



EXPANDING FRONTIERS IN CROP GENETICS

BOLOGNA, 10 - 13 SEPTEMBER, 2024

PROGRAMME

TUESDAY, SEPTEMBER 10

- 13:00 – 14:30** **Registration**
- 14:30 – 15:00** **Opening ceremony**
Chairpersons: Silvio Salvi, Roberto Tuberosa, Nicola Pecchioni
Welcome address by Institutional and Local Authorities
- 15:00 – 17:00** **Session 1 – Single cell -omics, innovative interactomics and beyond**
Chairpersons: Riccardo Aiese Cigliano, Giorgia Batelli
- 15:00 – 15:30** **Invited Lecture**
Stefania Giacomello - KTH Royal Institute of Technology (SE)
A journey in plant spatial transcriptomics and beyond
- 15:30 – 15:45** *Laezza C., D'Amelia V., Kang M., Caputi L., O'Connor S.E., Rigano M.M.*
Unveiling hidden diversity: single-cell multi-omics reveals heterogeneous metabolite production in Annurca callus cultures
- 15:45 – 16:00** *Busatto N., Populin F., Vittani L., Zanella A., Stefan S., Komhenko I., Masuero D., Vrhovsek U., Costa F.*
Transcriptome and metabolic analysis reveal the impact of static and dynamic low oxygen regimes on postharvest storage of 'Granny Smith' apples
- 16:00 – 16:15** *Riccucci E., Mbebi A., Razaghi-Moghadam Z., Tong H., Caproni L., Royles J., Burnett A., Aguilera M. M. P., Kromdijk J., Dell'Acqua M., Nikoloski Z.*
Reconstructing the maize leaf Regulatory Network from eQTL mapping associations

- 16:15 – 16:30 *Magnanimi F., Testone G., Sobolev A., Scioli G., Pin L., Aturki Z., Pajoro A., Serino G., Giannino D.*
Lavender essential oil treatment can delay anthesis in *Brassicaceae* plants by targeting hormone and primary metabolism gene networks
- 16:30 – 16:45 *Cappetta E., Del Regno C., Ceccacci S., Monti M.C., Conte M., D'Anna C., Alfieri M., Vietri M., Costa A., Leone A., Ambrosone A.*
Unveiling adaptive molecular mechanisms through comparative proteomics of potato cell responses to acute or stepwise water deficit
- 16:45 – 17:00 *Martini D., Painsi M., Limongi A.R., Angheben L., Esposito A., Delledonne M.*
Highly contiguous *de novo* assembly of plant genomes with Nanopore sequencing
- 17:15 – 17:45 Keynote talk**
Edward Buckler - Cornell University (USA)
From climate change to AI: Improving agriculture by learning from global biological diversity
- 17:45 – 19:30 Poster viewing**
- 19:30 – 20:45 Welcome cocktail**
offered by CORTEVA AGRISCIENCE ITALIA SRL

WEDNESDAY, SEPTEMBER 11

- 09:00 – 10:45 Session 2 – Plant developmental genetics to improve our crops**
Chairpersons: Vittoria Brambilla, Lucio Conti
- 09:00 – 09:30 **Invited Lecture**
Keisuke Nagai - Nagoya University (JP)
Elucidation of the flooding tolerance mechanism through internode elongation in rice
- 09:30 – 09:45 *Bono G.A., Giaume F., Mineri L., Betti C., Brambilla V., Fornara F.*
Exploring the function of rice florigenic proteins during inflorescence development
- 09:45 – 10:00 *Castorina G., Domergue F., Consonni G.*
Genetically regulated cuticle composition affects the permeability of juvenile leaves and prevents seedling water loss in maize
- 10:00 – 10:15 *D'Attilia C., Camerlengo F., Frittelli A., Palombieri S., Fratini C., Masci S., Sestili F.*
Modulating grain size of durum wheat (*Triticum durum* spp.) via TON1B overexpression

