



1st National Conference on Plant Genetic Resources Management

November 22-24, 2022

TECHNICAL PROGRAM

Venue: Dr. A. P. Shinde Hall
National Agricultural Science Centre
Pusa Campus, New Delhi

ORGANIZERS



CO-ORGANIZERS



Day 1: November 22, 2022 (Tuesday)

08:30-09:30 Registration

INAUGURAL SESSION

Chair **R. S. Paroda**, President ISPGR and Chairman, TAAS, India

Chief Guest **Himanshu Pathak**, Secretary, DARE and DG, ICAR, India

Convenor **Anuradha Agrawal**, General Secretary, ISPGR, India

Rapporteur **Sonal Dsouza**, Alliance Bioversity and CIAT, India

09:30-09:35 **Arrival of Dignitaries and Lighting of Lamp**

09:35-09:40 **Welcome and Introduction about 1st NCPGRM** **G. P. Singh**
Director ICAR-NBPGR, India

09:40-09:55 **Brief Remarks from Co-Organizers** **J. C. Rana**
Country Director, Alliance for Bioversity International and CIAT, India
K. V. Prabhu
Chairperson, PPV&FRA, India

09:55-10:00 **Release of Publications**

10:00-10:20 **Inaugural Address by Chief Guest** **Himanshu Pathak**
Secretary, DARE and DG, ICAR, India

10:20-10:30 **Chairperson Remarks** **R.S. Paroda**
President, ISPGR and Chairman, TAAS, India

10:30-10:35 **Vote of Thanks** **Anuradha Agrawal**

10:35-11:00 Group Photo and Tea/Coffee Posters for all sessions to be displayed

PLENARY SESSION

Co-Chairs **S. K. Vasal**, World Food Laureate, India
R. K. Tyagi, Vice President, ISPGR, India
Convenor **Manjusha Verma**, Organizing Secretary, NCPGRM, India
Rapporteurs **Monika Singh**, Senior Scientist, ICAR-NBPGR, India
Padmavati Gore, Scientist, ICAR-NBPGR, India

11:00-11:05 **Introduction of Speaker** **R. K. Tyagi**

11:05-11:50 **Plenary Lecture Managing Our Agrobiodiversity** **R. S. Paroda**
President, ISPGR and Chairman, TAAS, India

11:50-12:00 **Chairperson Remarks** **S. K. Vasal**

12:00-12:05 **Vote of Thanks** **Manjusha Verma**

TECHNICAL SESSION I

Augmentation of Germplasm for Enhanced Utilization

(Sub-themes: Exploration, Exchange and Quarantine – Crops, Horticulture, Agro-forestry)

Co-Chairs **B. S. Dhillon**, Former Director, ICAR-NBPGR and Former VC, PAU, India
P. K. Chakraborty, Former Member, ASRB and ADG (PP&BS), ICAR, India

Convenors **S. P. Ahlawat**, Head, Division of Plant Exploration & Germplasm Collection, ICAR-NBPGR, India
V. Celia Chalam, Head, Division of Plant Quarantine, ICAR-NBPGR, India
Vandana Tyagi, OIC, Germplasm Exchange and Policy Unit, ICAR-NBPGR, India

Rapporteurs Kavita Gupta , OIC, PME, ICAR-NBPGR, India S. Rajkumar , Senior Scientist, ICAR-NBPGR, India		
12:05-12:10	Welcome	S. P. Ahlawat
12:10-12:35	Keynote Lecture 1	
	Management of PGR in the national context	G. P. Singh Director, ICAR-NBPGR, India
12:35-13:00	Keynote Lecture 2	
	Mapping bio-resources and genetic diversity of wild crops for conservation and utilization	K. N. Ganeshaiah Professor (Retd.), Dept. of Forestry and Environmental Sciences, UAS, GKVK, India
13:00-14:00	Lunch	
	Invited Lectures	
14:00-14:15	Phytosanitary aspects of germplasm and its impact on conservation, distribution, and use	P. Lavakumar* Head, Germplasm Health Unit, IITA, Nigeria
14:15-14:30	Stringent plant quarantine system for national bio-security	S. C. Dubey ADG (Plant Protection & Bio-safety), ICAR, India
14:30-14:45	Trees outside forests: untapped potential for germplasm conservation, landscape diversity and climate resilience	Chandrashekhar Biradar Country Director, ICRAF, India
14:45-15:00	Plant exploration, germplasm collection: Challenges and opportunity in India	S. S. Dash* Scientist E, BSI, Kolkata, India
15:00-15:15	Tea/Coffee	
15:15-17:00	Short Lectures (7 min. each)	Vandana Tyagi (Coordination)
	Germplasm exchange for sustainable food security (#SL-189)	Vandana Tyagi
	Unique plant germplasm collections from diverse agro-ecological regions of India (#SL-127)	K.C. Bhatt
	Regulatory framework and quarantine for safe transboundary movement of transgenic germplasm (#SL-226)	V. Celia Chalam
	Rapid Oral Presentations (5 min. each)	
	Are sorghum landraces of Telangana climate resilient? (#O-175)	N. Sivaraj

