

INTERNATIONAL CONFERENCE ON FOOD AND NUTRITIONAL SECURITY (iFANS-2023)

&

5th INTERNATIONAL PLANT PHYSIOLOGY CONGRESS

&

44th ANNUAL MEETING OF PLANT TISSUE CULTURE ASSOCIATION (INDIA)
(JANUARY 6-9, 2023)

Technical Program



NABI



CIAB



ISPP



PTCA-I



ICGEB



NIPB

Venue:

National Agri-Food Biotechnology Institute (NABI)
Sector-81, Knowledge City, Mohali-140306, Punjab (INDIA)
www.nabi.res.in; Tel: +91-172-5221300 (O)

Conference website: <https://ifans.nabi.res.in/>

Email: icfans.2023@nabi.res.in



Day 0: January 5, 2023 (Thursday)**Inauguration of the 'National Genome Editing and Training Centre (NGETC)' and
'International Conference on Food and Nutritional Security-2023 (iFANS-2023)****NABI Auditorium**

15:15	Reception and arrival of Dr. Jitendra Singh, Hon'ble Minister of Science and Technology and Earth Sciences, Government of India
15:20	Inauguration of the "National Genome Editing and Training Centre (NGETC)"
15:35	Showcasing of the NGETC facility to the guests
16:00	Welcome Address by Prof. Ashwani Pareek, ED, NABI & CEO, CIAB
16:10	Address by Prof. Ramesh V. Sonti, Director, ICGEB, New Delhi, India
16:15	Address by Dr. Ajit K. Shasany, ICAR-NIPB, New Delhi, India
16:20	Address by Prof. Rajesh S. Gokhale, Secretary, Department of Biotechnology, Government of India
16:30	Address by Dr. Jitendra Singh, Hon'ble Minister of Science and Technology and Earth Sciences, Government of India and inauguration of 'International Conference on Food and Nutritional Security-2023 (iFANS-2023)'
17:00	ISPP Fellowship Awards by Dr. Jitendra Singh, Hon'ble Minister of Science and Technology and Earth Sciences, Government of India
17:10	Vote of thanks by Dr. Joy K. Roy, Scientist-F, NABI
17:15	National Anthem
17:20	Departure to the dinner venue (Hotel Radisson-RED, Mohali) (By Invitation only)

Day 1: January 6, 2023 (Friday)

08:00	Registration (NABI Reception)	
Welcome and Inaugural Scientific Session		
NABI Auditorium		
09:30-09:35	Welcome address by Ashwani Pareek , Executive Director, National Agri-Food Biotechnology Institute & Chief Executive Officer, Center of Innovative and Applied Bioprocessing India (Convener)	
09:35-09:40	About Indian Society for Plant Physiology, India by Mahadev B. Chetti , President, ISPP	
09:40-09:45	About Plant Tissue Culture Association-India by Pramod Tandon , Secretary, PTCA(I)	
09:45-09:55	Address by Rajesh S. Gokhale , Secretary, Department of Biotechnology, Government of India	
09:55-10:05	Address by Rajendra Singh Paroda , Former Director General, Indian Council of Agricultural Research & Secretary, Department of Agricultural Research and Education, Government of India	
10:05-10:15	Address by Lawrence Banks , Director General, International Centre for Genetic Engineering and Biotechnology, Italy	
10:15-10:55	Inaugural Plenary Lecture by Yunde Zhao , University of California San Diego, USA "Editing auxin genes to improve crop nutrition and production"	
10:55-11:00	Vote of Thanks by Joy K. Roy , National Agri-Food Biotechnology Institute, India (Organizing Secretary)	
HIGH TEA (11:05-12:00)		
Keynote Lectures		
Chair: Christine H. Foyer , University of Birmingham, UK Co-chair: P. V. Vara Prasad , Kansas State University, USA		
12:00-12:30	Rajendra S. Paroda , Former Director General, Indian Council of Agricultural Research & Secretary, Department of Agricultural Research and Education, Government of India "Ensuring our food and nutrition security"	
12:30-13:00	Michael Baum , Deputy Director General (Research), International Center for Agricultural Research in the Dry Areas, Morocco "Climate smart technologies in dry areas for the transformation of food and nutritional security"	
LUNCH BREAK (13:00-14:00)		
Session 1: Nutritional Science for Better Health		
Chair: Michael Baum , International Center for Agricultural Research in the Dry Areas, Morocco Co-chair: Ajit K. Shasany , ICAR-National Institute of Plant Biotechnology, India		
14:00-14:25	P. V. Vara Prasad , Kansas State University, USA "Sustainable agricultural intensification: Pathway for food and nutritional security"	
14:25-14:50	Graciela L. Lorca , University of Florida, USA "The role of dietary intake on probiotics efficacy in diabetes"	
14:50-15:15	Shoba Sivasankar , International Atomic Energy Agency, Austria "The role of induced genetic variation in crop improvement towards food and nutrition security- a global context"	
15:15-15:40	Theresa Fitzpatrick , University of Geneva, Switzerland "Considering B vitamin metabolism for food and nutritional security"	
TEA BREAK (15:40-16:10)		
Session 2: Genome Editing for Crop Improvement		Session 3: Plant Tissue Culture Association(India)
NABI Auditorium		NABI Seminar Hall
Chair: Yunde Zhao , University of California San Diego, USA Co-chair: Sneh Lata Singla-Pareek , International Centre for Genetic Engineering and Biotechnology, India		Chair: Pramod Tandon , Plant Tissue Culture Association-INDIA, India Co-chair: M. S. Sheshshayee , University of Agricultural Sciences, India
16:10-16:35	Nigel G. Halford , Rothamsted Research, UK	16:10-18:45: Plant Tissue Culture Association

