68th ANNUAL CONGRESS
ITALIAN SOCIETY OF AGRICULTURAL GENETICS

Viterbo, 9-12 September 2025

Leveraging genetic innovation for future-proofing crops

From conventional breeding to multi-omics and AI in sustainable agriculture

PROGRAMME

TUESDAY, SEPTEMBER 9

12:00 – 14:00 **Registration**

14:00 – 14:30 **Opening ceremony**
Chairpersons: Silvio Salvi, Stefania Masci, Giovanna Frugis

Welcome address by institutional and local Authorities

14:30 – 16:45 **Session 1 - Pan-genomics and multi-omics: applications in plant breeding**
Chairpersons: *Riccardo Aiese Cigliano, Giorgia Batelli*

14:30 – 15:00 **Invited Lecture**
Martin Mascher - IPK Gatersleben (DE)

Barley crop evolution through the lens of pangenomics

15:00 – 15:15 *Popoli A., Colozza D., d'Atti D., Faino L., Pajoro A.*

A long-read genome assembly and multi-omics analysis to accelerate breeding in wild rocket (*Diplotaxis tenuifolia*)

15:15 – 15:30 *Negussu M., Ventimiglia M., Vieri W., Buti M., Giosa D., Trifilò P., Nocentini M., Soares C., Fidalgo F., Karalija E., Meoni G., Turano P., Pollastri S., Loreto F., Martinelli F.*

Balancing growth and resilience: a multi-omics study of chickpea's intergenerational adaptive strategies under drought stress

15:30 – 15:45 *Farinon B., Olivieri F., Picarella M.E., Aprea G., Ferrante P., Giuliano G., Mazzucato A.*

Integrated BSA-seq, RNA-seq, and GWAS analyses to identify candidate genes associated with the stigma position trait in cultivated tomato

15:45 – 16:00 *Chiatti V., De Carolis C., De Luca V., Fabriani M., Gentile D., Iannelli M.A., Iori V., Di Milia A., Marano V., Mosconi P., Dimitrakopoulou S., Desplanches C., Fain V.V., Guilloteau Fonteny E., Mulder S., Suidgeest F., De Kraker J.-W., De Boer G.-J., Sestili F., Frugis G.*

A multi-omic approach to enhance abiotic stress resilience in *Cichorium endivia*

16:00 – 16:15 *Mazzucotelli E., Llaca V., Fengler K., Charlotte H., Zastrow-Hayes G., Forestan C., Lev-Mirom Y., Swarbreck D., Gundlach H., Navratilova P., Šimková H., Faccioli P., Giorgioni M., Desiderio F., Valladares A.P., Bozzoli M., Gemy K., Lux T., Chawla H., Pirona R., Lauria M., Ceriotti A., Giuliano G., Gadaleta A., Krattinger S., Cavalet-Giorsa E., Pecchioni N., Mastrangelo A.M., Marone D., Eilam T., Oren L., Faris J., Xu S., Sanchez J.I., Stella A., Milanesi L., Lazzari B., Cozzi P., Tavakol E., Bassi F., Baum M., Distelfeld A., Chantret N., Girodolle J., Ranwez V., Provart N., Sen T., Eric Y., Masci S., Sestili F., Curci L., Sonnante G., Morgante M., Spannagl M., Hall A., Pozniak C., Maccaferri M., Tuberosa R., Cattivelli L.*

Svevo reference genome 2.0: a chromosome-level *de novo* assembly to support the durum wheat community

16:15 – 16:30 *Carballo J., Gallo C., Selva J.P., Zappacosta D., Echenique V., Albertini E., Caccamo M.*

Eragrostis curvula genome assembly unveils a single region involved in apomixis

16:30 – 16:45 General discussion

16:45 – 17:15 Coffee break and poster viewing

17:15 – 19:00 Session 2 - Advances in industrial crops genetics and breeding
Chairpersons: Roberta Paris, Pasquale Tripodi

17:15 – 17:45 **Invited Lecture**
Christian Jung - University of Kiel (DE)

Genome-wide association studies lead to identifying genes important for sugar beet domestication and breeding

17:45 – 18:00 *Bassolino L., Fulvio F., Righetti L., Terracciano I., Paris R.*

Unveiling metabolomic and biosynthetic profile of polyphenols in *Cannabis sativa* L.

