelali, programme nationale exceptionnel PNE, Ecole Nationale Supérieure Agronomique, Algiers, Algeria, October 2018-September 2019.

7. Research activity

Research Themes and path

During my degree thesis I attended the laboratories of the Experimental Institute for Floriculture of Sanremo, and of the Institute of Genetics of the University of Parma, where I learned "in vitro" culture techniques of plant tissues, extraction and separation of proteins in two-dimensional gels and labeled with radioactive tracer S35. From the summer of 1990 to 1996, I began a six-year working and training period at the Experimental Cereal Institute of Fiorenzuola d'Arda (PC), during which I learned methods of molecular biology, molecular genetics and statistical analysis of the experimental data. The training period was completed by attending the Specialization School in Plant Biotechnology at Pisa University. Since the last part of the period I have set up original experiments in complete independence, opening the sector of molecular mapping and QTL (Quantitative Trait Locus) analysis of complex (quantitative) characters relevant for genetic improvement. From August 1996 until 2002 I continued the genetic mapping research in the position of researcher, creating an initial research group, intensifying the training activity of young people, and contacts and collaborations with colleagues in Italy and abroad. Starting from 1997 I gave life to the experimental population project of doubled haploids 'Nure' x 'Tremois' for the identification of the genetic and molecular bases of complex characters relevant for genetic improvement, and involved in the adaptation of cultivated plants to the conditions current and future climates. I also undertook a breeding activity by an articulated naked barley breeding program, and set up a Marker-Assisted Selection (MAS, Marker-Assisted Selection) program and unit at the Section, training technical staff and young collaborators to the techniques. I left to the Section numerous genetic materials, germplasm collected over the years of work, the Assisted Improvement Unit, unfinished breeding materials. At the end of the period, thanks to the MAS programme I constituted the spring barley variety 'Doria'.

The period of the Plant Production Research Group. It begins at the end of December 2002 and ends at the end of 2014. After an initial search for funds, and an intense collaboration with the Experimental Institute of Fiorenzuola, I established and directed the group of Crop Production of the Department of Agricultural Sciences of the University starting from the summer of 2005. I opened new research topics and national and international collaborations, constantly increasing the number of research projects activated. The Crop Production group studied the genomic and agronomic aspects of production in herbaceous and industrial crops and in model plants. The group's research was divided into five main strands, mainly aimed, as far as basic research is concerned, at understanding the genetic mechanisms that limit the productivity of open field crops, with particular reference to cold tolerance, the role of the loci regulate earliness of flowering and cycle duration of Triticeae in the productive adaptation in Mediterranean areas (e.g. see Nat. Genet., 2012 in the self-evaluation document). I also pursued applied research and technology transfer objectives, applying strategies and tools to innovate genetic improvement and agricultural production. The target herbaceous species used were mainly barley and tomato, but biological and physiological issues were addressed in different species, other cereals and vegetables, including the model species *Brachypodium distachyon*. In this period, thanks to a PRIN fund, I contributed to the constitution of Sunblack™ tomato, with an increased anthocyanin content.

The CERREALAB laboratory has constituted an important test of the ability to coordinate research projects and manage one of the laboratories of the High Technology Network of the Emilia Romagna Region. The recognition for the work carried out has allowed CERREALAB to merge into the largest and only structure for the Agri-food sector, SITEIA, while maintaining the unity of the transfer experience in the seed sector, in Subproject 5 directed by the candidate. The experience of the SITEIA laboratory then gave rise to the Reggio Emilia Technopole for Agri-food, BIOGEST-SITEIA. The University of Modena and Reggio Emilia has recognized the experience of CERREALAB as one of the University's priority research lines for the three-year period 2007-2009, funding it directly with the assignment of a dedicated Technician position, and with a contribution for its upgrade, used to purchase scientific equipment (a Fluidigm SNP genotyping system).

The period at CREA Research Center for Cereal Crops. From November 2014 to April 2017. Arrived in an already structured and recognized scientific environment at national and international level, in synthesis for the part of the research activity he worked to make the most of the available germplasm collections, the experimental farm and the available laboratory facilities around the concept of improving the durum wheat supply chains. I encouraged the studies already undertaken on the evolution of the species both in phenotypic, metabolomic and genomic terms, and on the effects of genetic improvement on loci fixation due to selection, and has stimulated the collaboration with CREA-GPG (today GB) and the international consortium for the sequencing of the durum wheat genome, with its first assembly being obtained to date, available to the international community (Nat. Genet., 2019). I devised and directed a GWAS study on an international scale (in collaboration with seven experimental stations between the USA, Europe and Asia, Mexico/CIMMYT and Morocco/ICARDA) of the basis of resistance to three different species of rusts on association panels, for find resistance QTLs to single or more rusts. I undertook the creation of the first NAM population - whose pivot is the variety Cappelli - of the center, to join the multiparental populations MAGIC and introgression lines from *T. dicoccoides* and *T. carthlicum* (ILs), nearing completion. I also coordinated a technological and microbiological study on the digestibility and toxicity of gluten of ancient and modern varieties of durum wheat, in collaboration with Univ. of Parma and Modena, and stimulated the birth of genetic improvement programs for organic agriculture.

The period of the Research Center for Cereal and Industrial Crops. From July 2017 to today. I completed the publication of works that referred to the previous periods, for example by continuing the fine dissection of the genetic basis of cold resistance in cereals. I also continued what I started on durum wheat, by extending the organization of the research to other supply chains such as those of rice, corn and common wheat. I promoted the application of the three-year multidisciplinary research plan, on six supply chain research objectives that are based on skills ranging from genetics, applied genomics and genetic improvement, to agronomic sciences, biochemistry, food technologies. Thanks to the Horizon project SolACE I have undertaken the study of the genetic basis of resistance to multiple stresses (drought and nitrogen deficiency) in durum wheat, and of the role of root systems in the productive response to such stresses. I established and co-supervised a durum wheat improvement PhD fellowship with UniFG, implementing the Center's first durum wheat genomic selection programs. I continued in the construction of a phenomic platform of the Center, with the first studies on the identification of key agronomic characters through the use of drones and RGB imaging, under the frame of the Phen-Italy infrastructure. I am recently opening its use to the outside users, also thanks to two recently obtained European research infrastructure (INFRA-SERV) projects, Agroserv and Microbes4Climate. I represented CREA at the permanent committee for the maize supply chain promoted and managed by Ministry of Agriculture, and coordinated the work of the research working group to arrive at a final document for the National Maize Sector Plan. I collaborated in the drafting and promoted the birth of two PON projects on as many industrial species, thistle and hemp, COMETA and UniHEMP, in collaboration with national companies of reference in the sector, for the obtainment of bio-based and circular economy approaches. I kept the relations with the SCFM Military Pharmaceutical Plant of Florence for the continuation of the medical hemp project. I contributed to the drafting, and I am involved in the H2020 AGENT project, to optimize the genetic knowledge and the use of the soft wheat biodiversity collections of the European GenBanks. I also collaborated in the drafting and collaborates on the PRIMA DROMAMED project, to improve drought resistance in maize, through the characterization and deployment of landraces and lines of corn suitable for Mediterranean environments. I recently promoted the training of young doctoral students, who reached the number of 10 in the research centre in 2023, also thanks to funding from the Ministry of Research, from the Center and from CREA. Of the doctoral students in training, currently 3 are under my direct supervision, and 2 in co-supervision with researchers of the Centre.