	Species distribution, exploration, collection and conservation of <i>Salacia</i> species (high value anti-diabetic plant) of Western Ghats (#O-205)	M.R. Rohini
	Collection, conservation and multiplication of pearl millet landraces in Rajasthan (#O-202)	Manoj Kumar
	Conservation priority of <i>Buchanania lanzan</i> Spreng. (Chironji): A potential wild fruit tree of peninsula India (#O-297)	A.K. Srivastava
	IoT based E-solution for safeguarding tree germplasm against physical damage, misidentification and mistracking in field genebanks (#O-306)	K.P. Mohapatra
	Survey and collection of plant genetic resources from Andaman & Nicobar Islands representing Indo-Burma and Sundaland Biodiversity hotspots (#O-139)	K. Pradheep
	Large scale phenotyping of pea germplasm for discovery of resistant sources against powdery mildew (<i>Erysiphe polygoni</i>) (#O-336)	Jameel Akhtar
	Exploration of diversity in pungent chilli genotypes from Arunachal Pradesh (#O-283)	Teju C.M.
	Inter-specific hybridisation followed by mutation to improve the yield potential of cultivated emmer or Khapli wheat (<i>Triticum dicoccum</i> Schub. L.) (#O-119)	Vikas V.K.
17:00-17:25	Discussion & Co-Chairs Remarks	
17:25-17:30	Vote of Thanks	V. Celia Chalam
17:30-18:30	Poster Session (all themes) and Tea & Coffee	
CULTURAL PROGRAM AND WELCOME DINNER		
Convenor	Veena Gupta , Professor (PGR), ICAR-NBPGR, India	
18:30-19:30	Cultural Program	Veena Gupta (Coordination)
19:30-21:00	Welcome Dinner	

Day 2: November 23, 2022 (Wednesday)**TECHNICAL SESSION II**

Trait Discovery, Gene Mining and Genome Editing
(Sub-themes: Germplasm Phenotyping, Genotyping, Pre-Breeding and Use of Biotechnology)

Co-Chairs	H.S. Gupta , Former Director, ICAR-IARI, and Former DG, BISA, India P.N. Mathur , Former Regional Director, Bioversity International, India
Convenors	R.K. Gautam , Head, Division of Germplasm Evaluation, ICAR-NBPGR, India Rakesh Singh , Principal Scientist, ICAR-NBPGR, India Rakesh Bhardwaj , Principal Scientist, ICAR-NBPGR, India
Rapporteurs	Amit K. Singh , Senior Scientist, ICAR-NBPGR, India D. P. Wankhede , Senior Scientist, ICAR-NBPGR, India

09:30-09:35	Welcome	R.K. Gautam
09:35-10:05	Keynote Lecture	
	Using genetic resources to stack and complement climate resilience traits	Matthew Reynolds* Distinguished Scientist and Head of Wheat Physiology, CIMMYT, Mexico
10:05-10:20	Invited Lectures	
	Genomics for improving germplasm management and utilization	Rajeev Varshney* Director, Centre for Crop & Food Innovation, Murdoch University, Australia
10:20-10:35	Genomics-assisted breeding of climate- resilient cultivars utilizing traditional varieties and wild rice genetic resources	N.K. Singh National Professor, ICAR-National Institute for Plant Biotechnology, India
10:35-10:50	Technologies and innovations contributing towards food and nutritional security in era of climate change	Joy K. Roy & Ashwani Pareek Executive Director, National Agri-Food Biotechnology Institute, Mohali, India
10:50-11:05	Trait discovery and deployment through mainstreaming landraces and crop wild relatives in legumes breeding programme	Shiv Kumar Agrawal Regional Coordinator, ICARDA, India
11:05-11:20	Tea/Coffee	
11:20-11:35	Using new breeding techniques and digital tools for crop improvement	Bharat Char Chief Science Officer, MAHYCO, India
11:35-12:35	Short Lectures (7 min. each)	Rakesh Singh (Coordination)
	Towards harnessing soybean germplasm diversity in the National Genebank for summer season cultivation (#SL-308)	R. K. Gautam