	“Low asparagine, low acrylamide CRISPR wheat: Europe’s first field trial of gene edited wheat in the context of rapidly changing regulations”	(India) membership presentations (12 min. each) <ol style="list-style-type: none"> Arati Yadawad, K. J. Somaiya Institute of Applied Agriculture Research, India Arra Yugander, Heinrich Heine University, Germany Awadhesh K. Pal, Bihar Agricultural University, India Manoj Kumar, Central University of Jharkhand, India Ravi Maruthachalam, Indian Institute of Science Education and Research Thiruvananthapuram, India Ravindhran Ramalingam, Loyola College, India Rohini Garg, Shiv Nadar Institution of Eminence, India Santosh Kumar Gupta, National Institute of Plant Genome Research, India Siddharth Tiwari, National Agri-Food Biotechnology Institute, India Sowjanya Sree K, Central University of Kerala, India Suman Kumaria, North-Eastern Hill University, India Tapan K. Nailwal, Kumaun University, India
16:35-17:00	Viswanathan Chinnusamy , ICAR-Indian Agriculture Research Institute, India “Genome editing for enhancing stress tolerance and yield in rice”	
17:00-17:25	Sneh Lata Singla-Pareek , International Centre for Genetic Engineering and Biotechnology, India “Leveraging genome editing to design novel climate-smart rice genotypes”	
17:25-17:50	Amitabh Mohanty , Corteva Agriscience, USA “Genome Editing for Crop Improvement”	
17:50-18:15	Ramu S. Vemanna , Regional Centre for Biotechnology, India “Creating genetic variability and improving agronomic traits in rice by gene editing”	
18:15-18:40	Vibha Ahuja , Biotech Consortium India Limited, India “Genome editing in plants: Moving forward from lab to fields”	
Special Session: Meet the Editors-In-Chief Moderator: Mahendra Bishnoi , NABI, India		
NABI Auditorium		
18:40-19:10	Crispin Taylor , American Society of Plant Biologists, USA Yunde Zhao , University of California San Diego, USA Blake C. Meyers , Donald Danforth Plant Science Center, USA & University of Missouri, USA Christine H. Foyer , University of Birmingham, UK	
Session 4: Early Career Researcher Flash Talks		Special Session: Annual Meeting, Plant Tissue Culture Association (India) [Members only]
NABI Auditorium		CIAB Auditorium
Chair: Om Parkash Dhankher , University of Massachusetts, USA Co-chair: Vikas Rishi , National Agri-Food Biotechnology Institute, India		18:45 onward
19:10-20:00	5 min Flash talks by Young Scientists: Samriti Mankotia, Charanpreet Kaur, Deepika Singh, Barkha Ravi, Manjari Mishra, Ruchi Bansal, Pratima Debnath, Ashutosh Joshi, Barbara Karpinska, Anshul Watts	
20:00-21:00	Dinner	
21:00	Drop off to hotels & guest houses	