Direction Activity, Research management and guidance

Leading university research structures

- **Research Group Leader:** Plant Production (Crop Production) of the Department of Agricultural and Food Sciences, later merged into the Department of Life Sciences (2005-2014). The situation in 2013 was of an approximate Annual Budget of € 200,000.00. Permanent personnel: n° 2 Researchers (including the PI); n° 1 Technician Cat. D; TD staff (average attendance): n° 2 Research Fellows; n° 2 PhD students. It was created by me, once I had access to a molecular biology laboratory, a growth chamber, and common facilities, and later formally recognized as one of the laboratories and groups of the Department of Life Sciences. Subsequently, thanks to an agreement obtained on the initiative of the candidate with the Cervi Institute of Gattatico (RE), the group also equipped itself with a small experimental field, sufficient for the multiplication of plant materials. The group is still active under the guidance of prof. E. Francia (<https://www.dsv.unimore.it/site/home/ricerca/gruppo-di-ricerca.html?id=220>).
- **Direction of the CERELAB Laboratory** of the High Technology network of the Emilia Romagna Region (2005-2007). A.T.S. between the University of Modena and Reggio Emilia, the Experimental Cereal Institute of Fiorenzuola, the University of Bologna, Seed Producers and the Italian Seed Society. Structured Researchers: 28; Researchers T.D.: 11; Total cost: € 976,600.40; Total co-financing: €426,680.16. I was both scientific manager and director of the network laboratory, but the physical offices resided in the laboratories of the individual partners. Although brief, it was a fundamental experience for learning the job of coordinator, and in the future it allowed the birth and maintenance of a significant agri-food area (Biogest-SITEIA) within the Reggio Emilia Technopole (<https://www.tecnopolo.re.it/tecnopolo-di-reggio-emilia/>), realized with a prevalence of expertises and personnel of Engineering Departments.
- **Deputy Directorate of the Biogest-SITEIA Interdepartmental Center** (2011-2014). The Interdepartmental Center Biogest-SITEIA, currently directed by prof. Lo Fiego, consisted in 2014 of 32 units of permanent staff, between professors and researchers, and 7 units of temporary scientific personnel. (www.biogest-siteia.unimore.it). The deputy management of the Center has allowed me to participate in the regional agri-food platform, and to actively participate in the drafting of the document of the Regional Technological Priorities for the Agri-food sector, as part of the Emilia-Romagna Region S3 Strategy (<https://drive.google.com/file/d/0B6CGnfl93T9QX1lzQTNLZzNEeEU/view>), published in January 2014. I also gained significant experience in the supervision of design and construction of chemical and molecular biology laboratories, and their final set-up, with a architectural renovation project of an old industrial pavilion ("Pavilion 19") of the former Reggiane metallurgic factories, in P.le Europa, Reggio Emilia. The candidate, in charge of personally dealing with the construction project for the Biogest, participated in technical tables with planners and officials of the Municipality of Reggio Emilia, and of the University Technical Office, until its conclusion in 2014. In the Biogest-SITEIA, the experience acquired with the Cerealab laboratory, and the network of collaborations put in place, has allowed me to further expand them, and to deal with the technological transfer of molecular markers for the genetic improvement of seed companies, for the traceability of productions, and of innovations in the biogas sector.
- **Deputy Directorate of the Department of Life Sciences (DSV)** of the University of Modena and Reggio Emilia (2014). Director Prof. Fabio Prati, from 01.20.2014 to 06.02.2014. The experience was short, but humanly and professionally enriching, since being a newly formed department it was necessary to build *ex-novo* a highly heterogeneous community of researchers, from pharmacy, biomedicine, biology, as well as agri-food skills. Prematurely interrupted by the resignation of the Director, who had not been able to handle the stress of a very onerous assignment, in a period complicated by the challenge mentioned above, and by high quarrels between professors, it nevertheless allowed me to get to know many of the colleagues who later supported me in the second phase of Commissioner ad acta, appointed by the Rector, to comply with the imminent deadline for drafting the Department's 2014/2016 Three-Year Plan, and to lead the Department to new elections and to a new Director.
- **Ad acta commissioner acting as Director of the Department of Life Sciences (DSV)**, from 03.06.2014 to 31.07.2014. The Department was the most complex structure of the University, the first Department in terms of size, and located in two locations (Modena and Reggio Emilia). Established in 2012 following the provisions of Law 240/2010, in 2014 the DSV had 117 professors and researchers, of which 27 FPs, 41 APs and 49 Res. The Department had 44 technicians and 18 administrative staff, belonging to various categories. Capacity to attract total resources in the period 2007-2012 - estimated at 44.93 M€ (7.49 M€/year, 74 K€ / scientist / year, data collected on 101 scientists). Although brief, the experience was physically trying and very intense. During the term of office, the 2014/2016 Three-Year Plan was duly released and delivered to the Rector, obtaining substantial agreement from all teachers; all University duties respected and performed, including participation in the meetings of the Directors' Conference. Helped by an efficient and very helpful administrative manager,

the experience was fundamental to begin to understand the administrative and managerial complexity of a large structure, and to grow professionally in the research policy experience at the university.

Leading CREA research structures

• **Direction of the Research Center for Cereal Crops (CREA-CER)** of Foggia (Nov. 2014-Apr. 2017). At the end of 2016, the center had 14 researchers and technologists, 22 technicians, 7 administrative staff. To these was added a small number of temporary personnel. The experience was relatively short, but very intense, even if the dimensions of the Center were not comparable with those of the University Department. The first 8 months were used to manage absolute emergencies such as the closure of a PON infrastructural project expiring on 12.31.2014, which made it possible to build two experimental greenhouses and to spend almost all the funding in time. Then, I have been dedicated to the reorganization of expenditure, the reorganization of the administration and the obtaining of administrative independence of CREA-CER, previously subordinated in fact to another structure. Moreover, to extraordinary maintenance of the structures and technical plants, and to the reorganization of services. The research lines pursued in the two years are summarized in the previous section. From the point of view of research policy, I established collaborative relationships with the University of Foggia, with the Regional Agri-food District, with the Department of Soil, Plant and Food Sciences (DiSSPA) of the University of Bari, in view of future projects. I was also promoter within CREA of the national Phen-Italy initiative, for entering the European research infrastructure Emphasis for phenomics. The Phen-Italy agreement between CNR, Alisa Basilicata and other partners was definitively signed by CREA in November 2016. At the international level, I promoted the participation of researchers in the working groups of the Wheat Initiative, and I finalised a CREA/INTA (Argentinian public research institution) framework agreement.

From a future planning point of view, since I found a consolidated habit to non-competitive projects directly funded by the Ministry for Agriculture, and the almost absence of international projects. I immediately stimulated researchers to increase participation in competitive and international calls, providing help and suggestions, and personally committing himself to the drafting. As an example of this, in 2015 15 project proposals were presented on national and European competitive calls, of which 4 were financed to researchers of the centre, including a European project (Sensagri) on the H2020 EO-2016 call, 1 Italy- USA, 1 UniMORE university FAR project, 1 collaboration on a POR-FESR R.E.R. project, and the European project SolACE, call H2020 SFS-01-2016. I also began the reorganization of the center's breeding programme, the system of intellectual properties protection, and varietal exploitation, unorganized and inefficient at that time. In the two years of direction, he began monitoring and reorganizing the many research initiatives of the Center, to focus them more on activities with a higher scientific impact, and to increase interactions between different researchers and from different disciplines.

• **Direction of the Research Centre for Cereal and Industrial Crops (CREA-CI)** (July 2017-present). The Research Center is territorially complex, consisting of 8 structures located in as many regions of Italy, with two offices equipped with a greater number of researchers, in Foggia and Bologna. In January 2023, it had 125 permanent personnel, of which 50 researchers and technologists, 56 technicians, and 19 administrative staff, and a number of temporary personnel units hired on projects; approximately 40 units in 4 years. I dedicated my efforts to the establishment of a governance structure of the Centre. The organizational structure was established with the election and full functioning of the scientific committee, the creation of working groups, the appointment of various managers and representatives of offices, laboratories, specific services in support of the Center and the management, and administrative sectors. The scientific committee, site managers, and administrative sectors, including office managers, were renewed in 2022. In the initial year, a significant effort was dedicated to drafting the CREA-CI Three-Year Research Plan , for 2018-2020, in its first draft drawn up personally on the basis of information sheets requested from individual researchers; both the Center's personnel requirements plan and the 2020 revision of the three-year plan were instead drawn up by the Scientific Committee chaired by the director. For 2021-2023, the new Three-Year Plan of activities was drafted by the Committee, but then submitted to the assembly of scientists, discussed in the plenary meeting, and made final following revisions; the second version of the Plan was amended again also following the observations of the Ministry supervising CREA.