	Development of pre-breeding genetic resources for trait discovery and gene mapping in bread wheat: Indian perspectives (#SL-273)	Mahesh C. Yadav
	Rapid Oral Presentations (5 min. each)	
	Characterization of linseed germplasm conserved at National Genebank of India and development of core set (#O-158)	Vikender Kaur
	Assessment of molecular diversity of core collection of ginger germplasm from Northeast India (#O-183)	Twahira Begum
	Introduction and morphological characterization of Heeng (<i>Ferula assa-foetida</i>) accessions in cold deserts of Indian Himalayas (#O-204)	Ashok Kumar
	Characterization of wild and cultivated <i>Musa</i> species of India based on flow cytometric analysis of ploidy and nuclear DNA content (#O-223)	Rithesh BN
	Characterization of entire ricebean collections of Indian National Genebank and development of core set for enhanced utilization (#O-243)	Gayacharan
	Genome-Wide Association Study Reveals QTLs for Plant height in a subset of 3K Rice Genome (RG) Panel (#O-156)	Supriya Sachdeva
	Genetic diversity, population structure and trait characterization of Indian cauliflower germplasm (# O-284)	Shrawan Singh
	Wheat genetic resource mining for trait discovery towards achieving the sustainable development goal of food and nutritional security (#O-235)	Jyoti Kumari
12:35-12:55	Discussion & Co-Chairs Remarks	
12:55-13:00	Vote of Thanks	Rakesh Bhardwaj
13:00-14:00	Lunch	

TECHNICAL SESSION III

Conservation through Utilization

(Sub-themes: Seed Genebanks, In Vitro Conservation, Cryopreservation and Genomic Resources)

Co-Chairs	Bhag Mal , Secretary, TAAS, India Arun K. Joshi , CIMMYT Regional Representative for Asia, India	
Convenors	R. K. Tyagi , Coordinator, APCoAB, APAARI, Thailand Veena Gupta , Principal Scientist, Division of Conservation, ICAR-NBPGR, India Sandhya Gupta , OIC, TCCU, ICAR-NBPGR, India	
Rapporteurs	Sherry Jacob , Senior Scientist, ICAR-NBPGR, India Rohini M. , Senior Scientist, ICAR-IIHR, Bengaluru, India	
14:00-14:05	Welcome	R. K. Tyagi
14:05-14:35	Keynote Lecture 1	
	Designing germplasm management systems to maximize use of maize genetic resources	S. K. Vasal , Distinguished Scientist, CIMMYT
14:35-15:05	Keynote Lecture 2	
	Strategies for enhancing use of germplasm collections in crop improvement for sustainable conservation	Hari D. Upadhyay* Former Director, Genebank, ICRISAT, India
15:05-15:20	Invited Lectures	
	Conserving and utilizing plant genetic resources-role of IRRI genebank	Venuprasad Ramaiah* Genebank Manager, IRRI, Philippines
15:20-15:35	Application of plant cryopreservation for the conservation of plant genetic resources, production, virus eradication and as a tool for modern breeding techniques	Bart Panis* Plant Cryobiologist, Alliance of Bioversity International and CIAT, Belgium
15:35-15:50	Tea/Coffee	
15:50-16:05	PGR informatics tools for efficient conservation and use	Sunil Archak National Fellow, ICAR-NBPGR, India
16:05-17:05	Short Lectures (7 min. each)	Veena Gupta (Coordination)
	Genetic resources of MAPs conserved at CSIR-NEIST, Jorhat for trait specific breeding with special reference to NE India (#S-200)	Mohan Lal
	Rapid Oral Presentations (5 min each)	
	Cryoconservation of shoot tips of <i>Swertia chirayita</i> (Roxb.) H. Karst., a critically endangered medicinal plant of India (#O-142)	Gowthami R.