Day 2: January 7, 2023 (Saturday)

Keynote Lecture

NABI Auditorium

Chair: **Blake C. Meyers**, Donald Danforth Plant Science Center, USA & University of Missouri, USA

Co-chair: **Kailash C. Bansal**, Global Plant Council, India

09:30-10:00 **Rajeev K. Varshney**, Murdoch University, Australia
"Fast-forward breeding for food and nutrition security"

10:00-10:30 **Christine H. Foyer**, University of Birmingham, UK
"The impact of climate change on legumes"

TEA BREAK (10:30-11:00)

Session 5: Environmental Interaction: Physiology and Molecular Biology

NABI Auditorium

Chair: **David Edwards**, University of Western Australia, Australia
Co-chair: **Vered Tzin**, Ben-Gurion University of the Negev, Israel

11:00-11:25 **Sergey Shabala**, University of Tasmania, Australia
"Halophytes: an untapped resource to improve salinity stress tolerance in crops"

11:25-11:50 **Vittorio Venturi**, International Centre for Genetic Engineering and Biotechnology, Italy
"Communication among bacteria in the plant associated microbiome"

11:50-12:15 **Mohan Singh**, The University of Melbourne, Australia
"Towards Heat Stress Resilient Crops"

12:15-12:40 **Kashmir Singh**, Panjab University, India
"Decoding fungal resistance mechanism in grapes by exploring R gene, non-coding RNAs and pseudo R gene counterparts"

12:40-13:05 **N. Narayanan**, Donald Danforth Plant Science Center, USA
"Micronutrient biofortification of cassava and its impact on smallholder farmers in Africa"

Session 6: Breeding for Crop Improvement

NABI Seminar Hall

Chair: **Tilak R. Sharma**, Indian Council of Agricultural Research, India
Co-chair: **Monika Dalal**, ICAR-National Institute of Plant Biotechnology, India

Kadambot Siddique, University of Western Australia, Australia
"Diversifying crop rotations to enhance agroecosystem resilience"

Joy K Roy, National Agri-Food Biotechnology Institute, India
"Novel QTLs for high amylose starch (or healthy starch) in bread wheat (*Triticum aestivum* L.) using genome-wide SNPs"

Raman M. Sundaram, ICAR- Indian Institute of Rice Research, India
"Development of climate resilient rice varieties"

Parveen Chhuneja, Punjab Agriculture University, India
"Fast-tracking alien introgressions in wheat"

Naveen C. Bisht, National Institute of Plant Genome Research, India
"Targeted manipulation of glucosinolate transport in oilseed mustard for higher nutritional value and uncompromised defense response"

LUNCH BREAK (13:05-14:00)

Session 7: Biodiversity and Explorations

NABI Auditorium

Chair: **Prem L. Bhalla**, University of Melbourne, Australia
Co-chair: **Vishwanathan Chinnusamy**, ICAR-Indian Agriculture Research Institute, India

14:00-14:25 **Tilak R. Sharma**, Indian Council of Agricultural Research, India
"Search for new genes in the wild species and their utilization in rice improvement"

14:25-14:50 **Hisashi Tsujimoto**, Tottori University, Japan
"Food and nutrition security under climate crisis through genetic resource expansion"

14:50-15:15 **Vered Tzin**, Ben-Gurion University of the Negev, Israel

Session 8: Genetic Transformation for Crop Improvement

NABI Seminar Hall

Chair: **Kulvinder S. Gill**, Washington State University, USA
Co-chair: **Rakesh K. Singh**, International Center for Biosaline Agriculture, UAE