Also in the initial phase, steps were taken to organize the team and administrative services. The second year was dedicated to the reorganization of the experimental farms of the Centre, also by allocating 4 of the 11 farms assigned to CREA-CI to long-term rentals, for a total of about 600 ha, and concentrating the research, experimentation and third mission activities in the other 7 farms. In the second year, I was more committed to the scientific growth of the centre, spreading awareness of the Three-Year Plan, organizing the first Research Day of the Center in Foggia in the presence of researchers, coming from the various regional offices, stimulating the birth of transversal "thematic" research initiatives between researchers from different locations,

and personally committing to the drafting of project proposals (e.g. PON Research tender projects) involving several CREA-CI seats and other CREA research centres. The same approach started in CREA-CER has been continued, in CREA-CI with regard to the greater attention and effort dedicated to competitive project proposals. From the second year onwards, with the establishment of the Technology Transfer team, in synergy with the CREA Central Offices, a tiring and meticulous process of reorganization of the not indifferent intellectual property assets of the unified center began. It was necessary to reorganize the maintenance of the purity of the varieties, referring it *de jure* and *de facto* to the Center (as breeder and owner), as correct; to protect the new constitutions through the acquisition of CPVO rights, and to select performing varieties from obsolete ones (to be retired). From the point of view of scientific research, with the appointment of a delegate for the scientific performance, an initial precise monitoring of the scientific productivity of the scientists was carried out, identifying the strengths and weaknesses, in order to undertake initiatives aiming to rise levels of scientific results and publications.

In the new mandate, scientific, technical and administrative "network" governance, with some functions and activities managed locally, and others hinged on single people and offices for the whole research center, is recognized and constitutes normality today. The revenue trend since 2017 is quite constant, but with a general growth trend; extraordinary income from research projects, third parties and other income, excluding the operating fund, went from just over 2.5 M€ in 2017 to 6 M€ in the 2023 projection.

From a scientific point of view, from data from the delegate to the Centre's performance, publications with IFs went from 66 in 2017 to 107 in 2018, to 114 and 112 in 2019 and 2020; between 2019 and 2023 there was a growth in the Impact Factor (IF) of the positioning of papers in scientific journals; the same was observed for the average H index of researchers, and in the period 2017-2022 the citation index of published papers was slightly, but constantly, growing.

8. Funded Research Projects

Scientific responsibility of projects as coordinator

Winner of competitive projects

- Project Coordinator P.R.R.I.I.T.T. Measure 3.4A of the Emilia Romagna region - 'CEREALAB' "Non-GMO biotechnology laboratory for the seed industry" - 2005-2007 (total project funding € 426,680);
- Mi.P.A.F. National Project Coordinator OIGA MEDFLOWER tender "Biodiversity and Improvement of Zucchini for the production of Flower for Mediterranean Food Specialties" - 2012-2013 (total funding € 145.500);
- R.E.R. regional project coordinator Tender 2013 Earthquake Area - Experimentation in the Vegetable Sector - ER-FLOWER: "Cultivation technique and flowering courgette varieties for the production of specialty foods" - 2013-2015 (total funding € 101,964.21);
- Project Coordinator FCRM Innovation Call Foundation Cassa di Risip. of Modena "BIO.VI.VI. - Enhancement of digestate from BIOgas plants in the Vine-Wine chain: evaluation of innovative organic and organo-mineral fertilizers on vineyard production and product quality" (2014-2016) (total funding € 85,000);

Non competitive institutional projects

- Project Coordinator of MiPAAF "Development and transfer in support of organic rice cultivation - RISO-BIOSYSTEMS" (Ministerial Decree of 19 December 2016 n. 94667) (last two-year period 2019-2020) (total funding € 560,000);

Scientific responsibility of projects as unit/partner leader and responsibility of interinstitutional project agreements

Winner of competitive projects

- Head of the Italian Bilateral Project "Evaluation of BYDV-resistant barley genetic resources from Italy and the Czech Republic using field trials and molecular markers", within the framework of the Italy/Czech Republic scientific and technological cooperation protocol of the Ministry of Foreign Affairs (1998- 1999);
- Head of the Italian bilateral project "Development of PCR-based markers for the identification of frost-tolerant genotypes, and their use in marker-assisted breeding of wheat and barley", within the "Hungarian-Italian Intergovernmental Scientific & Technological Cooperation Programme" of the Ministry of Foreign Affairs (2001-2002);
- Spinner Project of the European Social Fund - Research and Development, Innovation and Technology Transfer Projects - Experimental Cereal Institute / Pioneer Hibred Italia - "Development of molecular diagnostic

tests for the selection of new durum wheat genotypes resistant to biotic and abiotic stress and high quality pasta" - Tutor of the proponent Dr. Enrico Francia (2001-2002);

- Head of U.O. MiUR **FIRB** project "Construction of functional maps densely saturated in corn and barley - FUNCTIONMAP", RBAU01MHMR, Coordinator prof.ssa M. Sari Gorla (2002-2004 - OU funding € 82,000.00 - following transfer to UNIMORE, waiver in the second project year to the responsibility of the OU in favor of Dr. A.M. Stanca);
- Collaborator of UE-INCOMED MABDE Project "Mapping Adaptation of barley to Drought Environments", head of U.O. Experimental Institute Fiorenzuola section dr. AM Stanca, Scientific Coordinator prof. Ignacio Romagosa University of Lleida (2003-2005);
- Head of the Italian Integrated Action Italy-Spain "Resistance of wheat to abiotic stresses: influence of the introgression of the *Hordeum chilense* genome in the background of wheat" of the MIUR for the financial year 2006;
- Head of the Italian bilateral project "Méthode biotechnologiques pour l'étude de la tolérance de l'orge à la sécheresse." within the framework of the "Accord de Coopération Culturelle, Scientifique et Technologique entre la République Italienne et la République Algérienne Démocratique et Populaire" of the Ministry of Foreign Affairs (2007-2009);
- Head of U.O. of **PRIN** TOMANTHO project "The TomANTHO project: increasing the anthocyanin content in tomato fruits" - Coordinator prof. P. Perata (2007-2008) (total funding €30,150);
- Head of U.O. of MiPAAF Project IODOPLANT "Mechanisms of iodine uptake in plants and iodine-fortification of plant foods" 2007-2009 (total funding €59.400);
- Applicant and Scientific Tutor of 1 research grant co-financed by the CRM Foundation, the Cassa di Risparmio di Reggio Emilia Pietro Manodori Foundation and the Capitalia Banking Group: SAFEWHEAT by CEREALAB – "Development of New Molecular Markers of Resistance to Fusariosis for Assisted Selection del Frumento" (2008-2009) (total funding € 19,000);
- Head of Subproject and of U.O. of the regional R.E.R. project High Technology Network SITEIA "Safety TEchnologies Innovation Agro-food", Scientific director prof. R. Massini (2008-2010) (total funding €131,880);
- Head of U.O. of the Mi.P.A.F. project ENERPAN "*Panicum virgatum* L. as an alternative energy source: adaptation to environmental stresses and use on marginal land" (2010-2013) (total funding € 78.210);
- Head of U.O. of the AGER Bank Foundations Project Network RISINNOVA "Integrated genetic and genomic systems aimed at varietal renewal in the Italian rice production chain" Coordinator dr. E. Lupotto (2011-2014) (total funding €100,000);
- Scientific Responsible for the Project of the Bank Foundation Cassa di Risp. of Reggio Emilia Pietro Manodori "Digestate from biogas production plants: enhancement of a resource for the environment and for the Reggio area" (2013-2014) (total funding € 12,000);
- Scientific Responsible for the FCRM funds by Bank Foundation Cassa di Risp. of Modena "For the support of scientific conferences - Year 2013" - "1st International Brachypodium Conference" (2013) (total funding € 7,000);
- Scientific Responsible for CREA Agreement with the University of Modena and Reggio FAR Project University Fund for Research year 2015, interdisciplinary research project "Ancient varieties of durum wheat and health: enhancement of the pasta chain, health claims and labeling in the regulatory framework internal and supranational" (total funding € 80,000);
- Responsible of Partner CREA, Workpackage leader and member of the Executive Committee of the **Horizon2020** project "SolACE – Solutions for improving Agroecosystem and Crop Efficiency for water and nutrient use", INRA coordinator, GA 727247 (2017-2022) (total funding € 7.192.148,75 , CREA funding € 390,000);
- Responsible for CREA and scientific responsible for the Foggia seat of the CREA-CI Center of the PON ARS01_00606 project, Call D.D. of 13 July 2017 no. 1735 "COMETA - Native Mediterranean crops and their valorisation with advanced green chemistry technologies", Specialization area: Green chemistry (2018-2022) (total funding € 9,926,528);
- Responsible for CREA of the PON ARS01_00668 project, Call D.D. of 13 July 2017 no. 1735 "UNIHEMP – Use of biomass from industrial hemp for the production of energy and new biochemicals" Area of specialization: Green Chemistry (2019-2022) (total funding € 3.330.562,96);
- Scientific co-responsible for the CREA partner of the project "DUROSTRESS - Stratégies d'adaptation du blé dur aux stress hydriques et thermiques", on the FSOV call Fonds de Soutien à l'obtention Végétale, France (2020-2022) (total funding € 546,223.83);