- 10:15 – 10:30 *Tassinari A., Forestan C., Urbany C., Li K., Giuliani S., Sangiorgi G., Presterl T., Ouzunova M., Landi P., Tuberosa R., Salvi S.*
Fine mapping and positional cloning of a major root system architecture QTL in maize
- 10:30 – 10:45 *De Vivo M., Bertolotti G., Damato P., Scintu D., Novak O., Amati S., Dello Ioio R.*
Identification of a tight link between root anatomy and compact soil penetration
- 10:45 SOCIETA' PRODUTTORI SEMENTI Short Presentation**
- 11:00 – 11:30 Coffee break and poster viewing**
- 11:30 – 13:15 Session 3 – Understanding and improving nutrition and health-related traits of crops**
Chairpersons: Stefania Masci, Angelo Santino
- 11:30 – 12:00 **Invited Lecture**
Fred Brouns - Maastricht University (NL)
Nutrition and health-related traits of crops: is developing "safe and healthy wheat for all" an opportunity or utopia?
- 12:00 – 12:15 *Orasen G., Mica E., Lucchini G., Negrini N., Nocito F.F., Baldoni E., Tondelli A., Sacchi G.A., Valè G.*
A genome-wide association study of the grain iron trait in rice *Oryza sativa* subsp. *japonica* under two diverse water management systems
- 12:15 – 12:30 *Toccaceli M., Marinelli A., Ballabio F., Bassolino L., Pacifico D., Parisi B., Nicoletti F., Lo Scalzo R., Camilloni C., Mandolino G., Petroni K.*
Upland pigmented potatoes as valuable functional foods with anti-inflammatory properties: an insight into bioactive compounds interaction
- 12:30 – 12:45 *Warren F.*
Manipulating carbohydrate biosynthesis in crops: targeting the gut microbiome
- 12:45 – 13:00 *Frittelli A., Palombieri S., Quagliata G., Masci S., Botticella E., Astolfi S., De Vita P., Volpato M., Sestili F.*
Development and characterization of durum wheat *lpa* mutants by modulating the accumulation of phytic acid
- 13:00 – 13:15 *Nigro D., Sgaramella N., Pasqualone A., Signorile M.A., Laddomada B., Sonnante G., Blanco E., Simeone R., Blanco A.*
Genetics of flavonoid content in pigmented durum wheat grains
- 13:30 – 15:00 Lunch break**

- 15:00 – 17:15** **Session 4 – Coping with environmental challenges: from genetics to phenomics**
Chairpersons: Pasquale Tripodi, Michela Janni
- 15:00 – 15:30 **Invited Lecture**
Fabio Fiorani - Forschungszentrum Jülich GmbH (DE)
 Phenotyping applications for shoot and root traits
- 15:30 – 15:45 *Dimattia B.G., Righi A., Bettuzzi M., Koestel J., Morigi M.P., Salvi S., Hernandez Soriano M.C., Bittelli M.*
 Use of X-Ray tomography to investigate the impact of wheat cultivars on soil morphology
- 15:45 – 16:00 *Sillo F., Salon C., Montesano V., Summerer S., Petrozza A., Conte A., Bergese F., Jeudy C., Balestrini R.*
 Root phenotyping in different bread wheat genotypes provides a tool to assess phosphorus-deficiency tolerance
- 16:00 – 16:15 *Graci S., Aiese Cigliano R., Francesca S., Rigano M.M., Barone A.*
 Identification of candidate genes for the heat stress response of a thermotolerant tomato genotype
- 16:15 – 16:30 *Capasso G., Ruggiero A., Cirillo V., Esposito S., Esposito Se., Grillo S., Batelli G.*
 Enzymatic modifications and stress memory in tomato: focus on the ROS scavenging machinery in a recurrent drought stress experiment
- 16:30 – 16:45 *Ricci D., Fabene E., Lobato Gómez M., Presa S., Al-Babili S., Granell A., Rodriguez P.L., Locato V., De Gara L., Demurtas O., Diretto G.*
 Physiological effects of β -apo-11-carotenal and Zaxinone apocarotenoids in *Solanum lycopersicum*
- 16:45 – 17:00 *Castellacci M., Usai G., Vangelisti A., Simoni S., Natali L., Cavallini A., Mascagni F., Küden A., López-Corrales M., Domínguez G., Baraket G., Giordani T.*
 Exploiting the genetic diversity of the fig tree to discover molecular markers associated to morphological and abiotic stress-related traits
- 17:00 – 17:15 *Franguelli N., Cavalli D., Notario T., Pecetti L., Crosta M., Annicchiarico P.*
 Assessing frost tolerance in white lupin and pea: a methodological study to implement a high-throughput phenotypic platform
- 17:15** **KWS Short Presentation**
- 17:30 – 18:10** **Fruit tree genomics and breeding - Invited minisession**
Dedicated to Claudio Moser
Chairpersons: Laura Rossini, Stefano Tartarini
- 17:30 – 17:50 *Giulia Malacarne – Fondazione Edmund Mach (IT)*
 Gene functional studies and gene editing at work to improve the sustainability of viticulture

