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Revolutionizing ornamental horticulture: Insights from the National Conference on smart farming solutions

The Indian Society for Ornamental Horticulture (ISOH) hosted a National Conference on Smart Farming Solutions for Ornamental Horticulture from November 8-9, 2024. It was held at Maharana Pratap Horticultural University (MHU), Karnal, Haryana. The event brought together over 500 participants, including scientists, industry leaders, students, and farmers, to discuss innovative practices and technologies in floriculture and landscaping.

Indian Society for Ornamental Horticulture: Nurturing Excellence in Floriculture

Since its inception in 1990 at the Indian Agricultural Research Institute (IARI), New Delhi, the Indian Society for Ornamental Horticulture (ISOH) has been at the forefront of promoting ornamental horticulture in India. Registered under the Societies Registration Act, ISOH has played a pivotal role in advancing floriculture and landscape gardening, fostering collaboration among scientists, professionals, and stakeholders to drive innovation and growth in the sector.

With a strong commitment to knowledge-sharing, ISOH organizes seminars, symposia, conferences, and study tours, while also publishing scientific journals, reports, and extension literature to disseminate research and practical insights. The 2024 National Conference is yet another milestone in its journey, reaffirming its dedication to transforming India's ornamental horticulture landscape.

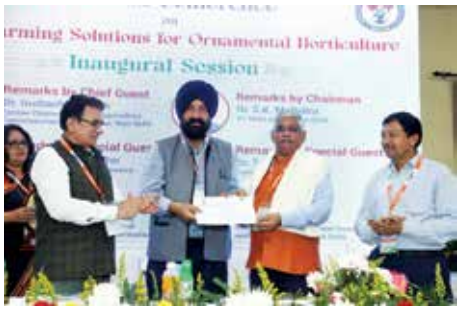
Day 1: 8th November 2024

The Indian Society for Ornamental Horticulture (ISOH) kickstarted its National Conference 2024 with an inspiring inaugural session, graced by Dr S.K. Malhotra, Vice Chancellor, Maharana Pratap Horticultural University (MHU), Karnal, as Chairman. The event was further enriched by the presence of Chief Guest Dr Gurbachan Singh, former Chairman of the Agricultural Scientists Recruitment Board (ASRB), and Special Guest Dr T. Janakiram, former Vice Chancellor of Dr YSR Horticultural University, Andhra Pradesh. Dr Ramesh Goyal, Organizing Secretary, welcomed the dignitaries, setting the tone for a knowledge-packed conference.

The session celebrated outstanding contributions to ornamental horticulture with prestigious awards, including the Lifetime Achievement Award, Lotus Puraskar, Fellowship of the Society, Rose Puraskar (Industry and Farmer categories), and the Best Dissertation Award. A highlight of the event was the release of key publications, including the latest issue of Journal of Ornamental Horticulture, the book Alankrit Bagwani, a special issue on ornamentals in Indian Horticulture, and Nursery Today magazine. The session concluded with a vote of thanks by Dr S.S. Sindhu.

The first technical session, chaired by Dr. K.V. Prasad, focused on Smart Farming Solutions for Floriculture and Landscape Gardening. Dr Rakesh Sharda delivered a keynote address on the transformation of India's floriculture sector through smart farming technologies. Experts shared insights on AI in gardening, good agricultural practices for protected cultivation, and the role of digitization in horticulture. Discussions emphasized the need to customize emerging technologies–such as data science, artificial intelligence, drones, robotics, simulation models, and e-markets–to cater to the unique requirements of the floriculture industry.

Inaugural session




The second technical session, chaired by Dr Y.C. Gupta, explored Recent Advances in Production and Protection Systems for Ornamental Horticulture. Presentations highlighted modern innovations, including advanced production technologies for exotic cut flowers and climate-smart cultivation techniques. Experts emphasized the need to expand protected cultivation beyond traditional flowers to include potted ornamentals, cut foliage, and exotic species. Discussions also called for region-specific greenhouse designs, cluster-based floriculture approaches, mechanization, and sensor-based environmental controls to enhance productivity and sustainability.

The third session, post-lunch, delved into biodiversity, crop improvement, and planting materials in floriculture. Eminent speakers highlighted the rich indigenous floricultural diversity of the Himalayan region and discussed advancements in breeding, smart technologies for potted plants, and the environmental benefits of ornamental trees. Experts stressed the importance of targeted breeding for commercial floriculture, including varieties optimized for flower size, stem length, pigment extraction, essential oil production, and ornamental parameters. Additionally, they emphasized the need for a standardized variety release system and the development of crop and seed standards.

The day concluded with a dynamic panel discussion under the 'Industry & Academia Meet,' chaired by Dr S.K. Malhotra. Experts from academia and the floriculture industry exchanged perspectives on transforming India's floriculture and landscape sectors. Key takeaways included:

- Strengthening collaboration between research institutes, academia, farmers, and industry to boost floriculture start-ups and commercialization.
- Ensuring research is need-based, addressing real-world challenges faced by farmers and businesses.
- Expanding international collaborations in floriculture to enhance global competitiveness.
- Modernizing teaching methods with a focus on practical skills, entrepreneurship, and employability.
- Introducing new certificate, diploma, and PG diploma programs in landscape design, smart landscaping, rooftop and vertical gardening, interior plantscaping, dry flowers, essential oils, ikebana, floral arts, and floral arrangements to foster entrepreneurship in floriculture.
- Updating course curricula to integrate AI, robotics, and ICT applications in landscaping at the postgraduate level.