- Scientific responsible for the CREA partner of the Project "Full Canopy Phenotyping and Monitoring:SaaS and Robotisation – FullPheno" (2021-2023) grant agreement n° 3742282005-OC-004, subcontract with YieldSystems Oy, (CREA funding € 35.400);
- Scientific responsible for partner CREA (P39) of the Project "Integrated SERVICES supporting a sustainable AGROecological transition – AgroServ", call HORIZON-INFRA-2021-SERV-01, Grant Agreement Project 101058020 (2022-2027) (total funding € 14.252.873.35 , CREA partner loan € 199,864.55);
- Scientific Responsible for the CREA-CI Center of the PNRR National Center Project "National Research Center for Agricultural Technologies - Agritech" (partner funding CREA € 1,133,058.00);
- Scientific responsible for partner CREA of the Project "MICROBES-4-CLIMATE - Microbial services addressing climate change risks for biodiversity and for agricultural and forestry ecosystems: enabling curiosity-driven research and advancing frontier knowledge", call HORIZON-INFRA-2023-SERV- 01-02, Grant Agreement Project 101131818 (2024-2028) (total funding €14,497,389.50, CREA partner funding €104,512.50).

Non competitive institutional projects

- MiCIA - MiPA Project "Cereal Improvement for Agro-Industrial Innovations" - Responsible for the Research File "Genetic improvement of naked barley" (1998-2000);
- Head of U.O. of national Mi.P.A.F. project PHYSICAL MAP 5A "International wheat genome sequencing project" Coordinator dr. AM Stanca (2009-2011) (total funding €87,120);
- Responsible of the subprojects "Wh-Italy - NBT (New Breeding Techniques) for the Sustainable Improvement of Wheat" and "SusRICE - Creation of a new ideotype of rice plant with improved resilience and sustainability through the insertion of characters that influence adaptability of the crop" of the CI Center, within the MiPAAF national project "Sustainable Biotechnologies for Italian Agriculture" (funding for the two sub-projects € 390,000 + € 210,139);
- Scientific Responsible of the U.O. no. 5 CREA-CI, and of Task 4.2 "Advanced digital and mechatronic applications for the cereal supply chain and other grain crops" of the sub-project "AGROFILIERE - Integrated digital technologies for the sustainable strengthening of agri-food production and transformation", within the MiPAAF AGRIDIGIT project (2018-2022) (total sub-project € 3.000.000, total Task € 298.052);

Research contracts and agreements

- Scientific Responsible Agreement with the CRA-ORL Experimental Institute for Horticulture of Monsampolo within the PROM Project "Horticulture for the Mediterranean" - (2006-2008, extended for 2009) (total funding € 25,000);
- Head of Assignment of Strategic Funding for University Research Lines - University of Modena and Reggio Emilia (2008-2009) (total funding € 50,000);
- Scientific Responsible of the Agreement with the company Tomatocolors for the realization of the PRRITT 3.1a TOMATORED project. "Selection, with the aid of innovative methods, of new highly pigmented industrial tomato varieties, suitable for the production of food specialties, for Emilia Romagna" (2009-2010) (total funding € 30,000);
- Scientific Responsible of the agreement with company Agrigusto Soc. Coop. Agr. for the realization of the ALIQUAL project. "New high quality cereal-based foods through the development of a sustainable supply chain" (2010-2012) (total funding €60,000);
- Scientific Responsible of the Agreement with the company Produttori Sementi S.p.A. for the realization of the ITALIAN GRANARY project. "Determination of the genetic diversity of a wheat collection using molecular markers" (2010-2013) (total funding € 60,000);
- Scientific Responsible of the Agreement with the University of Salento within the project PON01_01145 "Technological development and innovation for the sustainability and competitiveness of southern cereal growing (ISCOCEM)" (2011-2014) (total funding € 121,500);
- Scientific Responsible for CREA Agreement with the University of Modena and Reggio Project POR-FESR 2014-2020 "Identification of low impact wheat varieties on subjects genetically predisposed to celiac disease for the development of food products capable of preventing its onset " (2015-2016) (total funding €749,411.14)
- Scientific Responsible for CREA of the Collaboration Agreement pursuant to Art. 15 L. 241/90 between CREA and ISMEA "Territorial Observatory on cereal quality - corn, durum and common wheat" (2019) (costs recognized as reimbursement € 350,000);
- Scientific Responsible of the Collaboration Agreement pursuant to Art. 15 L. 241/90 between CREA and MiPAAF "RETI2020 - Consolidation of national cereal quality networks as scientific innovation and technical-scientific support to cereal supply chains and monitoring of raw materials" (2021) (reimbursed costs € 450,000);

- Scientific Responsible of the Collaboration Agreement pursuant to Art. 15 L. 241/90 between CREA and MIPAAF "CAMED - National CANNabis MEDica: innovation and enhancement of the production of therapeutic Cannabis plant material for the National needs and research for the creation of new varieties for pharmaceutical use" (2021-2023) (costs recognized as reimbursement € 390,546);

9. Third mission and public engagement activities

Technology transfer. Patents and/or variety constitutions, privatives and trademarks

- Collaborator in the constitution of the polystyc winter barley variety resistant to yellow mosaic virus "Aliseo", and in the constitution of the two-row naked winter barley variety "Zacinto";
- Breeder of the two-row spring barley variety "Doria" (2006), the first variety of barley established in Italy through a MAS (Marker-Assisted Selection) scheme;
- Co-inventor for the University of Modena and Reggio Emilia (co-owner for 10%) of the Registered Trademarks "Tomantho" and "SunBlack", fruit of the research project PRIN-2006: "The TomANTHO project: increasing the anthocyanin content in tomato fruits ";
- Co-inventor and co-owner with the University of Modena and Reggio Emilia (for 5%) of the exploitation rights of the "Solenero" and "Solenero Mini" plant rights, a variety of table tomato with a high anthocyanin content, and a different shape of fruit.
- Co-inventor of national patent on innovative digestate-based fertilizers. Title of the patent: "FERTILIZER BASED ON DIGESTATE ENRICHED WITH BIOSTIMULANT MICRO-ORGANISMS AND METHOD FOR PRODUCING IT". filed 11.12.2018. Deposit number: 102018000010992;
- Co-breeder of the durum wheat variety "Nadif" (2016, cod. SIAN 16401) for which an application for community rights has been filed with the CPVO.