- 17:50 – 18:10 *Maria J. Aranzana* – CRAG-IRTA (ES)
The use of genetic diversity, genomics and AI models for apple breeding
- 18:15 – 18:45 Coffee break and poster viewing**
- 18:45 – 20:00 SIGA General Assembly**

THURSDAY, SEPTEMBER 12

- 09:00 – 10:30** **Session 5 – Plant genetics strategies against biotic challenges for agroinnovations**
Chairpersons: Clizia Villano, Luca Nerva
- 09:00 – 09:30** **Invited Lecture**
Sebastian Schornack - Cambridge University (UK)
Exploiting conserved development regulators to achieve oomycete pathogen resistance in monocots and dicots
- 09:30 – 09:45** *Negrini F., Sunico V., Higuera J.J., Sabbadini S., Mezzetti B., Caballero J.L., Baraldi E., Karas M.*
Suitability of the *Md-MYB10* reporter gene to generate intragenic strawberry varieties resistant to fungal pathogens
- 09:45 – 10:00** *D'Amelia V., Villano C., Piccinelli A.L., Docimo T., Esposito S., Ruocco M., Monti M.M., Staiti A., Aversano R., Carputo D.*
Guardians of resilience: Anthocyanins impact on potatoes against *Rhizoctonia solani*
- 10:00 – 10:15** *de Sario F., Benbernou R., Ntakirutimana F., Lapalu N., GIE Blé Dur, Ammar K., Mazzucotelli E., Prodi A., Novi B.J., Confortini A., Desiderio F., Bozzoli M., Stefanelli S., Tuberosa R., Suffert F., Maccaferri M., Marcel T.C.*
Genetics and genomics of the wheat-Zymoseptoria tritici pathosystem: novel resistance gene loci in wheat and insights from pathogenicity factors
- 10:15 – 10:30** *Magris G., Zelasco S., Salimonti A., Forgiione I., Sirangelo T.M., Carbonell Bejerano P., Weigel D., Bagnaresi P., Di Gaspero G., Scalabrin S., Scaglione D., Usai G., Mascagni F., Natali L., Cavallini A., Marchese A., Marra F.P., Mulas M., Medda S., Muleo R., Baldoni L., Perri E., Cattivelli L., Carbone F., Morgante M.*
Olive genome analysis for understanding genetic and genomic variation linked to disease and other important agronomic traits
- 10:45 – 11:45** **Coffee break and poster viewing**
- 11:45** **APSOVSEMENTI Short Presentation**
- 11:45 – 12:45** **Session 5 – (cont.)**
- 11:45 – 12:00** *Bevilacqua I., Moffa L., Narduzzo A., Varotto S., Perrone I., Gambino G., Pagliarani C., Balestrini R., Chitarra W., Nerva L.*
Exploring the impact of NPR3 gene silencing on grapevine defense responses and arbuscular mycorrhizal symbiosis establishment
- 12:00 – 12:15** *Zenoni S., Fasoli M., Bertini E., D'Inca E., Zattoni S., Cattaneo L., Lissandrini S., Ciffolillo C., Polverari A., Tornielli G.B.*
DNA-Free genome editing confers disease resistance in grapevine
- 12:15 – 12:30** *Arcieri F., Giudice G., Haider I., Delvento C., Guerriero M., Schilder M., Giancaspro A., Bouwmeester H., Lotti C., Ricciardi L., Pavan S.*