Subhash Minocha, University of New Hampshire, USA
"Living with High Putrescine: Metabolic Engineering of the Pathway of the Polyamine Pathway to Increase Carbon and Nitrogen Assimilation in Plants"

Subhra Chakraborty, National Institute of Plant Genome Research, India
"Decoding organeller control of multi-host resistance: Nuptials between multiomics and genetic engineering"

Ajay K. Pandey, National Agri-Food Biotechnology Institute, India

	"Exploring the defense mechanisms of wild wheat progenitors to improve protection against herbivores"	"Utilising functional genomics approach to identify key genes for iron enhancement in hexaploid wheat"
15:15-15:40	Dr. Rita Sharma , Birla Institute of Technology & Science-Pilani, India Title: "TBA"	Dhandapani Raju , ICAR-Indian Agriculture Research Institute, India "High throughput phenotyping of rice genotypes for improving nitrogen use efficiency"
TEA BREAK (15:40-16:10)		
Session 9: Memorial Award Lectures (ISPP)		Session 10: Poster Session-I (Poster Numbers - P-001to P-140)
NABI Seminar Hall		NABI
Chair: Prabodh Trivedi , CSIR - Central Institute of Medicinal and Aromatic Plants, India Co-chair: Koushik Mazumder , National Agri-Food Biotechnology Institute, India		Chair: Parveen Chhuneja , Punjab Agricultural University, India Co-chair: Monika Garg , National Agri-Food Biotechnology Institute, India
16:10-16:35	Prof. S. K. Sinha memorial award lecture Speaker: K.V. Prabhu , Protection of Plant Varieties and Farmers' Rights Authority, India TBA	"Venue: 2nd Floor, NABI"
16:35-17:00	Prof. G. V. Joshi memorial award lecture Speaker: Nataraja Karaba , University of Agricultural Sciences, Bangalore, India "Regulation of apical dominance and axillary bud growth in mulberry"	
17:00-17:25	Prof. K. K. Nanda memorial award lecture Speaker: Manoj Prasad , National Institute of Plant Genome Research, India "Heat shock proteins of foxtail millet (<i>Setaria italica</i>) for imparting climate resilient traits in cereals"	
18:30-20:00	Cultural Program (NABI Auditorium)	
20:00-21:00	Dinner	
21:00	Drop off to hotels & guest houses	

Day 3: January 8, 2023 (Sunday)

Keynote Lecture Session-III

NABI Auditorium

Chair: **Trilochan Mohapatra**, Indian Council of Agricultural Research, India

Co-chair: **Sanjay Kumar**, CSIR - Institute of Himalayan Bioresource Technology, India

09:30-10:00	David Edwards , University of Western Australia, Australia "Pangenomics for crop improvement"
10:00-10:30	Akhilesh K. Tyagi , University of Delhi South Campus, India "Analysis of rice gene function during development"
10:30-11:00	Sridevi Annapurna Singh , CSIR- Central Food Technological Research Institute, India "India's nutrition woes – Challenges and solutions for improving dietary protein quality"

TEA BREAK (11:00-11:30)

Session 11: Genomics, Epigenetics, and RNA Biology

NABI Auditorium

Chair: **Ralf Oelmüller**, Friedrich Schiller University Jena, Germany
Co-chair: **Ramu S. Vemanna**, Regional Center for Biotechnology, India

Session 12: Metabolic Network

NABI Seminar Hall

Chair: **Klaus Appenroth**, Friedrich Schiller University Jena, Germany
Co-Chair: **Shrikant S. Mantri**, National Agri-Food Biotechnology Institute, India