Developed databases

- Creator of the CEREALAB database (2011), in English (www.cerealab.org) public database that brings together genotypic and phenotypic data of cereals (wheat, barley, rice), to provide an operational tool for planning and carrying out activities of Assisted Breeding, to public and private researchers and breeders. The database project was created thanks to the collaboration with the dbGroup of the Computer Engineering Department of Modena directed by Prof.ssa S. Bergamaschi;
- Participated in the design and development of the "Maize Database" (2014-2016) proprietary database of CREA-SCS for internal online cataloging and consultation, for simple and complex queries of hybrids and inbred lines of corn, containing morphophysiological, biochemical and molecular descriptors. Collaboration with CREA-SCS scientists, C. Delogu and A. Giuliani; and with informatic engineer A. Sala.

Third mission and public engagement

Third mission and public engagement activities/events

- Chairman. Study Day 22 September 2008: "Agriculture and Development: Finding new resources: the key role of Agriculture in the Third Millennium" - ExpoVillage 2008. 19 September - 5 October 2008, Varese, Italy.
- Speaker at "STEP" - work and training for a new generation - "The university system" - for high school students - carpi (MO), 10/02/2004;
- Report at the Open Day 2014, CRA-RIS Vercelli 26 September 2014 - The resistance of rice to low temperatures in the seedling phase;
- Organization of the CREA-CER Open Day 2015 in Foggia, 18 May 2015, in conjunction with the "Fascination of Plants Day 2015", guided tours and photo contest on durum wheat;
- co-organizer of the CREA conference "Designing the wheat of the future: today's quality by doubling production while respecting the environment". EXPO Milan 2015 – MiPAAF lounge. 02.07.2015;
- President of the Organizing Committee of the national conference "1915-2015 Durum Wheat Senatore Cappelli turns 100, 19 November 2015, Foggia.
- President of the Open Day 2016 Organizing Committee of the CREA-CER of Foggia, on 13 May 2016, with guided tours and thematic round table open to the citizens of Foggia, with the center's researchers, on "Gluten sensitivity: true intolerance or food fad ?"
- co-organizer of Durum Days, national event of the wheat-pasta supply chain, editions 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024. Foggia, mid-May of each year;

- co-organizer NOVA AGRICULTURE IN THE FIELD. Innovation in the Field. Test machines and all the news for the farm of the future. 5th Edition Foggia, 20.07.2017
- President of the Organizing Committee Maize Day 2018. "Innovative agrotechnics against water stress of corn". Bergamo, 01.26.2018;
- Conference moderator The cultivation of sunflowers in Italy: research contributions, industrial uses and supply chain perspectives. Castelnuovo Berardenga (SI) 23.02.2018;
- Participation in the workshop/round table Italian corn culture, a turning point is needed: Scientific, Agronomic, Technological and Organizational. FierAgrumello, Cremona, 03.04.2018;
- President of the Organizing Committee Study day "Quality processes in the sunflower supply chain". Osimo (AN) 06.07.2018;
- co-organizer NOVA AGRICULTURE IN THE FIELD. Innovation in the Field. Innovative Technologies for Smart Agriculture. 6th Edition Foggia, 20.07.2018
- co-organizer of OpenDay 2018. Visit to the rice fields 2018 and conference "Cultivation of rice: current issues and technical solutions". Vercelli, 09.04.2018;
- Speaker at the CREA-PB Workshop "For a more sustainable Italian agriculture. The experience of the high quality durum wheat supply chain". Rome, Sala Cavour (MIPAAFT) 25.10.2018
- co-organizer of the CREA / Va'Zapp event "Researchers' Farmer", 11.22.2018 Foggia;
- President of the Organizing Committee Study Day The sunflower: a crop to be defended, Osimo (AN) 07.08.2019;
- co-organizer of OpenDay 2019. Visit to the rice fields 2019 and conference "Cultivation of rice: the evolution of the technique". Vercelli, 10.09.2019
- President of the Organizing Committee of Maize Day 2020. "Genetic resources for the innovation of Italian corn farming". Bergamo, 01.24.2020
- President of the Organizing Committee Study Day on Colza. Osimo (AN) 05.29.2020;
- Co-Organizer Maize Day 2021. Italian corn: a sustainable crop between efficiency and competitiveness. Bergamo, 01.29.2021;
- President of the Organizing Committee of the Study Day on Sunflower. Osimo (AN) 07.07.2021;
- Co-Organizer of rice research Open Day, with visit to the experimental fields, Vercelli, 06/09/2021;
- Participation in the Demonstration Day "Challenges and opportunities for maize", at CREA in Bergamo, 09.09.2021;
- Speaker at the study day "Research on RICE, climate change and water availability: the challenges for Italian rice cultivation", organized by MiPAAF at the CREA headquarters in Vercelli, 20.09.2021;
- Co-Organizer of Maize Day 2022. Bergamo, 02.02.2022;
- President of the Organizing Committee Study day "Colza and the other Brassicaceae". Osimo (AN) 05.23.2022;
- Participation in the workshop "Bioactive substances from industrial crops, from the field to bioproducts", R2B Research to Business, Bologna, 14.06.2022;
- Speaker at the Conference "Innovation and Agricultural Development", organized by CREA, Bella Muro (PZ), 07/22/2022;
- Participation in the Technical-Scientific-Informative Day "Do you want to know hemp?", Rutigliano (BA), 07/26/2022;
- Co-organizer of the Open Day of Rice research, at the CREA headquarters in Vercelli, 02.09.2022;
- Participation in the CNA webinar "Innovations and perspectives of the cereal supply chain - Biodiversity and new frontiers for the production of bread, the "healthy" bread", 11/16/2022;
- Speaker at the CNA conference <The "Wheat-Bread" Supply Chain Between Science And Representation: from the market scenario to the new frontiers of research>, c/o SIGEP Fiera di Rimini, 01.24.2023;
- Co-Organizer of Maize Day 2023, and Roundtable moderator. Bergamo, 01.27.2023;
- Co-Organizer and Speaker at the Conference "Medical cannabis: present and future developments of the results of the CAMED CREA/MASAF project, Rovigo 02.09.2023;
- Speaker at the study day on CREA and research in cereal cultivation of the Rotary Club of Foggia, at the CREA-CI headquarters in Foggia, 03.07.2023;
- Speaker together with A. Pesce at the National Cluster Spring and Confagricoltura event, "The circular bioeconomy: challenges and opportunities for agriculture and agri-food", Rome, 05.25.2023;
- Speaker together with A. Pesce at the Romacereali event, 16th International meeting of the cereal supply chain, c/o Cam Comm in Rome, 05.26.2023;
- Co-organizer of the event "50 years of the Tenero National Network", Rome, 05.30.2023;

- Co-organizer and speaker at the Workshop "Innovation in agriculture: the CINLab and the new perspectives of research applied to industrial crops", at the R2B fair, Bologna, 06.09.2023;
- Participation on behalf of CREA in the Ceremony for the 170th Anniversary of the Military Chemical Pharmaceutical Plant, Florence, 06.19.2023;
- Speaker at the Open Day Il Girasole: Oleaginosa Interessente, at CREA in Osimo, 07.06.2023;
- Co-organizer of the Rice research Open Day, with an annexed round table on the theme "Italian Rice and New Breeding Techniques: Opportunities for Tomorrow or for Today?", at the CREA headquarters in Vercelli, 08.28.2023;
- Speaker at the CNA conference <La Filiera "Grano Pane" Tra Scienza E Rappresentanza: dallo scenario di mercato alle nuove frontiere della ricerca>, with the lecture "La Scienza e il pane: le nuove frontiere per la filiera «grano pane»", c/o SIGEP Fiera di Rimini, 01.23.2024;
- Co-Organizer of Maize National Day 2024, and moderator. Bergamo, 01.26.2024;

Roles at service of schools

- Collaboration in the organization of the "1st Wheat Olympics" (2015) for the students of the Agricultural High Schools of the province of Foggia, a biennial prize competition of "agrotechnics in the field" between 4th and 5th classes, for the best production result and qualitative according to the sustainability of the inputs.