	Genetic resources of pigeon pea: Conservation for utilization (#O-188)	Padmavati Gore
	Makhana (<i>Euryale ferox</i> Salisb.) Genetic Resources and Utilization (#O-176)	Anil Kumar
	In vitro approach for regeneration of <i>Homalomena aromatica</i> Schott an endangered medicinal plant of NE India (#O-185)	Tanmita Gupta
	In vitro mass multiplication and field acclimatization of spine gourd (<i>Momordica dioica</i> Roxb.) (#O-191)	Vartika Srivastava
	In vitro regeneration protocol standardization of cultivated and wild species of okra (#O-213)	Bhargav Kiran
	Long term conservation of <i>Vanilla planifolia</i> 'Andrews' using droplet vitrification based cryopreservation technique (#O-167)	Era Vaidya Malhotra
	Preservation of Central India's forest genetic resources through the establishment of a seed gene bank at Tropical Forest Research Institute, Jabalpur, Madhya Pradesh (#O-107)	Manish Kumar Vijay
	G-DIRT: A germplasm duplicate identification tool based on identity-by-state analysis using SNP genotyping data (#O-140)	Amit Kumar Singh
	Elucidating the seed storage behaviour of makhana (<i>Euryale ferox</i> Salisb) (#O-140)	Badal Singh
17:05-17:25	Discussion & Co-Chairs Remarks	
17:25-17:30	Vote of Thanks	Sandhya Gupta

Day 3: November 24, 2022 (Thursday)**TECHNICAL SESSION IV**

On-Farm PGR Management and Local Food Systems
(Sub-themes: Community Genebank, Food Systems, Participatory Plant Breeding, Relevant Traditional Knowledge)

Co-Chairs	S.K. Sharma , Former Director, ICAR-NBPGR & VC, CSKHPKV, Palampur, India Rakesh Chandra Agrawal , Deputy Director General (Agric. Education), ICAR, India
Convenors	J.C. Rana , Country Director, Alliance for Bioversity International and CIAT, India Surendra Kumar Malik , Principal Scientist, TCCU, ICAR-NBPGR, India
Rapporteurs	Ravi Parmarthi , Scientist (SS), ICAR-NBPGR, India Sarika Mittra , Alliance for Bioversity International and CIAT, India Office, India
09:00-09:05	Welcome J. C. Rana
09:05-09:35	Keynote Lecture
	<i>In situ</i> conservation, characterization, commercialization: Incentivizing communities Anil Gupta Chair, Honeybee Network and Former Professor, IIM, India
09:35-09:50	Invited Lectures
	Genetic diversity for improving production systems, landscape restoration, and adaptation to climate change Paola De Santis* Scientist II, Alliance of Bioversity International and CIAT, Italy
09:50-10:05	Smallholder farming and the role of youth in food system transformation for sustainable development Ishwar S. Bisht Consultant, Alliance Bioversity and CIAT, India
10:05-10:20	Genetic resources, traditional knowledge and cultural expressions: protection, preservation and promotion Viswajanani J. Sattigeri Head, CSIR-Traditional Knowledge Digital Library Unit, India
10:20-10:35	Tea/Coffee
10:35-10:50	Valuation of ecosystem services Reuben Gergan Biodiversity Consultant, UN Environment Programme
10:50-11:40	Short Lectures (7 min. each) S. K. Malik (Coordination)
	A paradigm change in on-farm conservation of mango genetic resources and the development of new varieties (#SL-285) Shailendra Rajan

	Community Seed Banks: Challenges and prospects to conserve agrobiodiversity, improve nutrition and livelihood security (#SL-168)	Sudhir P. Ahlawat
	Vista of opportunity for on-farm conservation of native crop diversity: On a cutting edge knowledge perspective (#SL-337)	Sudhir Kochhar
	Plant diversity, indigenous traditional knowledge and local food system in achieving food and nutritional security, sustainability and resilience (#SL-338)	Umesh Srivastava
	Rapid Oral Presentations (5 min. each)	
	Local vegetables of Manipur: bioprospecting aspects and need for germplasm conservation (#O-138)	Rajkumari Sanayaima Devi
	Assessment of ethnobotanical uses, household and regional genetic diversity of edible Aroid species grown in Northeastern India (#O-177)	Veerendra Kumar Verma
	Harnessing diversity of genus <i>Phaseolus</i> in Western Himalayan Kashmir: The journey of 15 years of breeding for yield, quality and resilience (#O-286)	Parvaze A. Sofi
	Mainstreaming of mountain native crops for nutritional and livelihood security in Himachal Pradesh (#O-171)	Lal Singh
	Origin of black rice from wild rice (<i>Oryza rufipogon</i>) of India - A pre-breeding approach (#O-157)	Subhas Chandra Roy
	Intellectual property protection and conservation of unique goods from crop genetic resources in Kerala (# O-255)	Adheena Ram A.*
11:40-11:55	Discussion & Co-Chairs Remarks	
11:55-12:00	Vote of Thanks	S. K. Malik