18:00 – 18:15 *Biselli C., Fricano A., Carra A., Vietto L., Picco F., Rosso L., Carletti G., Jorge V., Teani A., Valentini F.M., Cattivelli L., Nervo G.*

New breeding tools for improving poplar resistance to Woolly Poplar Aphid

18:15 – 18:30 *Rossini L., Tavakol E., Shariati V., Hause B., Muehlbauer G., Ferrario C., Gregis V., Shaaf S., Biswas A., Janiak A., Yoneyama K., Brewer P.*

Barley tillering genes and hormonal pathways

18:30 – 18:45 *Testone G., Dougué Kentsop R.A., Giannino D., da Silva Linge C., Galasso I., Genga A., Delledonne A., Biffani S., Roda G., Frugis G., Mattana M.*

Effects of methyl jasmonate and chitosan nanoparticle treatments on field-grown hemp inflorescences: integrating transcriptomic and secondary metabolite insights

18:45 – 19:00 General discussion

19:15 – 20:30 Welcome cocktail - *Municipal Garden, Palazzo dei Priori - Piazza del Plebiscito 14, Viterbo*

WEDNESDAY, SEPTEMBER 10

09:00 – 11:00 Session 3 - Crop resilience to climate changes for food security
Chairpersons: Giovanna Frugis, Andrea Mazzucato

09:00 – 09:30 **Invited Lecture**
Sotiros Fragkostefanakis - Goethe University Frankfurt (DE)

The molecular toolkit for tomato heat resilience: key players shaping thermotolerance

09:30 – 09:45 *Gervasoni D., Baldoni E., Pirona R., Colanero S., Landoni B., Martignago D., Castorina G., Gallo G., Conti L., Galbiati M.*

Beyond guard cells: *SlMYB60* editing reveals a broader role in epidermal regulation and cuticle permeability in tomato

09:45 – 10:00 *Giannelli G., Luche S., Righetti L., Galaverna G., Bonini P., Gazza L., Visioli G.*

At the root of perennialism: how the perennial line OK72 shows a shift of specialized metabolome toward wheatgrass species

10:00 – 10:15 *Lezzi A., Stagnati L., Caproni L., Dell'Acqua M., Busconi M., Lanubile A., Marocco A.*

Unlocking local adaptation: harnessing the genetic diversity of Italian traditional maize landraces through landscape genomics

10:15 – 10:30 *Xi X., Colombo M., Carletti G., Puglisi D., Casas A., Igartua E., Contreras-Moreira E., Cattivelli L., Fricano A.*

Single primer enrichment technology and whole genome resequencing elucidate the molecular basis of regional adaptation of barley in the Mediterranean

10:30 – 10:45 *Bellon O., Previtali P., Green E., Fasoli M., Shackel K., Cousins P., Zenoni S., Dokoozlian N.*

Hormone metabolism regulates fruit maturation in a slow ripening grape genotype

10:45 – 11:00 *Mukamanasasira G., Okando T., Macharia M., Runo S., Maina F., Lasky J., Fadda C., Gebrehawaryat Y., Caproni L., Pè M.E., Dell'Acqua M.*

Resilient roots: harnessing landrace diversity for climate-smart sorghum in East Africa

11:00 – 11:30 Coffee break and poster viewing

11:30 – 13:00 **Session 3 -** *cont.*

11:30 – 11:45 *Goretti D., Bocchio M., Givonetti A., Bazzano C., Vitiello G., Bona E., Cavaletto M., Pagliano C., Mica E., Valè G.*

Toward climate-resilient rice: identifying genotypes tolerant to drought and salinity

11:45 – 12:00 *Sangiorgi G., Forestan C., Camerlengo F., Sciara G., Bozzoli M., Fricano A., Tondelli A., Fusi R., Bhosale R., Tuberosa R., Salvi S.*

Genetic dissection of root traits in barley (*Hordeum vulgare* L.) identifies major QTLs and domestication signature

12:00 – 12:15 *Branchi A., Crosatti C., Mica E., Colombo M., Gazzetti K., Guerra D., Faccioli P., Lo Piero A.R., Radchuk V., Gallavotti A., Galli M., Dockter C., Cattivelli L., Battaglia R.*

Fine tuning of the HvGRF4 expression improves seed size in barley

12:15 – 12:30 *Bertagnon G., Mineri L., Mirone F., Bono G.A., Fornara F., Brambilla V.*

EMS mutagenesis and MutMap to identify new alleles for resilient crops breeding

12:30 – 12:45 *Olivieri F., Farinon B., Mancini L., Mazzucato A.*

Heat tolerance in seeds: a multi-omic approach revealed putative regions controlling germination under high temperature conditions in tomato

12:45 – 13:00 General discussion

13:00 – 14:30 **Lunch break**

14:00 – 14:15 **Affixing of the philatelic cancellation on the Congress postcard featuring the Strampelli commemorative stamp**

14:30 – 16:30 **Session 4 – *Next Generation SIGA Session***
Innovative tools in plant genetics: Exploring the future of phenotyping and data analysis in the AI era
Chairpersons: Maria Dellino, Damiano Puglisi