Talk shows of science communication and dissemination

- Participation in the Agrilinea TV Talk Show. Italian wheat. from varietal choices to the relationship with the market. Acireale (CT) 07.27.2018
- Participation in the Agrilinea TV Talk Show. An Italian corn supply chain, for D.O.P. and I.G.P. Cremona, 09.18.2019;
- Participation in the talk show / interview "Seeds: common good": Nicola Pecchioni and Francesco Sottile talk to Antonio Pascale, as part of the cultural event Festival dei Sensi, Valle d'Itria, 08.19.2023;

Public interviews by political organs

- Hearing for observations on industrial hemp at the Chamber of Deputies. Commission XII (Social Affairs), 26.02.2019;
- Hearing at the IV Council Commission of the Puglia region, for the "Economic-financial planning of the Region: need for innovation in the cereal sector following the increase in prices", 24.03.2022;

Science communication by media

- Interview on GMOs given to "Stampa Reggiana" Year I number 4 of July/August 2003;
- Interview on the CERELAB project given to AGRESTE-TV television broadcast of the Province of Ferrara, September 2005;
- Interview on the SunBlack black tomato and on innovation in agriculture released on the television program "Detto tra Noi" of the local broadcaster TRC of Modena, April 2014;
- Interview on the black tomato SunBlack released to the local broadcaster TeleReggio of Reggio Emilia, April 2014;
- Interview on Quinoa on the Buongiorno Regione television program of RAI3, at the Puglia regional headquarters of RAI in Bari, on April 12, 2016;
- Participation with interview in the television program "Petrolio" of RAIUNO, in March 2017;
- Interview at the online conference "No water, too much water: the impact of the climate crisis on the hydrological cycle, the answers of Agriculture 4.0", organized by Bericus with the sponsorship of xFarm Technologies, 05.07.2023;

10. Institutional Activities

National institutional activities and roles

- Coordinator of the BSc course in Viticulture and Oenology of the Faculty of Agriculture of Reggio Emilia, from 2005 to 2007;
- Head of International Relations - Erasmus Coordinator for the Faculty of Agriculture of Reggio Emilia, from 2004 to 2014;

- "Agricultural Sciences, Technologies and Biotechnologies" Coordinator of the Doctoral School in Agri-Food Sciences, Technologies and Biotechnologies, of the Department of Agricultural and Food Sciences (www.steba.unimore.it) - Director of the School prof. A. Antonelli (2007-2009);
- Coordinator of the Interclass Master's Degree Course LM7-LM69 Agro-environmental Sciences and Biotechnology of the Faculty of Agriculture of the University of Modena and Reggio Emilia (from the 2009/2010 to the 2011/2012 academic year).
- Board member of D.A.Re. s.c.r.l. Apulian regional agri-food district, from June 2015 to July 2016 (voluntary resignation to facilitate the change of structure of the Board of Directors as per amendments to the Statute);
- Representative of CREA in the General Assembly of JRU Phen-Italy, since 2017;
- Representative of CREA at the Permanent Technical Committee of Corn of the Mi.P.A.A.F., and co-Coordinator (with Prof. A. Reyneri, UNITED) of the Research and Innovation working group within the same Technical Committee, from 2018 to 2021;
- Delegate of (the Commissioner and of) the President of CREA at the Assembly of Members of the Cluster SPRING (Italian Cluster of Green Chemistry) in the years 2019, 2021-2023;
- Member of the Commission of experts aimed at defining the proposal for a National Research Program (PNR) 2021-2027, topics Sustainable technologies, Agri-food, Natural and Environmental resources - Management of agricultural resources (Coord. Prof. M. Borin, UNIPD) (Ministerial Decree MUR n. 969 of 07.03.2020).

Other scientific committees and commissions

- Member of the Advisory Committee of C.E.R.S.A.A. - Regional Center for Experimentation and Agricultural Assistance "F. Ugo" of Albenga (SV) for the three-year period 2001-2004.
- Member of the Academic Board of the Doctorate in Agricultural Science and Biotechnology of the University of Modena and Reggio Emilia, from 2003 to 2006;
- Member of the Board of the Doctoral School in Agri-Food Sciences, Technologies and Biotechnologies of the University of Modena and Reggio Emilia, from 2007 to date;
- Member of the Teaching Commission (Antonelli - Pecchioni) in charge of establishing two new three-year degree courses of the Faculty of Agriculture of Reggio Emilia, 2004-2005
- Member of PhD Final Examination Boards:
 - Molecular Biotechnology - Catholic University of the Sacred Heart, 23 March 2005;
 - Herbaceous Crops, Agricultural Genetics, Agro-territorial Systems - University of Bologna, 26 May 2009
 - Biotechnology" - University of Bologna, 10 May 2010
 - Science of plant production" - University of Pisa, 3 December 2010
 - Agro-environmental sciences - University of Bologna, 10 June 2013
 - Agrobiodiversity - Scuola Superiore Sant'Anna, 29 January 2014
 - Agrobiodiversity - Scuola Superiore Sant'Anna, 16 December 2019
- President of the State Examination Commission for the Qualification to Practice the Profession of Agricultural Technician - Single Session 2005 - Commissioner n°1 of the Province of TO - c/o Higher Education Institute "C. Ubertini" Caluso (TO), Single Session 2008 - Commission n° 7 of the Province of Reggio Emilia, c/o IPSAA "A. MOTTI" - Villa Gaida Reggio Emilia, and Single Session 2010 - Commission n° 8 of the Province of Modena, c/o IPSAA "L. SPALLANZANI" - Castelfranco Emilia Modena, November 2010;
- Member of the State Examination Commission for the Qualification to practice the profession of Doctor of Agronomy and Doctor of Forestry at the University of Modena and Reggio Emilia - Sessions n° 1 (May) and n° 2 (November) from 2006 to 2010;
- Member of the Teaching Commission of the Faculty of Agriculture of Reggio Emilia (Antonelli - Fava - Pecchioni) in charge of establishing two new master's degree courses and a new degree course pursuant to DM270/04 (2008 to 2014);
- Member of the University Committee for the Recruitment of Temporary Researchers, Rectoral Decree n° 580 of 09/23/2009, for the scientific area n° 07. Agricultural and Veterinary Sciences;
- Member of the CREA technical committee for the preparation of a Regulation governing the level of authority of researchers in the management of the research projects (Decree n. 731/D.G. of 06.08.2018).

11. Other activities and initiatives

Promotion and participation in interdepartmental centers

- co- proponent and co-founder of the Ce.I.R.G. - Interdepartmental Center for Genomic Research of the University of Modena and Reggio Emilia (www.ceirg.unimore.it), based in the Department of Biomedical Sciences, Via Campi, Modena. The Center was bringing together personnel from the Departments of Biomedical Sciences, Agricultural and Food Sciences, Animal Biology, Public Health, Medicine and Medical Specialties, Medicine, Endocrinology, Metabolism and Geriatrics and has as its mission the development of Genomic Research in the University.