11:30-11:55	Prem L. Bhalla , University of Melbourne, Australia "Developing soybean for future climates"	11:30-11:55	Wolf B. Frommer , Heinrich Heine University, Germany "Can genome editing help address challenges of small-scale food producers?"
11:55-12:20	Prabodh Trivedi , CSIR - Central Institute of Medicinal and Aromatic Plants, India "Small molecules in regulatory network: bigger role in plant growth and development"	11:55-12:20	Fredy Altpeter , University of Florida, USA "Metabolic engineering and genome editing of sugarcane to fuel the emerging bioeconomy"
12:20-12:45	Supriya Chakraborty , Jawaharlal Nehru University, India "Geminiviral manipulation of plant epigenetic regulations"	12:20-12:45	Ajit Kumar Shasany , ICAR-National Institute for Plant Biotechnology, India "Pathway synteny and metabolite channelling towards better stress response"
12:45-13:10	R. Manimekalai , ICAR - Sugarcane Breeding Institute, India "Optimization of multiplex sgRNA/Cas9 cloning cassette for sugarcane"	12:45-13:10	Jagadis Gupta Kapuganti , National Institute of Plant Genome Research, India "Nitric oxide function and signaling under low oxygen stress in plants"

LUNCH BREAK (13:10-14:00)

Session 13: Food and Nutrition Security

NABI Auditorium

Chair: **Theresa Fitzpatrick**, University of Geneva, Switzerland
Co-chair: **Sasikumar Elumalai**, Center of Innovative & Applied Bioprocessing, India

Session 14: Physiology and Soil for Crop Improvement

NABI Seminar Hall

Chair: **Sudhir K. Sopory**, International Centre for Genetic Engineering and Biotechnology, India
Co-chair: **Ashwani Kumar**, University of Rajasthan, India

14:00-14:25	Kulvinder S. Gill , Washington State University, USA "Understanding the structure, expression, and evolution of the Ph1 gene of wheat for its utility in crop improvement"	14:00-14:25	Rakesh K Singh , International Center for Biosaline Agriculture, UAE "Crop diversification: Key to sustaining food and nutritional security for future especially in marginal environments"
14:25-14:50	Anil K. Singh , ICAR- National Institute for Plant Biotechnology, India "Universal stress proteins: Central player in abiotic stress response pathways"	14:25-14:50	M. S. Sheshshayee , University of Agricultural Sciences, India "Combining acquired tolerance mechanisms with constitutive traits is the most appropriate physiological breeding strategy to improve water productivity in rice"
14:50-15:15	Babu Valliyodan , Lincoln University, USA "Genomic strategies to improve water use efficiency traits in soybean towards food security"	14:50-15:15	Claudio F. Gonzalez , University of Florida, USA "Can unculturable phytopathogens trigger world famine? Lessons learned from citrus greening disease"
15:15-15:40	Mukesh Jain , Jawaharlal Nehru University, India	15:15-15:40	Lekshmy Sathee , ICAR-Indian Agricultural Research Institute, India

	"Multi-omics for divulging molecular signatures associated with seed size/weight for crop improvement"	"Analysis of nitrogen response associated regulatory network of coding and noncoding transcripts in rice and wheat"
TEA BREAK (15:40-16:10)		
Session 15: Omics and Plant Biology		Session 16: Indian Society for Plant Physiology
NABI Auditorium		NABI Seminar Hall
Chair: Jason White , The Connecticut Agricultural Experiment Station, USA Co-chair: Harsh Nayyar , Panjab University, India		Chair: Kadambot Siddique , UWA, Australia Co-chair: Madan Pal Singh , ICAR-Indian Agriculture Research Institute, India Session convenor: Dr. Rita Sharma , Birla Institute of Technology & Science-Pilani, India
16:10-16:35	Praveen Verma , Jawaharlal Nehru University, India "Fungal effector and host target: <i>Ascochyta rabiei</i> targets the chickpea transcription factor and negatively modulates lignin biosynthesis, increasing host susceptibility"	18:10-18:35: Ralf Oelmüller , Friedrich Schiller University Jena, Germany "Monitoring the rhizosphere via cellooligomers"
		16:10-18:10: Presentation by Young Scientist for ISPP awards (10) - ISPP-Prof. S. K. Sopory Young Scientist Award - ISPP-Prof. M. Udaykumar Young Scientist Award - ISPP-ASPB Young Scientist Award
16:35-17:00	Aruna Kilaru , East Tennessee State University, USA "Smoothing out the "Wrinkles" in plant oil biosynthesis"	1. Namisha Sharma, Institute of Life Sciences, India. 2. Phanikanth Jogam, Kakatiya University, India. 3. Prafull Salvi, National Agri-Food Biotechnology Institute, India. 4. Sakshi Mishra, CSIR-Central Drug Research Institute, India. 5. Sampurna Gargi, International Center for Genetic Engineering and Biotechnology, India. 6. Shalini Tiwari, Jawaharlal Nehru University, India. 7. Shuvobrata Majumder, Institute of Life Sciences, India 8. Sinto Antoo, Indian Agricultural Research Institute, India. 9. Vandana Jaiswal, Institute of Himalayan Bioresource Technology, India 10. Vivek Dogra, Institute of Himalayan Bioresource Technology, Palampur, India
17:00-17:25	Manoj Sharma , Jawaharlal Nehru University, India "Understanding the carbohydrate partitioning in sweet sorghum: Recent developments and way forward"	
17:25-17:50	Rajeev N. Bahuguna , Dr Rajendra Prasad Central Agricultural University (Samastipur), India "High CO ₂ responsive C3 crops to sustain food security in warmer future climate"	
17:50-20:00	Session 17: Poster Session-II (Poster Numbers - P-141 to P-285)	18:40-20:00: General Body Meeting of ISPP [Members only]
	Venue: 2nd Floor, NABI	CIAB Auditorium
20:00-21:00	Dinner	
21:00	Drop off to hotels & guest houses	