- Resistance mechanisms to *Orobanche crenata* in pea (*Pisum sativum* L.): beyond strigolactones
- 12:30 – 12:45 *Milani A., Di Vita N., Ottaviani F., Moffa L., Nerva L., Chitarra W., Scarabel L., Varotto S., Panozzo S.*
- Herbicidal dsRNA discovery by using virus-induced gene silencing (VIGS) in weeds
- 13:00 – 14:30 Lunch break**
- 14:30 – 16:15 Session 6 – Breeders' toolbox for plant improvement**
organized by Next Generation SIGA
Chairpersons: Chiara Delvento, Antonio Lippolis
- 14:30 – 15:00 **Invited Lecture**
Julia Engelhorn - Max Planck Institute for Plant Breeding Research (DE)
- Towards a cis-code: Identification of functional cis-regulatory variants at unprecedented scale
- 15:00 – 15:15 *Ciacciulli A., Augugliaro M., Licciardello C.*
- A PCR-based pipeline for integrating molecular tools into marker-free constructs
- 15:15 – 15:30 *Puglisi D., Afshari-Behbahanizadeh S., Angione G., Colella I., Fania F., Spadanuda P., Esposito S., De Vita P.*
- Allelic combinations of *Vrn*, *Ppd* and *Rht* genes improve genome-enabled prediction models in durum wheat
- 15:30 – 15:45 *Farooq M.A., Zeng X., Forestan C., Bruschi M., Bozzoli M., Makhoul M., Snowden R.J., Ober E., Pinto F., Reynolds M., Salvi S., Maccaferri M., Tuberosa R.*
- Dissecting the tetraploid wheat root growth angle QTLome: A key component of drought stress resilience
- 15:45 – 16:00 *Toppino L., Gattolin S., Molesini B., Tassone M.R., Castelli A., Pennisi F., Azzimonti M.T., Pandolfini T., Rotino G.L.*
- Inactivation of smelAUCSIA genes through CRISPR/Cas9 induces parthenocarpy in eggplant
- 16:00 – 16:15 *Lippolis A., Dechesne A., Laurice P., Trindade L.M.*
- High-throughput seed quality analysis in faba bean: leveraging Near-Infrared Spectroscopy (NIRS) data and statistical methods
- 16:15 CORTEVA AGRISCIENCE ITALIA SRL Short Presentation**
- 16:20 – 17:00 Coffee break and poster viewing**
- 17:00 – 19:00 Workshop – Social Impact of plant biotechnologies: challenges and opportunities**
Chairpersons: Domenica Nigro, Nicola Pecchioni
- 17:00 – 17:30 *Agnès Ricroch - Paris-Saclay University (FR)*
- Agricultural applications of new genomic techniques and their international regulations
- 17:30 – 18:00 *Inez Hortense Slamet - IRRI (FR)*
 Title to be defined

18:00 – 19:00 **Round table "Impatto sociale delle biotecnologie vegetali: sfide e opportunità"**
Discussant: Anna Meldolesi