12. Membership in scientific societies and academies

- Member of the Board of directors of the scientific society Italian Society of Agricultural Genetics (2011-2013);
- Member of the Italian Society of Agricultural Genetics;
- Member of the EFB European Federation of Biotechnology since 1999;
- Member of the Italian Society of Agronomy;
- Aggregated academician of the Accademia dei Georgofili in Florence, North-west section (since 2015).

13. Prizes

- In January 1991 he received the "Silvio Bidallo" National Graduation Award, of 10,000,000 Lire, for the best master thesis in the field of floriculture, organized by the Italian Society of Friends of Flowers;

14. Editorial activity

- Associate Editor for the international journal Euphytica (International Journal of Plant Breeding, Springer), from the first months of 2011;
For the journal, to date he has been editor of n. 42 submitted manuscripts
- Associate Editor for the international journal Frontiers in Plant Science, from the first months of 2017.
For the journal, to date he has been editor of 3 submitted manuscripts

15. Invited lectures and Conference organization

Invited lectures

International

- Invited chairperson at the Brachypodium International Conference, 16-19 June 2015, University of Massachusetts, Amherst, USA, Plenary Session: Plant-microbe interactions;
- Invited speaker at Plant Genomics & Gene Editing Congress: Europe, Amsterdam, 16-17 March 2017, Session Plant Genomics Case Studies: Cereals, with a lecture about Genomic approaches to improve disease resistance in durum wheat;
- Invited lecture "Genomic Tools and Strategies for Durum Wheat Breeding", at the International Conference on Plant Biology and Biotechnology (ICPBB 2024), Almaty, Kazakhstan, June 3-6, 2024

National

- Invited chairperson at The NGS day 2011, the first UniMORE workshop on next generation sequencing, Session "Next Generation Sequencing applications in epigenomics, virology and agronomy", Modena, February 22, 2011;
- Invited speaker at the workshop "Evoluzione biologica e i grandi problemi della biologia - l'evoluzione in agricoltura", organized by the Accademia Nazionale dei Lincei (19 - 20 February 2015, Rome), with a lecture about Genetic Improvement for Resistance to Biotic Stresses;
- Invited speaker at the Italian Plant Phenotyping Initiative Workshop, 18 February 2016, CNR National Research Council, Rome;
- Invited speaker at the Programmatic Workshop on Research and Internationalization: "From lab to market and back", organized by the University of Foggia, 12/12/2019;
- Invited chairperson at the XIII national conference on Biodiversity (Agricoltura, Ambiente e Salute - XIII Convegno Nazionale sulla Biodiversità, September 7, 8 and 9 2021, Foggia), Session Plant Biodiversity – cereals.

Organization of scientific conferences

International

- Chair of the organizing committee of the 1st International Conference on Brachypodium, held from 16 to 21 June 2013 in Modena, at the San Geminiano Complex of the University (www.brachy2013.unimore.it);
- Member of the scientific committee International Conference "From Seed To Pasta & Beyond", Bologna 31/05-02/06/2015;
- Member of the organizing committee International Conference "From Seed To Pasta & Beyond", Bologna 26-29/10/2022;
- Co-organizer and co-chair of the pre-conference workshop "Phenotyping of complex traits in wheat", at IWC, 3rd International Wheat Congress, 22-27 September 2024, Perth, Western Australia.

National

- Member of the Scientific Committee of the 3rd AISSA Conference "The water planet in the agricultural continent" - Italian Association of Agricultural Sciences Society - Reggio Emilia, 6-7 December 2005;
- Member of the Scientific Committee of the SOI-UNIMORE Conference "Beans in Italy: state of research and prospects" - Reggio Emilia, 26 February 2007;
- President of the Organizing Committee of the Workshop "Non-GMO Biotechnologies in the Seed Sector: the Results of the CEREALAB Laboratory" - May 31, 2007, Aula Magna "Pietro Manodori" of the University of Modena and Reggio Emilia - Reggio Emilia;
- Member of the Scientific Committee of the Conference "PastaTrend - The Great Pasta Exhibition", Bologna, 24-27 April 2010;
- Member of the Scientific and Organizing Committee of the SIGA LVI Italian Society of Agricultural Genetics - SIGA Annual Congress, Perugia, Italy-17-20 September 2012;
- Member of the Scientific and Organizing Committee of the SIGA LVII Italian Society of Agricultural Genetics - SIGA Annual Congress, Foggia, Italy-17-19 September 2013;
- Durum Science Workshop organizer @Durum days. Scientific workshop within the Durum Days, national event of the Foggia wheat-pasta supply chain, 05.17.2018;
- Participation as Chairman in the National Conference on Biodiversity 2021, Session: "Plant biodiversity - cereals", online mode, 07/09/2021;
- Member of the organizing committee of the 12th AISTEC Conference - Cereals and Science: resilience, sustainability and innovation, Naples Portici, 15-17/06/2022;
- Co-organizer of the scientific workshop within the Durum Days, national event of the Foggia wheat-pasta supply chain, 05.17.2023;
- Member of the scientific committee of the SOI Technical Days Digital sensors and agromotics in horticulture and horticulture (CREA Pontecagnano 4-5 October 2023).

16. Network of scientific relations built through the career

During my professional life, I acquired the conviction that collaboration with other researchers is an important tool for the development of knowledge, and for its faster growth. This is demonstrated by the numerous works published in teams with national and foreign groups, by the participation to international projects, by the commitment in international initiatives. Moreover, by the visits to foreign institutions, and by the hospitality granted to young students, PhD students and colleagues, both Italian and from other countries. During the university period I also learned the rules and the necessary behaviors of university assembly democracy, first in the faculty council, and later in the department, always acting as a builder and as a proponent with the utmost transparency and intellectual honesty, both in conditions of majority and minority, earning the respect of colleagues necessary to be appointed acting director of the department, the only case in the university for an associate professor. A non-negligible element, I treated both the technical and administrative level staff of the University with the utmost respect, always managing to interact positively and receive their collaboration.

Roles in International scientific initiatives

- Delegate for the Istituto Sperimentale per la Cerealicoltura within the international consortium ITEC (International Triticeae EST Cooperative) for cooperative sequencing of barley EST (Expressed Sequence Tags) clones (commitment: 960) (1998-2000);

- Co-chair, together with Dr. Kerstin Neumann (IPK Gatersleben, Germany), of the Expert Working Group (EWG) Wheat Phenotyping for Wheat Improvement, of the Wheat Initiative, an international organization that defines strategic research priorities in wheat (www.wheatinitiative.org/), as of September 2022.