Day 4: January 9, 2023 (Monday)

Keynote Lecture Session-IV

NABI Auditorium

Chair: **Mohan Singh**, The University of Melbourne, Australia

Co-chair: **Kanthi Kiran Kondepudi**, National Agri-Food Biotechnology Institute, India

09:30-10:00	Blake C. Meyers , Donald Danforth Plant Science Center, USA & University of Missouri, USA "The function and evolution of phased, secondary siRNAs in plant reproduction and other pathways"
10:00-10:30	Ashwani Pareek , National Agri-Food Biotechnology Institute, India "Comprehending the individual, combined and sequential abiotic stresses in rice under natural conditions"

TEA BREAK (10:30-11:00)

Session 18: Metabolomics and Biochemistry

Session 19: Signalling Networks in Crops

NABI Auditorium

NABI Seminar Hall

Chair: Amitabh Mohanty , Corteva Agriscience, USA Co-Chair: Praveen Verma , Jawaharlal Nehru University, India		Chair: Shoba Sivasankar , International Atomic Energy Agency, Austria Co-Chair: Nifin Singhal , National Agri-Food Biotechnology Institute, India	
11:00-11:25	Hatem Rouached , Michigan State University, USA "Protecting plant nutrition from the effects of climate change"	11:00-11:25	Sabine Carpin , University of Orleans, France "Agroforestry to mitigate drought threats by an efficient stress signalling pathway: Poplar multiStep phosphorelay as model"
11:25-11:50	Petra Bauer , Heinrich Heine Universität Düsseldorf, Germany "Iron uptake and regulation"	11:25-11:50	Alok K. Sinha , National Institute of Plant Genome Research, India "Transduction of light signals by Mitogen-Activated Protein Kinase cascade"
11:50-12:15	Om Parkash Dhankher , University of Massachusetts, USA "A novel gamma-glutamyl cycle for increasing oxidative stress tolerance via GSH homeostasis in plants"	11:50-12:15	Ashis K Nandi , Jawaharlal Nehru University, India "Regulation of infection memory development in plants"
12:15-12:40	Sudesh Kumar , Center of Innovative and Applied Bioprocessing, India "Metabolic engineering and nanobiology for value addition and high value products"	12:15-12:40	Santosh B. Satbhai , Indian Institute of Science Education and Research-Mohali, India "HY5: A Pivotal Regulator of Iron Deficiency Signaling in Plants"
12:40-13:05	Divya Chandran , Regional Centre for Biotechnology, India "A secondary metabolic pathway conferring powdery mildew resistance in legumes"	12:40-13:05	Rahul Bhosale , University of Nottingham, UK "Deciphering molecular mechanisms underlying key root traits that improve soil resource capture efficiency in crops"