TECHNICAL SESSION V

Enabling Policy on PGR Management

(Sub themes: IPR, Farmers & Breeders Rights, ABS, General Policies)

Co-Chairs	K. Vinod Prabhu , Chairperson, PPV&FRA, India G. P. Singh , ICAR-NBPGR, New Delhi	
Convenors	Pratibha Brahmi , Principal Scientist, GEPU, ICAR-NBPGR, India Kavita Gupta , OIC, PME, ICAR-NBPGR, India	
Rapporteurs	Pragya , Principal Scientist, ICAR-NBPGR, India Dipal Roy Chaudhury , Registrar, PPV&FRA, India	
12:00-12:05	Welcome	Pratibha Brahmi
12:05-12:35	Keynote Lecture	
	Science led legal decision-making policies in plant varieties protection through plant Breeder's & Farmer's Rights in India	K. V. Prabhu
12:35-12:50	Invited Lectures	
	ABS, Nagoya Protocol and Biodiversity Conservation	Aysegül Sirakaya* Post-Doc Fellow & Researcher, Lund University, Sweden
12:50-13:05	Balancing Seed Act 1966 & Seed Bill 2021 in the IPR protection environment of plant varieties	Dinesh Kumar Agarwal Registrar General, PPV&FRA, India
13:05-14:00	Lunch	
14:00-14:15	Realization of ABS in India	J. Justin Mohan* Secretary, National Biodiversity Authority, India
14:15-14:30	Genomics-led PGR management and utilization, practical considerations under current policies	Narayanan K. K.* CEO Agrigenome Labs Pvt. Ltd; Director, Foundation for Advanced Training in Plant Breeding, India
14:30-14:45	IPR based commercialization of plant varieties under public research systems	Neeru Bhooshan CEO & Principal Scientist, Pusa Krishi Incubator, ZTM & BPD Unit, ICAR-IARI, India
14:45-14:55	Access and direct benefit sharing with the PGR conserver farmer/community under PPVFRA: Some Examples	
14:55-15:10	Discussion & Co-Chairs Remarks	
15:10-15:15	Vote of Thanks	Kavita Gupta
15:15-15:30	Tea/Coffee	

PANEL DISCUSSION
(Public-Private Partnership on PGR Management)
and
VALEDICTORY SESSION

Co-Chairs	R.S. Paroda , President ISPGR and Chairman, TAAS, India R.B. Singh , Formerly- President, NAAS; Chairperson, ASRB; Director, IARI, India
Convener	Anuradha Agrawal , General Secretary, ISPGR and National Coordinator, ICAR-NAHEP, India
Rapporteurs	Puran Chand , Principal Scientist, ICAR-NBPGR, India Vartika Srivastava , Scientist (SS), ICAR-NBPGR, India

PANEL DISCUSSION ON PUBLIC-PRIVATE PARTNERSHIP IN PGR MANAGEMENT

15.30-15.40	Overview on the status of public-private partnership (PPP) in the PGR management	Ram Kaudiniya Director General, Federation of Seed Industry of India
15.40-16.15	Panelists Views	
	Public sector perspective on PPP for germplasm sharing and variety development	Ashok K. Singh , Director, ICAR-IARI, India D.K. Yadava , ADG (Seed), ICAR, India Pratibha Brahmi , Principal Scientist, ICAR-NBPGR, India
	Expectations of private seed sector for improved PPP in changing policy and climate scenario	Rajendra Barwale , Chairman, MAHYCO, India Paresh Verma , Director of Research. Shriram Bioseed Genetics India Ltd., India
	Legal and policy impediments in seamless implementation of successful PPP in the PGR sector in India	Malathi Laxmikumaran , Executive Director, Lakshmikumaran & Sridharan Attorneys Niti Wilson , Partner, Anand and Anand (Law Firm)
16.15-16.30	Open Floor Discussion	

VALEDICTORY SESSION

16.30-16.45	Summary of Major Recommendations of the 1st NCPGRM	R.K. Tyagi
16.45-17.00	Award Distribution (For Best Rapid Oral Presentations and Best Posters)	
17.00-17.35	Remarks by Organizers of 1st NCPGRM Alliance for Bioversity and CIAT PPV&FRA	J.C. Rana K.V. Prabhu
17.35-17.55	Co-Chairs Remarks	R.B. Singh R.S. Paroda
17.55-18:00	Vote of Thanks	Anuradha Agrawal

#O= Rapid Oral Presentations, #SL= Short Lectures * = Online lecture