Periods abroad and visits

- In October 1991 I did a one-week "internship" at the Max-Planck-Institut für Züchtungsforschung (Cologne-Germany) to learn the RFLP method, under the supervision of Dr. Christiane Gebhardt;
- In December 1992 I was invited to visit the RISO Laboratory of Roskilde (Denmark), hosted by Dr. Soren K. Rasmussen;
- In October 1994 I did a one-week "internship" at the Max-Planck-Institut für Züchtungsforschung (Cologne-Germany) to learn the AFLP method, under the supervision of dr. Manfred Heun;
- Visiting scientist in Prague Ruzyne (Czech Republic) at the RICP Research Institute of Crop Production in the week of 24-28 March 1998, guest dr. J. Ovesna, within the framework of the Italy/Czech Republic Scientific and Technological Cooperation protocol of the MAE. During the visit, he holds the seminar "Molecular markers of disease resistance genes in barley";
- Visiting scientist in Prague Ruzyne (Czech Republic) at the RICP Research Institute of Crop Production in the second half of May 1999, guests dr. J. Ovesna and dr. V. Sip, as part of the scientific and technological collaboration protocol between Italy and the Czech Republic;
- Visiting scientist at the Agricultural Research Institute of the Hungarian Academy of Sciences of Martonvasar (Hungary) in the week from 30 August to 3 September 1999, within the CNR/MTA scientific cooperation agreement, guest dr. Gabor Galiba.
- Visiting scientist at the Agricultural Research Institute of the Hungarian Academy of Sciences of Martonvasar (Hungary) in the week from 28 May to 2 June 2002, within the Italy/Hungary Scientific and Technological Cooperation Protocol of the MAE, guest dr. Gabor Galiba;
- Visiting Scientist at the University of Wageningen (NL), at the Plant Breeding Laboratory, guest of Prof. R.E. Niks, from 7 to 9 December 2004. He was invited by the University of Wageningen to hold the seminar: "QTLs and candidate genes for acclimatisation-related traits in the Nure x Tremois barley cross", held on 7 December 2004;
- Visit for the organization of mobility (OM) to the SOCRATES/ERASMUS partner University of Lleida (E) in order to organize a monitoring and evaluation meeting of the activities of organization of mobility together with the Spanish coordinator, Prof. I. Romagosa, May 21-24, 2005;
- Visiting scientist, from 12 to 16 November 2006, at the Departamento de Mejora Genetica of the IAS-CSIC of Cordoba (Spain), within the framework of the Italy-Spain Integrated Action "Resistance of wheat to abiotic stresses: influence of genome introgression of *Hordeum chilense* in the background of wheat", hosted by the Spanish coordinator, Dr. Sergio Gustavo Atienza Peñas;
- Within the European project MABDE a working period at the University of Lleida and the IAMZ of Zaragoza at the end of July 2006 to carry out mapping analyzes and QTL analysis, to the IAMZ of Zaragoza in December 2006 for the statistical analysis of field data, at the University of Wageningen from 13-15 February 2007, and finally, once the project is completed, at the University of Lleida from 27 to 30 March 2007 to carry out further statistical analyzes and initial drafting of manuscripts;
- Visiting scientist at the Leibniz Institute of Plant Genetics and Crop Plant Research (IPK) Department Genebank, AbtG Genome Diversity (GED) of Gatersleben (Germany) in November 2006, hosted by the director of the Section, dr. Nils Stein. I was invited to keep the seminar "The 'Nure' x 'Tremois' model for discovering loci for environmental adaptation in barley".

17. Referee appointments

Peer-review activities for scientific journals

I have carried out revision activities for the following national journal:
Forest@ - Rivista di Selvicoltura ed Ecologia Forestale

I have carried out revision activities for several international journals, as follows:
Advances in Horticultural Science; Annales Botanici Fennici; Australian Journal of Agricultural Research (today Crop & Pasture Science); Australian Journal of Experimental Agriculture; Biologia Plantarum; BMC Genetics; BMC Genomics; BMC Plant Biology; Cereal Research Communications; Crop Science; Euphytica; European

Journal of Plant Pathology; Frontiers in Plant Science; Functional and Integrative Genomics; Heredity; HortScience; Journal of Crop Science and Biotechnology; Journal of Experimental Botany; Journal of Genetics and Breeding; Journal of Plant Physiology; Molecular Breeding; Molecular Biotechnology; Plant and Soil; Plant Biology; Plant Biosystems; Plant Breeding; Plant Cell & Environment, Plant Molecular Biology Reporter; Plant Physiology and Biochemistry; Planta; PLOS One; Scientia Horticulturae; Seed Science and Technology; The Plant Genome; Theoretical and Applied Genetics; Turkish Journal of Agriculture and Forestry.

Peer-review activities for research projects

For 3 National funding agencies (national projects; from 2010 to 2024):

For 10 International funding agencies (International Projects; from 2006 to 2024)

18. Evaluation of scientific production of researchers

- Appointment of reviewer for the VQR (Valutazione della Qualità della Ricerca, Ministry for University and Research) 2011-2014;

- President of the examining commission for no. 14 positions of Senior Researcher II level, pursuant to art. 15, paragraph 5, of the CCNL Institutions and Research and Experimentation Bodies of 7 April 2006, CNR (Consiglio Nazionale delle Ricerche) announcement n. 315. 6 PR – Senior II level researcher – Biology, Biotechnology and Bioresources strategic area, DP CNR prot. n.0061724 of 06.10.2020;

- Member of the examining commission for the permanent recruitment of a personnel unit with the profile of Head Technologist - 1st professional level - to be assigned to the Department of Bioagro-Food Sciences - Call no. 367.211 DT - Research Support Sector, DP CNR of 01.12.2020;

- Member of the Selection Committee for progression in the professional profile of Research Director - first level of CREA. DG Decree no. 694 of 11/26/2020

19. Evaluation of international PhD candidates

Reviewer of doctoral thesis for:

ACPGF - Australian Centre for Plant Functional Genomics, University of Adelaide, Australia (2009).

20. Evaluation of national PhD candidates

Reviewer of doctoral thesis for:

Università Cattolica Del Sacro Cuore Sede di Piacenza - Scuola di Dottorato per il Sistema Agro-alimentare (2011);

Università di Torino - Doctoral school in Complex Systems in Medicine and Life Sciences (2012);

Scuola Superiore Sant'Anna di Pisa - PhD in Agrobiosciences (2018 e 2019);

Università di Parma - Dottorato di ricerca in "Scienza e Tecnologia dei Materiali" (2021);

Università di Bologna - Dottorato Di Ricerca In Scienze E Tecnologie Agrarie, Ambientali E Alimentari (2022 and 2022 (two candidates)).

21. Track record and details

Author ID: 55887704500 <http://orcid.org/0000-0003-1704-2541>

H-index (Scopus): 37; Total citations (2013-2024): 5,041;

I am author of 244 scientific publications, divided into 228 articles in journals, and 16 book chapters. Of the articles in journals, 137 are indexed @ Scopus to 08 September 2024.

22. List of publications

Five (5) Selected Publications

1. Francia E., F. Rizza, L. Cattivelli, A. M. Stanca, G. Galiba, B. Tóth, P. M. Hayes, J. S. Skinner, N. Pecchioni (2004). Two loci on chromosome 5H determine low-temperature tolerance in a Nure (winter) × Tremois (spring) barley map. *Theor. Appl. Genet.* 108: 670–680

2. Comadran J, Kilian B., Russell J., Ramsay L., Stein N., Ganal M., Shaw P., Bayer M., Thomas W., Marshall D., Hedley P., Tondelli A., Pecchioni N., Francia E., Korzun V., Walther A. and Waugh R. (2012) Natural variation in a homolog of *Antirrhinum CENTRORADIALIS* contributed to spring growth habit and environmental adaptation in cultivated barley. *Nature Genetics* 44(12): 1388-1392
3. Maccaferri M.,.....*et al*..... N. Pecchioni,.....*et al*.....C.J. Pozniak and L. Cattivelli (2019). Durum wheat genome highlights past domestication signatures and future improvement targets. *Nature Genetics*, 1546-1718 - <https://doi.org/10.1038/s41588-019-0381-3>
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Book Chapters

The undersigned has published, from 1992 to date, 16 chapters of International and National Books

Conference Proceedings

The undersigned has published, from 1992 to present, more than **200** abstracts or extended abstracts / mini-works in conference proceedings, of which **53** as oral reports at national and international conferences, and **147** as posters

I hereby declare that information provided above is true and correct in accordance with Italian legislation at art. 46 and ss. of D.P.R. 445/2000.

Authorization to the treatment of personal data, according to the current Privacy laws (Decreto legislativo 10 agosto 2018, n. 101 che adegua il Codice in materia di protezione dei dati personali (Decreto legislativo 30 giugno 2003, n. 196) alle disposizioni del Regolamento (UE) 2016/679.

Foggia, September 8, 2024

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