Participants

Amedeo Alpi - Accademia dei Georgofili

Vittoria Brambilla - Università degli Studi di Milano

Sen. Luca De Carlo

Silvia Giuliani - Assosementi

Nicola Lucifero - Università degli Studi di Firenze

20:30 **Social Event** (*The Sidney Hotel*)

FRIDAY, SEPTEMBER 13

- 09:30 – 10:15** **SIGA Young Researcher Award 2024**
Dedicated to Alessandro Bozzini, Luigi Monti, Mirella Sari Gorla
Chairpersons: Silvio Salvi, Daniele Rosellini
- Gomez-Alvarez E.M.*
The inability of barley to germinate after submergence depends on hypoxia-induced secondary dormancy
- Del Regno C.*
An integrated multilevel approach unveils complex seed–nanoparticle interactions and their implications for seed priming
- Giaume F.*
Two florigens and a florigen-like protein form a triple regulatory module at the shoot apical meristem to promote reproductive transitions in rice
- Award ceremony*
- 10:15 – 12:15** **Session 7 – Getting to the field: plant genetics for the seed and nursery sector**
Chairpersons: Silvia Giuliani, Roberto Tuberosa
- 10:15 – 10:45 **Invited Lecture**
Dirk Inzè - Ghent University (BE)
Multiplex gene editing for tackling complex traits in crops
- 10:45 – 11:00 *Balconi C., Galaretto A., Malvar R.A., Nicolas S.D., Redaelli R., Andjelkovic V., Revilla P., Bauland C., Gouesnard B., Butron A., Torri A., Barata A.M., Kravic N., Mendes-Moreira P., Murariu D., Šarčević H., Schierscher-Viret B., Vincent M., Zanetto A., Kessel B., Madur D., Mary-Huard T., Pereira A., Placinta D.D., Strigens A., Charcosset A., Goritschnig S.*
European public-private partnership exploring maize diversity to identify promising genetic resources for pre-breeding
- 11:00 – 11:15 *Maccaferri M., Mazzucotelli E., Forestan C., Bozzoli M., Muhammad Awais F., Desiderio F., Mastrangelo A. M., Marone D., Gadaleta A., Viola P., Invernizzi C., Goudemand E., Devaux P., Pirona R., Ceriotti A., Curci P.L., Sonnante G., Masci S., Sestili F., Morgante M., Giuliano G., Fengler K., Llaca V., Zastrow-Eyes G., Ammar K., Faris J., Xu S., Varshney R., Walkowiak S., Chawla H.S., Sharpe P., Silvestri M., Spannagl M., Hall A., Bassi F.M., Pozniak C., Cattivelli L., Salvi S., Tuberosa R.*
The collaborative genomics tools developed by the Durum Wheat community: from the Platinum-Quality Svevo RefSeq v2.0 to the Global Durum Genomic Resource and the tetraploid wheat pangenome pyramid

- 11:15 – 11:30 *Faccini N., Baronchelli M., Tagliaferri I., Reggiani F., Corvi C., Pagani D., Alberici R., Povesi A., Fricano A., Gianinetti A., Cattivelli L., Tondelli A.*
Public-private partnerships to support the Italian small grain cereal sector
- 11:30 – 11:45 *Metelli G., Bonarrigo M., Blasi E., Marucci A., Sestili F., Masci S.*
Traceability in the Italian pasta supply chain via SNPs analysis: high-throughput SNP-based approach for the traceability in the Italian pasta supply chain
- 11:45 – 12:00 *Martina M., Gianoglio N., Barchi L., Gaccione L., Milanesi C., Acquadro A., Portis E.*
Pepper breeding: Genomic profiling of MAGIC parental lines through public-private partnerships
- 12:00 – 12:15 *Belcapo S., Rethoré E., Desiderio F., Guerra D., Nguema-Ona E., Ezquer I.*
Uncovering seed biology traits of new hybrids of interest in wheat
- 12:15 – 12:30** **Closing ceremony**
Chairpersons: Silvio Salvi, Stefania Masci