14:30 – 15:00 **Invited Lecture**
Tom Theeuwen - Jan IngenHousz Institute (NL)

From photosynthesis to biomass: using natural genetic variation to identify photosynthetic limitations in field grown crops

15:00 – 15:15 *Graci S., Moshelion M., Francesca S., Rigano M.M., Barone A.*

Precision phenotyping and genomic insight for drought-tolerance screening in tomato

15:15 – 15:30 *Bertoncini A., Pasquariello M., Palma D., Cattivelli L., Tondelli A., Guerra D.*

From pixel to stomata: leveraging AI for high resolution analysis of stomatal traits in a worldwide barley collection

15:30 – 15:45 *Vieri W., F. Grinberg N., I. Orhobor O., Belocchi A., Buti M., Paffetti D.*

Uncovering genetic drivers of yield and protein content in durum wheat (*Triticum durum* Desf.) using machine learning and GWAS approaches

15:45 – 16:00 *Sechi M., Kiros A.Y., Caffi A., Marziali R., Cominelli E., Consonni G., Galbiati M., Porcedda R., Vandin A., Caproni L., Castorina G., Dell'Acqua M.*

Uncovering the genetic determinants of drought tolerance in the MAGIC maize population through high-throughput phenotyping of cuticular permeability and AI-driven analysis of stomatal traits

16:00 – 16:15 *Gipli V., Stich B., Rossini L.*

Tailoring a genomic selection model to predict culm morphology traits in two-row and six-row barley under different marker densities

16:15 – 16:30 General discussion

16:30 – 17:00 Coffee break and poster viewing

17:00 – 19:30 SIGA General Assembly

THURSDAY, SEPTEMBER 11

09:00 – 11:00 Session 5 – New avenues for new cultivars
Chairpersons: Vittoria Brambilla, Silvia Giuliani

09:00 – 09:30 **Invited Lecture**
Sebastian Soyk - University of Lausanne (CH)

Dissecting genetic interactions with impact on flower formation in tomato

09:30 – 09:45 *Guerriero M., Arcieri F., Delvento C., Giudice G., Cannarella M.S., Mimiola G., Cavallo G., Ricciardi L., Lotti C., Pavan S.*

Whole-genome sequencing and phenotyping of neglected and underutilized vegetable melons from the Salento diversity centre (Southern Italy)

09:45 – 10:00 *Ferrero M., Paladini F., Martina M., Valentino D., Milani A.M., Lanteri S., Portis E., Comino C., Acquadro A., Moglia A.*

Downy mildew resistance 6 (*DMR6*) knockout and multi-stress resilience in eggplant

10:00 – 10:15 *Rossi R., Da Silva Linge C., Gipli V., Friel J., Shaaf S., Maurer A., Pillen K., Tamm Ü., Daszkowska-Golec A., Gajecka M., Tondelli A., Cattivelli L., Rossini L.*

Dissection of culm morphology traits in two barley double haploid populations grown in different locations

10:15 – 10:30 *Mirone F., Rossoni A., Mineri L., Vicentini G., Kunova A., Martinotti M., Huang Y.-S., Langner T., Fornara F., Brambilla V.F.*

Marker-assisted selection and CRISPR–Cas9 approaches for durable blast resistance in Italian rice

10:30 – 10:45 *Viola P., Faccini N., Tondelli A., Cattivelli L., Invernizzi C.*

APSOV-CREA-GB: an example of public-private partnership to support small grain cereal sector

10:45 – 11:00 General discussion

11:00 – 11:30 Coffee break and poster viewing

11:30 – 13:15 **Session 6 - Genetic innovations in fruit trees**
Chairpersons: *Salvatore Esposito, Francesca Taranto*

11:30 – 12:00 **Invited Lecture**
Dario Cantu - University of California (USA)

Bridging the gap between grape genomics and viticulture innovation

12:00 – 12:15 *Salvagnin U., Pupi E., Di Gaspero G., Vezzulli S., Dalla Costa L., Giacomelli L.*

Transgene-free CRISPR-Cas and cisgenesis approaches for resistance to powdery and downy mildew in grapevine

12:15 – 12:30 *Garosi C., Paffetti D., Arcidiaco L., Ottanelli A., Vettori C.*

Identification of best local olive tree genotype resilient to drought

12:30 – 12:45 *Catalano C., Di Guardo M., Gusella G., Inzirillo I., Cannizzaro G., La Malfa S., Polizzi G., Gentile A., Distefano G.*