LUNCH BREAK (13:05-14:00)

Session 20: Plant Nutrition and Nanoscience

Session 21: Yield and Quality traits

NABI Auditorium

NABI Seminar Hall

Chair: Sabine Carpin , University of Orleans, France Co-chair: Sudesh Kumar , Center of Innovative and Applied Bioprocessing, India		Chair: Vittorio Venturi , International Centre for Genetic Engineering and Biotechnology, Italy Co-chair: Sergey Shabala , University of Tasmania, Australia	
14:00-14:25	Jason White , The Connecticut Agricultural Experiment Station, USA "Nanotechnology and agriculture: Balancing applications and implications for global food security"	14:00-14:25	Eve Wurtele , Iowa State University, USA "A novel molecular-genetic approach to increase protein content in crop plants for improved human nutrition"
14:25-14:50	Baoshan Xing , University of Massachusetts Amherst, USA "Foliar application of iron oxide nanoparticles to increase nitrogen fixation, yield and nutritional value of soybean"	14:25-14:50	Madan Pal Singh , ICAR-Indian Agricultural Research Institute, India "Amelioration of high temperature effects in rice under elevated CO ₂ environment"

14:50-15:15	Basil J. Nikolau , Iowa State University, USA "The multifaceted functionalities of lipids; targets for biotechnological improvement of food crops"	Harsh Nayyar , Panjab University, India "Towards developing heat-tolerant Food legumes"
15:15-15:40	Jayeeta Bhaumik , Center of Innovative and Applied Bioprocessing, India "Agri-biomass derived nanofertilizers and nanopesticides for use in sustainable agriculture "	Monika Garg , National Agri-Food Biotechnology Institute, India "A success story of the NABI-Anthocyanin-biofortified and antioxidant-rich Black Wheat"
TEA BREAK (15:40-16:10)		
Session 22: Genes and development (In honor of late Prof. Jitendra P. Khurana)		Session 23: Data Science and Systems Biology
Chair: Akhilesh K. Tyagi , University of Delhi South Campus, India Co-chair: Sowjanya Sree , Central University of Kerala, India		Chair: Baoshan Xing , Stockbridge School of Agriculture, USA Co-chair: Subodh K. Sinha , ICAR- National Institute for Plant Biotechnology, India
16:10-16:35	Klaus J. Appenroth , Friedrich Schiller University Jena, Germany "Return of the Lemnaceae: duckweed as a model plant system in the genomics and postgenomics era"	Saurabh Raghuvanshi , Indian Biological Data Center, India "Indian Biological Data Center: An overview"
16:35-17:00	Rameshwar P. Sharma , University of Hyderabad, India "Biofortification of tomato to combat hidden hunger"	Jagadish Rane , National Institute of Abiotic Stress Management, India "Designs to delivery: Navigation through phenomics opportunities for abiotic stress tolerance in crops"
17:00-17:25	Ashverya Laxmi , National Institute of Plant Genome Research, India "Sweet control of plant development"	Surinder Singh , CSIRO Agriculture & Food, Australia "Harnessing metabolic engineering to develop plant oils for food, feed and fuel applications"
17:30-18:00	Special Session: Industry events	
	NABI Auditorium	
17:30-17:45	Nucleome Informatics Private Limited	
17:45-18:00	Corteva Agriscience	
18:00-19:00	Session 24: Panel Discussion on "Marching Towards Meeting Sustainable Development Goals"	
	NABI Auditorium	
	Moderator: Kailash C. Bansal , Global Plant Council, India Speakers: Trilochan Mohapatra, Usha Barwale Zehr, Satbir. S. Gosal, Rajesh Jain, Shivendra Bajaj, Vibha Ahuja, Yunde Zhao, Jai. C. Rana, Ramesh K. Mehta	
19:00-19:30	Session 25: Valedictory (Chair: Ashwani Pareek, India) Best poster awards, Young scientist awards-ISPP	
20:00-21:00	Dinner	
21:00	Drop off to hotels & guest houses	