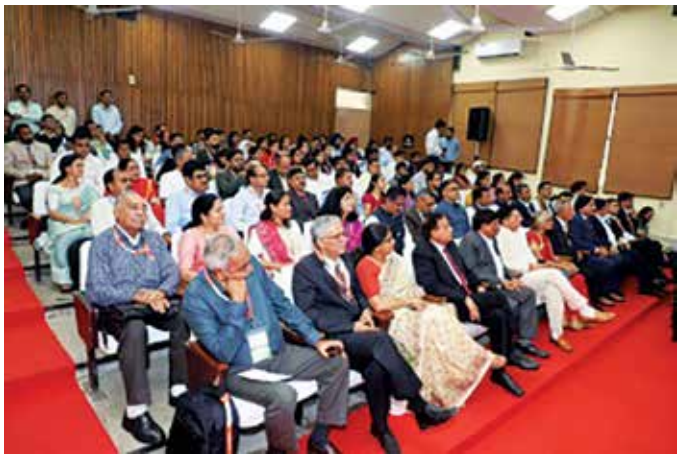
Day 2: 9th November 2024

The second day of the ISOH National Conference 2024 continued its momentum with thought-provoking discussions on landscaping, post-harvest management, and floriculture innovations, alongside an engaging exhibition showcasing advancements in ornamental horticulture.

The day opened with a session on 'Landscape Approaches and Techniques in Improving Urban and Peri-Urban Ecology,' chaired by Dr. Balaji Kulkarni. Experts explored sustainable landscaping, biophilic design, and the potential of turfgrass production in urban environments. Discussions emphasized the need for tree health check-up campaigns by local authorities to prevent tree-related accidents and ensure long-term ecological stability. Key recommendations included:

- Developing and implementing Standard Operating


Dignitaries visiting the conference exhibition



Procedures (SOPs) for tree transplantation policies.

- Mandating that new buildings allocate 5-10% of floor area for green spaces.
- Ensuring 20-30% of plant species in urban landscapes are native/indigenous to enhance biodiversity.
- Establishing the post of Landscape Architect in municipal corporations to strengthen environmental security and urban planning efforts.
- Innovations in Post-Harvest Management and Value Addition

The fifth session, centered on 'Smart Post-Harvest Management, Value Addition, and Value Chain Management in Flowers,' explored cold chain logistics, pigment extraction, and entrepreneurship in floriculture value addition. Practical demonstrations and poster presentations provided in-depth insights.

A key highlight was the success of Dr Y.S. Parmar University of Horticulture and Forestry, Solan, in converting native flora into high-value products, a model that needs replication across India. Other critical research areas discussed included:

- *Edible flowers*: Expanding research with scientific data on their nutritional and anti-nutritional factors.
- *Natural dyes from flowers*: Enhancing efforts to develop floral-based natural dyes for sustainable use in the textile industry.
- Recent Breakthroughs in Floriculture and Landscape Innovations

A special session highlighted emerging breakthroughs in floriculture, covering advancements in plant grafting, rose breeding, and waste-to-wealth strategies. Discussions underscored the need to integrate air quality considerations into potted plant floriculture besides promote sustainable design elements using eco-friendly materials like bamboo, coir, and recycled planters.

The conference culminated in a plenary session, chaired by Dr Dheer Singh, Director and Vice-Chancellor, NDRI Karnal, and presided over by Dr S.K. Malhotra, Vice-Chancellor, MHU, Karnal & President of ISOH. Actionable insights from all sessions were summarized, setting a roadmap for the future of ornamental horticulture in India. The conference also recognized outstanding contributions by awarding best paper presentations and appreciations.

A vibrant exhibition ran alongside the conference, featuring 14 stalls displaying cutting-edge technologies, research, and products in ornamental horticulture and agriculture. Over 500 visitors, including scientists, students, and farmers, engaged in knowledge exchange and networking.

Notable exhibits included

- ICAR-National Dairy Research Institute (NDRI), Indian Institute of Wheat and Barley Research (IIWBR), CSIR, NBAGR, and DKMA, showcasing the latest advancements in their respective fields.
- Maharana Pratap Horticultural University (MHU) and the Horticulture Department, Govt. of Haryana, displaying diverse fruits, vegetables, and value-added products.
- *Private sector innovations:* Companies like Alpha Planter showcased self-watering pots and other novel horticultural solutions.
- *Student entrepreneurship:* MHU students exhibited creative products made from fruits and vegetables, receiving accolades for their innovation.
- *Industry leaders:* Organizations such as IFFCO and M/s Dhanuka Agritech presented state-of-the-art solutions tailored for farmers.
- Himachal Pradesh Institute of Himalayan Bioresource Technology and NBAGR highlighted sustainable practices and genetic resource conservation.

CONCLUSION

The ISOH National Conference 2024 successfully provided a dynamic platform for knowledge exchange, industry-academia collaboration, and policy recommendations. With a focus on sustainable urban landscaping, technological advancements, and entrepreneurial opportunities, the conference reinforced the transformative potential of ornamental horticulture in India.

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