Genetic insights into almond tolerance to constriction canker through GWAS

12:45 – 13:00 *Fanelli V., Miazzi M., Procino S., Fruggiero C., Cafferati Beltrame L., Volpicella M., Mascio I., Susca L., Montilon V., Taranto F., D'Agostino N., Montemurro C.*

Investigating the olive response to *Xylella fastidiosa* infection through a transcriptomic approach

13:00 – 13:15 *Ordoñez Trejo E., Consiglio F., Termolino P., Palomba E., Iovene M., Aiese Cigliano R., Di Marsico M., Varotto S., Bonghi C.*

De novo genome comparison of a slow-ripening mutant and a commercial cultivar of *Prunus persica* uncovers a structural variant underlying fruit development and ripening

13:15 – 14:15 **Lunch break**

14:15 – 15:20 **Poster Session (even numbers)**

15:20 – 16:30 **Poster Session (odd numbers)**

16:30 – 17:00 **Coffee break and poster viewing**

17:00 – 19:00 **Workshop - Start-up in the fields: People bridging academia and industry**
Discussant: Luca Polizzano - LazioInnova

Participants:
Ratan Chopra – Covercress
Marco Di Marsico - Sequentia Biotech
Carmen Laezza - Immunoveg
Simona Masiero - Peptofarm
Davide Scaglione – IGA Technology Services
Davide Sosso - Heritable
Sara Zenoni - Edivite

20:30 **Social Event -** *Medieval Cloister, Monumental Complex of Santa Maria in Gradi - Via Santa Maria in Gradi 4, Viterbo*

FRIDAY, SEPTEMBER 12

09:30 – 10:15 SIGA Young Researcher Award 2025
Dedicated to Carlo Jucci
Chairpersons: Silvio Salvi, Daniele Rosellini

Pieri A.

Transcriptomic response to nitrogen availability reveals signatures of adaptive plasticity during tetraploid wheat domestication

Bozzoli M.

Dissecting the genetic basis of resistance to *Soil-borne cereal mosaic* virus (SBCMV) in durum wheat by bi-parental mapping and GWAS

Moffa L., Mannino G., Bevilacqua I.

CRISPR/Cas9-driven double modification of grapevine *MLO6-7* imparts powdery mildew resistance, while editing of NPR3 augments powdery and downy mildew tolerance

Award ceremony

10:15 – 12:45 Session 7 – Genome editing beyond single gene knockout
Chairpersons: Fabio D'Orso, Domenica Nigro

10:15 – 10:45 **Invited Lecture**
Caixia Gao - Chinese Academy of Sciences (CN)

Advancing crop improvement with Next-Generation CRISPR Technologies

10:45 – 11:00 *Ottaviani L., Lefeuvre R., Montes E., Widiez T., Giorni P., Mithöfer A., Marocco A., Lanubile A.*

The inactivation by CRISPR/Cas9 system of *ZmWRKY125* gene improves resistance to *Fusarium verticillioides* in maize

11:00 – 11:15 *Rogo U., Merwaiss F., Aragonés V., Fambrini M., Pugliesi C., Michelmore R., Daròs J.-A., Giordani T.*

Virus-Induced Gene Editing (VIGE): from model systems to crop applications (*Lactuca sativa* L.)

11:15 – 11:30 *Farinati S., Soria Garcia A.F., Draga S., Palumbo F., Vannozzi A., Barcaccia G.*

Targeting MYB80 in tomato: a DNA-free strategy for engineering male sterility

11:30 – 11:45 *D'Attilia C., Buffagni V., Hatyta S., Smedley M.A., Masci S., Palombieri S., Sestili F.*

Enhancing climate resilience in durum wheat via CRISPR/Cas9-mediated knockout of the brassinosteroid regulator IBH1

11:45 – 12:00 *Rossoni A., Mineri L., Mirone F., Bono G.A., Vicentini G., Fornara F., Brambilla V.F.*

Prime editing, editing of multiple cis-regulatory sequences and trait pyramiding to support rice breeding

12:00 – 12:15 *Zattoni S., Bertini E., D'Inca E., Lissandrini S., De Luca R., Perlati I., Cattaneo L., Fasoli M., Polverari A., Pezzotti M., Sena G., Zenoni S.*

Multiple DNA-free genome editing in grapevine

12:15 – 12:30 *Fabene E., Nava M., Sandri C., Ricci D., Cuccurullo A., Lobato-Gomez M., Wang J.Y., Nicolia A., Granell A., Al-Babili S., Santi L., Diretto G., Demurtas O*

Pathway discovery in apocarotenoid metabolism: focus on putative zaxinone synthase enzymes in tomato

12:30 – 12:45 General discussion

12:45 – 13:00 Closing ceremony
Chairpersons: Silvio Salvi, Stefania Masci